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UCOR-4992

Characterization Report for the Biology Complex Facilities, Y-12 National Security Complex, Oak Ridge, Tennessee

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P. Kortman (signature on file)	3/29/2017
UCOR Classification & Information Control Office	Date

UCOR-4992

Characterization Report for the Biology Complex Facilities, Y-12 National Security Complex, Oak Ridge, Tennessee

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Prepared for the
U.S. Department of Energy
Office of Environmental Management

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APPROVALS

Characterization Report for the Biology Complex Facilities, Y-12 National Security Complex, Oak Ridge, Tennessee	UCOR-4992
	March 2017

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ACRONYMS

ACM	asbestos-containing material
ASA	auditable safety analysis
CA	carcinogenic analytic
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
D&D	deactivation and demolition
DOE	U.S. Department of Energy
DQO	data quality objectives
EC	Environmental Compliance
EMWMF	Environmental Management Waste Management Facility
EPA	U.S. Environmental Protection Agency
GSF	gross square footage
HCT	hollow clay tile
HI	Hazard Index
HW	hazardous waste
LWD	listed waste determination
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDL	maximum detection limit
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORRLF	Oak Ridge Reservation Landfill
PCB	polychlorinated biphenyl
PK	process knowledge
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act of 1976
SAP	sampling and analysis plan
SOF	sum of fractions
SVOC	semivolatile organic compound
TC	toxicity characteristic
TCLP	toxicity characteristic leaching procedure
TDEC	Tennessee Department of Environment and Conservation
TSDF	Treatment, Storage, or Disposal Facility
UCL	upper confidence limit
UCOR	URS | CH2M Oak Ridge LLC
UTL	upper tolerance level
VOA	volatile organic analysis
VOC	volatile organic compound
VSL	Validation Support Level
WAC	waste acceptance criteria
WHP	Waste Handling Plan
WL	waste lot
Y-12	Y-12 National Security Complex

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1. INTRODUCTION

The National Nuclear Security Administration has embarked on a significant facility and infrastructure modernization program at the Y-12 National Security Complex (Y-12). One objective of this modernization program is to demolish surplus facilities and materials (infrastructure reduction). A portion of the infrastructure reduction involves deactivation and demolition (D&D) of the former Biology Complex (see Fig. 1), which consists of nine (9) distinct facilities at Y-12. The Biology Complex was an extension of Oak Ridge National Laboratory's (ORNL) Life Sciences Division. To prepare for D&D, a waste handling plan (WHP) and an associated Sampling and Analysis Plan (SAP) were prepared and approved by Oak Ridge Reservation (ORR) regulatory authorities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process (DOE/OR/01-2720&D2, *Waste Handling Plan for the Demolition of Biology Complex Located at the Y-12 National Security Complex, Oak Ridge, Tennessee*). This report documents the information and sampling data collected under the approved SAP and evaluates this newly obtained data to support demolition waste disposal when D&D of the Biology Complex occurs.

1.1 OBJECTIVE

This report encompasses the Y-12 Biology Complex, and the nine (9) facilities remaining on the Y-12 footprint. To be clear, the nine remaining facilities are:

- 9207 Biology Facility
- 9207-A Annex
- 9207-Tower Annex
- 9210 Mouse House
- 9401-1 Old Steam Plant
- 9743-2 Pigeon House
- 9767-6 Utilities
- 9767-7 Air Intake
- 9770-2 Sealed Source Facility

This report documents an extensive characterization effort focused on determining the Biology Complex waste streams. The characterization effort under the SAP focuses on building demolition waste. This means universal waste, sealed sources, oils, and other waste streams requiring "offsite" disposal are described in general in this report. These "offsite" waste streams will be generated, characterized, and disposed of during the D&D.

The objectives of this characterization report are as follows:

- Document the completion of sampling and analysis prescribed by the SAP.
- Compile results.
- Evaluate onsite disposal options for demolition waste.
- Identify any obstacles to onsite disposal paths for demolition waste.

- Recommend disposal paths.
- Complete data quality assessment.
- Document data reduction results, and make general conclusions pertaining to demolition waste disposition pathways to support D&D. The collection of information supporting this characterization effort employed collection and reduction of existing process knowledge ([PK] including historical Y-12 analytical data), extensive facility inspections, and intrusive sampling and analyses.

This characterization document summarizes obtained results, provides interpretation of these obtained results, and provides conclusions that will support waste disposal strategies during demolition phases of the Biology Complex. The primary decisions under the CERCLA process focus on determining the disposition path for demolition debris for each Biology Complex facility. This decision culminates in a recommendation for disposing of waste in one of two onsite disposition paths: Oak Ridge Reservation Landfill (ORRLF) or Environmental Management Waste Management Facility (EMWMF). This report evaluates the contemporary information and data obtained during the characterization phase using waste acceptance criteria (WAC) for the ORRLF and the EMWMF as standards to reach preliminary conclusions. These conclusions must be tabled for future consideration when funding and waste profiling can support authorization for final demolition waste disposal.

1.2 SCOPE

The scope of the project was to characterize the Biology Complex so that the waste can be profiled for future disposal and to support preparation of the Critical Decision-1/2/3 documentation. The scope of the characterization report is the nine facilities in the Biology Complex. Because the preferred disposition path for the contaminated waste is EMWMF, a WHP with a SAP was prepared and approved by Tennessee Department of Environment and Conservation (TDEC) and Environmental Protection Agency (EPA). This characterization report summarizes the sampling approach, the data quality objectives (DQO) and details the results. Sufficient data was collected to determine representative contaminant concentrations and to meet the minimum WAC requirements for EMWMF (95% upper confidence limit [UCL] with an 80% power). This approach also ensures compliance with the WAC of other Treatment, Storage, or Disposal Facilities (TSDFs).

Based on the PK of the facilities, a decision was made to radiologically survey the 9207-Annex, 9207-Tower Annex, 9767-6, and 9770-2, using the approach in DOE/EH-0624, Rev. 1, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, to determine if they met the criteria for the ORRLF. Building 9767-7 was supposed to be surveyed and released as well; however, samples were collected from 9767-7, because it was the air intake for 9207, and the fan houses and ducts were posted as radiologically contaminated and access for surveying was limited. Because Bldg. 9743-2 had a failed roof that prevents entry for characterization, it will be sampled after demolition. The following section describes the facilities and the PK. A more detailed PK report is included in the WHP.

The analytical data acquired by this characterization effort will fill in data gaps in existing data and PK, and determine the concentration and distribution of chemical and radiological contaminants for different populations. This characterization data will facilitate future development of special waste permits and waste profiles to support D&D. Waste that is prohibited from disposal at ORRLF or EMWMF will be identified, segregated, and shipped to an appropriate TSDF for treatment and disposal.

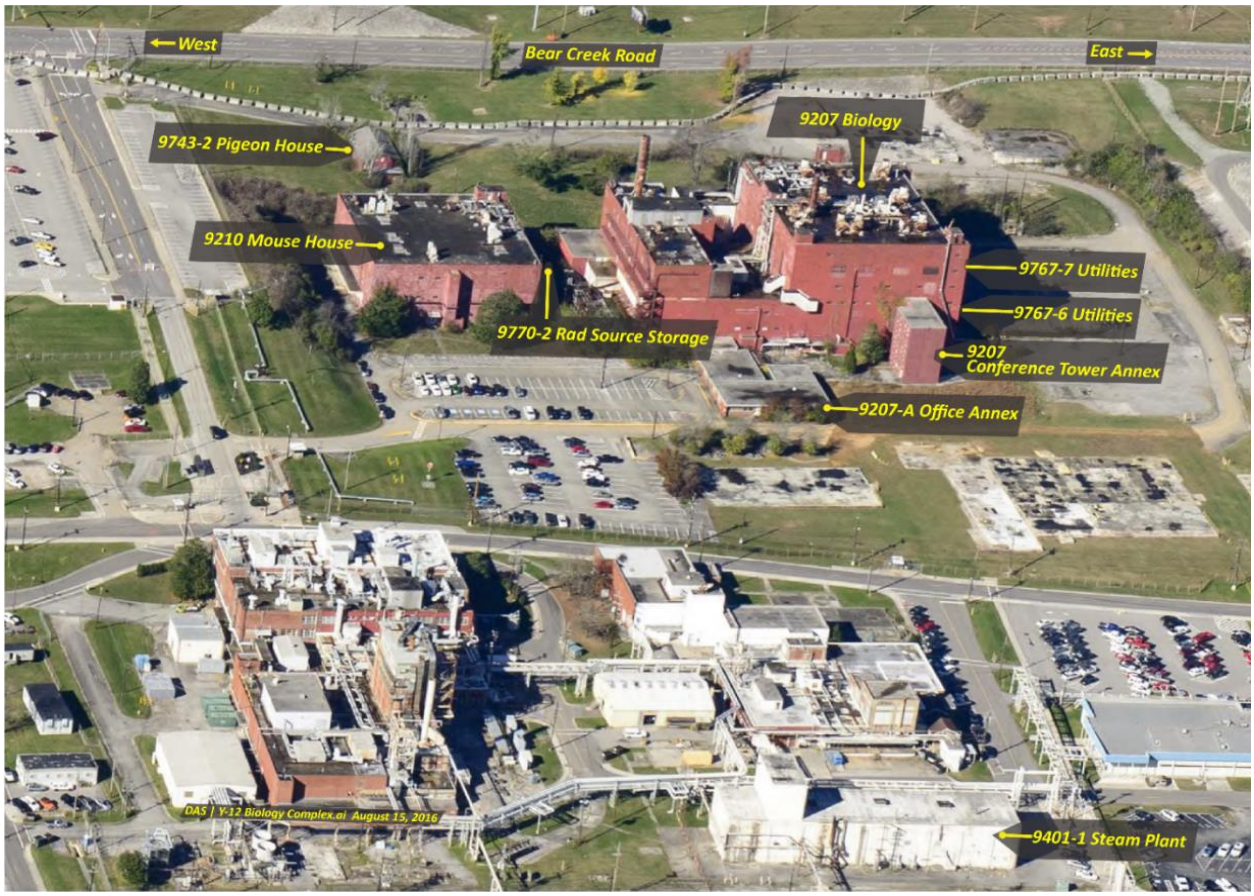


Fig. 1. Biology Complex.

2. BACKGROUND

The Biology Complex includes nine specific facilities identified for demolition and disposal. They are Y-12 facility numbers: 9207, 9207-A Annex, 9207-Tower Annex, 9210, 9743-2, 9767-6, 9767-7, 9770-2, and 9401-1. The Y-12 site in Oak Ridge, Tennessee, was part of the Manhattan Project, and continues to be a strategic facility in the National Security Complex (NSC). The nine buildings are 1940s vintage facilities that have served many purposes over the decades. Processes performed in these facilities included: uranium recovery, laboratory services, biological/animal experimentation, generation steam plant, development processes, fuel research, utilities, and administrative offices.

2.1 FACILITY DESCRIPTIONS

The Biology Complex facilities are generally constructed of red clay blocks, steel, and concrete. The interior walls are primarily drywall, plaster, brick, and block. Within 9207 and 9210, there are hoods, ducts, laboratory benches, cold rooms, X-ray rooms, darkrooms, autoclaves, and pipe galleries. The Biology Complex buildings were de-inventoried circa 2003–2005, with a portion of the utility services removed. No maintenance has been performed in the Biology Complex except on Bldg. 9401-1 since that time. Currently, access to these facilities is restricted because of mold and mildew, radiological contamination, asbestos, and biological hazards. Radiological postings also indicate fixed contamination inside. The 9401-1 Steam House still has some utilities remaining.

Most loose equipment, materials, biohazardous wastes, radioactive sealed sources, hazardous chemicals, flammable liquids, and other chemicals used in laboratories or building cleaning and maintenance have been removed from the Biology Complex. ORNL conducted a cleanup project between 2000 and 2003 to remove flammable and combustible materials. However, uranium contamination is reported in ducts, rafters, and elevated areas of Bldgs. 9207 and 9210 that were not cleaned.

2.1.1 Building 9207

The Biology Building (9207) is a 256,660-GSF, six-story building with a steel skeleton; masonry walls; and reinforced-concrete columns, floors, and roof over a basement/crawlspace. The floors are approximately 6 in. thick. Non-load-bearing walls are constructed of hollow clay tiles (HCT) and unreinforced masonry and/or cinderblocks. Drywall/plaster constructed walls are present but used sparingly, with plaster walls and ceilings on the upper floors. The plenum/attic space between ceilings and overlying floors varies from 3–10 ft, depending on floor level and building area. Building 9207 was built in 1943, and originally used for uranium salvage and recovery operations. Later, the facility housed ORNL biological research operations. This facility has areas of radiological contamination and other hazardous materials, including some oils and ozone-depleting substances, asbestos, polychlorinated biphenyls (PCB), lead shielding, and universal wastes. Numerous roof leaks have resulted in significant facility deterioration.

2.1.2 Building 9210

Building 9210 is the next largest facility in the Biology Complex at 64,737 GSF. Built in 1945, this three-story building is also HCT with materials of construction that appear to be identical to those noted for 9207. Initially the building supported uranium salvage and recovery and later it primarily housed animals and supported some general research. The interior, finished surfaces refurbished by the Biology Division created corridors covered with unpainted ceramic tiles and plaster walls, and bare concrete floors. This facility has a few areas of radiological contamination, in addition to asbestos, PCBs and universal waste. Numerous roof leaks have resulted in facility deterioration.

2.1.3 Building 9401-1

Building 9401-1 Steam House (old steam plant) was built in 1943 and is 13,454 GSF. This single-story facility has 30-ft-high walls; and is constructed of heavy clay hollow-core block and hollow-core cinderblock, with brick exterior on portions of the building. This facility is posted "fixed contamination." It served as a steam generation plant, a development facility, and a fuel research facility; and now supports Y-12 storage. 9401-1 has areas of fixed and removable radiological contamination as well as asbestos, PCBs and universal waste present. A portion of the roof has fallen in, resulting in facility deterioration.

2.1.4 Balance of Facilities

The remaining facilities, 9207-A Annex, 9207-Tower Annex, 9743-2, 9767-6, 9767-7, and 9770-2, are ancillary support facilities or small biological research facilities. These facilities have some asbestos, PCBs, and universal waste present. The 9207-Annex addition was built onto the south side of Bldg. 9207 in 1965; and three years later, the Tower Annex was built onto the southeast corner. The annex buildings are constructed on concrete slabs with cinderblock walls; reinforced-concrete floors; and flat, built-up roofs. The ceilings are exposed concrete with no drop-tile ceilings, and the interior cinderblock walls are painted. The exterior of the Office Annex is finished with red bricks, steel, and glass windows. The Tower Annex has red paint applied to the cinderblock and concrete walls.

Building 9743-2, the "Pigeon Quarters" or "Pigeon House," is a small building with a footprint of approximately 2371 GSF. It was constructed on a poured concrete slab, using HCT blocks. The pitched roof consists of wood joists and rafters covered with asphalt shingles. The main building is subdivided into three rooms. Two stainless steel tanks are located in the southwest corner of the main room beside a sink. The 9743-2 building has a failed roof and is unsafe to enter; therefore, no characterization of this facility was done.

The 9767-6 building is identified as a utilities building and was apparently last used as an office control room. The 9767-7 facility was an air intake facility and a large air-handling unit occupies most of the floor space in the single room building. Building 9767-7 contained HEPA filters and contains radiological postings. Both 9767-6 and 9767-7 connect to 9207, and are constructed of similar material.

The Radiation Source Building, 9770-2, is a small-single story building with a footprint of 155 GSF. The HCT walls sit on a concrete slab, and extend to a height of about 10 ft. This facility has a wooden-framed, pitched roof covered with asphalt shingles. Steel beams and two overhead chain hoists remain in the building, as well as control panels associated electrical equipment and incandescent lights. Behind a cinderblock wall, near the center of the building, is a subgrade empty pit that is 3–4 ft deep, formerly called the Source Pit.

3. CHARACTERIZATION APPROACH AND DQOS

3.1 DATA QUALITY OBJECTIVES (DQOS)

The objective of the DQOs was to develop a characterization approach that would identify waste streams, and waste disposition paths for demolition waste to support D&D for Y-12 Biology Complex facilities. A sampling design combining statistical and bias sampling, PK, and Health Physics (HP) surveys was used to achieve this objective. Statistical sampling strategies, by facility, adhered to EMWMF DQOs by meeting minimum coverage and confidence level targets. Biased sampling was conducted in areas with the potential for residue material from the uranium salvage and recovery operations, reported contamination areas, and spill areas. Specific details on the statistical sampling is provided in the SAP regarding sample numbers, analyses suites, minimum detection limits, etc.

The two historical phases of the Biology Complex that would have resulted in contamination were the uranium operations and the biology operations. The 1940s and 1950s operations included uranium processing, metals separation, and uranium recovery. In the 1960s through 1990s, ORNL Biology Division operations included biology and carcinogenesis research. Potential contamination would have been highest during the uranium-processing period, with uranium isotopes being the most likely contaminants. Because of the clean, controlled nature of laboratory operations and the small quantities of chemicals used, extensive contamination is not expected from the Biology Division operations. If contamination is present, it is probably associated with the hoods and connected ductwork where the experiments were performed. The Old Steam Plant, 9401-1, had a different history; however, its radiological contamination is also uranium-based from developmental research. Based on the above information, the sample design basis included both statistical and biased samples. The statistical populations were; 1) 9207 floors; walls, ceilings; roof; and hoods, ducts, and sink traps; 2) 9210 floors: walls, ceilings; roof; and hoods, ducts, and sink traps; and 3) 9401-1 structure.

3.2 SAMPLING

3.2.1 SAP/ Quality Assurance Project Plan (QAPP)

The sampling was conducted under the *Sampling and Analysis Plan (SAP) for the Biology Complex located at the Y-12 National Security Complex, Oak Ridge, Tennessee* (UCOR-4894/R2). The SAP was an appendix to the WHP, which was approved by TDEC and EPA. Intrusive sampling was performed in 9207, 9210, and 9401-1 facilities according to this approved SAP. Sampling began on October 7, 2016, and ended on February 1, 2017. A total of 364 samples were collected, including 327 statistical and 37 biased samples. Five of the biased samples were smears/residue/liquid samples. The statistical sampling locations were randomly selected by defined subpopulations. Biased samples were selected based upon PK, facility walkdowns, and with new information gained from Industrial Hygiene (IH) and Radiological Protection Program (RPP) field surveys.

A total of 332 statistical samples were to be collected from the Biology Complex and split into subpopulations, as shown in Table 1. These sample numbers achieve the 85% coverage and 95% confidence for EMWMF. The samples were analyzed primarily for radiological contaminants. Only 10% of the samples were analyzed for metals (and toxicity characteristic leaching procedure [TCLP]), because the historical sampling on previously demolished biology facilities indicates these materials of construction result in a low sum of fractions (SOF). Ten percent of the samples were also analyzed for pesticides and herbicides to confirm their absence. Volatile organic compounds (VOCs) were only to be sampled if there was a potential for volatile organic contamination in the field, as detected by the use of a photoionization

detector (PID). If VOCs > 5 ppm were detected, a volatile organic analysis (VOA) sample was to be collected.

The biased samples were targeted in the areas of the facility where contamination has occurred or been reported in the *Process Knowledge for Y-12 Biology Complex Buildings Including Building 9207 and the Associated Buildings (9770-2, 9207A, 9767-6, And 9767-7) and Buildings 9210, 9743-2 and 9401-1, Y-12 National Security Complex, Oak Ridge, Tennessee* (UCOR-4893). Biased samples were collected in areas of known contamination, reported contamination, and points of interest (stains, enclosed ducts, etc.).

The Biology Complex characterization followed the *Attainment Plan for Risk/Toxicity based Waste Acceptance Criteria at the Oak Ridge Reservation* (DOE/OR/01-1909&D3). Biased and statistical samples, as well as PK, were the basis for the characterization. The sampling objectives were developed as a result of the formal DQO workshop attended by representatives of the EPA, TDEC, U.S. Department of Energy (DOE), URS | CH2M Oak Ridge LLC (UCOR), and Consolidated Nuclear Services (CNS). In accordance with the SAP, sample data was verified and at least 10 % of the data was validated at Validation Support Level (VSL) IV. The validated data was used to determine waste types, identify waste streams to be generated during demolition, and identify probable disposition paths.

Table 1. Statistical sample populations by facility

Media/ Population	Bldg. 9210			Bldg. 9207			Bldg. 9401-1			Totals
	Area or No. in Population	No. of Samples	% Coverage*	Area or No. in Population	No. of Samples	% Coverage*	Media/ Population	No. of Samples	% Coverage*	
Ceilings/Int. Walls/Ext. Walls	62,546 ft^2 ceiling	19	85	218,241 ft^2 ceiling	42	93	Int. Walls/ Ext. Walls	21	86.7	82
Roof	20,736 ft^2	14	80	49,470 ft^2	19	85	Ceiling/roof/ Duct	38		33
Hoods/Ducts/ Sink Drains	16 hoods, 43 drain traps, 2880 ft^2 duct	59	95	73 hoods, 279 drain traps, 14,637 ft^2 duct	59**	95		0	85	137
Floor	62,546 ft^2	19	85	218,241 ft^2	42	93	12,298 ft^2	0	85	80
Totals	**111**			**162**			**59**			**332**

* With 95% confidence for a nonparametric upper tolerance limit (UTL) on the maximum concentrations in the samples
** Biased sampling of 9207 ducts and hoods was performed as directed by the perchlorate subject matter expert (SME)

The sample locations are identified on the location maps by facility and floor in Figs. 2–14. The sampling of the Biology Complex followed the sample locations in the SAP. The sample locations included regular locations and alternate locations for all facilities. Field quality control (QC) samples including equipment rinsate blanks, field duplicates, trip blanks, and matrix spike/matrix spike duplicates were collected as specified in the SAP.

3.2.2 Statistical Sampling Design

The statistical sampling plan for 9210, 9207, and 9401-1 as described in the SAP was designed to provide statistically representative characterization data for the various structural media in order to meet the WAC for disposal at EMWMF. The structural media include floor, interior walls, exterior walls, roof, metal and stainless steel hoods, duct insulation, sink drains and traps, and ceilings.

Fig. 2. 9207 first floor sample locations.

Fig. 3. 9207 second floor sample locations.

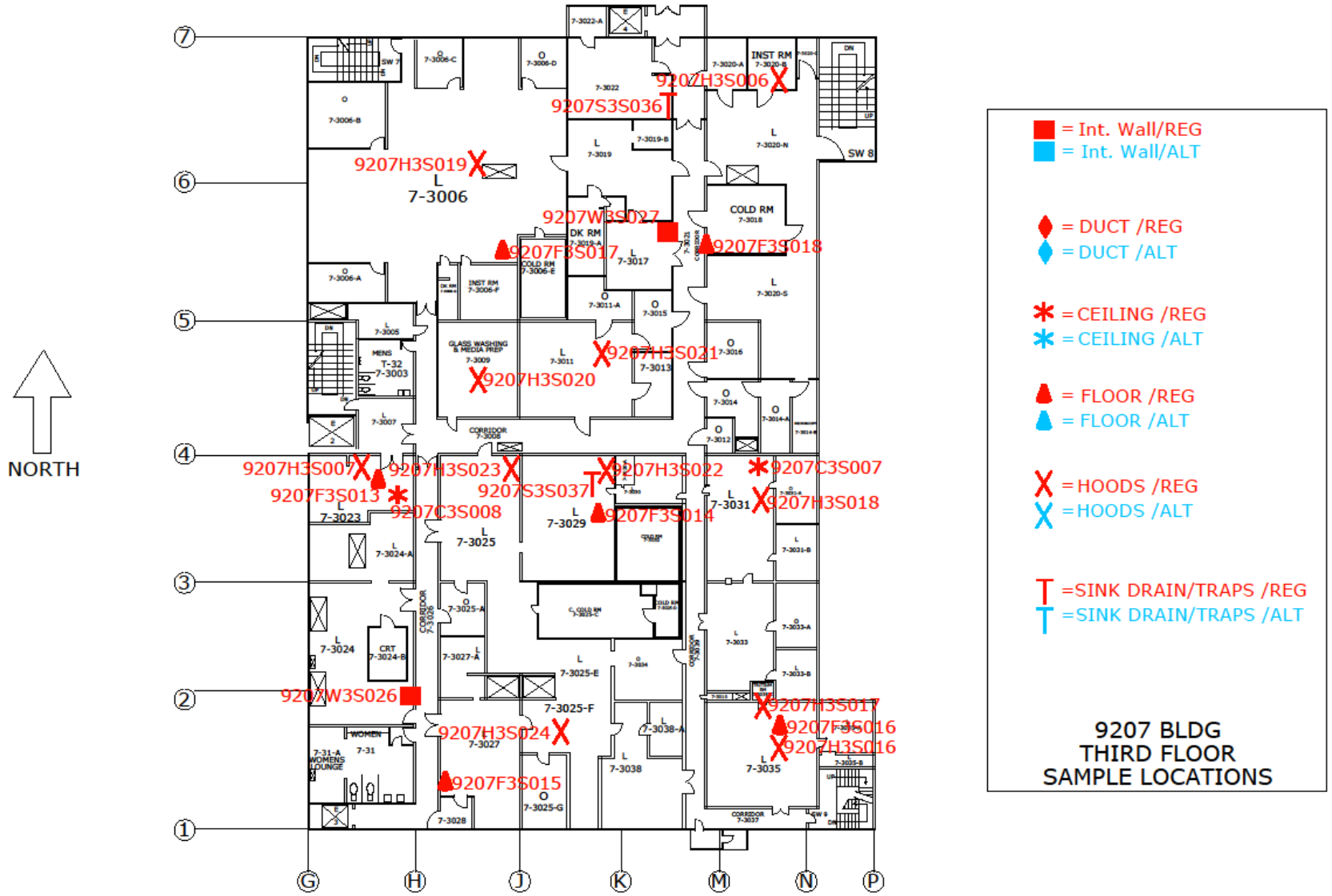


Fig. 4. 9207 third floor sample locations.

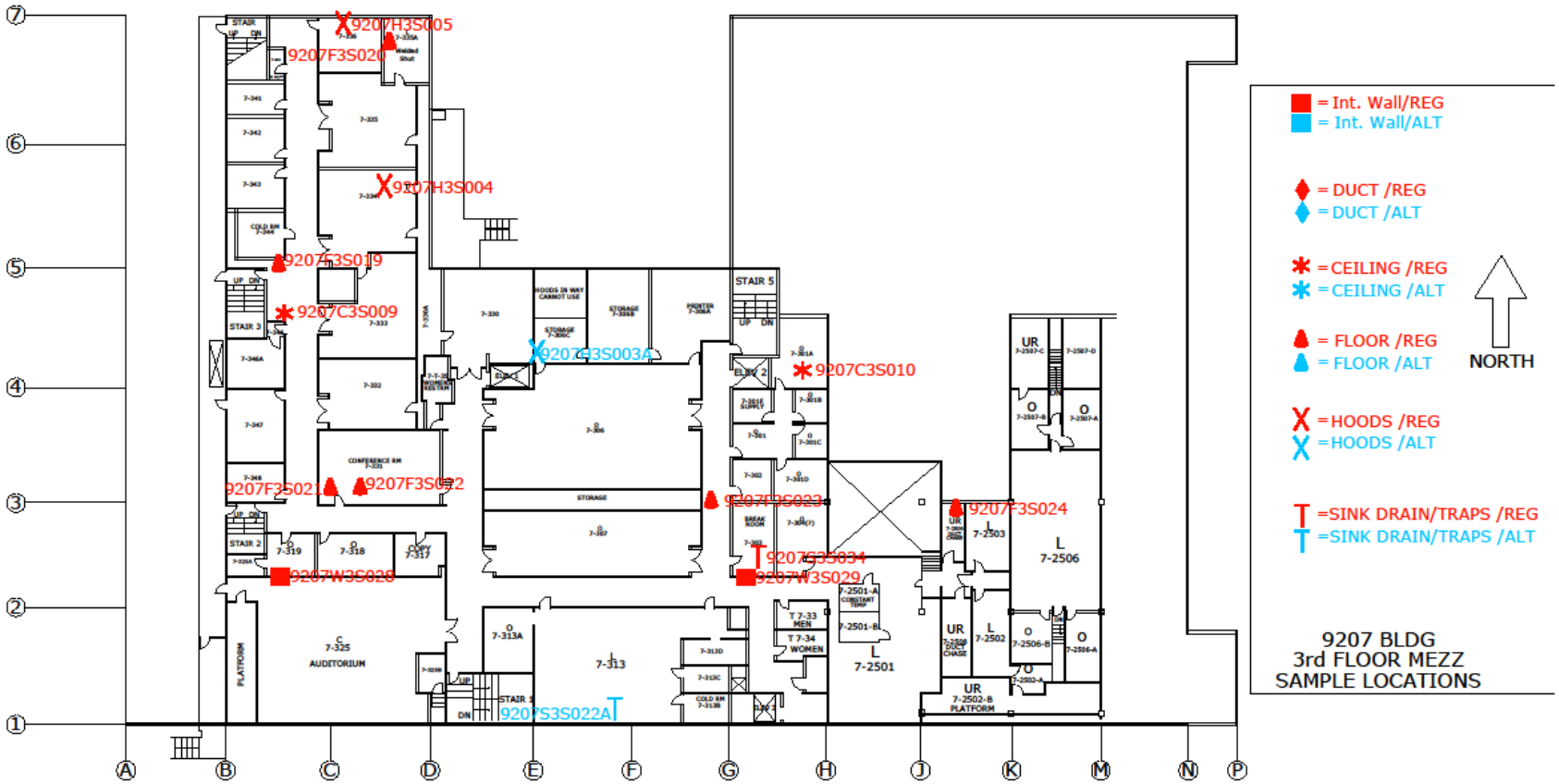


Fig. 5. 9207 third floor mezzanine sample locations.

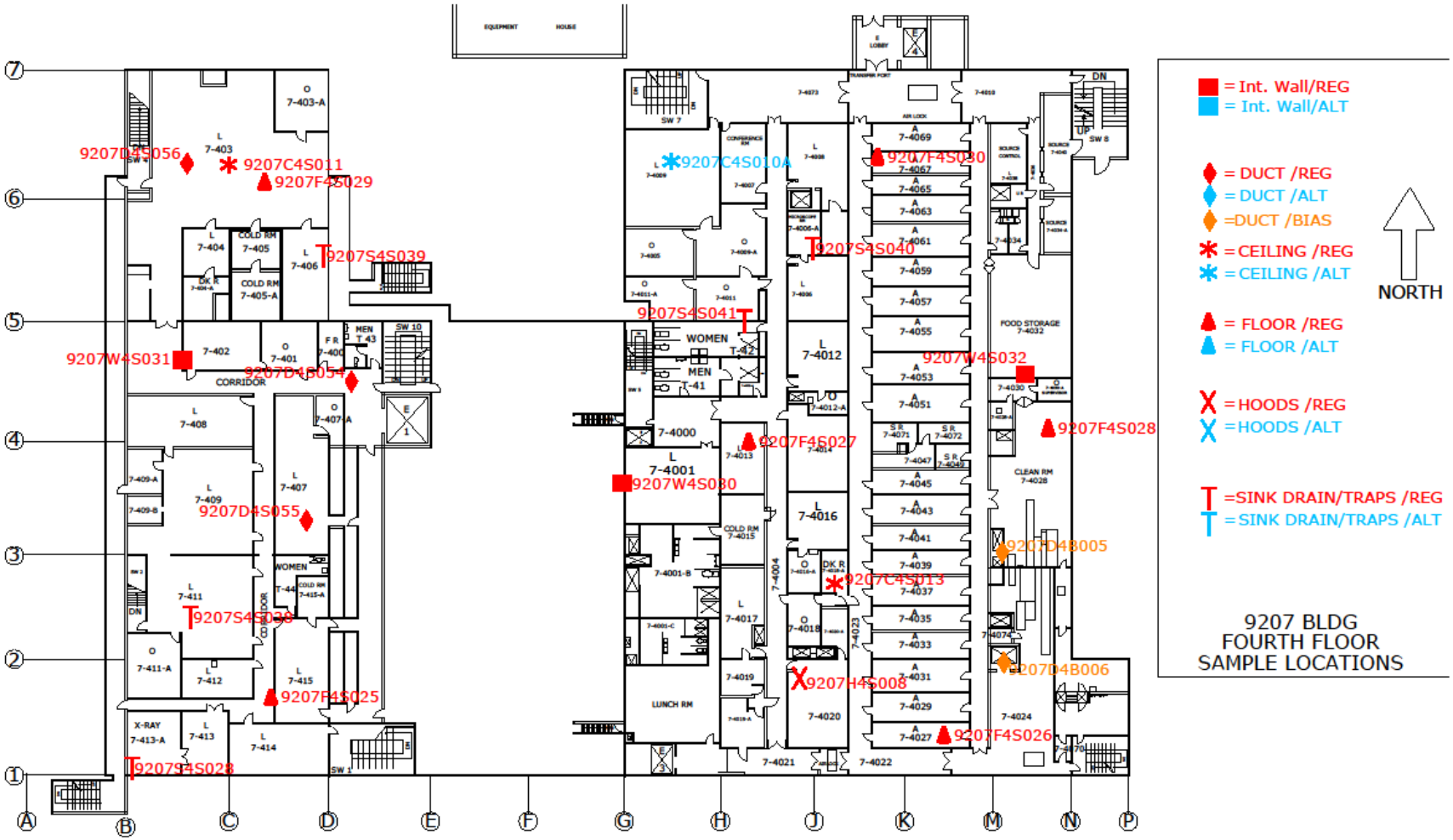


Fig. 6. 9207 fourth floor sample locations.

Fig. 7. 9207 fifth floor sample locations.

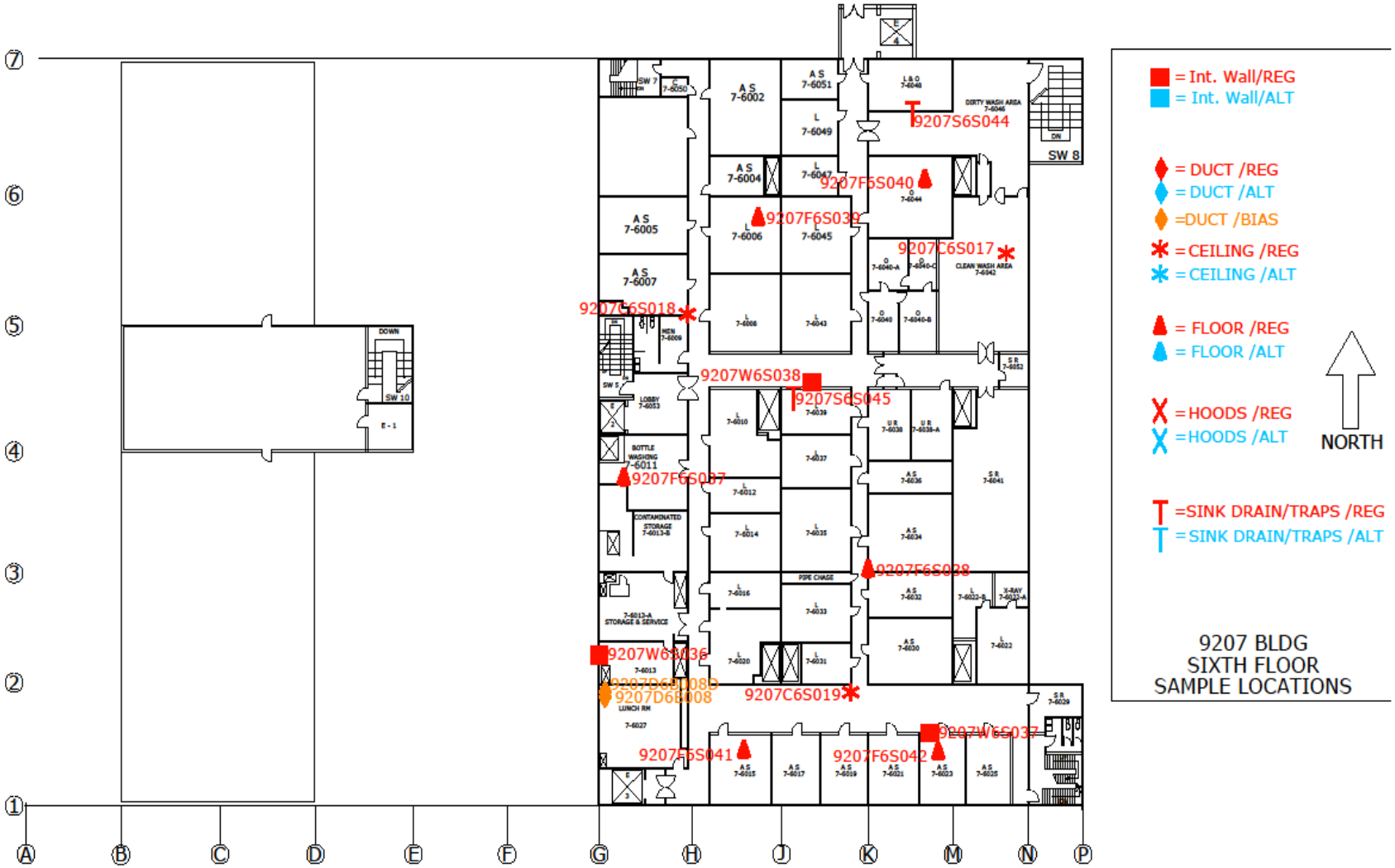


Fig. 8. 9207 sixth floor sample locations.

Fig. 9. 9207 roof and exterior wall sample locations.

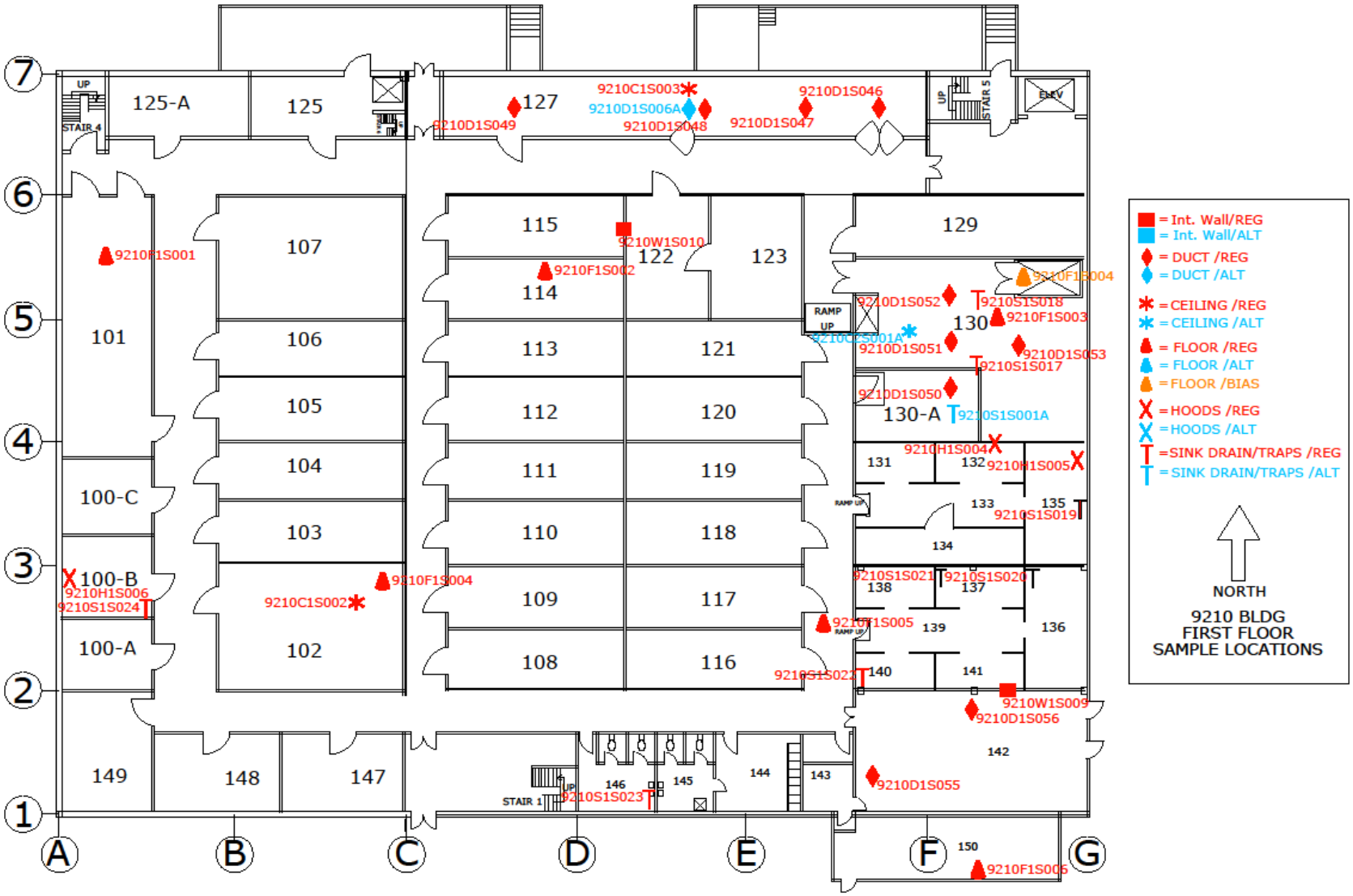


Fig. 10. 9210 first floor sample locations.

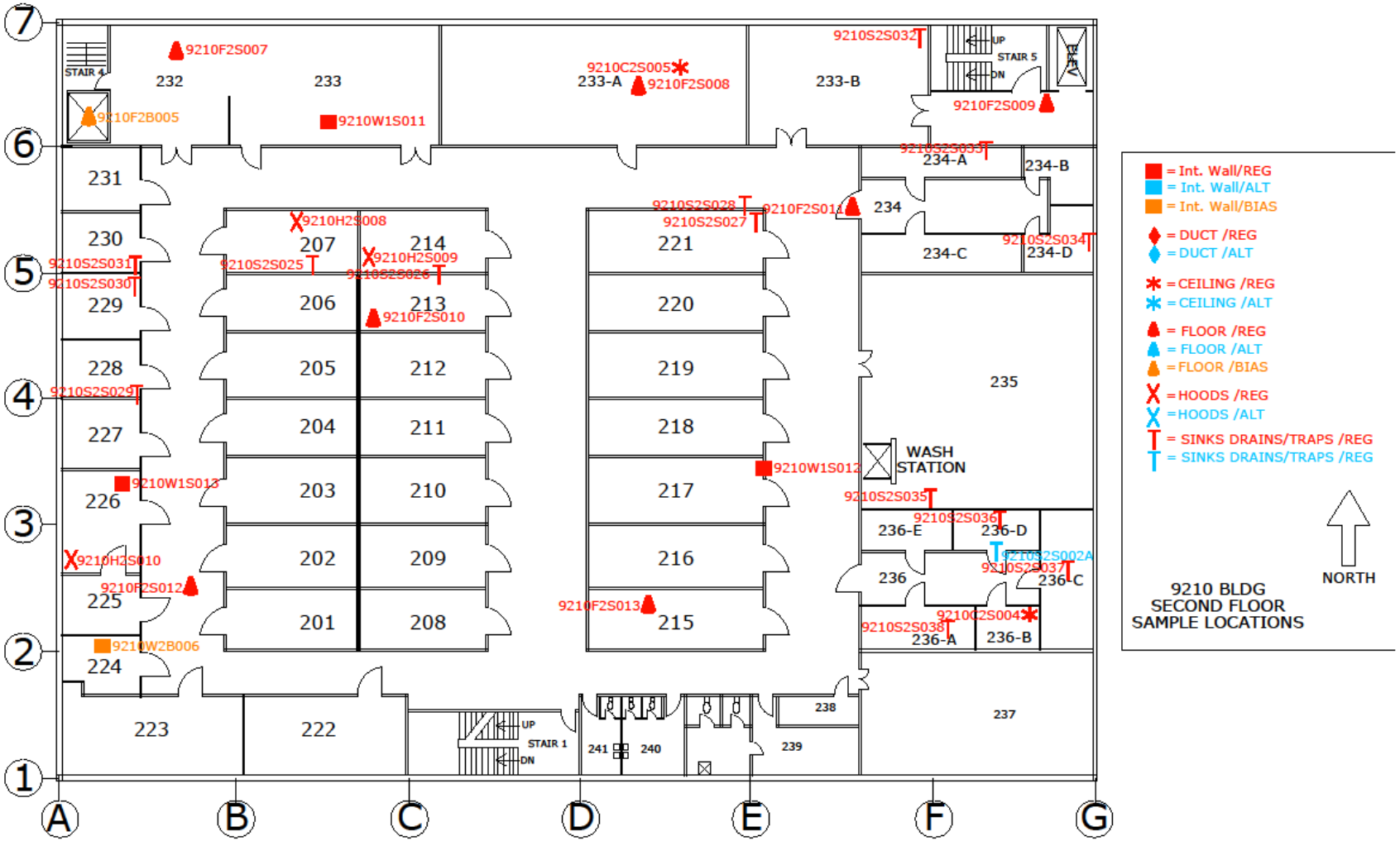


Fig. 11. 9210 second floor sample locations.

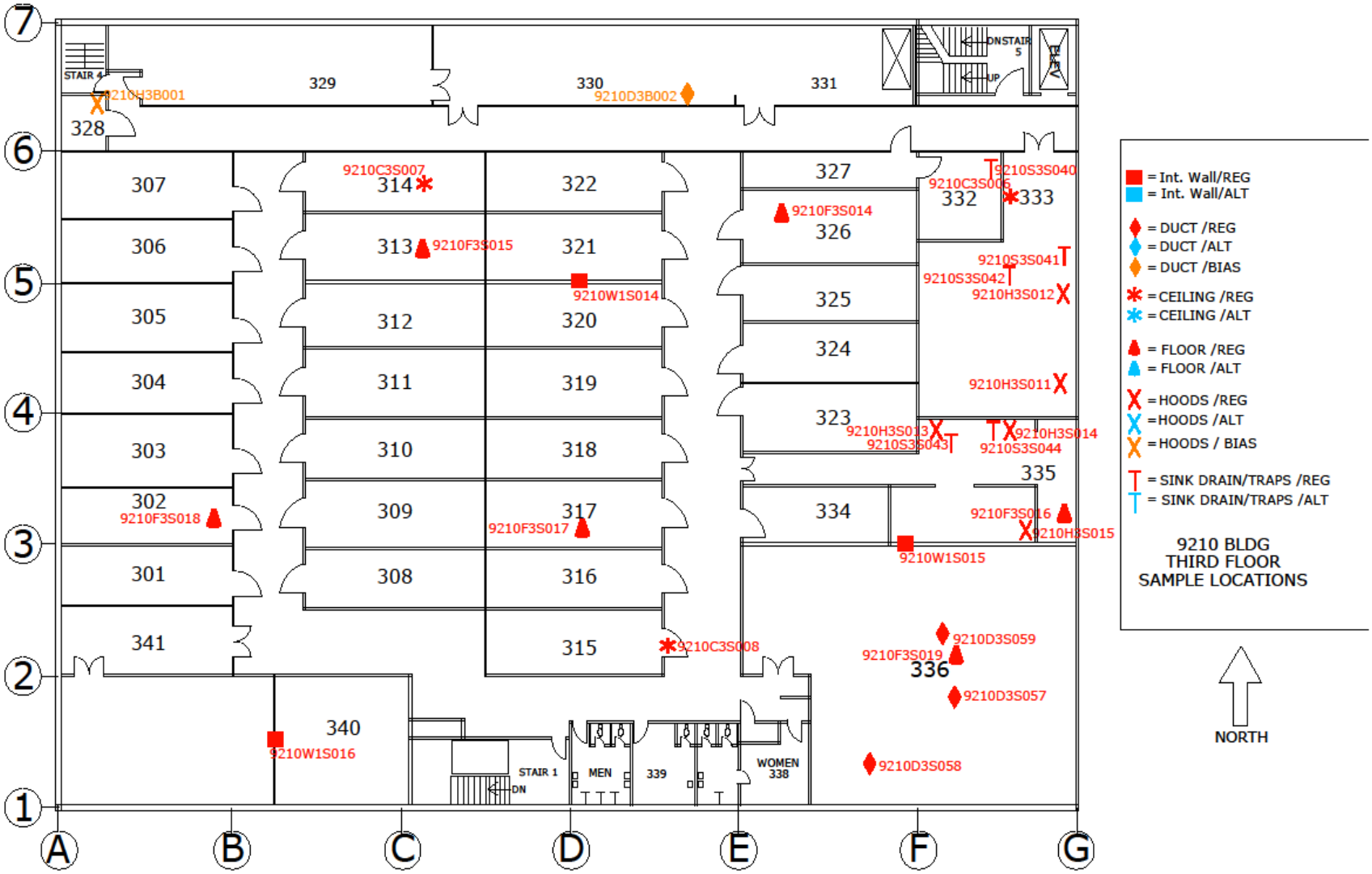


Fig. 12. 9210 third floor sample locations.

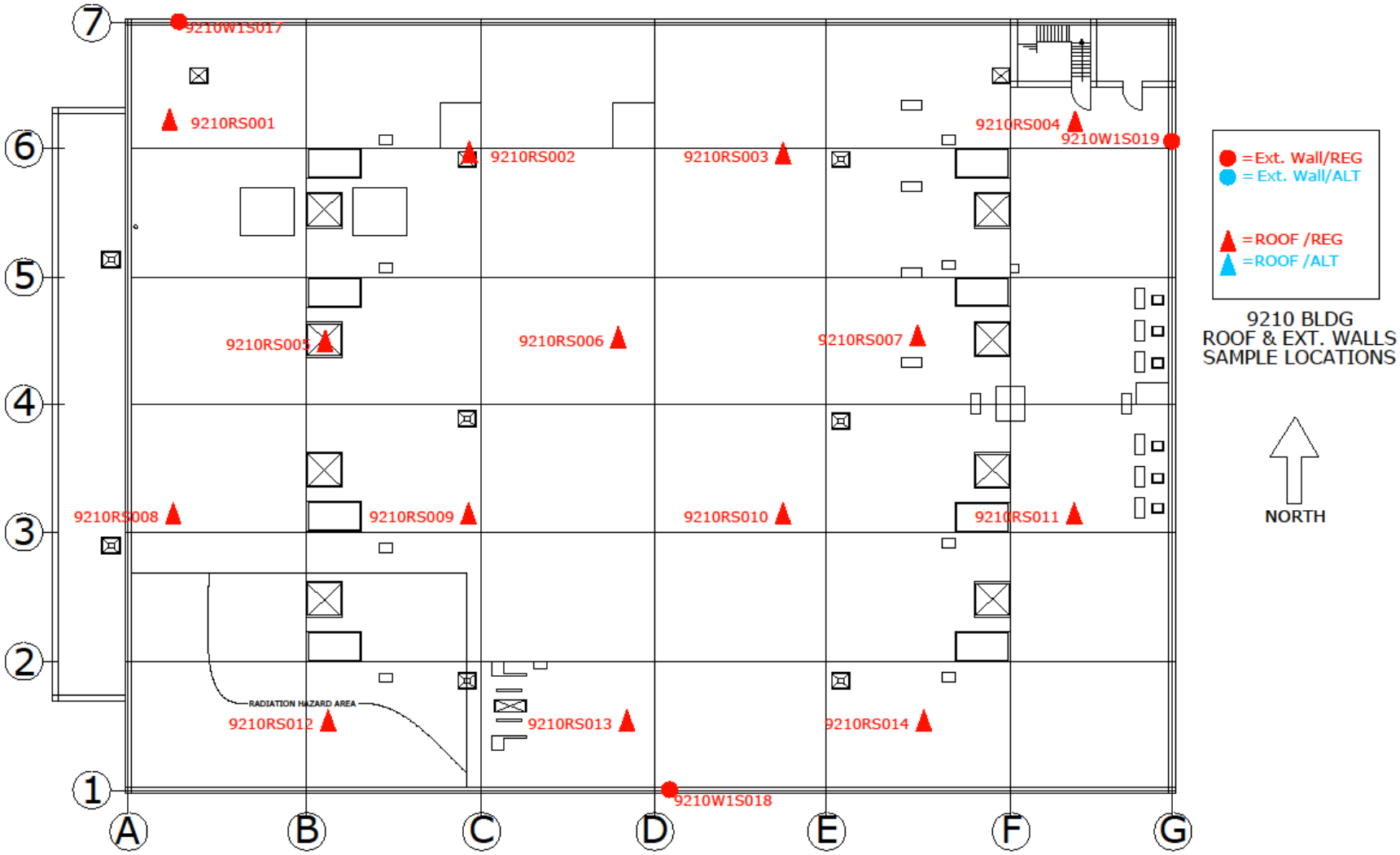


Fig. 13. 9210 roof and exterior walls sample locations.

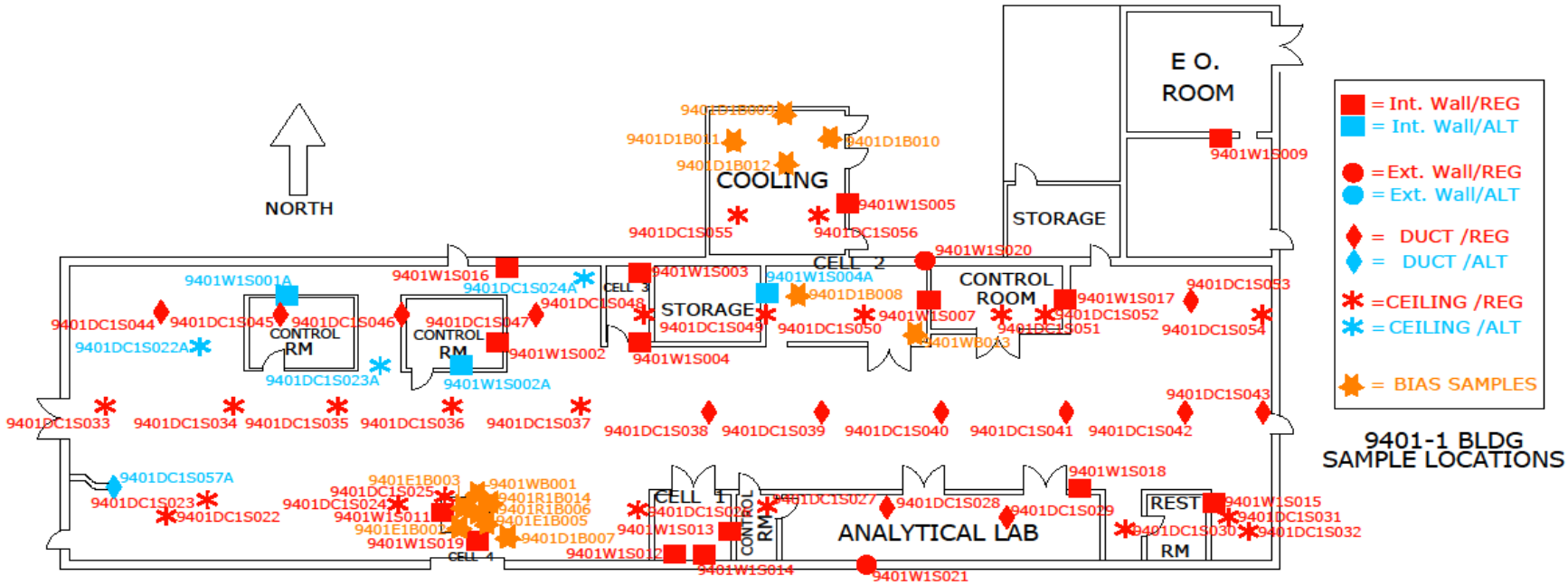


Fig. 14. 9401-1 sample locations.

The statistical sampling design uses an upper tolerance level (UTL) on the largest order statistic (i.e., maximum) to determine the number of samples to collect from a population. The nonparametric UTL was selected because it does not assume any underlying statistical distribution of the data, such as normality or lognormality. A UTL does assume the data are a random and representative sample from the population. The use of the UTL is recommended by the EPA for characterization (EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide [QA/G-9R]*, and EPA/240/B-06/003, *Data Quality Assessment: Statistical Tools for Practitioners [QA/G-9S]*). A UTL has both coverage and confidence attributes. The coverage of a UTL is the percentage of the contaminant distribution from the population that the largest order statistic (i.e., maximum) collected from the samples will bound. The confidence of a UTL is how confident one is that the largest concentration found in the sample will bound the specified coverage in the population. The theory of order statistics, as shown in Hahn and Meeker (*Statistical Intervals: A Guide for Practitioners*), is used to calculate the number of samples for a given confidence and coverage for a nonparametric UTL where each square foot of floor, ceiling or wall or each item in a discrete population is equally likely to be sampled.

3.2.3 Biased Sampling Locations

To identify the upper boundary of contamination within the Biology Complex, a biased sampling campaign included areas thought to have potential holdup of radiological or chemical contamination. Biased sample locations were selected based on remaining equipment, historical spills/occurrences, PK, and walkdowns of the facilities. The biased samples were incorporated by sample request. A copy of the signed sample requests are in Appendix F. Table 2 provides a summary of the biased samples by facility, population, and analyses.

Table 2. Biased sample locations

Facility	Sample ID	Media/Population	Analyses	Notes
9401-1	9401W1B001	Wall	Metals, TCLP, PCB, Rad	In CA
	9401E1B002	Equipment	Metals, TCLP, PCB, Rad	Dip Tank in CA
	9401E1B003	Equipment	Metals, TCLP, PCB, Rad	Cage and Residuals in CA
	9401E1B005	Equipment	Metals, TCLP, PCB, Rad	Vacuum in CA
	9401R1B006	Residual	Metals, TCLP, PCB, Rad	Floor Residual in CA
	9401R1B014	Liquid residual	Metals, TCLP, PCB, Rad	Liquid in Tank in CA
	9401D1B007	Duct	Rad	
	9401D1B008	Duct	Rad	
	9401D1B009	Liquid in Drum	Rad	Drum in fan room
	9401D1B010	Duct	Rad	Fan Room Filter
	9401D1B011	Duct	Rad	Fan Room Filter
	9401D1B012	Duct	Rad	Fan Room Louver
	9401W1B013	Wall	Rad	Hotspot on Cell 2 Wall
9767-7	9767D1B001	Duct	Rad, TCLP Metals	Filter
	9767D1B002	Duct	Rad, TCLP Metals	Filter
	9767D1B003	Duct	Rad, TCLP Metals	Filter

Table 2. Biased sample locations (cont.)

Facility	Sample ID	Media/Population	Analyses	Notes
	9767D1B004	Duct	Rad, TCLP Metals	Filter
	9767D1B005	Duct	Rad, TCLP Metals	Filter
	9767D1B006	Duct	Rad, TCLP Metals	Filter
9210	9210H3B001	Hood	Rad	Room 10-328
	9210D3B002	Duct	Rad	Room 330/331
	9210F1B004	Floor	Rad	Room 10-130
	9210F2B005	Floor	Rad	Room 231
	9210W2B006	Countertop	Rad	Room 224
9207	9207H1B001	Hood	Rad	Room 113
	9207E1B002	Equipment	Rad	Room 120-A
	9207E1B003	Equipment	Rad	Room 1006D
	9207E1B004	Equipment	Rad	Room 1011
	9207D4B005	Duct	Rad	Room 4028
	9207D4B006	Duct	Rad	Room 4074
	9207D5B007	Duct	Rad	Room 521
	9207D6B008	Duct	Rad	Room 6013
	9207E1B009	Equipment	Rad	Neutron Room
	9207E1B010	Equipment	Rad	Neutron Room
	9207F1B011	Floor	Rad	By South Dock
	9207F1B012	Floor	Rad	Room 1011
	9207F5B013	Floor	Rad	Room 5041 A/B

The biased sampling data was analyzed to verify that it was bounded the statistical data. This data was also critical to validating the radiological conclusions on the facilities.

3.2.4 Deviations from the SAP

There were no deviations from the SAP, although several alternate locations had to be utilized. Alternates were used when the primary sample location could not be accessed due to safety concerns. Table 3 lists the alternates used. Some statistical samples were eliminated because the locations no longer existed. These were primarily hoods and ducts that had been removed when the Biology Division relocated to ORNL.

Table 3. Alternates used

Sample ID	Alternate	Issue with Original Sample Location	Notes
9401W1S008	9401W1S003A	Wall removed	
9401W1S003A	9401W1S004A	Wall was only 10 ft and SAP was 17 ft	
9401W1S012	None	The ceiling is only 13 ft tall and the location requested collection at 15.7 ft high.	Sample collected from 11–13 ft
9401DC1S057	9401DC1S057A	Inaccessible (roof falling in)	Relocated to the southwest corner
9207RS005	9207RS001A	Outside the roof's perimeter	
9207RS009	9207RS002A	Outside the roof's perimeter	
9210S3S039, in Room 327	9210S1S001A	Does not exist	
9210S3S045, in Room 336	9210S1S002A	Does not exist[1]	
9210H1S001	N/A	Does not exist[1]	
9210H1S002	N/A	Does not exist[1]	
9210H1S003	N/A	Does not exist[1]	
9210H1S007	N/A	Does not exist[1]	
9210H3S016	N/A	Does not exist	
9207W6S041	9207W1S023A	Cannot reach with 120-ft boom	
9207W5S042	9207W2S024A	Safety—tile falling	
9207C4S012	9207C4S010A	Asbestos and pipe interferences	
9207C5S014	9207C5S012A	Safety—ceiling falling in	
9207D1S049	9207D2S034A	Does not exist	
9207H4S025	9207H1S001A	Does not exist	Hafnium and zirconium requested because this hood 9207H1S001A was from 9211
9207S3S035	9207H3S022A	Does not exist	
9207H6S011	9207H1S002A	Does not exist	
9207C2S005	9207C2S004A	Does not exist	
9210D1S054	9210D1S006A	Does not exist	
9207H6S011	9207H1S002A	Does not exist	
9207H1S002A	9207H3S003A	Safety—piping interferences	

[1]In 9210 several hoods and ducts were removed by ORNL for future use when the Biology division relocated. Samples 9210HS001, 2, 3, 7, and 16 were all eliminated because the sample locations identified in the SAP no longer existed. These hoods and the associated ducts were removed and no additional hoods existed in 9210.

3.3 SURVEYS

The release surveys performed on Bldgs. 9207 Annex, 9207 Tower, 9770-2 and 9767-6 were in accordance with UCOR document 2016SRP-002, *Radiological Survey and Release Protocol for the UCOR Decontamination & Demolition, Environmental Restoration, and Closure Projects*. This document describes the protocol for planning, conducting, and evaluating radiological surveys of equipment and facilities prior to disposal in a sanitary landfill, excess to the public domain or, in the case of rented or leased equipment, return to the vendor/owner. Survey and Release Plans are prepared to demonstrate compliance with DOE Order 458.1, *Radiation Protection of the Public and the Environment.* Biased samples were collected from 9767-7 because it was the air intake for 9207, the fan houses and ducts were posted as radiologically contaminated, and access for surveying was limited. The samples were analyzed by GEL Laboratories in accordance with the SAP.

4. SUMMARY OF RESULTS

4.1 GENERAL

4.1.1 Random Samples Collected

The data set for the Biology Complex buildings 9207, 9210, 9401-1, and 9767-7 was provided by the project in the following five (5) Microsoft®1 Excel files:

- BIOLOGY FINAL Data as of 3-01-17.xlsx
- BIOLOGYOS-006 FINAL Data as of 2-14-17.xlsx
- BIOLOGYOS-005 FINAL Data.xlsx
- BIOLOGYOS-004 FINAL Data.xlsx
- BIOLOGYOS-002 Building 9401-1 Characterization Sampling FINAL Data as of 2-20-17.xlsx

The building debris included statistically random samples from ceiling, ducts, exterior walls, floor, hoods, interior walls, roof and sink drains. The number of statistically random and biased samples actually collected by building and media are shown in Table 4.

Table 4. Random and biased samples collected

Media	Building 9207		Building 9210		Building 9401-1		Building 9767-7
	Random	Bias	Random	Bias	Random	Bias	
Ceiling	19		8		26		
Duct	14	4	14	1	13	5	6
Hood	27	1	11	1			
Floor	42	3	19	2			
Interior wall	19		8		19	2	
Exterior Wall	4		3		2		
Roof	19		14				
Sink Drain	18		29				
Equipment/countertop		4		1		3	
Residue						1	

The random samples from the various media and buildings have the confidence and coverage shown in Table 5.

1 Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Table 5. Confidence and coverage

Media	9207		9210		9401-1	
	Coverage	Confidence	Coverage	Confidence	Coverage	Confidence
Ceiling & walls[1]	93 %	95 %	85 %	95 %	92 %	95 %
Roof	83.8 %	95 %	80 %	95 %		
Ducts, hoods & sink drains[2]	94.9 %	95 %	94.6 %	95 %	92 %	95 %
Floors	85 %	95 %	93.1 %	95 %		

[1]The populations in 9401-1 were ceilings and ducts, not ceiling and walls.
[2]The population in 9401-1 was walls, not ducts and hoods.

4.1.2 Biased Samples Collected

After completing numerous facility inspections, a biased sampling campaign was initiated. This campaign included areas thought to have potential holdup of radiological or chemical contamination. Biased sample locations were selected based on remaining equipment, historical spills/occurrences, PK, and walkdowns of the facilities. These locations are listed in Sect. 3.2.3. Biased liquid samples 9401D1B009, 9401R1B014, and 9207E1B009 from duct, residue, and equipment, respectively, were collected to verify PK on tanks and drums and are not relevant to the building debris results. All planned biased samples were successfully collected.

4.1.3 Data Quality

Established protocol were used to ensure data quality. The *Quality Assurance Project Plan for the Excess Facilities Building 9201-4 (Alpha-4) Column Exchange and Biology Complex Demolition Project* (this QAPP is Appendix E to the WHP) was used to underpin the quality of data collected during of sampling activities. This data is sufficient for the future development of waste profiles to support Biology Complex D&D. In accordance with the QAPP and SAP, the project requested 100% of data be verified, and 10% of data be validated at VSL IV (full validation). All of the samples, biased and statistical were verified. Sixteen percent of the statistical samples and 58% of the biased samples were validated at VSL IV.

4.1.4 Data Reduction

To characterize building debris, random samples were taken from ceiling, ducts, exterior walls, floor, hoods, interior walls, roof and sink drains. Biased samples were collected from a countertop/pipe, ducts, equipment, floor, hoods, interior walls, and residue. Biased liquid samples 9401D1B009, 9401R1B014, and 9207E1B009, from duct, residue, and equipment, respectively, were deleted from the reduced data set. These samples were collected to verify PK on tanks and drums.

Data reduction was performed on the data. Tentatively identified compounds (TICs) and unknown chemicals were deleted. Chemical names were standardized to match their Chemical Abstract Services (CAS) numbers. Solid units were converted to mg/kg for organics and inorganics and pCi/g for radionuclides, while TCLP units were converted to mg/L. Data with validation or laboratory-rejected qualifiers of “R” were also deleted. The quality control data (trip blanks, field blanks, rinsates, tracers, surrogates, etc.) were removed from the laboratory data set during data reduction.

Duplicate samples were handled as follows: The larger of a detected duplicate and its associated detected regular sample were kept in the reduced data set for conservativeness. If a duplicate or its associated regular result was detected, but the other result was not detected, the detected result was kept in the reduced data set. If neither the duplicate nor its associated regular result was detected, then the largest for radionuclides non-detect was kept in the reduced data set, while the smallest non-detect for chemicals was kept in the reduced data set.

4.2 BUILDING 9207 RESULTS

A total of 174 samples were collected in Bldg. 9207. These samples were both random and biased. Summary statistics were calculated in SAS® v. 9.4 and exported to Excel. Three detected concentrations in 9207 exceed their respective EMWMF carcinogenic analytic (CA) or hazard index (HI) WAC limits.

- One lead concentration collected from random ceiling sample 9207C1S001 in Bldg. 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg.
- One technetium (Tc)-99 concentration collected from biased equipment sample 9207E1B002 in Bldg. 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g.
- One benzidine concentration collected from random interior wall sample 9207W4S030 in Bldg. 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg.

All other detected concentrations are below their respective CA, HI, and auditable safety analysis (ASA) WAC limits, as shown in Table 6. Building 9207 has a CA SOF of 0.733 primarily from Tc-99 and U-238. The major contributor to the HI SOF of 0.389 is lead followed by U-238.

In 9207, accessible overheads and marked contamination areas were sampled and evaluated. Uranium contamination were identified in the overheads, some ducts and old pipes existing from the uranium salvage and recovery operations which were conducted for a longer time period in 9207. Biased sampling of these areas confirmed low-level contamination in these areas. The primary radiological contamination was uranium and technetium. Levels of uranium were found in the biased data as well as in the random statistical data. The contamination, although at low levels, appears widespread across all floors and media. This is consistent with the PK and job-coverage surveys. These sources note that portions of 9207 were used for uranium operations for a longer period; and that, when biology staff moved into the facility, the building was renovated in stages, during which old ducts and rafters were enclosed in tile or with false ceilings and walls.

Table 6. Summary statistics for Bldg. 9207 all media (random and biased)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Metals																
Antimony	14 / 21	mg/kg	0.381	3.28	16.9	5.46	B	3.18	6.72	8.09	--	--	160	--	--	0.02
Barium	18 / 21	mg/kg	0.117	459	7410	1737	B	1244	2748	3353	--	--	150,000	--	--	0.008
Boron	10 / 21	mg/kg	1.18	408	3990	1259	B	666	1474	1800	--	--	24,000	--	--	0.028
Chromium	21 / 21	mg/kg	0.405	83.2	1290	279	L	65.9	243	397	1010	--	140,000	--	--	4.7E-04
Copper	21 / 21	mg/kg	0.306	25.8	184	43.9	L	40.5	128	198	584	--	--	--	--	--
Hafnium	4 / 21	mg/kg	0.568	0.927	1.43	0.418	B	0.451	0.785	0.893	--	--	--	--	--	--
Lead	21 / 21	mg/kg	0.06	253	2210	562	L	584	1931	2541	17,385	--	1500	--	--	0.389
Manganese	21 / 21	mg/kg	0.144	220	1530	384	B	283	606	731	--	--	360,000	--	--	7.9E-04
Mercury	19 / 21	mg/kg	0.005	0.86	13	2.98	L	0.423	2.14	3.97	6.95	--	--	--	--	--
Molybdenum	16 / 21	mg/kg	0.05	5.37	27.9	8.96	L	6.87	36.9	69.8	114	--	3900	--	--	0.002
Nickel	21 / 21	mg/kg	0.217	30.6	284	65.7	L	42.3	168	284	664	--	--	--	--	--
Selenium	5 / 21	mg/kg	0.552	1.4	3.25	1.07	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	10 / 21	mg/kg	0.147	5.58	15	5.32	B	2.73	5.86	7.08	--	--	--	--	--	--
Strontium	14 / 21	mg/kg	0.631	96.8	288	115	B	49.8	109	132	--	--	300,000	--	--	1.7E-04
Tin	11 / 21	mg/kg	0.582	15.8	132	38.7	B	22.9	50.0	60.8	--	--	2200	--	--	0.01
Vanadium	14 / 21	mg/kg	0.113	25.3	173	45.9	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	21 / 21	mg/kg	1.33	477	5600	1233	L	692	3588	6704	11,415	--	--	--	--	--
Zirconium	10 / 21	mg/kg	0.618	16.7	45.5	16.3	B	8.0	17.4	21.1	--	--	--	--	--	--
TCLP Metals																
Arsenic	2 / 15	mg/L	0.024	0.033	0.041	0.012	X*	0.019	0.026	0.029	--	--	--	--	--	--
Barium	15 / 15	mg/L	0.021	0.251	0.929	0.223	G	0.251	0.371	0.421	1.19	--	--	--	--	--
Cadmium	5 / 15	mg/L	0.004	0.019	0.039	0.015	X*	0.008	0.017	0.022	--	--	--	--	--	--
Chromium	10 / 15	mg/L	0.033	0.173	0.85	0.244	G*	0.125	0.209	0.251	0.775	--	--	--	--	--

Table 6. Summary statistics for Bldg. 9207 all media (random and biased) (cont.)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Lead	10 / 15	mg/L	0.007	1.19	5.97	2.04	G*	0.798	1.89	2.52	8.82	--	--	--	--	--
Pesticides																
4,4'-DDE	6 / 19	mg/kg	0.001	0.004	0.011	0.004	B	0.009	0.019	0.023	--	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 19	mg/kg	0.001	0.002	0.002	1.7E-04	B	0.009	0.019	0.023	--	--	--	--	--	--
Endosulfan sulfate	2 / 19	mg/kg	0.003	0.004	0.005	0.002	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Heptachlor epoxide	1 / 19	mg/kg	7.9E-05	7.9E-05	7.9E-05	--	B	0.004	0.009	0.011	--	1000	1500	--	4.3E-06	2.9E-06
Lindane	1 / 19	mg/kg	7.1E-04	7.1E-04	7.1E-04	--	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Semivolatile Organics																
2-Methyl naphthalene	9 / 143	mg/kg	0.032	3.73	31.1	10.3	B	5.19	11.5	14.0	0.91	--	4000	--	--	0.001
Benzidine	1/143	mg/kg	1.17	1.17	1.17	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Di-n-butyl phthalate	17 / 143	mg/kg	0.028	1.99	22.4	5.32	B	3.83	8.41	10.2	1.25	--	190	--	--	0.02
Isophorone	8 / 143	mg/kg	0.35	1.33	3.54	0.984	B	1.04	2.23	2.69	1.21	6100	15,000	--	1.7E-04	6.9E-05
Radionuclides																
Actinium-228	11 / 11	pCi/g	0.688	1.75	2.49	0.525	N	1.75	1.97	2.04	3.23	--	--	--	--	--
Alpha activity	78 / 174	pCi/g	3.09	31.1	575	67.7	B	102	220	267	61	--	--	--	--	--
Beta activity	99 / 174	pCi/g	1.56	26.2	370	50.5	B	65.4	141	171	86.8	--	--	--	--	--
Bismuth-214	21 / 21	pCi/g	0.484	1.18	1.96	0.393	N	1.18	1.3	1.33	2.12	--	--	--	--	--
Potassium-40	43 / 43	pCi/g	2.75	15.9	47.3	12.4	B	15.9	26.8	30.2	--	--	--	4.2E+06	--	--
Radium-226	49 / 162	pCi/g	0.372	1.19	3.15	0.682	B	1.01	1.72	1.95	2.62	--	--	300,000	--	--
Strontium-90	16 / 162	pCi/g	1.03	3.9	14.4	3.15	B	3.56	6.74	7.86	4.29	--	--	400,000	--	--
Technetium-99	14 / 174	pCi/g	0.113	58.2	678	178	B	117	256	311	16.4	172	--	4.2E+07	0.68	--
Thallium-208	15 / 15	pCi/g	0.212	0.511	0.692	0.117	N	0.511	0.551	0.564	0.81	--	--	--	--	--
Thorium-228	25 / 162	pCi/g	0.256	1.18	2.4	0.579	L	0.68	0.762	0.799	1.5	--	--	25,000	--	--

Table 6. Summary statistics for Bldg. 9207 all media (random and biased) (cont.)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Thorium-230	47 / 162	pCi/g	0.387	0.92	2.08	0.498	B	0.745	1.2	1.34	1.77	--	--	15,000	--	--
Thorium-232	37 / 162	pCi/g	0.231	0.928	2.36	0.593	B	0.719	1.23	1.41	1.83	--	--	2500	--	--
Total Uranium	94 / 162	pCi/g	0.471	5.91	82.4	11.3	B	14.6	31.5	38.2	32.8	--	--	--	--	--
Uranium-233/234	94 / 174	pCi/g	0.221	7.38	223	25.1	B	37.6	82.9	101	31.7	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	17 / 174	pCi/g	0.376	2.39	15.2	3.59	B	2.93	6.04	7.25	2.35	1500	9500	100,000	0.002	3.1E-04
Uranium-238	83 / 174	pCi/g	0.323	5.61	204	23.2	B	34.4	75.8	92.4	18.9	1200	1500	100,000	0.029	0.023
														SOF =	**0.733**	**0.505**

ASA = Auditable Safety Analysis.
Carc. = Carcinogenic.
Dist. = Distribution. Distribution flags are defined as:

- B = PERT-beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.
- G = 95% UCL was calculated using either the adjusted or unadjusted gamma.
- L = Lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.
- N = Normal. UCL90 and UCL95 are calculated using t-statistic.
- X = Neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.
HI = Hazard index.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.
pCi/g = Picocuries per gram.
S.D. = Standard deviation.
TCLP = Toxicity characteristic leaching procedure.
UCL90 = Upper confidence limit on the mean concentration with 90% confidence.
UCL95 = Upper confidence limit on the mean concentration with 95% confidence.
UTL95/95 = Upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.
WAC = Waste acceptance criteria from *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

4.3 BUILDING 9210 RESULTS

A total of 111 samples were collected in Bldg. 9210. Five (5) additional samples had been planned from 9210. These samples were designated to come from the hoods and ducts. During the field walkdown, it was determined these hoods and associated ducts did not exist. It is believed that they were removed during hazard reduction activities performed by ORNL in the early 2000s. Because there were no additional hoods to sample in 9210, these data points were eliminated.

The biased sampling campaign focused on the overheads in both 9207 and 9210, due to the PK statement about loose uranium contamination from the uranium operations. The uranium operations were very limited in 9210 (less than five years), and a substantial amount of remodeling and retrofitting were done when the biology group acquired the facility. All of the accessible portions of the overheads in 9210 were surveyed, and no notable contamination was found. However, a large portion of the overheads could not be accessed due to structural limitations. These areas will be surveyed during hazardous material abatement to ensure there is no contamination in these overheads.

The analytical results from 9210, as a population, had a very low SOF and only a few significant contamination areas. The only sample that exceeded the CA WAC limit was a C-14 concentration collected from random hood sample 9210H1S005 with a concentration of 416 pCi/g. This exceeds the CA WAC limit of 165 pCi/g. However, this piece of equipment and the small contamination area data point (9210H1S005 and 9210W2B006) were moved to the 9207 data population (Table G-81 and 82 in Appendix G). The data was re-analyzed removing these two data points from 9210. These data points represented a hood contaminated with C-14 and a contamination area isolated to a countertop and pipe. Without these two data points, the waste from 9210 passes the screening for the ORRLF as illustrated in Table 3. It is feasible to remove the equipment associated with these two data points and include it with the 9207 data.

Table 7. Volumetric screening criteria and compliance calculations for ORRLF for Bldg. 9210

	Sample Analytical Results						Screening Criteria Test Results					
Radio-nuclide[a]	No. of Detects/ No. of Samples	Min* Conc. (pCi/g)	Max* Conc. (pCi/g)	Mean[b] Conc. (pCi/g)	Std. Deviation of Mean Conc. (pCi/g)	Background[c] Conc. (pCi/g)	Dose-Based Screening Criteria[d] (pCi/g)	Admin. Limit[e] (pCi/g)	Sample Mean Exceeds Individual Criteria/Limit	Ratio of Mean Conc. in Waste and Screening Criteria[f]	Hotspot Limit[g] (pCi/g)	Sample Exceeds HotSpot (pCi/g)
Am-241	0 / 26	-0.047	0.127	0.16	0.015	N/A	35	3	False	0	30	False
C-14	4 / 105	-2.26	1.35	0.597	0.037	N/A	62	30	False	0	300	False
Co-60	0 / 105	-0.161	0.14	0.069	0.005	N/A	2	N/A	False	0	20	False
Cs-137	15 / 105	-0.102	1.01	0.128	0.018	N/A	10	N/A	False	0	100	False
Eu-152	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A	N/A	50	N/A
Eu-154	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A	N/A	50	N/A
H-3	0 / 105	-7.94	13.5	4.95	0.152	N/A	150	N/A	False	0	1500	False
Np-237	0 / 26	-0.119	0.104	0.237	0.019	N/A	5	3	False	0	30	False
Pu-238	0 / 26	-0.227	0.069	0.161	0.024	N/A	40	3	False	0	30	False
Pu-239	0 / 26	-0.029	0.084	0.202	0.027	N/A	37	3	False	0	30	False
Ra-226	48 / 105	-0.095	2.92	0.458	0.044	1.1	3	N/A	False	N/A	30	False
Sr-90	1 / 105	-1.26	1.88	0.814	0.017	N/A	4800	30	False	0	300	False
Tc-99	0 / 109	-3.84	6.93	2.64	0.067	N/A	150	40	False	0	400	False
Th-230	32 / 105	-0.11	2.91	0.424	0.045	1	5	3	False	0	30	False
Th-232	18 / 105	-0.019	2.28	0.304	0.035	0.95	5	3	False	0	30	False
U-234	36 / 109	0.011	17.2	1.46	0.284	N/A	120	35	False	0.012	175	False
U-235	4 / 109	0.004	1.4	0.352	0.017	N/A	37	35	False	0.01	175	False
U-238	32 / 109	0	13.2	1.06	0.206	N/A	95	35	False	0.011	175	False
U-Total	42 / 105	0.017	31.8	2.73	0.519	N/A	100	35	False	0	350	False
										0.033	**(Sum of Ratios)**	

Summary of Results:

- Does the mean concentration exceed its respective screening criterion or admin limit? NO—Data passes isotopic screen
- Does the maximum concentration exceed its respective hot-spot limit? NO—Data passes hotspot screen

Table 7. Volumetric screening criteria and compliance calculations for ORRLF for Bldg. 9210 (cont.)

	Sample Analytical Results						Screening Criteria Test Results					
Radio-nuclide[a]	No. of Detects/ No. of Samples	Min* Conc. (pCi/g)	Max* Conc. (pCi/g)	Mean[b] Conc. (pCi/g)	Std. Deviation of Mean Conc. (pCi/g)	Background[c] Conc. (pCi/g)	Dose-Based Screening Criteria[d] (pCi/g)	Admin. Limit[e] (pCi/g)	Sample Mean Exceeds Individual Criteria/Limit	Ratio of Mean Conc. in Waste and Screening Criteria[f]	Hotspot Limit[g] (pCi/g)	Sample Exceeds HotSpot (pCi/g)

- Does this waste stream data set exceed the sum-of-ratios test (i.e., sum-of-ratios > 1.0)? NO—Data passes SOF screen

CONCLUSION: This data set PASSES screening criteria.

[a] Screening criteria for the radionuclides incorporate radioactive decay products with half-lives << the 1000-year period of analysis.
[b] For values reported as not detected, 1/2 of the detection limit was used in the calculation of the mean and standard deviation of the mean.
[c] Background concentrations are subtracted from the measured mean value for evaluation against the screening criteria only for Ra-226, Th-230 and Th-232 decay series.
[d] Dose-based screening criteria for Th-230 and Th-232 are set at 5 pCi/g above background in accordance with provisions of DOE Order 5400.5 and 40 *CFR* 192. For Ra-226, the lower dose-based value of 3 pCi/g is applied.
[e] The 35 pCi/g administrative limit for uranium applies to total-uranium. The administrative limit is reported to be exceeded for all 3 uranium isotopes whenever U-234 + U-235 + U-238 > 35 pCi/g.
[f] The screening criteria are used in calculation of the sum of the ratios. The SOF calculations for Ra-226, Th-230, and Th-232 are adjusted to include Th-232 and the maximum of Ra-226 or Th-230. Zero is reported for negative ratios.
[g] The maximum sample measurement may not exceed 10x the dose-based screening criterion for each radionuclide except uranium. For uranium isotopes, the maximum sample measurement is 5x the dose-based screening criterion at TDEC's request.
N/A = Not available.

4.4 BUILDING 9401-1 RESULTS

Both statistical and biased samples were collected in Bldg. 9401-1. One U-238 concentration, collected from biased interior wall sample 9401W1B013 in Bldg. 9401-1, had a concentration of 5660 pCi/g, which exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g. U-238 is the primary site-related contaminant (SRC) for Bldg. 9401-1 with a CA SOF of .943 and an HI SOF of .703. Lead and Antimony also contribute to the HI SOF. Table 8 contains the SRCs and impacts of the SOF.

The biased and random samples of 9401-1 confirm the survey results of high levels of depleted uranium. The predominant uranium (U) isotope is U-238. It is interesting to note that U-236 was also detected in the facility at low concentrations. Radioactivity is fairly widespread within the facility. Contamination is mostly fixed and can be found in walls and ducting that will generate building debris waste. Naturally occurring radioactive material (NORM) surface radioactivity levels approach 1E+06 dpm/100cm^2 beta-gamma in some areas within the facility. Contamination at these levels would involve surgical demolition of certain sections of ducting and potentially load bearing walls. The areas of known radiological contamination in the 9401-1 building cannot be removed during deactivation since the contamination is a structural part of the building structure. “Surgical demolition” of the 9401-1 building to remove areas of contamination would be very difficult to perform with trackhoe-mounted shears because the brick construction of the building, coupled with its physical height, would make it difficult to control the areas being demolished so that clean debris could be separated from radiologically contaminated debris. The operation of trackhoes on the 9401-1 building concrete pad also has the potential to disturb the currently fixed radiological contamination on the pad, which could cross-contaminate the building debris. The demolition area for this building will be posted as a radiological contamination area during demolition to control the radiological constituents.

Figure 15 illustrates the contamination levels observed in 9401-1 in the surveys performed to protect personnel during the intrusive characterization sampling (approximately 20% of the facility has been surveyed to date). The contamination source is unknown, but is assumed to be a remnant of the developmental work performed before ORNL assumed the building and began research on fuels. The floor was scabbled before the facility was transferred to ORNL, but high levels of fixed contamination remain.

4.5 BALANCE OF FACILITY RESULTS

The facilities with PK supporting a non-contaminated decision were surveyed using a MARSSIM approach. These facilities included 9207-Annex, an administrative area; 9207-Tower Annex, which housed offices and conference rooms; 9767-6, a utility facility; and 9770-2, which stored sealed radiation sources. UCOR surveyed and released these facilities to be disposed in the ORRLF. These surveys are included in Appendix A.

9767-7 was initially included in this group of facilities. It was originally the clean air intake for the 9207 facility; however, the ducts and air intakes were posted as radiologically contaminated, and access for surveying was limited. Therefore, volumetric samples of the ducts and air intakes were collected under a separate sample request. These results demonstrate that volumetrically the 9767-7 facility can be disposed of in ORRLF.

Building 9743-2, the Pigeon House was not characterized because the roof has fallen in and the structure is not safe to enter. No characterization will be conducted until this facility is demolished.

Table 8. Summary statistics for Y-12 Bldg. 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Metals																
Antimony	5 / 8	mg/kg	0.313	7.28	17.3	7.03	B	3.34	6.97	8.36	--	--	160	--	--	0.021
Arsenic	11 / 13	mg/kg	0.753	10.1	38.4	13.0	L	11.0	40.7	70.4	221	--	--	--	--	--
Barium	11 / 13	mg/kg	0.469	29.6	136	39.6	L	72.5	243	320	5868	--	150,000	--	--	4.8E-04
Beryllium	4 / 8	mg/kg	0.025	0.197	0.462	0.193	L	0.132	0.627	1.35	4.2	--	--	--	--	--
Boron	5 / 8	mg/kg	1.95	30.1	99.2	40.9	L	17.3	50.3	65.2	1650	--	24,000	--	--	7.2E-04
Cadmium	12 / 13	mg/kg	0.011	1.6	6.12	2.17	B	1.1	2.37	2.87	--	--	--	--	--	--
Chromium	13 / 13	mg/kg	1.92	34.5	134	42.5	L	42.7	126	197	710	--	140,000	--	--	3.0E-04
Copper	8 / 8	mg/kg	0.768	163	657	276	L	170	555	729	38,843	--	--	--	--	--
Hafnium	1 / 8	mg/kg	19.4	19.4	19.4	--	B	3.48	7.36	8.92	--	--	--	--	--	--
Lead	13 / 13	mg/kg	0.67	46.8	319	90.9	L	54.0	295	604	1370	--	1500	--	--	0.036
Manganese	8 / 8	mg/kg	20.2	674	3250	1082	L	698	1923	2477	47,351	--	360,000	--	--	0.002
Mercury	8 / 13	mg/kg	0.005	0.123	0.412	0.135	L	0.106	0.303	0.392	4.27	--	--	--	--	--
Molybdenum	7 / 8	mg/kg	0.261	17.0	79.7	30.3	L	14.4	48.8	64.4	4772	--	3900	--	--	0.004
Nickel	8 / 8	mg/kg	1.49	64.7	302	112	L	56.6	173	226	7800	--	--	--	--	--
Selenium	5 / 13	mg/kg	0.417	0.963	2.71	0.982	L	0.587	1.03	1.29	4.9	--	1600	--	--	3.7E-04
Silver	9 / 13	mg/kg	0.372	5.38	21.1	6.57	L	5.2	20.3	35.8	108	--	--	--	--	--
Strontium	5 / 8	mg/kg	1.8	556	2470	1073	L	366	1377	1835	561,216	--	300,000	--	--	0.001
Tin	8 / 8	mg/kg	0.823	10.9	37.9	14.5	L	10.6	26.3	33.5	407	--	2200	--	--	0.005
Total Uranium	6 / 7	mg/kg	0.272	2818	16,900	6899	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
Vanadium	5 / 8	mg/kg	0.881	8.56	23.2	9.6	L	5.96	17.6	22.9	649	--	25,000	--	--	2.4E-04
Zinc	8 / 8	mg/kg	9.07	23,297	108,000	43,762	B	18,058	39,938	48,758	--	--	--	--	--	--
Zirconium	7 / 8	mg/kg	0.404	5.7	15.8	6.47	L	5.1	12.9	16.4	213	--	--	--	--	--
TCLP Metals																
Arsenic	1 / 12	mg/L	0.026	0.026	0.026	--	X	0.01	0.014	0.016	--	--	--	--	--	--
Barium	12 / 12	mg/L	0.012	0.131	0.324	0.107	N	0.131	0.173	0.187	0.425	--	--	--	--	--
Cadmium	8 / 12	mg/L	0.003	0.021	0.055	0.02	G*	0.015	0.027	0.031	0.119	--	--	--	--	--
Chromium	6 / 12	mg/L	0.035	0.119	0.233	0.085	G*	0.074	0.119	0.146	0.447	--	--	--	--	--
Lead	7 / 12	mg/L	0.019	0.148	0.362	0.137	G*	0.088	0.178	0.224	1.03	--	--	--	--	--
TCLP Herbicides																
2,4-D	1 / 5	mg/L	0.019	0.019	0.019	--	X	0.01	0.017	0.02	--	--	--	--	--	--

Table 8. Summary statistics for Y-12 Bldg. 9401-1 all media (random and biased) (cont.)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Pesticides																
4,4'-DDT	1 / 9	mg/kg	0.042	0.042	0.042	--	L	0.015	0.036	0.053	0.213	--	--	--	--	--
Polychlorinated Biphenyls																
PCB-1254	5 / 5	mg/kg	0.012	39.6	176	76.8	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.083	0.083	0.083	--	B	0.311	0.645	0.77	--	--	--	--	--	--
Polychlorinated biphenyl	5 / 5	mg/kg	0.012	39.6	176	76.8	B	29.5	65.2	79.6	--	--	--	--	--	--
Semivolatile Organics																
2-Methyl naphthalene	16 / 57	mg/kg	0.011	1.29	5.37	1.49	B	0.917	2.01	2.45	--	--	4000	--	--	2.3E-04
4-Nitrophenol	3 / 57	mg/kg	0.034	1.99	5.9	3.39	B	1.09	2.32	2.79	--	--	850	--	--	0.001
Acenaphthene	14 / 57	mg/kg	0.262	3.98	9.23	3.15	B	1.55	3.42	4.18	--	--	390,000	--	--	4.0E-06
Carbazole	18 / 57	mg/kg	0.01	5.94	16.7	5.86	B	2.82	6.21	7.57	--	110,000	--	--	2.6E-05	--
TCLP Volatile Organics																
Benzene	1 / 3	mg/L	0.676	0.676	0.676	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Tetrachloroethene	1 / 3	mg/L	0.005	0.005	0.005	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.024	0.024	0.024	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Radionuclides																
Actinium-228	5 / 5	pCi/g	1.05	1.47	1.82	0.328	B	1.53	1.71	1.74	--	--	--	--	--	--
Alpha activity	33 / 57	pCi/g	8.51	26.4	234	38.1	B	47.1	96.2	115	--	--	--	--	--	--
Beta activity	38 / 57	pCi/g	4.13	42.9	338	54.7	B	69.6	143	170	--	--	--	--	--	--
Bismuth-214	16 / 16	pCi/g	0.731	1.07	1.66	0.253	L	1.07	1.15	1.18	1.82	--	--	--	--	--
Lead-212	28 / 28	pCi/g	0.636	1.11	1.72	0.332	L	1.11	1.2	1.23	2.06	--	--	--	--	--
Lead-214	18 / 18	pCi/g	0.721	1.06	1.78	0.261	L	1.06	1.14	1.17	1.8	--	--	--	--	--
Potassium-40	32 / 32	pCi/g	13.3	30.0	64.5	16.4	B	29.3	42.0	45.8	--	--	--	4.2E+06	--	--
Radium-226	34 / 57	pCi/g	0.26	0.985	1.71	0.354	B	0.818	1.21	1.31	--	--	--	300,000	--	--
Strontium-89	3 / 57	pCi/g	1.81	2.65	4.23	1.37	B	2.06	2.78	3.01	--	--	--	--	--	--
Thallium-208	7 / 7	pCi/g	0.32	0.47	0.564	0.101	B	0.499	0.547	0.554	--	--	--	--	--	--
Thorium-228	27 / 66	pCi/g	0.542	1.01	1.76	0.259	L	0.822	0.973	1.04	1.9	--	--	25,000	--	--
Thorium-230	36 / 66	pCi/g	0.331	1.1	3.2	0.492	L	0.856	0.95	0.98	2.29	--	--	15,000	--	--
Thorium-232	33 / 66	pCi/g	0.286	1.03	1.8	0.334	L	0.777	0.863	0.891	2.09	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	205	205	205	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	35 / 57	pCi/g	1.04	8.13	215	36.0	B	37.0	80.6	98.1	--	--	--	--	--	--
Uranium-233/234	41 / 66	pCi/g	0.561	18.2	679	106	B	114	251	307	679	1700	2.8E+07	100,000	0.067	4.1E-06

Table 8. Summary statistics for Y-12 Bldg. 9401-1 all media (random and biased) (cont.)

Constituent	Freq. of Detection	Units	Detected				Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC		ASA WAC	E(X) divided by Analytic WAC	
			Min	Mean	Max	S.D.						Carc.	HI		Carc.	HI
Uranium-233/234	2 / 2	pCi/sample	0.944	1.13	1.31	0.259	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	796	796	796	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	0.001	12.6	75.3	30.7	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-236	5 / 7	pCi/g	0.009	6.92	34.5	15.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	38 / 66	pCi/g	0.106	155	5660	918	B	944	2089	2552	5660	1200	1500	100,000	0.787	0.629
Uranium-238	2 / 2	pCi/sample	0.585	1.09	1.59	0.711	B	1.09	1.34	1.4	--	--	--	--	--	--
														SOF =	**0.943**	**0.703**

[b] This summary statistic is calculated using both detects and proxy values for non-detects.
ASA = Auditable Safety Analysis.
Carc. = Carcinogenic.
Dist. = Distribution. Distribution flags are defined as:

- B = PERT-beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.
- G = 95% UCL was calculated using either the adjusted or unadjusted gamma.
- L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.
- X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.
HI = Hazard index.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.
NSRC = Not a site-related contaminant (SRC).
pCi/g = Picocuries per gram.
S.D. = Standard deviation.
TCLP = Toxicity characteristic leaching procedure.
UCL90 = Upper confidence limit on the mean concentration with 90% confidence.
UCL95 = Upper confidence limit on the mean concentration with 95% confidence.
UTL95/95 = Upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.
WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).
-- = Not applicable, not available or insufficient data to calculate the statistic.
* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier, since there are non-detects present with at least two distinct detected results.

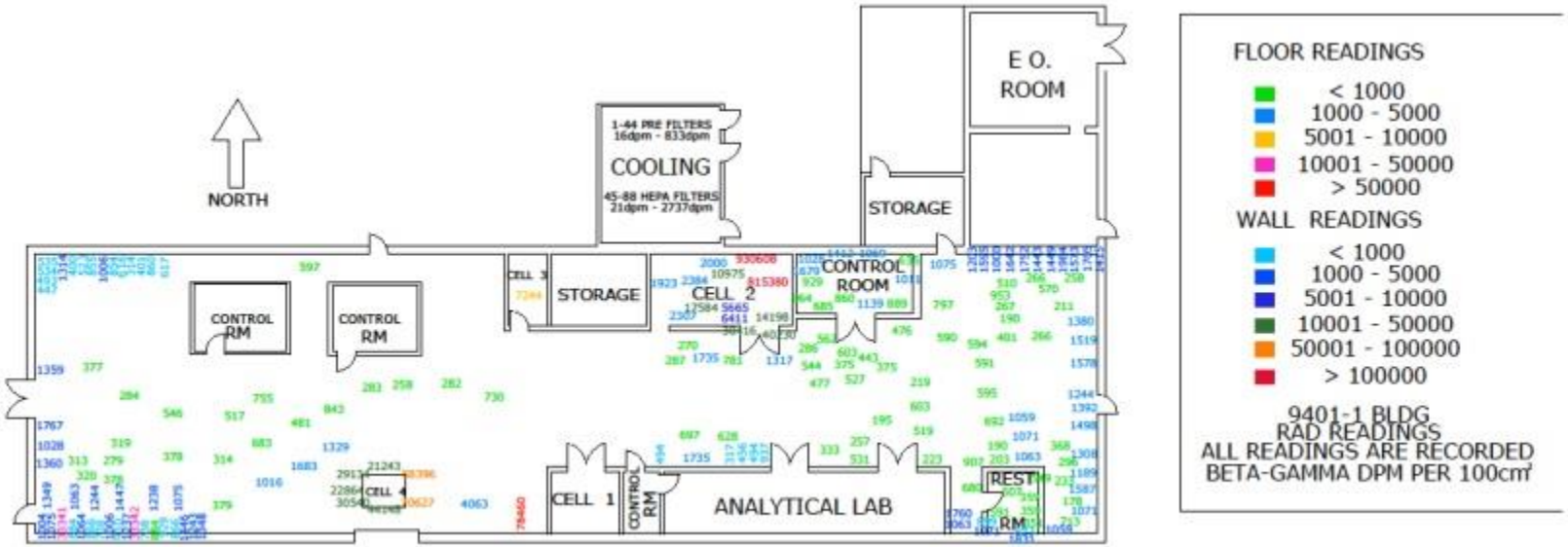


Fig. 15. Radiation survey levels in 9401-1 facility.

4.6 STATISTICAL ANALYSIS AND SUMMARY STATISTICS

Summary statistics were calculated in SAS® v. 9.4 and exported to Excel. There are samples that exceed their respective EMWMF CA or HI WAC limits.

- One lead concentration collected from random ceiling sample 9207C1S001 in Bldg. 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg.
- One Tc-99 concentration collected from biased equipment sample 9207E1B002 in Bldg. 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g.
- One C-14 concentration collected from random hood sample 9210H1S005 in Bldg. 9210 with a concentration of 416 pCi/g exceeds the CA WAC limit of 165 pCi/g.
- One U-238 concentration collected from biased interior wall sample 9401W1B013 in Bldg. 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g.
- One benzidine concentration collected from random interior wall sample 9207W4S030 in Bldg. 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg.

All other detected concentrations are below their respective CA, HI, and ASA WAC limits. Tables G.1–G.87 present a summary of concentrations from all data combined, by media, by building, by building and media, by random and biased samples, and by floor. The summary statistics reported include:

- Frequency of detection (number of detected results/number of results)
- Minimum and maximum detection limits (MDLs)
- Minimum, mean, median, maximum, and standard deviation using both detects and proxy values from non-detects
- Minimum, mean, maximum, and standard deviation of detected results
- Mean and standard deviation of all natural logarithm (Ln) transformed results
- Mean and standard deviation of detected Ln transformed results
- Distribution indicating normal, lognormal, or PERT-beta distributions at the 0.10 significance level
- Expected value E(X) of the probability distribution
- Upper confidence limits (UCLs) on the mean with 90% and 95% confidence
- UTL on individual concentrations with 95% confidence and 95% coverage
- CA, HI, and ASA WAC limits
- Expected value of the probability distribution divided by the CA and HI WAC limits
- CA and HI SOFs

Table G.1 summarizes all random and biased data from all media from Bldgs. 9207, 9210, 9401-1, and 9767-7 combined as a single population. The samples from these locations were analyzed for metals, TCLP metals, herbicides, TCLP herbicides, pesticides, TCLP pesticides, PCBs, semivolatile organic compounds (SVOCs), TCLP SVOCs, TCLP VOCs, and radionuclides. Five detected concentrations from various media

and buildings exceed their respective CA or HI WAC limits. Of these five WAC exceedances, three are from Bldg. 9207 and one each from Bldgs. 9210 and 9401-1.

All reduced data for the detected constituents with a WAC limit are shown, sorted alphabetically, in Appendix G, Tables G.88–G.148; in accordance with the specifications in *Waste Acceptance Criteria Attainment Team Project Execution Plan Environmental Management Waste Management Facility, Oak Ridge Reservation, Tennessee* (UCOR-4024/R4). Separate tables for each constituent show the location ID, sample ID, analytical result as reported by the laboratory, laboratory qualifier, validation qualifier, detection limit, detection status flag (0 = not detected, 1 = detected), proxy value used in the statistical summaries and analysis, and Ln transformed proxy value. Results are sorted from highest to lowest proxy values for each detected constituent. Summary statistics shown at the bottom of each of these tables include the number of samples, number of detected results, minimum, median, maximum, arithmetic average (mean), standard deviation, expected value (mean) of the PERT-beta distribution, Ln transformed mean, and Ln transformed standard deviation. For constituents with at least 6 but no more than 50 samples, the Shapiro-Wilk (S-W) *p*-values for normality and lognormality are shown. For constituents with more than 50 samples, Lilliefors *p*-values for normality and lognormality are shown.

4.7 SUM OF FRACTIONS CONCLUSIONS

The random and biased data from various building media in Y-12 Biology Complex Buildings 9207, 9210, 9401-1 and 9767-7 were statistically analyzed and summarized, and SOFs were calculated. These samples were analyzed for metals, TCLP metals, herbicides, TCLP herbicides, pesticides, TCLP pesticides, PCBs, SVOCs, TCLP SVOCs, TCLP VOCs, and radionuclides. Sampling was performed in accordance with the *Sampling and Analysis Plan for the Biology Complex Located at the Y-12 National Security Complex, Oak Ridge, Tennessee* (UCOR-4894/R2) December 2016.

The CA SOF for all buildings and media combined is 0.966, while the HI SOF is 0.979. U-238 is the largest contributor for both the CA and HI SOFs for all buildings and media combined and 9401-1. Tc-99 is the largest contributor for the CA SOF for 9207, while lead is the largest contributor for the HI SOF for 9207. Antimony is the largest contributor to the HI SOF for 9210.

Five detected concentrations exceed their respective CA or HI WAC limits.

- One lead concentration collected from random ceiling sample 9207C1S001 in Bldg. 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg.
- One Tc-99 concentration collected from biased equipment sample 9207E1B002 in Bldg. 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g.
- One C-14 concentration collected from random hood sample 9210H1S005 in Bldg. 9210 with a concentration of 416 pCi/g exceeds the CA WAC limit of 165 pCi/g.
- One U-238 concentration collected from biased interior wall sample 9401W1B013 in Bldg. 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g.
- One benzidine concentration collected from random interior wall sample 9207W4S030 in Bldg. 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg.

All other detected concentrations are below their respective CA, HI, and ASA WAC limits. One TCLP lead concentration of 5.97 mg/L exceeds its Resource Conservation and Recovery Act of 1976 (RCRA) limit of

5 mg/L in random hood sample 9207H5S009 in Bldg. 9207. However, its UCL90 concentration is below the RCRA limit. All other individual and UCL90 TCLP metal concentrations are below their RCRA limits.

Building 9401-1 is the largest contributor to both the CA and HI SOFs for all buildings combined using both random and biased data. However, Bldg. 9207 is the largest contributor to both the CA and HI SOFs for all buildings combined when just the random data are used. When Bldgs. 9207 and 9210 are combined together (random and biased), the CA SOF is 0.053 and the HI SOF is 0.533. The CA SOF for Bldg. 9401-1 alone is 0.943, while the HI SOF is 0.703.

Lognormal probability plots show the distributions of selected detected radionuclides, metals, TCLP metals, and SVOCs for all data combined. Most of the detected radionuclides, metals, and SVOCs are PERT-beta distributed.

Lognormal probability plots and box plots of Tc-99, C-14, U-233/234, U-238, lead, antimony, alpha activity, and beta activity, by building, show 9401-1 has significantly higher alpha activity and beta activity concentrations than the other buildings. However, Tc-99 and C-14 has significantly higher concentrations in 9207 than 9210 and 9401-1. There are no significant differences in median concentrations of U-233/234, U-238, lead, and antimony.

5. REGULATORY REQUIREMENTS

5.1 RCRA DETERMINATION

5.1.1 Listed Waste Determination

Due to the materials and chemicals processed throughout the operating history of the Biology Complex, historic information was collected and evaluated to complete a listed waste determination (LWD). Living memory interviews, facility due diligence inspections, spill records, and waste disposal records reviews were utilized to verify if/how listed waste was used in the facilities and process evaluations were conducted. ORNL removed surplus chemicals in the early 2000s after their staff had relocated. The primary chemicals used in the facilities were utilized for research in small laboratory quantities. By definition, this is not a chemical process. The LWD is complete for the remaining biology facilities with a separate LWD for the steam plant, 9401-1. These determinations are included in Appendix D.

5.1.2 Characteristic Waste Determination

Any chemicals remaining including excess chemicals, compressed gases, fluids in the systems, lead shielding, universal waste, and any other anomalous items will be segregated and disposed separately, the RCRA characteristic waste determination addresses remaining wastes. The applicability of RCRA characteristic regulatory requirements to this waste is addressed in the sections below.

5.1.2.1 Characteristic of Ignitability

Based on scientific knowledge and the onsite evaluation of materials by trained project personnel, the facility and remaining equipment, after anomalous waste has been removed, does not meet the definition of ignitability as defined in 40 *Code of Federal Regulations (CFR)* 261.21. This waste is not a liquid or compressed gas; and, under standard temperature and pressure, is not capable of causing fire through friction, adsorption of moisture, or spontaneous combustion.

5.1.2.2 Characteristic of Corrosivity

Based on scientific knowledge and the onsite evaluation of materials by trained project personnel, the facility and remaining equipment, after anomalous waste has been removed, does not meet the definition of corrosivity as defined in 40 *CFR* 261.22. This waste is not aqueous, does not have a pH ≤ 2 or ≥ 12.5, and it is not a liquid that corrodes steel at a rate > 6.35 mm/year.

5.1.2.3 Characteristic of Reactivity

Based on scientific knowledge and the onsite evaluation of materials by trained project personnel, the facility and remaining equipment, after anomalous waste has been removed, does not meet the definition of reactivity as defined in the 40 *CFR* 261.23. This waste is not unstable, and will not readily undergo violent change without detonation. It will not react with water; form potentially explosive mixtures with water; or, when mixed with water, it will not generate toxic gases, vapors, or fumes in sufficient quantity to present a danger to human health and environment when exposed to pH conditions between 2 and 12.5. It is not capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement. It is not capable of detonation or explosive decomposition or reaction under standard temperature and pressure; and it is not a forbidden explosive, class A explosive, or class B explosive as defined in 49 *CFR* 173.

5.1.2.4 Characteristic of Toxicity

Biology Complex demolition waste is not RCRA hazardous waste (HW). In accordance with the SAP, approximately 10% of the samples (42 of the 327 statistical samples) were analyzed for RCRA-regulated toxicity characteristic (TC) metals using the EPA-specified TCLP analytical method. Table 9 summarizes the RCRA metals TCLP results. The primary RCRA TC concerns are with RCRA D-code metals. RCRA hazardous pesticides and herbicides are of secondary concern. PK tells us that these chemicals were used in the era of Biology Complex operations. These pesticide/herbicide compounds persist in the environment, and have been detected in historical and contemporary ORR sampling results. However, no demolition debris results have identified waste streams that exhibit the RCRA TC for pesticides and herbicides. In accordance with the SAP, herbicide/pesticide RCRA D-code SVOC analyses were performed on grab samples to verify that demolition debris does not exhibit the RCRA toxicity characteristic for hazardous waste. The prediction was that concentrations for these compounds were low.

Characterization results did not identify any significant RCRA challenges. Results for RCRA D-code metals and SVOCs clearly indicate that demolition debris is not RCRA HW. RCRA metal TCLP anomalies were the only results that needed further evaluation. They were limited to discrete items. Looking prospectively, i.e., with an eye towards demolition, debris at the point of waste generation will not exhibit the RCRA TC. Note: The hazard abatement phase of D&D will remove any RCRA-related waste from facilities prior to demolition.

A PID was used to screen for VOCs, and no samples had readings > 5 ppm. Therefore, no VOA samples were collected. Ten percent of the samples were analyzed for pesticides and herbicides to confirm the absence of these chemicals. Ninety percent of the samples were analyzed for SVOCs. Therefore, chemicals associated with RCRA TC codes D004 through D043 were eliminated from concern (i.e., these RCRA D codes do not apply).

5.2 TSCA DETERMINATION

5.2.1 PCB

Within the Biology Complex, several classes of waste require evaluation for PCB, including oils, spills, remaining equipment, and painted items.

5.2.1.1 Oils

Oil-filled equipment must be evaluated for PCB liquids. Some equipment has been evaluated and is labeled with the PCB contents. These data and existing PK will be reviewed prior to disposal. Before demolition, all equipment (e.g., vacuum pumps, air compressors, firewater pump, transformers, door actuators, overhead crane, etc.) will be inspected for oils, sampled, and drained as required. All oils will be disposed of offsite.

5.2.1.2 Spills

Numerous areas within the Biology Complex were identified as PCB spill areas. These were documented as decontaminated, in accordance with the regulations; and are no longer considered spill areas or PCB remediation areas. If additional spill areas are discovered, the demolition project will address them as a changed condition, in accordance with 40 *CFR* 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Distribution in Commerce, and Use Prohibitions*.

Table 9. RCRA metals TCLP results

Facility	TCLP Metal	No. Detects/ No. Samples	Maximum TCLP Result (mg/L)	UCL90	UCL95	TCLP Limit (mg/L)	Exceeds TCLP
All	Arsenic	5 / 42	0.07	0.026	0.029	5.0	No
	Barium	42 / 42	0.929	0.246	0.261	100.0	No
	Cadmium	18 / 42	0.071	0.021	0.024	1.0	No
	Chromium	28 / 42	0.85	0.12	0.129	5.0	No
	Lead	26 / 42	5.97	1.01	1.26	5.0	No*
	Mercury	1 / 24	0.002	5.9E-04	6.8E-04	0.2	No
	Selenium	3 / 42	0.099	0.035	0.039	1.0	No
	Silver	0 / 42	0.005	--	--	5.0	No
9207	Arsenic	2 / 15	0.041	0.026	0.029	5.0	No
	Barium	15 / 15	0.929	0.371	0.421	100.0	No
	Cadmium	5 / 15	0.039	0.017	0.022	1.0	No
	Chromium	10 / 15	0.85	0.209	0.251	5.0	No
	Lead	10 / 15	5.97	1.89	2.52	5.0	No*
	Mercury	0 / 5	.00034	--	--	0.2	No
	Selenium	0 /15	0.01	--	--	1.0	No
	Silver	0 / 15	0.002	--	--	5.0	No
9210	Arsenic	0 / 9	0.009	--	--	5.0	No
	Barium	9 / 9	0.579	0.305	0.334	100.0	No
	Cadmium	2 / 9	0.03	0.018	0.023	1.0	No
	Chromium	6 / 9	0.235	0.138	0.15	5.0	No
	Lead	4 / 9	0.41	0.236	0.365	5.0	No
	Mercury	0 / 3	3.4E-04	--	--	0.2	No
	Selenium	0 / 9	0.01	--	--	1.0	No
	Silver	0 / 9	0.002	--	--	5.0	No
9401-1	Arsenic	1 / 12	0.026	0.014	0.016	5.0	No
	Barium	12 / 12	0.324	0.027	0.187	100.0	No
	Cadmium	8 / 12	0.055	0.027	0.031	1.0	No
	Chromium	6 / 12	0.233	0.119	0.146	5.0	No
	Lead	7 / 12	0.362	0.178	0.224	5.0	No
	Mercury	0 / 10	3.4E-04	--	--	0.2	No
	Selenium	0 / 12	0.01	--	--	1.0	No
	Silver	0 / 12	0.002	--	--	5.0	No

* The single lead TCLP failure was taken from a thin walled metal hood, 9207H5S009. The analysis of this sample also had 252 mg/kg lead. The UCL90 for lead was still below the regulatory threshold. In accordance with the DQOs, this and hoods will remain in the debris waste lot.

5.2.1.3 Equipment

The drained equipment can be disposed in a municipal or chemical waste landfill. PCB transformers with PCB $\geq$ 500 ppm must be drained and rinsed prior to disposal in a chemical waste landfill. The oils must be characterized, containerized, managed, and disposed in accordance with the applicable regulations.

Equipment that has contained oils with PCB concentrations ≥ 500 ppm must be decontaminated as prescribed in the regulations before it qualifies for disposal as non-PCB regulated wastes. Equipment will be recycled if feasible.

5.2.1.4 Painted Items

PCBs may also be present at concentrations ≥ 50 ppm in paint and caulk manufactured prior to 1979—the criteria established for PCB bulk product waste in 40 *CFR* 761. Non-radiological assessments identified various painted items and caulk that could contain PCBs at levels > 50 ppm. Environmental Compliance (EC) has determined based on previous sampling and PK, that the painted surfaces will be defined as bulk product waste, in accordance with 40 *CFR* 761.50(b)(4). Therefore, all building debris that is generated will be designated as PCB bulk product waste, and no additional sampling for PCB bulk product waste is necessary. Historically, the Y-12 facilities have been painted with interior paint colors of green, beige, and white. Analytical results for these colors from other facilities indicate the paints contain regulated amounts (> 50 ppm) of PCBs. PCB bulk product wastes known or suspected to leach PCBs at > 10 µg/L of water, such as PCB light ballasts and small capacitors, are also present in the facilities. These ballasts and capacitors will be removed from buildings designated for the ORRLF prior to demolition.

5.2.1.5 Aroclors 1221 and 1232

Out of 908 historical Y-12 Aroclor® samples, none contained detectable concentrations of Aroclor 1221, and only 14 showed the presence of Aroclor 1232. The highest concentration of Aroclor 1232 was 110 ppm, well below the established EMWMF WAC limit of 1000 ppm. Based on this information, the characterization for these two particular WAC chemicals is not required.

5.2.2 Asbestos

IH participated in walkdowns and sampling of the asbestos on the floors or deteriorating in Bldgs. 9207 and 9210. The analytical results for these surveys are included in Appendix B along with volume estimates. Based on inspections, the types of material in Table 10 are presumed to be asbestos-containing material (ACM) in the facilities.

Table 10. ACM types by facility

Facility	Types of ACM
Building 9207	Pipe Insulation, Duct Insulation, Plaster Ceiling, Plaster Walls, Acoustical Wall Tile, Acoustical Ceiling Tile, Asbestos Floor Debris, Transite Board, Floor Tile / Mastic, Drop Ceiling, Sprayed on Fire Proofing, Black mastic under Flooring 6th floor, Transite Panel Hoods, and Fire Doors.
Buildings 9207A, 9207 Conference Tower and External Areas	Pipe Insulation, Transite Board, Acoustical Ceiling Tile, Floor Tile / Mastic, and Fire Doors
Building 9210	Pipe Insulation, Duct Insulation, ACM Debris in Attic Area, Plastered Ceiling/Walls, Transite Board, Acoustical Wall Tile, Acoustical Ceiling Tile, Floor Tile and Mastic, Drop Ceiling, Linoleum flooring, and Fire Doors
Building 9401-1	Pipe Insulation, Duct Insulation, and Floor Tile and Mastic
9767-6, 9767-7, 9770-2	Pipe Insulation and Fire Doors

Based on these inspections, it is anticipated that 3538 yd^3 of ACM and 198 fire doors will be disposed of during the abatement activities.

5.3 PERCHLORATES DETERMINATION

Certain perchlorate compounds can be shock-sensitive and are known to be potential laboratory contaminants, especially in hoods, ductwork, and in chemical containers. An evaluation of historical information and recent visual inspections were performed under this characterization effort. Based on the historic data and PK, only laboratories in Bldg. 9207 were considered to potentially have shock-sensitive perchlorate compounds present. To determine if perchlorates levels were hazardous, between November 2016 and January 2017, the Perchloric Acid Sampling Team from ORNL collected and analyzed 70 samples from the Bldg. 9207 ventilation systems. All ventilation systems showed concentrations of perchlorates low enough to be considered negative for perchlorate contamination. No additional perchlorate controls are required. The analytical report for this sampling effort is included in Appendix C.

5.4 HAZARDOUS MATERIALS

The Biology Complex has numerous items of universal waste that will be removed during hazardous material abatement. These wastes include incandescent and fluorescent lightbulbs, PCB ballasts (these may be left in place for facilities destined for EMWMF), mercury items, lead items (e.g., lead metal, shielding, block, traps, drains, joints), tritiated exit signs, batteries, smoke alarms/sealed sources, and transformer cable encased in lead and asbestos.

6. WASTE MANAGEMENT

6.1 DEACTIVATION WASTE

The deactivation waste will include deactivation waste, as well as waste generated during hazardous material abatement. Hazardous material abatement includes universal waste removal, asbestos abatement, and anomaly removal. In general, the facilities were de-inventoried by ORNL in the early 2000s. Verification and some additional work may be necessary to ensure the facilities meet the cold and dark standards. Any waste generated during this process is expected to be minimal and will meet the criteria for the ORRLF.

The universal waste includes removing fluorescent bulbs, incandescent bulbs, ballasts, exit signs, emergency lighting, smoke alarms, mercury switches, batteries, and LED lights. This waste will be removed during deactivation and sent to an offsite treatment and disposal facility. Material that can be recycled will be recycled if feasible. PCB ballasts that are not leaking in facilities destined for EMWMF will not be removed; instead, they will be dispositioned with the facility. The quantities of materials expected are in Table 11. Some additional waste was generated during characterization, primarily from removing interferences. This waste is summarized in Appendix E.

Table 11. Hazard abatement quantities

Waste	Count	Container Type	Destination
Oils	539 gal	55-gal drums	Vendor
Incandescent Light Bulbs	999	B-25s	Vendor
Fluorescent Light Bulbs	9309	Cardboard box	Vendor
PCB Ballasts	4678	55-gal drums	Vendor
Mercury Items	378	5-gal buckets	Vendor
Lead Items (includes cable)	673 ft^3	B-12s	Vendor
Tritiated Exit Signs	4.4 ft^3	55-gal drums	NNSS
Lead-Acid Batteries from Emergency Lights	124	Pallets	Vendor
Transformer cable encased in lead and asbestos	100 ft	B-12	Vendor
Smoke Alarms (TRU)	10	55-gal drum	TWPC

Asbestos will also be removed and disposed during deactivation. The project will package and transport the asbestos to EMWMF or the ORRLF. The estimated volume of asbestos waste is 3538 yd^3. Fire doors will be loaded on pallets, double wrapped, and delivered to the Biology Complex lay down area. The total number of fire-rated doors to be packaged on pallets and shipped by flatbed trailer is estimated to be 198.

Anomalous waste includes oils and metals that will be removed prior to demolition. The oils include the oils in door actuators, pumps, motors, transformers, and pot heads. The metals include lead in lead traps, drains, joints, bowls, shielding, X-ray machines, lead blocks, and bricks. These materials will be removed and dispositioned at an approved treatment, storage, disposal, and recycle facility (TSDRF).

6.2 DEMOLITION WASTE

After the hazardous material abatement and deactivation, the Biology Complex will be demolished. Based on the characterization results, it is assumed Buildings 9207 and 9401-1 will be demolished as radiologically contaminated facilities. Building 9743-2 will be sampled and disposed of after it demolished due to the structural issues. This facility is included with the EMWMF waste lot for conservativeness. Building 9210 facility will have the material from the two sample points that exceed the ORRLF removed and placed in the 9207 waste stream. The remainder of 9210 should meet the industrial landfill criteria as will 9207-Annex, 9207-Tower Annex, 9767-6, 9767-7, and 9770-2 facilities. The buildings will be size reduced, loaded into dump trucks, and transported to either the ORRLF or EMWMF. Table 12 summarizes the waste disposal locations.

Table 12. Volume of demolition waste by facility and disposal facility

Facility	Debris Volume (CY)	Truckloads	Disposal Facility
9207	35,940	4950	EMWMF
9401-1	1,354	205	EMWMF
9743-2	386	65	EMWMF*
9767-7	550	75	ORRLF
9210	9842	1400	ORRLF
Ancillary Facilities (9207-Annex, 9207-Tower Annex, 9767-6, 9770-2)	1264	195	ORRLF

*Actual disposition of 9743-2 will be decided after demolition and sampling.

6.3 PROFILES

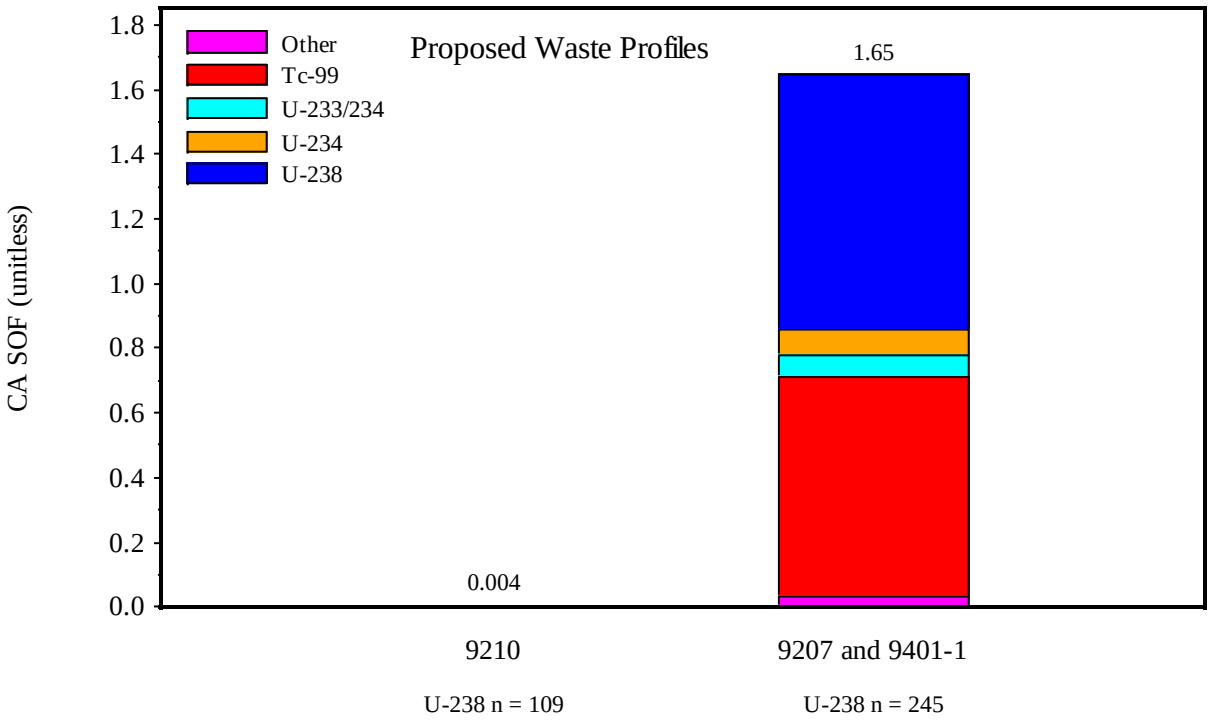
The preferred disposal facilities are EMWMF for radiologically contaminated waste and ORRLF for non-contaminated waste streams. The facilities known to be radioactively contaminated are 9207 and 9401-1. Buildings 9207 and 9401-1, both have an SOF below 1. When combined (Table G-89), these facilities have a CA SOF of 1.65 and an HI SOF of 0.96. Therefore, these facilities can likely be one profile. The WAC attainment team will confirm this based on their analysis of the volumetric SOFs prior to demolition. The volume for EMWMF also includes the Pigeon House, 9743-2. Because of the safety issues of this facility, no entry or characterization will be completed prior to demolition. Post demolition, the debris pile will be sampled to determine disposition. The 304.3 profile would include a volume of approximately 40,000 yd^3 (demolition and asbestos waste) with a medium confidence.

The non-contaminated facilities in the Biology Complex are the 9207-Annex, the 9207-Tower Annex, the 9210 Mouse House, the 9767-6 utilities facility, 9767-7 air intake facility, and the 9770-2 source storage facility. The anticipated 11,650 yd^3 of demolition and asbestos waste would be disposed of at the ORRLF under a special waste permit in accordance with the *Oak Ridge Reservation Landfills Profile S-040: Special Waste, Rev. 6, 2015* (UCOR 2015).

7. CONCLUSIONS

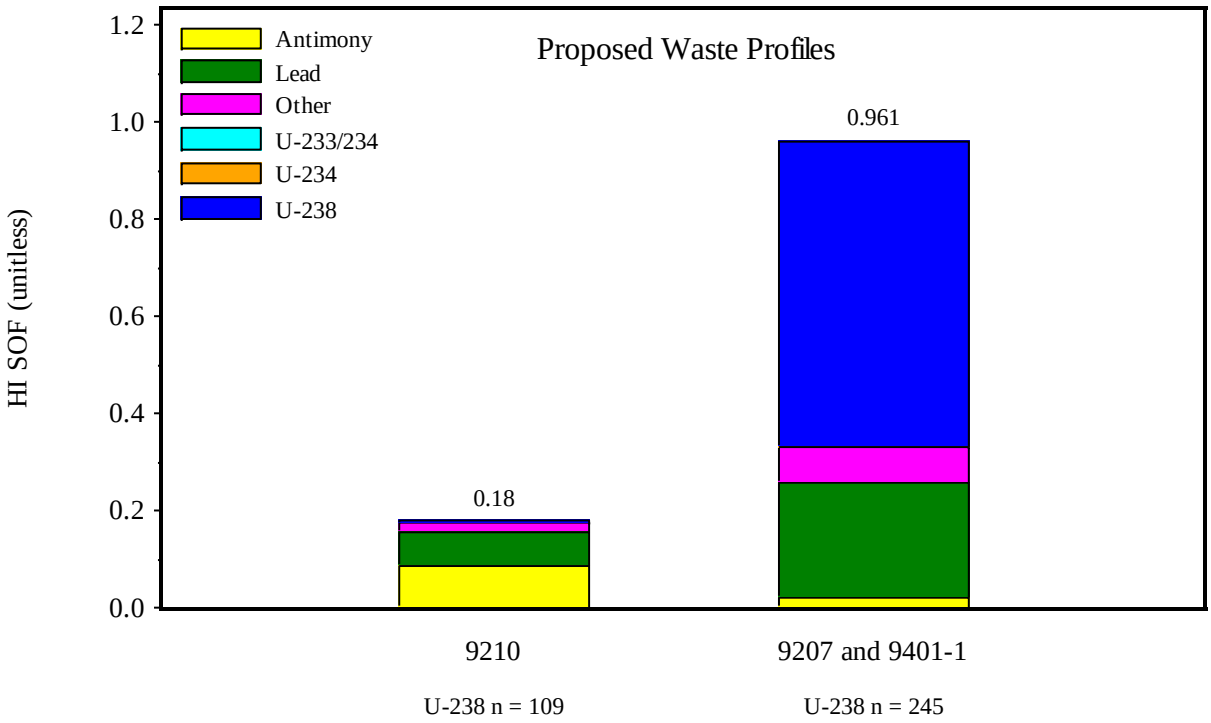
7.1 SITE-RELATED CONTAMINANTS

The Biology Complex data were statistically analyzed and summarized. A calculated SOF was performed for all buildings and media in waste lot (WL) 304.3. The facilities had five samples that exceeded EMWMF WAC limits. These samples were associated with lead, uranium, and C-14, and also included a benzidine exceedance. Figures 16 and 17 illustrate the contributors to the CA and HI SOF by facility.



Other includes U-235/236, U-235, U-236, carbazole and lindane.

Fig. 16. Vertical bar charts of the CA SOFs for Y-12 Biology Complex random and biased data by building.



Other includes boron, di-n-butyl phthalate, barium, tin and U-235/236.

Fig. 17. Vertical bar charts of the HI SOFs for Y-12 Biology Complex random and biased data by building.

The sampling also verified that with the removal of two items Bldg. 9210 is bounded by the ORRLF WAC. The two items that require removal are the C-14 hood and the countertop contamination area on the second floor. These items will be added to the EMWMF profile. Additionally although the accessible portions of the overheads in 9210 were surveyed and no notable contamination was found; a large portion of the overheads could not be accessed due to structural limitations. These areas will be surveyed during hazardous material abatement to ensure there is not contamination present in these overheads.

WL 304.3 will include Bldgs. 9207 and 9401-1. The carcinogenic SOF is 1.65, and the HI SOF is 0.961 for all data combined. U-238 is the largest contributor to both the CA SOF, at a 0.786 ratio; and the HI SOF, at a 0.629 ratio. Overall, Bldg. 9401-1 has significantly higher alpha- and beta-activity concentrations than the other buildings. However, Tc-99 and C-14 are at significantly higher concentrations in 9207 than 9401-1. The significant site-related carcinogenic contaminant is uranium. HI contaminants include metals (antimony, barium, boron, chromium, lead, manganese, and molybdenum), SVOCs (di-n-butyl phthalate, 2-methylnaphthalene), and uranium.

Because the roof has failed on Bldg. 9743-2, Pigeon House, it is unsafe to enter for the purpose of waste characterization. Therefore, it will be demolished, and the debris will be characterized for disposal. Since the building has not been characterized, it is assumed the waste will be disposed at EMWMF for a conservative volume estimate.

7.1.1 RCRA Concerns

The RCRA concerns for the Biology Complex are primary lead items that will be removed prior to demolition. These include lead metal, shielding, block, traps, drains, and joints. Some items that are integral

to the structure may remain with the facility, and be mass averaged over the volume in accordance with the EPA guidelines.

7.1.2 TSCA Concerns

The Biology Complex contains PCBs in the form of oils, remaining equipment, and painted items. Oils will be drained and disposed of at an approved TSDF facility. Equipment that contained oil with PCBs shall be drained and disposed of in a municipal waste or chemical waste landfill. Equipment that contained > 50 ppm PCBs has not been decontaminated must be disposed of as PCB-contaminated equipment. Equipment containing oils with > 500 ppm PCBs must be drained and disposed of at a chemical landfill or decontaminated and disposed. PCB transformers with > 500 ppm PCBs and hydraulic machines with > 1000 ppm PCBs shall be drained and rinsed prior to disposal in a chemical waste landfill. Transformers and equipment that meet the criteria for recycle will be recycled if feasible.

EC has determined, based on previous sampling and PK that painted equipment and painted surfaces shall be defined as bulk product waste in 40 *CFR* 761.50 (b)(4). Therefore, all of the buildings in the Biology Complex will be disposed of as PCB bulk product waste.

8. REFERENCES

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40 *CFR* 261.22, "Characteristic of corrosivity," Washington, D.C.

40 *CFR* 261.23, "Characteristic of reactivity," Washington, D.C.

40 *CFR* 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions*, Washington, D.C.

49 *CFR* 173, *Shippers—General Requirements for Shipments and Packagings*, Washington, D.C.

49 *CFR* 173.51, "Authorization to offer and transport explosives," Washington, D.C.

49 *CFR* 173.53, "Provisions for using old classifications of explosives," Washington, D.C.

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APPENDIX A.
SURVEY AND RELEASE PLANS & 9404-1 SURVEY DATA

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Y-9207 Annex
Radiological Release Report for 2016SRP-002-A03

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Y-9207 Annex
Radiological Release Report for 2016SRP-002-A03

1.0 Introduction

Deactivation and Decommissioning (D&D) activities are currently being performed at the U.S. Department of Energy's (DOE's) Oak Ridge Reservation. Radiological characterization surveys are performed on facilities scheduled for D & D activities. These surveys are used to determine the appropriate radiological controls that may be needed and to establish a disposal path for the waste.

The Y-9207 Annex is located at Y-12, south of Bear Creek Road. Before this building can be considered for unrestricted release (free of radiological controls), survey results must indicate that the radiological conditions satisfy the applicable UCOR requirements established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring,* for use without radiological restrictions.

A summary of the radiological survey data for Y-9207 Annex is provided in Table 1 of this report. This report includes a full list of surveys performed Attachment 1.

2.0 Objective

The objective of this survey was to demonstrate at a 95% confidence level that the surveys performed on Y-9207 Annex satisfy applicable allowable surface contamination guidelines for unrestricted use.

Y-9207 Annex was surveyed in accordance with the criteria established in 2016SRP-002, "Radiological Survey and Release Protocol for the UCOR Decontamination & Demolition Projects".

- **2016SRP-002-A03, Attachment A, *Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex***

See Attachment 2.

The predominant radiological contaminant at Y-12 is processed uranium. The isotopic abundance of the processed uranium is primarily natural or depleted, but enrichments of U-235 are possible. Y-9207 was used for uranium salvage operations before being converted for ORNL Biological Research Operations. The Y-9207 Annex was built after the conversion was completed. The Y-9207 Annex is connected to Y-9207; therefore there is a risk for cross contamination. Based on the access and close proximity of the Annex building Y-9207, uranium is considered the primary contaminant of concern for this facility.

Historically, Naturally Occurring Radioactive Material (NORM) has been identified and found to be used in making prefabricated masonry materials, i.e., concrete block, brick, and ceramic tiles that were used in the construction of buildings at the Oak Ridge Reservation. Data from previous surveys of similar material and MARSSIM (NUREG-1575 and DOE/EH-0624) indicates that typical total beta-gamma readings could range up to 3,500 dpm/100cm^2.

Surface contamination criteria for release from radiological controls are established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring per DOE Order 458.1*: 5,000 dpm/100cm^2 total alpha and/or 5,000 dpm/100cm^2 total beta-gamma and 1,000 dpm/100cm^2 removable alpha and/or 1,000 dpm/100cm^2 removable beta-gamma.

3.0 Survey Methodology

3.1 General

Surveys were implemented in accordance with an approved release plan, 2016SRP-002-A03. Radiation Protection Technicians (RPTs) performed daily pre-operational checks and surveys in accordance with appropriate Radiological Protection (RP) written procedures. Count times, efficiencies, instrument minimum detectable activities, and calculations used to determine surface activity levels were based on the potential of uranium contaminants.

The following requirements applied:

- RPTs performing surveys were qualified in accordance with UCOR Procedures PROC-RP-4035, *Radiation Safety Training* and PROC-RP-4540, *Radiological Protection and Survey Technician Training*.
- Surveys were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring.*
- Surveys were performed in accordance with applicable instrument operating procedures.
- Surveys were documented in accordance with SURV-RAD-1.01 *Visual Survey Data System Users Guide* and maintained in accordance with UCOR Procedure PROC-RP-4518, *Radiation Protection Program Records.*

3.2 Instrumentation

With typical background counts and detector efficiencies, the sensitivity of the radiation detection instruments used for this survey were adequate to meet the Unrestricted Release Criteria given in Section 1 of the Survey and Release Plan's Attachment A. Instrumentation identification, the name of the technicians performing the surveys, and the critical levels (L_c) for direct and removable alpha and beta-gamma measurements can be found in the radiological surveys listed in Attachment 1. All instruments had current calibrations. Daily performance checks were performed and recorded daily and no instrument exhibiting questionable performance was used.

The Critical Level (L_c) is the level in net counts, at which there is a statistical probability (with a predetermined confidence) of correctly identifying a background value as a positive net count (referred to as a Type I error). Conversely, any response of an instrument that is above the L_c value is considered to be above background.

3.3 MARSSIM Classification Assignments

The Y-9207 Annex building contains only office and conference areas. All furniture and equipment has been removed from the building. The Y-9207 Annex was built after Y-9207 was converted from uranium salvage operations to ORNL Biological Research Operations. The building was posted as Fixed Contamination Areas (FCAs) based on the access from Y-9207.

Class 3 materials are those impacted areas or materials that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the release criteria based on site operating history and previous radiological surveys. While the Y-9207 Annex was

posted as a Fixed Contamination the posting was based on the access to Y-9207. The Annex contained only offices and conference rooms. Therefore it classified as Class 3 based upon its history and use.

The classification, survey units and survey methods used during this release plan are documented in Attachment A, 2016SRP-002-A03, *Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex.*

3.4 Survey Approach

Ludlum Model 2360s with 43-93 detectors were used to perform the alpha and beta-gamma scans of 10% of the Class 3 units. The maximum scanning speed is approximately one detector width per second; 1-minute direct measurements of total alpha and beta-gamma activity were also made using the same detectors. Detectors were maintained approximately ¼" from the surface as practical. The audible signal was monitored for noticeable changes. If the count rate exceeded background, the location was identified for further investigation. Otherwise, survey locations were selected biased toward areas of highest potential (e.g. stained, damaged or discolored surfaces).

Removable activity was determined at locations where direct measurements were taken by smearing an area of approximately 100 cm^2. Quantitative smears or wipes with cloth or paper media were conducted over an area of approximately 100 cm^2 and alpha and beta-gamma activity collected on the sample was determined by counting in a sensitive, low-background counter. Direct measurements and smear results were converted to net surface activity in units of dpm/100 cm^2, and measurements were compared with release criteria.

Independent verification measurements were performed of approximately 5% of each survey unit. RPTs not involved in the execution of the initial survey repeated approximately 5% of the direct and removable activity measurements, which were utilized to satisfy release criteria. The results of this survey must confirm the initial findings for acceptance as satisfying release criteria.

4.0 Evaluation of Survey Results

Survey data were reviewed to assure all aspects of the approved release plan have been followed and included an evaluation of the documentation and acceptable quality assurance/quality control data.

- The radiological survey activities were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring*. The performance of the surveys were in accordance with the criteria identified in Survey Release Plan 2016SRP-002, *Radiological Survey and Release Protocol for UCOR Decontamination & Demolition, Environmental Restoration and Closure Projects* and 2016SRP-002-A03, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex.* Table 1 shows a summary of the radiological survey data evaluated in this report.
- Survey units 1 – 5 were below the applicable radiological surface contamination criteria for unrestricted release.

As required by Section 9.0 of Survey Release Plan 2016SRP-002, independent verification measurements were performed on approximately 5% of each survey unit as part of a quality assurance survey. The QA verification surveys performed on the survey units are listed in Attachment 1 with the appropriate characterization survey. The results from the QA verification surveys support the results of the initial surveys.

All survey results are listed in Attachment 1. The survey results listed represent the maximum activities identified in the survey report.

5.0 Survey Plan Deviations

- The lobby listed as room 7-00 and office 7-11 and the connecting hall are part of the Y-9207 Boundary Control Station (BCS) and are posted as a Radiological Buffer Area (RBA). These areas will need to be surveyed and down posted prior to their release from radiological controls.
- All cabinets, furniture and air conditioning units were removed by another contractor prior to the SRP survey therefore no survey data was obtained.
- There were no laboratories, laboratory drains or fume hood therefore H-3 or C-14 surveys were not required.
- There were no other deviations in the execution of this survey plan.

6.0 Conclusion

Based on the final surveys and the QA verification surveys results of the Y-9207 Annex, all of the surveyed materials satisfy the applicable radiological surface contamination release criteria for unrestricted release as stated in Attachment A2, 2016SRP-002-A03 Attachment A, Y-9207 Annex Radiological Release Plan.

Therefore the Y-9207 Annex, except for the Lobby 7-00 and office 7-11 and the connecting hall, may be released from radiological controls and is approved for release to the Y-12 Landfill. The areas used as part of the Y-9207 BCS RBA will need to be surveyed and down posted prior to their release from radiological controls.

The Y-9207 Annex contains masonry products (red brick, ceramic tile, cinder block, porcelain sinks, poured concrete, etc.) that were identified as containing NORM. These materials when placed in trucks and shipped to the Y-12 Landfill have the potential to set off the vehicle portal monitors at the Landfill. Building debris, i.e. steel and equipment should be separated from NORM materials and shipped separately. Haul trucks containing NORM debris may get a by-pass to go around vehicle portal monitors. Management of the NORM waste should be coordinated between the Project Waste Specialist and the Waste Disposal Facility to alleviate disruptions to disposal operations due to unanticipated vehicle portal monitor alarms.

Table 1: Summary of the Survey Data

Survey Unit	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta
	dpm/100cm^2		dpm/100cm^2	
1	$<L_c$	$<L_c$	87	2,336
2	$<L_c$	$<L_c$	92	2,971
3	$<L_c$	$<L_c$	46	2,307
4	$<L_c$	$<L_c$	51	2,760
5	$<L_c$	$<L_c$	87	1,063

Attachment 1,
Full List Of The Surveys Performed
With The Maximum Survey Results

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160523-34	1	7-00	<Lc	<Lc	25	<Lc	Floor
20160523-34	1	7-00	<Lc	<Lc	16	1,017	Block Wall
20160616-38	1	7-00 QA	<Lc	<Lc	4	203	Floor
20160616-38	1	7-00 QA	<Lc	<Lc	46	1,092	Block Wall
20160601-25	1	7-10	<Lc	<Lc	34	<Lc	Floor
20160601-25	1	7-10	<Lc	20	20	1,304	Block Wall
20160614-26	1	7-10 QA	<Lc	<Lc	61	1,058	Floor
20160614-26	1	7-10 QA	<Lc	<Lc	46	2,092	Block Wall
20160526-31	1	7-11	<Lc	<Lc	16	473	Floor
20160526-31	1	7-11	<Lc	<Lc	12	1,358	Block Wall
20160614-30	1	7-11 QA	<Lc	<Lc	25	558	Floor
20160614-30	1	7-11 QA	<Lc	<Lc	46	2,220	Block Wall
20160531-26	1	7-12	<Lc	<Lc	34	<Lc	Floor
20160531-26	1	7-12	<Lc	<Lc	34	1,304	Block Wall
20160614-31	1	7-12 QA	<Lc	<Lc	20	209	Floor
20160614-31	1	7-12 QA	<Lc	<Lc	35	2,336	Block Wall
20160526-25	1	7-13	<Lc	<Lc	16	321	Floor
20160526-25	1	7-13	<Lc	<Lc	12	1,359	Block Wall
20160614-32	1	7-13 QA	<Lc	<Lc	15	477	Floor
20160614-32	1	7-13 QA	<Lc	<Lc	87	1,139	Block Wall
20160531-25	1	7-14	<Lc	<Lc	25	<Lc	Floor
20160531-25	1	7-14	<Lc	<Lc	38	1,376	Block Wall
20160614-33	1	7-14 QA	<Lc	<Lc	20	535	Floor
20160614-33	1	7-14 QA	<Lc	<Lc	30	2,220	Block Wall
20160531-21	1	7-14A	<Lc	<Lc	38	<Lc	Floor
20160531-21	1	7-14A	<Lc	<Lc	42	1,266	Block Wall
20160616-48	1	7-14A QA	<Lc	<Lc	15	169	Floor
20160616-48	1	7-14A QA	<Lc	<Lc	30	2,092	Block Wall
20160525-43	1	7-17	<Lc	20	20	<Lc	Floor
20160525-43	1	7-17	<Lc	<Lc	25	1,574	Block Wall
20160614-42	1	7-17 QA	<Lc	<Lc	25	<Lc	Floor
20160614-42	1	7-17 QA	<Lc	<Lc	30	2,144	Block Wall
20160523-37	1	W Hallway	<Lc	<Lc	29	<Lc	Floor
20160523-37	1	W Hallway	<Lc	<Lc	20	1,194	Block Wall
20160616-45	1	W Hallway QA	<Lc	<Lc	15	604	Floor
20160616-45	1	W Hallway QA	<Lc	<Lc	40	1,743	Block Wall

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm²		dpm/100cm²		
20160525-36	2	7-16	<Lc	<Lc	29	<Lc	Floor
20160525-36	2	7-16	<Lc	<Lc	25	1,152	Block Wall
20160614-37	2	7-16 QA	<Lc	<Lc	35	500	Floor
20160614-37	2	7-16 QA	<Lc	<Lc	87	2,231	Block Wall
20160525-40	2	7-19	<Lc	<Lc	34	<Lc	Floor
20160525-40	2	7-19	<Lc	<Lc	34	1,823	Block Wall
20160614-43	2	7-19 QA	<Lc	<Lc	9	81	Floor
20160614-43	2	7-19 QA	<Lc	<Lc	92	2,255	Block Wall
20160525-39	2	7-20	<Lc	<Lc	25	<Lc	Floor
20160525-39	2	7-20	<Lc	<Lc	42	1,785	Block Wall
20160614-39	2	7-20 QA	<Lc	<Lc	30	703	Floor
20160614-39	2	7-20 QA	<Lc	<Lc	56	1,697	Block Wall
20160523-32	2	7-22	<Lc	<Lc	25	<Lc	Floor
20160523-32	2	7-22	<Lc	<Lc	16	1,177	Block Wall
20160614-44	2	7-22 QA	<Lc	<Lc	9	1,278	Floor
20160614-44	2	7-22 QA	<Lc	<Lc	87	1,610	Block Wall
20160519-42	2	7-23	<Lc	<Lc	16	359	Floor
20160519-42	2	7-23	<Lc	<Lc	16	1,671	Block Wall
20160616-28	2	7-23 QA	<Lc	<Lc	20	459	Floor
20160616-28	2	7-23 QA	<Lc	<Lc	40	1,790	Block Wall
20160523-30	2	7-21A	<Lc	<Lc	20	<Lc	Floor
20160523-30	2	7-21A	<Lc	<Lc	29	1,979	Block Wall
20160614-41	2	7-21A QA	<Lc	<Lc	4	209	Floor
20160614-41	2	7-21A QA	<Lc	<Lc	35	1,058	Block Wall
20160523-27	2	7-23A	<Lc	<Lc	25	224	Floor
20160523-27	2	7-23A	<Lc	<Lc	16	2,971	Block Wall
20160614-45	2	7-23A QA	<Lc	<Lc	<Lc	174	Floor
20160614-45	2	7-23A QA	<Lc	<Lc	25	1,819	Block Wall
20160602-50	2	S Hallway	<Lc	<Lc	25	<Lc	Floor
20160602-50	2	S Hallway	<Lc	<Lc	29	1,084	Block Wall
20160616-47	2	S Hallway QA	<Lc	<Lc	9	430	Floor
20160616-47	2	S Hallway QA	<Lc	<Lc	51	1,952	Block Wall
20160616-27	3	7-28	<Lc	<Lc	16	<Lc	Floor
20160616-27	3	7-28	<Lc	<Lc	20	865	Block Wall
20160616-43	3	7-28 QA	<Lc	<Lc	4	593	Floor
20160616-43	3	7-28 QA	<Lc	<Lc	35	1,302	Block Wall
20160615-29	3	7-31	<Lc	<Lc	16	<Lc	Floor
20160615-29	3	7-31	<Lc	<Lc	34	511	Block Wall
20160616-44	3	7-31 QA	<Lc	<Lc	4	378	Floor
20160616-44	3	7-31 QA	<Lc	<Lc	46	1,865	Block Wall

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm²		dpm/100cm²		
20160616-31	3	7-32	<Lc	<Lc	17	<Lc	Floor
20160616-31	3	7-32	<Lc	<Lc	29	1,439	Block Wall
20160616-32	3	7-32 QA	<Lc	<Lc	9	174	Floor
20160616-32	3	7-32 QA	<Lc	<Lc	30	2,307	Block Wall
20160616-36	3	7-33	<Lc	<Lc	20	<Lc	Floor
20160616-36	3	7-33	<Lc	<Lc	25	1,895	Block Wall
20160616-33	3	7-33 QA	<Lc	<Lc	30	668	Floor
20160616-33	3	7-33 QA	<Lc	<Lc	46	2,179	Block Wall
20160614-22	4	7-24	<Lc	<Lc	34	<Lc	Floor
20160614-22	4	7-24	<Lc	<Lc	34	2,760	Block Wall
20160616-37	4	7-24 QA	<Lc	<Lc	9	442	Floor
20160616-37	4	7-24 QA	<Lc	<Lc	46	2,255	Block Wall
20160614-27	4	7-24A	<Lc	<Lc	29	<Lc	Floor
20160614-27	4	7-24A	<Lc	<Lc	25	713	Block Wall
20160616-35	4	7-24A QA	<Lc	<Lc	35	546	Floor
20160616-35	4	7-24A QA	<Lc	<Lc	40	2,243	Block Wall
20160614-28	4	7-24B	<Lc	<Lc	20	<Lc	Floor
20160614-28	4	7-24B	<Lc	<Lc	25	1,021	Block Wall
20160616-34	4	7-24B QA	<Lc	<Lc	20	622	Floor
20160616-34	4	7-24B QA	<Lc	<Lc	45	2,313	Block Wall
20160606-28	4	7-25	<Lc	<Lc	20	<Lc	Floor
20160606-28	4	7-25	<Lc	<Lc	29	557	Block Wall
20160614-46	4	7-25 QA	<Lc	<Lc	4	<Lc	Floor
20160614-46	4	7-25 QA	<Lc	<Lc	20	2,214	Block Wall
20160606-31	4	7-27	<Lc	<Lc	<Lc	<Lc	Floor
20160606-31	4	7-27	<Lc	<Lc	20	730	Block Wall
20160616-39	4	7-27 QA	<Lc	<Lc	30	453	Floor
20160616-39	4	7-27 QA	<Lc	<Lc	46	1,888	Block Wall
20160606-32	4	7-27A	<Lc	<Lc	16	<Lc	Floor
20160606-32	4	7-27A	<Lc	<Lc	20	536	Block Wall
20160616-40	4	7-27A QA	<Lc	<Lc	9	744	Floor
20160616-40	4	7-27A QA	<Lc	<Lc	35	2,040	Block Wall
20160615-27	4	7-29	<Lc	<Lc	29	<Lc	Floor
20160615-27	4	7-29	<Lc	<Lc	34	<Lc	Block Wall
20160616-41	4	7-29 QA	<Lc	<Lc	15	500	Floor
20160616-41	4	7-29 QA	<Lc	<Lc	30	1,720	Block Wall
20160615-28	4	7-30	<Lc	<Lc	20	<Lc	Floor
20160615-28	4	7-30	<Lc	<Lc	16	460	Block Wall
20160616-42	4	7-30 QA	<Lc	<Lc	15	1,081	Floor
20160616-42	4	7-30 QA	<Lc	<Lc	46	1,790	Block Wall

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm²		dpm/100cm²		
20160602-52	4	E Hallway	<Lc	<Lc	<Lc	<Lc	Floor
20160602-52	4	E Hallway	<Lc	<Lc	25	1,962	Block Wall
20160616-46	4	E Hallway QA	<Lc	<Lc	9	494	Floor
20160616-46	4	E Hallway QA	<Lc	<Lc	51	2,266	Block Wall
20160810-27	5	Exterior	<Lc	<Lc	56	1,063	Walls
20160815-22	5	Exterior QA	<Lc	<Lc	25	982	Walls
20160810-27	5	Roof	<Lc	<Lc	87	<Lc	Ground around bldg and roof drainage
20161031-6	5	Roof	<Lc	<Lc	31	529	Roof
20160815-22	5	Roof QA	<Lc	<Lc	<Lc	81	Ground around bldg and roof drainage
20161103-53	5	Roof QA	<Lc	<Lc	16	337	Roof

Attachment 2,

2016SRP-002-A03, Attachment A

Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex

ATTACHMENT A

Facility/Equipment Specific Information for Survey Planning

Assigned Form Number: 2016SRP-002-A03 **Date Initiated:** 03/29/2016

1. **Description of Facility/Contents or Equipment to be surveyed:**

Facility/Equipment: Building Y-9207-Annex

Location: Y-12 Biology Complex, South of Building 9207

Material of Construction: Cinder block wall constructed on concrete slab. The exterior is finished with red bricks.

Area (m^2): ~128 ft^2 or 12 m^2

Physical Condition: Building structure good. Some offices have carpet.

Surface Condition: Slightly degraded on interior.

Contents: Empty except for minor trash, used PPE and air conditioning units.

Radioactivity Content of Items: Masonry that may contain naturally occurring radioactive material (NORM).

History of Radiological Use: None. 9207-Annex was added to the south side of 9207 in 1965. There building contains offices.

Primary Isotopes of Concern: Uranium and NORM

Applicable Radiological Surface Contamination Criteria for Unrestricted Release:

Building Structure (i.e. Floors and Walls)		Lab Benches, Fume Hoods, Drains	
√	5,000 dpm/100cm2 total alpha	√	100 dpm/100cm2 total alpha
√	1,000 dpm/100cm2 removable alpha	√	20 dpm/100cm2 removable alpha
√	5,000 dpm/100cm2 total beta-gamma		1,000 dpm/100cm2 total beta-gamma
√	1,000 dpm/100cm2 removable beta-gamma		200 dpm/100cm2 removable beta-gamma
	Release to Public	√	10,000 dpm/100cm2 removable H-3

Potential Contaminants: C-14, H-3 and Pu-239 in trace quantities only.

Current Radiological Posting(s): Fixed Contamination Area (FCA)

2. Previous Survey Results:

Survey Number	Date	Description	Results Summary
N/A	N/A	N/A	N/A

3. Type(s) of Survey:

☐ Screening ☑ Characterization ☑ Release

4. Instrumentation to be used:

Ludlum Detector Model	Ludlum Meter Model	Application
43-93	2224/ 2360	Beta-gamma scan & measurement
43-93	2224/ 2360	Alpha scan & measurement
43-68	2224/ 2360	Beta-gamma scan & measurement
43-68	2224/ 2360	Alpha scan & measurement
44-9	2221	Beta-gamma measurement
43-5	2221	Alpha scan & measurement
43-37 w/239-1 Floor Monitor	2221	Alpha scans
43-37 w/239-1 Floor Monitor	2221	Beta-gamma scans
WPC-9550		Alpha smear measurement
WPC-9550		Beta-gamma smear measurement
Protean Low Background Counter		Multiple Smear Counter
TRU Dedicated Instruments for the D&D Project Survey		
43-93	2224/ 2360	Alpha scan
Other Instruments		

5. For Release Surveys:

Disposal Status:

☐ Release to public ☑ Release to Y-12 Landfill ☐ Other _____

Contamination Potential Classification:

☐ Class 1 ☐ Class 2 ☑ Class 3

Number of Survey Units per Classification:

_____ Class 1 _____ Class 2 __5__ Class 3

Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
North West Interior Section	South West Interior Section	North East Interior Section	South East Interior Section	Exterior

NOTE: Walls are constructed of masonry that may contain naturally occurring radioactive material (NORM).

6. Minimum Number of Measurements Required per Survey Unit :

Class 3:

Location/Survey Type	Data Points	Percent Scan
Units 1 - 4		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Cabinets, Furniture, Air Conditioning Units / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Lab Benches, Fume Hoods, Drains / H-3 and C-14 Smears, if located in the survey unit.	2	N/A
Unit 5		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	12	10% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	8	10% Scan

Class 2:

Location/Survey Type	Data Points	Percent Scan
Units 1 - 4		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Cabinets, Furniture, Air Conditioning Units / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Lab Benches, Fume Hoods, Drains / H-3 and C-14 Smears , if located in the survey unit.	2	N/A
Unit 5		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	24	25% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	16	25% Scan

Class 1:

Location/Survey Type	Data Points	Percent Scan
Unit 1 - 4		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan

Cabinets, Furniture, Air Conditioning Units / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Unit 5		
Lab Benches, Fume Hoods, Drains / H-3 and C-14 Smears , if located in the survey unit.	2	N/A
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	36	100% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	24	100% Scan

7. Survey Rigor:

Activity	Rigor (% Coverage per survey unit)			Comments
	Class 1	Class 2	Class 3	
Beta-gamma Scans	100%	25%	10%	
Alpha Scans	100%	25%	10%	

8. Specific Guidance:

a. For each instrument, 10 background determinations will be performed in a similar manner as that in which the measurements will be performed, and the average and standard deviation of measurements will be calculated. The accuracy of the average will be evaluated, relative to the +/-20% accuracy.
b. A MDC will be calculated based on this average background and compared to the release criteria to ensure adequate instrument sensitivity. The accuracy of the daily background will be evaluated, relative to the +/-20% accuracy. If the instrument daily background doesn't fall within +/-20% of the average background, the 10-background determination will be repeated and the MDC recalculated.
c. Perform 10% scan of the designated areas, biased toward areas of highest potential (e.g. ventilation ducting, stained, damaged or discolored surfaces).
d. Perform direct measurements and smears on areas selected in the field, biased toward areas of highest potential (e.g. elevated readings identified during 10% scan, ventilation ducting and stained, damaged or discolored surfaces). The minimum number of survey points is indicated in section 6.
e. All interior wall and exterior wall surfaces will be surveyed without the use of a lift or ladder up to a distance of approximately 7 feet from floor/ground level.
f. The roof survey unit will be limited to roof periphery (e.g. edges).
g. Increase the survey unit to Class 2 with an increase in the scan percentage and additional data points (See Section 6) if:
   - any result is >50% of the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, or
   - the area is discovered to contain a radiologically posted area.
h. Increase the survey unit to Class 1 with an increase in the scan percentage and additional data points (See Section 6) if:
   - any result is ≥ the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, and

- post the area appropriately then contact the RP Supervisor and FRE.

NOTE: The building is presently posted as a Fixed Contamination Area (FCA) at all entrances to the building. If FCAs are located inside the building it is acceptable to establish FCAs "double post" within the building until the building characterization surveys are complete.

i. RPTs not involved in the execution of the initial survey will repeat approximately 5% of the direct and removable activity measurements as Quality Assurance surveys.

9. Additional Supporting Information:

- Prefabricated masonry materials (block/brick/tile) used in the construction of Y-12 Biology Complex is of the type that contains naturally occurring radioactive material. Based on data provided in MARSSIM (NUREG-1575 and DOE/EH-0624) and past survey experience demonstrates that natural readings may range up to 3,500 dpm/100cm^2.

10. Attached documents:

☐ **Photos** ☐ **Floor Plan**

☐ **Derived scan speed**

Prepared by: Myra P. Fry 5-4-16
Date

Approved by: Donald Church 05/05/16
Date

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FOR THE EAST TENNESSEE TECHNOLOGY PARK MISSION

Y-9207 Tower Annex
Radiological Release Report for 2016SRP-002-A04

Prepared By: Myra P. Long Date: 08-18-2016
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Reviewed By: Ronald Creech Date: 08/22/2016
Ronald Creech, Deputy Field Radiological Protection Manager

Approved By: Derrick Alt Date: 08/22/16
Derrick Alt, Field Radiological Protection Manager

Y-9207 Annex Tower
Radiological Release Report for 2016SRP-002-A04

1.0 Introduction

Deactivation and Decommissioning (D&D) activities are currently being performed at the U.S. Department of Energy's (DOE's) Oak Ridge Reservation. Radiological characterization surveys are performed on facilities scheduled for D & D activities. These surveys are used to determine the appropriate radiological controls that may be needed and to establish a disposal path for the waste. This report includes a survey and release plan along with a summary of the radiological survey data for the Y-9207 Annex Tower.

This facility is located at Y-12, south of Bear Creek Road. A summary of the radiological survey data for Y-9207 Annex Tower is provided in Table 1 of this report. A full list of the surveys performed, along with the maximum survey results, is provided in Attachment 1. Before this building can meet the unrestricted release criteria (free of radiological controls), data results must indicate that the radiological conditions satisfy the applicable UCOR requirements established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring,* for use without radiological restrictions.

2.0 Objective

The objective of this survey was to demonstrate at a 95% confidence level that the surveys performed on Y-9207 Annex Tower satisfy applicable allowable surface contamination guidelines for unrestricted use.

Y-9207 Annex Tower was surveyed in accordance with the criteria established in 2016SRP-002, "Radiological Survey and Release Protocol for the UCOR Decontamination & Demolition Projects", Attachment A.

- **2016SRP-002-A04, Attachment A,** ***Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex Tower.***

The predominant radiological contaminant at Y-12 is processed uranium. The isotopic abundance of the processed uranium is primarily natural or depleted, but enrichments of U-235 are possible. Y-9207 and Y-9210 were used for uranium salvage operations before they were converted for ORNL Biological Research Operations. The Y-9207 Annex and Annex Tower, which contain offices and conference rooms, were built after the conversion. Both buildings are connected to Y-9207. Based on the access and close proximity of the Annex and Annex Tower to building Y-9207, uranium is considered the primary contaminant of concern for these facilities.

Historically Naturally Occurring Radioactive Material (NORM) has been identified and found to be used in making prefabricated masonry materials, i.e., concrete block, brick, and ceramic tiles that were used in the construction of buildings at the Oak Ridge Reservation. Data from previous surveys of similar material and MARSSIM (NUREG-1575 and DOE/EH-0624) indicates that typical total beta-gamma readings could range up to 3,500 dpm/100cm^2.

Surface contamination criteria for release from radiological controls are established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring per DOE Order 458.1*: 5,000 dpm/100cm^2 total alpha and beta-gamma and 1,000 dpm/100cm^2 removable alpha and beta-gamma.

3.0 Survey Methodology

3.1 General

Surveys were implemented in accordance with an approved release plan, 2016SRP-002-A04. Radiation Protection Technicians (RPTs) performed daily pre-operational checks and surveys in accordance with appropriate Radiological Protection (RP) written procedures. Count times, efficiencies, instrument minimum detectable activities, and calculations used to determine surface activity levels were based on the potential of uranium contaminants.

The following requirements applied:

- RPTs performing surveys shall be qualified in accordance with UCOR Procedures PROC-RP-4035, *Radiation Safety Training* and PROC-RP-4540, *Radiological Protection and Survey Technician Training*.
- Surveys shall be performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring*.
- Surveys shall be performed in accordance with applicable instrument operating procedures.
- Surveys shall be documented in accordance with UCOR Procedure PROC-RP-4518, *Radiation Protection Program Records*.

3.2 Instrumentation

With typical background counts and detector efficiencies, the sensitivity of the radiation detection instruments used for this survey were adequate to meet the Unrestricted Release Criteria given in Section 1 of the Survey and Release Plan's Attachment A. Instrumentation identification, the name of the technicians performing the surveys, and the critical levels (L_c) for direct and removable alpha and beta-gamma measurements can be found in the radiological surveys listed in Attachment 1. All instruments had current calibrations. Daily performance checks were performed and recorded daily and no instrument exhibiting questionable performance was used.

The Critical Level (L_c) is the level in net counts, at which there is a statistical probability (with a predetermined confidence) of correctly identifying a background value as a positive net count (referred to as a Type I error). Conversely, any response of an instrument that is above the L_c value is considered to be above background.

3.3 MARSSIM Classification Assignments

The Y-9207 Annex Tower building contains only office and conference areas. All furniture and equipment had been removed from the building. The Y-9207 Annex Tower was built after Y-9207 was converted from uranium salvage operations to ORNL Biological Research Operations. The building was posted as Fixed Contamination Areas (FCAs) based on its access to Y-9207.

Class 3 materials are those impacted areas or materials that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the release criteria based on site operating history and previous radiological surveys. Y-9207 Annex Tower was classified as Class 3 based upon its history and use.

The classification, survey units and survey methods used during this release plan are documented in Attachment A, 2016SRP-002-A04, *Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex Tower.*

3.4 Survey Approach

Ludlum Model 43-93 detectors were used to perform the alpha and beta-gamma scans of 10% of the Class 3 units. The maximum scanning speed is approximately one detector width per second; 1-minute direct measurements of total alpha and beta-gamma activity were also made using the same detectors. Detectors were maintained approximately ¼" from the surface as practical. The audible signal was monitored for noticeable changes. If the count rate exceeds background, the location was identified for further investigation. Otherwise, survey locations were selected biased toward areas of highest potential (e.g. stained, damaged or discolored surfaces).

Removable activity was determined at locations where direct measurements were taken by smearing an area of approximately 100 cm^2. Quantitative smears or wipes with cloth or paper media are conducted over an area of approximately 100 cm^2 and alpha and beta-gamma activity collected on the sample is determined by counting in a sensitive, low-background counter. Direct measurements and smear results were converted to net surface activity in units of dpm/100 cm^2, and measurements were compared with release criteria.

Independent verification measurements were performed of approximately 5% of each survey unit. RPTs not involved in the execution of the initial survey repeated approximately 5% of the direct and removable activity measurements, which were utilized to satisfy release criteria. The results of this survey must confirm the initial findings for acceptance as satisfying release criteria.

4.0 Evaluation of Survey Results

Survey data were reviewed to assure all aspects of the approved release plan have been followed and included an evaluation of the documentation and acceptable quality assurance/quality control data.

- The radiological survey activities were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring*. The performance of the surveys were in accordance with the criteria identified in Survey Release Plan 2016SRP-002, *Radiological Survey and Release Protocol for UCOR Decontamination & Demolition, Environmental Restoration and Closure Projects* and 2016SRP-002-A04, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9207 Annex Tower.* Table 1 shows a summary of the radiological survey data evaluated in this report.
- Survey units 1 – 6 were below the applicable radiological surface contamination criteria for unrestricted release.

As required by Section 9.0 of Survey Release Plan 2016SRP-002, independent verification measurements were performed on approximately 5% of each survey unit as part of a quality assurance survey. The QA verification surveys performed on the survey units are listed in Attachment 1 with the appropriate characterization survey. The results from the QA verification surveys support the results of the initial surveys.

All survey results are listed in Attachment 1. The survey results listed represents the maximum activities identified in the survey report.

5.0 Survey Plan Deviations

- All furniture had been removed from the building by a previous contractor and was not surveyed under this Survey Plan.
- The roof was not accessible for survey. The Y-9207 Annex Tower was constructed after Y-9207 was converted from uranium salvage operations to ORNL Biological Research Operations. Therefore it is unlikely that the roof was contaminated by exhaust from Y-9207 during uranium recovery operations. Surveys of the roof drains and the ground around the building were determined to represent radioactive material located on the roof. There were no other deviations in the execution of this survey plan.

6.0 Conclusion

Based on the surveys and the QA verification surveys results of the Y-9207 Annex Tower, all of the surveyed materials satisfy the applicable radiological surface contamination release criteria for unrestricted release as stated in Attachment A, 2016SRP-002-A04, Y-9207 Annex Tower Radiological Release Plan.

Therefore the Y-9207 Annex Tower may be released from radiological controls and is approved for release to the Y-12 Landfill. This report excludes the release of any furniture / contents.

The Y-9207 Annex Tower contains masonry products (red brick, ceramic tile, porcelain sinks, poured concrete, etc.) that were identified as containing NORM. These materials when placed in trucks and shipped to the Y-12 Landfill have the potential to set off the vehicle portal monitors at the Landfill. Building debris, i.e. steel and equipment should be separated from NORM materials and shipped separately. Haul trucks containing NORM debris will get a by-pass to go around vehicle portal monitors. Management of the NORM waste should be coordinated between the Project Waste Specialist and the Waste Disposal Facility to alleviate disruptions to disposal operations due to unanticipated vehicle portal monitor alarms.

Table 1: Summary of the Survey Data

Survey Unit	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta
	dpm/100cm^2		dpm/100cm^2	
1	$<L_c$	18	56	2,138
2	$<L_c$	$<L_c$	87	2,080
3	$<L_c$	21	51	2,098
4	$<L_c$	$<L_c$	87	1,999
5	$<L_c$	23	56	2,038
6	$<L_c$	$<L_c$	40	1,429

Attachment 1,
Full List Of The Surveys Performed
With The Maximum Survey Results

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160804 -33	1	7-1040	<Lc	<Lc	<Lc	<Lc	Floors
20160804 -33	1	7-1040	<Lc	18	25	924	Block Walls
20160808 -66	1	7-1040 QA	<Lc	<Lc	20	<Lc	Floors
20160808 -66	1	7-1040 QA	<Lc	<Lc	56	354	Block Walls
20160804 -36	1	Hallway / Stairs	<Lc	18	<Lc	<Lc	Floors
20160804 -36	1	Hallway / Stairs	<Lc	18	51	2,138	Block Walls
20160808 -69	1	Hallway QA	<Lc	<Lc	20	354	Floors
20160808 -69	1	Hallway QA	<Lc	<Lc	56	1,075	Block Walls
20160803 -27	2	7-1540	<Lc	<Lc	30	<Lc	Floors
20160803 -27	2	7-1540	<Lc	<Lc	20	1,429	Block Walls
20160808 -60	2	7-1540 QA	<Lc	<Lc	25	23	Floors
20160808 -60	2	7-1540 QA	<Lc	<Lc	45	1,761	Block Walls
20160803 -35	2	7-1541	<Lc	<Lc	20	<Lc	Floors
20160803 -35	2	7-1541	<Lc	<Lc	30	1,557	Block Walls
20160808 -70	2	7-1541 QA	<Lc	<Lc	35	610	Floors
20160808 -70	2	7-1541 QA	<Lc	<Lc	30	2,040	Block Walls
20160803 -23	2	7-1542	<Lc	<Lc	30	<Lc	Floors
20160803 -23	2	7-1542	<Lc	<Lc	20	697	Block Walls
20160808 -52	2	7-1542 QA	<Lc	<Lc	15	354	Floors
20160808 -52	2	7-1542 QA	<Lc	<Lc	35	1,319	Block Walls
20160802 -62	2	7-1543	<Lc	<Lc	<Lc	<Lc	Floors
20160802 -62	2	7-1543	<Lc	<Lc	<Lc	1,244	Block Walls
20160808 -53	2	7-1543 QA	<Lc	<Lc	<Lc	494	Floors
20160808 -53	2	7-1543 QA	<Lc	<Lc	30	1,445	Block Walls

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160802 -4	2	7-1544	<Lc	<Lc	25	<Lc	Floors
20160802 -4	2	7-1544	<Lc	<Lc	25	1,307	Block Walls
20160808 -55	2	7-1544 QA	<Lc	<Lc	4	296	Floors
20160808 -55	2	7-1544 QA	<Lc	<Lc	46	1,441	Block Walls
20150802 -61	2	7-1545	<Lc	<Lc	35	1,888	Block Walls
20160802 -61	2	7-1545	<Lc	<Lc	20	<Lc	Floors
20160808 -61	2	7-1545 QA	<Lc	<Lc	25	209	Floors
20160808 -61	2	7-1545 QA	<Lc	<Lc	87	1,029	Block Walls
20160802 -2	2	7-1547	<Lc	<Lc	<Lc	<Lc	Floors
20160802 -2	2	7-1547	<Lc	<Lc	25	1,087	Block Walls
20160808 -63	2	7-1547 QA	<Lc	<Lc	25	244	Floors
20160808 -63	2	7-1547 QA	<Lc	<Lc	46	535	Block Walls
20160802 -63	2	Hallway	<Lc	<Lc	20	<Lc	Floors
20160802 -63	2	Hallway	<Lc	<Lc	20	1,273	Block Walls
20160808 -65	2	Hallway QA	<Lc	<Lc	25	134	Floors
20160808 -65	2	Hallway QA	<Lc	<Lc	46	1,540	Block Walls
20160803 -29	2	Stairs	<Lc	<Lc	<Lc	<Lc	Floors
20160803 -29	2	Stairs	<Lc	<Lc	35	1,476	Block Walls
20160808 -67	2	Stairs QA	<Lc	<Lc	25	622	Floors
20160808 -67	2	Stairs QA	<Lc	<Lc	66	2,080	Block Walls
20160728 -53	3	7-2040	<Lc	<Lc	46	<Lc	Floors
20160728 -53	3	7-2040	<Lc	<Lc	15	1,540	Block Walls
20160808 -38	3	7-2040 QA	<Lc	<Lc	25	<Lc	Floors
20160808 -38	3	7-2040 QA	<Lc	<Lc	46	1,761	Block Walls
20160727 -30	3	7-2043	<Lc	<Lc	40	488	Floors
20160727 -30	3	7-2043	<Lc	<Lc	25	1,749	Block Walls
20160808 -43	3	7-2043 QA	<Lc	<Lc	15	151	Floors
20160808 -43	3	7-2043 QA	<Lc	<Lc	40	999	Block Walls

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160726 -30	3	7-2044	<Lc	21	<Lc	<Lc	Floors
20160726 -30	3	7-2044	<Lc	<Lc	35	1,336	Block Walls
20160808 -44	3	7-2044 QA	<Lc	<Lc	20	796	Floors
20160808 -44	3	7-2044 QA	<Lc	<Lc	46	1,761	Block Walls
20160727 -26	3	7-2045	<Lc	<Lc	25	<Lc	Floors
20160727 -26	3	7-2045	<Lc	<Lc	<Lc	1,296	Block Walls
20160808 -45	3	7-2045 QA	<Lc	<Lc	15	215	Floors
20160808 -45	3	7-2045 QA	<Lc	<Lc	46	1,354	Block Walls
20160726 -27	3	7-2047	<Lc	<Lc	25	<Lc	Floors
20160726 -27	3	7-2047	<Lc	<Lc	<Lc	1,121	Block Walls
20160808 -46	3	7-2047 QA	<Lc	<Lc	<Lc	<Lc	Floors
20160808 -46	3	7-2047 QA	<Lc	<Lc	46	901	Block Walls
20160801 -42	3	Hallway 2041	<Lc	<Lc	<Lc	273	Floors
20160801 -42	3	Hallway 2041	<Lc	<Lc	35	1,708	Block Walls
20160808 -47	3	Hallway QA	<Lc	<Lc	<Lc	354	Floors
20160808 -47	3	Hallway QA	<Lc	<Lc	51	2,098	Block Walls
20160801 -63	3	Stairs	<Lc	<Lc	<Lc	<Lc	Floors
20160801 -63	3	Stairs	<Lc	<Lc	40	1,029	Block Walls
20160808 -50	3	Stairs QA	<Lc	<Lc	15	628	Floors
20160808 -50	3	Stairs QA	<Lc	<Lc	46	2,051	Block Walls
20160623 -44	4	7-2540	<Lc	<Lc	21	<Lc	Floors
20160623 -44	4	7-2540	<Lc	<Lc	25	1,059	Block Walls
20160802 -31	4	7-2540 QA	<Lc	<Lc	15	0	Floors
20160802 -31	4	7-2540 QA	<Lc	<Lc	35	1,348	Block Walls
20160623 -41	4	7-2542	<Lc	<Lc	21	<Lc	Floors
20160623 -41	4	7-2542	<Lc	<Lc	12	814	Block Walls
20160802 -33	4	7-2542 QA	<Lc	<Lc	25	232	Floors
20160802 -33	4	7-2542 QA	<Lc	<Lc	30	814	Block Walls

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160622 -29	4	7-2543	<Lc	<Lc	29	363	Floors
20160622 -29	4	7-2543	<Lc	<Lc	29	971	Block Walls
20160802 -34	4	7-2543 QA	<Lc	<Lc	30	314	Floors
20160802 -34	4	7-2543 QA	<Lc	<Lc	46	1,976	Block Walls
20160623 -38	4	7-2544	<Lc	<Lc	20	<Lc	Floors
20160623 -38	4	7-2544	<Lc	<Lc	16	401	Block Walls
20160802 -37	4	7-2544 QA	<Lc	<Lc	15	163	Floors
20160802 -37	4	7-2544 QA	<Lc	<Lc	35	703	Block Walls
20160622 -31	4	7-2545	<Lc	<Lc	21	<Lc	Floors
20160622 -31	4	7-2545	<Lc	<Lc	29	468	Block Walls
20160802 -38	4	7-2545 QA	<Lc	<Lc	20	93	Floors
20160802 -38	4	7-2545 QA	<Lc	<Lc	87	936	Block Walls
20160622 -32	4	7-2547	<Lc	<Lc	25	<Lc	Floors
20160622 -32	4	7-2547	<Lc	<Lc	25	755	Block Walls
20160802 -39	4	7-2547 QA	<Lc	<Lc	30	256	Floors
20160802 -39	4	7-2547 QA	<Lc	<Lc	61	1,482	Block Walls
20160725 -30	4	Hallway 7-2500	<Lc	<Lc	25	<Lc	Floors
20160725 -30	4	Hallway 7-2500	<Lc	<Lc	25	1,970	Block Walls
20160802 -40	4	7-2500 Hallway QA	<Lc	<Lc	25	227	Floors
20160802 -40	4	7-2500 Hallway QA	<Lc	<Lc	35	1,999	Block Walls
20160623 -46	4	Hallway	<Lc	<Lc	25	<Lc	Floors
20160623 -46	4	Hallway	<Lc	<Lc	25	460	Block Walls
20160802 -42	4	Hallway QA	<Lc	<Lc	30	64	Floors
20160802 -42	4	Hallway QA	<Lc	<Lc	87	1,395	Block Walls
20160725 -35	4	Stairs	<Lc	<Lc	25	1,836	Floors
20160725 -35	4	Stairs	<Lc	<Lc	20	1,859	Block Walls
20160802 -44	4	Stairs QA	<Lc	<Lc	30	163	Floors
20160802 -44	4	Stairs QA	<Lc	<Lc	87	1,877	Block Walls

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160621 -26	5	7-3040	<Lc	<Lc	24	241	Floors
20160621 -26	5	7-3040	<Lc	<Lc	38	1,219	Block Walls
20160801 -23	5	7-3040 QA	<Lc	<Lc	<Lc	<Lc	Floors
20160801 -23	5	7-3040 QA	<Lc	<Lc	35	1,447	Block Walls
20160621 -33	5	7-3041 Hallway	<Lc	<Lc	21	279	Floors
20160621 -33	5	7-3041 Hallway	<Lc	<Lc	55	1,511	Block Walls
20160801 -27	5	7-3041 QA	<Lc	<Lc	20	<Lc	Floors
20160801 -27	5	7-3041 QA	<Lc	<Lc	46	1,941	Block Walls
20160621 -24	5	7-3042	<Lc	<Lc	34	317	Floors
20160621 -24	5	7-3042	<Lc	<Lc	38	958	Block Walls
20160801 -29	5	7-3042 QA	<Lc	<Lc	15	151	Floors
20160801 -29	5	7-3042 QA	<Lc	<Lc	40	843	Block Walls
20160620 -33	5	7-3043	<Lc	23	47	<Lc	Floors
20160620 -33	5	7-3043	<Lc	<Lc	42	1,072	Block Walls
20160801 -30	5	7-3043 QA	<Lc	<Lc	<Lc	116	Floors
20160801 -30	5	7-3043 QA	<Lc	<Lc	46	1,336	Block Walls
20160620 -28	5	7-3044	<Lc	<Lc	29	1,177	Floors
20160620 -28	5	7-3044	<Lc	<Lc	38	865	Block Walls
20160801 -31	5	7-3044 QA	<Lc	<Lc	20	122	Floors
20160801 -31	5	7-3044 QA	<Lc	<Lc	25	1,377	Block Walls
20160620 -30	5	7-3045	<Lc	20	25	<Lc	Floors
20160620 -30	5	7-3045	<Lc	<Lc	25	700	Block Walls
20160801 -32	5	7-3045 QA	<Lc	<Lc	15	<Lc	Floors
20160801 -32	5	7-3045 QA	<Lc	<Lc	35	726	Block Walls
20160620 -35	5	Hallway	<Lc	<Lc	25	<Lc	Floors
20160620 -35	5	Hallway	<Lc	<Lc	42	1,207	Block Walls
20160801 -34	5	Hallway QA	<Lc	<Lc	15	<Lc	Floors
20160801 -34	5	Hallway QA	<Lc	<Lc	56	1,424	Block Walls

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Removable Alpha	Maximum Removable Beta	Comments
			dpm/100cm2		dpm/100cm2		
20160621 -27	5	Stairs	<Lc	<Lc	29	308	Floors
20160621 -27	5	Stairs	<Lc	<Lc	25	2,038	Block Walls
20160801 -36	5	Stair QA	<Lc	<Lc	30	180	Floors
20160801 -36	5	Stair QA	<Lc	<Lc	35	1,970	Block Walls
20160810 -32	6	Exterior	<Lc	<Lc	40	<Lc	Block Walls
20160815 -21	6	Exterior QA	<Lc	<Lc	25	1,429	Block Walls
20160810 -32	6	Roof	<Lc	<Lc	30	<Lc	Ground around bldg and roof drainage
20160815 -21	6	Roof QA	<Lc	<Lc	4	6	Ground around bldg and roof drainage

UCOR Radiological Survey Report

Survey UCOR-I-20160719-34

General Information

Title: Steam Plant Building 9401-1 Cell 4

Survey Date/Time: 7/19/2016 11:33

Lead Surveyor: Brill, Alexander

Location: Steam Plant Building 9401-1 Cell 4

Work Order/Task #: N/A

RWP: 30884

Badge: 713853

Purpose: Characterization

RP Area: BIOLOGY

Status: Approved by: Hensley, Mike, 7/25/2016 06:18:54 Badge: 701090

Ready for Review by: Brill, Alexander, 7/21/2016 06:28:28 Badge: 713853

Instruments Used

#	Instrument Model	Instrument Serial #	Inst Type	Probe Model	Probe Serial #	Probe Type	Calibration Date/Time	Efficiency		
								β/γ	β	α
1	LUDLUM 2360	K38586I	C	43-93	K68568P	C	3/29/2017	.1721		.1936
2	LUDLUM 2929	K35613I	C	43-10-1	K67071P	C	4/19/2017	.3015		.3553
3	EBERLINE RO-20	K32052I	D		INTERNAL	D	3/29/2017			

Comments:

Steam Plant 9401-1

Cell 4 Characterization Survey

Room is labled as a Contamination Area

Contamination measurement(s) taken are 1 minute counts
10% scan of accessible areas performed.

Smears field counted with 2360 results <60,000 dpm/100cm2 total activity
Placed into container labeled with UN2910 with a dose rate <0.2 mR/hr to be transported to K-1310-HF.

Smears taken in same location as Direct readings.

Alpha Lc and MDC is provided by the instrumentation group
Beta-Gamma Lc and MDC are based on average of (10) 1 minute background counts (see attached)

Instrument Info:

2360/43-93 Instrument # K38586I

Alpha	Beta/Gamma
Bkg: 4.9 cpm	Bkg: 407 cpm
Lc: 9 cpm	Lc: 455 cpm
MDC: 55 dpm/100cm2	MDC: 563 dpm/100cm2
C.F.: 5.17	C.F.: 5.81

Instrument K37210 Model 2929 with 43-10-1 Probe (90% C.L.)

Alpha	Beta/Gamma
Bkg: 0.3 cpm	Bkg: 62 cpm
Lc: 2 cpm	Lc: 81 cpm
MDC:14 dpm 100/cm2	MDC: 101 dpm/100cm2
C.F.:2.81	C.F.:3.32

Itemized Details - Items

#	Item Location/Description	Notes
1	Drum Dolly	Direct
2	Drum Dolly	Smear
3	Floor Jack	Direct
4	Floor Jack	Smear
5	Ladder	Direct
6	Ladder	Smear
7	Tank	Direct
8	Tank	Smear
9	Cage	Direct
10	Cage	Smear
11	Pan	Direct
12	Pan	Smear
13	Flat Cart	Direct
14	Flat Cart	Smear
15	Internal door	Direct
16	Internal door	Smear
17	Internal door	Direct
18	Internal door	Smear
19	Floor	Direct
20	Floor	Smear
21	Floor	Direct
22	Floor	Smear
23	Floor	Direct
24	Floor	Smear
25	Floor	Direct
26	Floor	Smear
27	Floor	Direct
28	Floor	Smear
29	Floor	Direct
30	Floor	Smear
31	Floor	Direct
32	Floor	Smear
33	Wall South	Direct
34	Wall South	Smear
35	Wall North	Direct
36	Wall North	Smear
37	Wall East	Direct
38	Wall East	Smear
39	Wall West	Direct
40	Wall West	Smear

UCOR Radiological Survey Report

41	Floor	Smear
42	Count Station	

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3015
Eff. for Total: Inst: 1 Eff: .1721

Default Bkg Value: 407
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	5421	CPM	407	CPM	T	29134.2	DPM/100cm2
2	82	CPM	62	CPM	R	66.3	DPM/100cm2
3	2543	CPM	407	CPM	T	12411.4	DPM/100cm2
4	69	CPM	62	CPM	R	23.2	DPM/100cm2
5	501	CPM	407	CPM	T	546.2	DPM/100cm2
6	68	CPM	62	CPM	R	19.9	DPM/100cm2
7	4063	CPM	407	CPM	T	21243.5	DPM/100cm2
8	73	CPM	62	CPM	R	36.5	DPM/100cm2
9	726	CPM	407	CPM	T	1853.6	DPM/100cm2
10	81	CPM	62	CPM	R	63	DPM/100cm2
11	551	CPM	407	CPM	T	836.7	DPM/100cm2
12	60	CPM	62	CPM	R	<Lc	DPM/100cm2
13	10457	CPM	407	CPM	T	58396.3	DPM/100cm2
14	75	CPM	62	CPM	R	43.1	DPM/100cm2
15	768	CPM	407	CPM	T	2097.6	DPM/100cm2
16	59	CPM	62	CPM	R	<Lc	DPM/100cm2
17	505	CPM	407	CPM	T	569.4	DPM/100cm2
18	63	CPM	62	CPM	R	3.3	DPM/100cm2
19	12562	CPM	407	CPM	T	70627.5	DPM/100cm2
20	99	CPM	62	CPM	R	122.7	DPM/100cm2
21	607	CPM	407	CPM	T	1162.1	DPM/100cm2
22	67	CPM	62	CPM	R	16.6	DPM/100cm2
23	8005	CPM	407	CPM	T	44148.8	DPM/100cm2
24	82	CPM	62	CPM	R	66.3	DPM/100cm2
25	4342	CPM	407	CPM	T	22864.6	DPM/100cm2
26	71	CPM	62	CPM	R	29.9	DPM/100cm2
27	5663	CPM	407	CPM	T	30540.4	DPM/100cm2
28	62	CPM	62	CPM	R	0	DPM/100cm2
29	1003	CPM	407	CPM	T	3463.1	DPM/100cm2
30	55	CPM	62	CPM	R	<Lc	DPM/100cm2
31	554	CPM	407	CPM	T	854.2	DPM/100cm2
32	67	CPM	62	CPM	R	16.6	DPM/100cm2
33	523	CPM	407	CPM	T	674	DPM/100cm2
34	59	CPM	62	CPM	R	<Lc	DPM/100cm2
35	622	CPM	407	CPM	T	1249.3	DPM/100cm2
36	72	CPM	62	CPM	R	33.2	DPM/100cm2
37	431	CPM	407	CPM	T	139.5	DPM/100cm2
38	81	CPM	62	CPM	R	63	DPM/100cm2
39	679	CPM	407	CPM	T	1580.5	DPM/100cm2

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3015
Eff. for Total: Inst: 1 Eff: .1721

Default Bkg Value: 407
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	59	CPM	62	CPM	R	<Lc	DPM/100cm2
41	462	CPM	407	CPM	R	*182.4*	DPM/LAW
42	<Lc	CPM	62	CPM	R	<Lc	DPM/100cm2

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .3553
Eff. for Total: Inst: 1 Eff: .1936

Default Bkg Value: 1.3
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	56	CPM	4.9	CPM	T	263.9	DPM/100cm2
2	4	CPM	0.3	CPM	R	10.4	DPM/100cm2
3	27	CPM	4.9	CPM	T	114.2	DPM/100cm2
4	3	CPM	0.3	CPM	R	7.6	DPM/100cm2
5	10	CPM	4.9	CPM	T	26.3	DPM/100cm2
6	3	CPM	0.3	CPM	R	7.6	DPM/100cm2
7	21	CPM	4.9	CPM	T	83.2	DPM/100cm2
8	7	CPM	0.3	CPM	R	18.9	DPM/100cm2
9	15	CPM	4.9	CPM	T	52.2	DPM/100cm2
10	4	CPM	0.3	CPM	R	10.4	DPM/100cm2
11	7	CPM	4.9	CPM	T	10.8	DPM/100cm2
12	1	CPM	0.3	CPM	R	2	DPM/100cm2
13	201	CPM	4.9	CPM	T	1012.9	DPM/100cm2
14	10	CPM	1.3	CPM	R	24.5	DPM/100cm2
15	11	CPM	4.9	CPM	T	31.5	DPM/100cm2
16	3	CPM	1.3	CPM	R	4.8	DPM/100cm2
17	16	CPM	4.9	CPM	T	57.3	DPM/100cm2
18	2	CPM	0.3	CPM	R	4.8	DPM/100cm2
19	123	CPM	4.9	CPM	T	610	DPM/100cm2
20	9	CPM	0.3	CPM	R	24.5	DPM/100cm2
21	17	CPM	4.9	CPM	T	62.5	DPM/100cm2
22	5	CPM	0.3	CPM	R	13.2	DPM/100cm2
23	14	CPM	4.9	CPM	T	47	DPM/100cm2
24	3	CPM	0.3	CPM	R	7.6	DPM/100cm2
25	31	CPM	4.9	CPM	T	134.8	DPM/100cm2
26	4	CPM	0.3	CPM	R	10.4	DPM/100cm2
27	9	CPM	4.9	CPM	T	21.2	DPM/100cm2
28	2	CPM	0.3	CPM	R	4.8	DPM/100cm2
29	27	CPM	4.9	CPM	T	114.2	DPM/100cm2
30	5	CPM	0.3	CPM	R	13.2	DPM/100cm2
31	11	CPM	4.9	CPM	T	31.5	DPM/100cm2
32	2	CPM	0.3	CPM	R	4.8	DPM/100cm2
33	7	CPM	4.9	CPM	T	10.8	DPM/100cm2
34	1	CPM	0.3	CPM	R	2	DPM/100cm2
35	13	CPM	4.9	CPM	T	41.8	DPM/100cm2
36	3	CPM	0.3	CPM	R	7.6	DPM/100cm2
37	16	CPM	4.9	CPM	T	57.3	DPM/100cm2
38	5	CPM	0.3	CPM	R	13.2	DPM/100cm2
39	12	CPM	4.9	CPM	T	36.7	DPM/100cm2

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .3553
Eff. for Total: Inst: 1 Eff: .1936

Default Bkg Value: 1.3
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	4	CPM	0.3	CPM	R	*10.4*	DPM/100cm2
41	<Lc	CPM	0.3	CPM	R	<Lc	DPM/100cm2
42			1.3	CPM			

Attachments

Order	Filename	Description	Pages
1	sd 7-19.pdf		1

10, 1 minute survey area background measurements with average background and standard deviation for Alpha and Beta/Gamma.

K38586I		
CT #	α	βγ
1	4	425
2	5	387
3	4	399
4	3	441
5	6	432
6	5	374
7	4	405
8	7	417
9	6	376
10	5	414
AVG	*4.9*	*407*
SD	*1*	*23*

Note: Background taken inside building on 1st floor east side

UCOR Radiological Survey Report

Survey UCOR-I-20161019-7

General Information

Title: 9401-1 RSI Sampling

Survey Date/Time: 10/18/2016 06:44

Lead Surveyor: Cross, Shasta

Location: 9401-1

Work Order/Task #: N/A

RWP: 30843

Badge: 072167

Purpose: Job Coverage

RP Area: BIOLOGY

Status: Approved by: Hensley, Mike, 10/24/2016 06:20:08 — Badge: 701090

Ready for Review by: Baxter, Steve, 10/20/2016 05:28:31 — Badge: 714271

Additional Surveyors

Surveyor	Badge	Concurrence
Baxter, Steve	714271	☑
Casselton, Dawn	714282	☑

Instruments Used

#	Instrument Model	Instrument Serial #	Inst Type	Probe Model	Probe Serial #	Probe Type	Calibration Date/Time	Efficiency		
								β/γ	β	α
1	LUDLUM 2360	K38473I	C	43-93	K68574P	C	6/21/2017	.1590	n/a	.2130

UCOR Radiological Survey Report

Comments:

RSI Job Coverage Building 9401-1

Area was posted as a Contamination Area pre-job and down-posted to a Clean Area post-job, as applicable per survey results.
Survey conducted in support of RSI crew for sampling.
8 Different sample locations, along with work areas surveyed prior to and after work had ceased.
Radiological conditions of work area remain unchanged
All Individuals were scanned with 2360 prior to doffing PPE and exiting the area no elevated levels indicated
10 samples surveyed and placed into cooler # 5122 (Morning Samples)
With attached **Yellow Tag # D&D-Y 07455**
4 samples surveyed and placed into cooler # 5122 (Afternoon Samples)
With attached **Yellow Tag # D&D-Y 07456**
Released to RSI and sent to GEL for further analysis.
Smears and direct frisk performed on the above.
Smears field counted with 2360, results found in the detail section.
Highest readings recorded.

All counts accumulated for 1 minute.
*Alpha Lc's and MDC's provided by instrument group.
*Beta-Gamma Lc's and MDC's are based on a 1 minute background count.

Limits used for release:
Removable levels must be $\leq L_C$ and $\leq L_C$.
Total contamination levels allowable, upon decontamination of all removable contamination above the limit, must be $\leq$ 500 dpm/100 cm² and $\leq$ 1,000 dpm/100 cm².
Any smear taken for removable contamination that is > L_C shall be analyzed using a counter/scaler.

Instrument K38473I Model 2360 with 43-93 Probe K68574P (95% C.L.)

Alpha	Beta/Gamma
Bkg: 1.3 cpm	Bkg: 289 cpm
Lc: 4 cpm	Lc: 329 cpm
MDC: 33 dpm/100cm²	MDC: 517 dpm/100cm²
C.F.: 4.69	C.F.: 6.29
Eff: 0.2130	Eff: 0.1590

Itemized Details - Items

#	Item Location/Description	Notes
1	Wall Sample Location	
2	Wall Sample Location	
3	Sample WIS020	
4	Sample Package	
5	Scaffold	
6	Scaffold	
7	Sampler PPE	
8	Sampler PPE	
9	Herculite Exterior	Herculite was placed in an B25 and posted as a Radioactive Material Area.
10	Herculite Exterior	
11	Ceiling Sample Location Sample DCIS056	
12	Ceiling Sample Location Sample DCIS056	
13	Floor After Water Leak	
14	Floor After Water Leak	
15	Scaffold Floor After Water Leak	
16	Scaffold Floor After Water Leak	
17	Pathway Out of Area	
18	Pathway Out of Area	
19	Wall Sample Location W1S011	
20	Wall Sample Location W1S011	
21	Sample WIS0011	
22	I/S Hole	
23	Sample Package	
24	Ladder	
25	Ladder	
26	Wall Sample Location	
27	WallSample Location	
28	Sample W1S019	
29	I/S Hole	
30	Sample Package	
31	Sample location DC1S027	
32	Sample location DC1S027	
33	Sample DC1S027	
34	I/S Hole	
35	Sample Package	
36	Sample location DC1S049	
37	Sample location DC1S049	
38	Sample DC1S049	
39	I/S Hole	
40	Sample Package	

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41	Sample location DC1S052	
42	Sample location DC1S052	
43	Sample DC1S052	
44	I/S Hole	
45	Sample Package	
46	Sample location DC1S051	
47	Sample location DC1S051	
48	Sample DC1S051	
49	I/S Hole	
50	Sample Package	
51	Tools	
52	Floor All Work Areas Post Sampling	
53	Gloves	
54	PAM 1	
55	PAM 2	
56	PAM 3	
57	Cooler #5122	
58	Cooler #5122	
59	Respirators x 14	
60	Respirators x 14	

Beta-Gamma Activity

Eff. for Removable: Inst: 1 Eff: .1590
Eff. for Total: Inst: 1 Eff: .1590

Default Bkg Value: 289
Default Bkg Units: cpm

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	2479	CPM	289	cpm	T	*13773.6*	DPM/100cm2
2	335	CPM	289	cpm	R	*289.3*	DPM/100cm2
3	762	CPM	289	cpm	T	*2974.8*	DPM/100cm2
4	<Lc	CPM	289	cpm	R	<Lc	CPM
5	<Lc	CPM	289	cpm	T	<Lc	CPM
6	<Lc	CPM	289	cpm	R	<Lc	CPM
7	<Lc	CPM	289	cpm	T	<Lc	CPM
8	<Lc	CPM	289	cpm	R	<Lc	CPM
9	1678	CPM	289	cpm	T	*8735.8*	DPM/100cm2
10	<Lc	CPM	289	cpm	R	<Lc	CPM
11	<Lc	CPM	289	cpm	T	<Lc	CPM
12	<Lc	CPM	289	cpm	R	<Lc	CPM
13	<Lc	CPM	289	cpm	T	<Lc	CPM
14	<Lc	CPM	289	cpm	R	<Lc	CPM
15	<Lc	CPM	289	cpm	T	<Lc	CPM
16	<Lc	CPM	289	cpm	R	<Lc	CPM
17	<Lc	CPM	289	cpm	T	<Lc	CPM
18	<Lc	CPM	289	cpm	R	<Lc	CPM
19	<Lc	CPM	289	cpm	T	<Lc	CPM
20	<Lc	CPM	289	cpm	R	<Lc	CPM
21	<Lc	CPM	289	cpm	T	<Lc	CPM
22	<Lc	CPM	289	cpm	R	<Lc	CPM
23	<Lc	CPM	289	cpm	R	<Lc	CPM
24	<Lc	CPM	289	cpm	T	<Lc	CPM
25	<Lc	CPM	289	cpm	R	<Lc	CPM
26	528	CPM	289	cpm	T	*1503.1*	DPM/100cm2
27	<Lc	CPM	289	cpm	R	<Lc	CPM
28	<Lc	CPM	289	cpm	T	<Lc	CPM
29	<Lc	CPM	289	cpm	R	<Lc	CPM
30	<Lc	CPM	289	cpm	R	<Lc	CPM
31	<Lc	CPM	289	cpm	T	<Lc	CPM
32	<Lc	CPM	235	cpm	R	<Lc	CPM
33	<Lc	CPM	235	cpm	T	<Lc	CPM
34	<Lc	CPM	289	cpm	R	<Lc	CPM
35	<Lc	CPM	289	cpm	R	<Lc	CPM
36	<Lc	CPM	235	cpm	T	<Lc	CPM
37	<Lc	CPM	235	cpm	R	<Lc	CPM
38	<Lc	CPM	235	cpm	T	<Lc	CPM
39	<Lc	CPM	289	cpm	R	<Lc	CPM

Beta-Gamma Activity

Eff. for Removable: Inst: 1 Eff: .1590
Eff. for Total: Inst: 1 Eff: .1590
Default Bkg Value: 289
Default Bkg Units: cpm

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	<Lc	CPM	235	cpm	R	<Lc	CPM
41	<Lc	CPM	235	cpm	T	<Lc	CPM
42	<Lc	CPM	235	cpm	R	<Lc	CPM
43	<Lc	CPM	235	cpm	T	<Lc	CPM
44	<Lc	CPM	289	cpm	R	<Lc	CPM
45	<Lc	CPM	289	cpm	R	<Lc	CPM
46	<Lc	CPM	289	cpm	T	<Lc	CPM
47	<Lc	CPM	289	cpm	R	<Lc	CPM
48	<Lc	CPM	289	cpm	T	<Lc	CPM
49	<Lc	CPM	289	cpm	R	<Lc	CPM
50	<Lc	CPM	289	cpm	R	<Lc	CPM
51	<Lc	CPM	235	cpm	R	<Lc	CPM
52	<Lc	CPM	235	cpm	R	<Lc	CPM
53	<Lc	CPM	235	cpm	T	<Lc	CPM
54	<Lc	CPM	235	cpm	R	<Lc	CPM
55	<Lc	CPM	235	cpm	R	<Lc	CPM
56	<Lc	CPM	235	cpm	R	<Lc	CPM
57	<Lc	CPM	235	cpm	T	<Lc	CPM
58	<Lc	CPM	235	cpm	R	<Lc	CPM
59	<Lc	CPM	235	cpm	T	<Lc	CPM
60	<Lc	CPM	235	cpm	R	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 1 Eff: .2130
Eff. for Total: Inst: 1 Eff: .2130

Default Bkg Value: 1.3
Default Bkg Units: cpm

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	<Lc	CPM	1.3	cpm	T	<Lc	CPM
2	<Lc	CPM	1.3	cpm	R	<Lc	CPM
3	<Lc	CPM	1.3	cpm	T	<Lc	CPM
4	<Lc	CPM	1.3	cpm	R	<Lc	CPM
5	<Lc	CPM	1.3	cpm	T	<Lc	CPM
6	<Lc	CPM	1.3	cpm	R	<Lc	CPM
7	<Lc	CPM	1.3	cpm	T	<Lc	CPM
8	<Lc	CPM	1.3	cpm	R	<Lc	CPM
9	11	CPM	1.3	cpm	T	*45.5*	DPM/100cm2
10	<Lc	CPM	1.3	cpm	R	<Lc	CPM
11	<Lc	CPM	1.3	cpm	T	<Lc	CPM
12	<Lc	CPM	1.3	cpm	R	<Lc	CPM
13	<Lc	CPM	1.3	cpm	T	<Lc	CPM
14	<Lc	CPM	1.3	cpm	R	<Lc	CPM
15	<Lc	CPM	1.3	cpm	T	<Lc	CPM
16	<Lc	CPM	1.3	cpm	R	<Lc	CPM
17	<Lc	CPM	1.3	cpm	T	<Lc	CPM
18	<Lc	CPM	1.3	cpm	R	<Lc	CPM
19	<Lc	CPM	1.3	cpm	T	<Lc	CPM
20	<Lc	CPM	1.3	cpm	R	<Lc	CPM
21	<Lc	CPM	1.3	cpm	T	<Lc	CPM
22	<Lc	CPM	1.3	cpm	R	<Lc	CPM
23	<Lc	CPM	1.3	cpm	R	<Lc	CPM
24	<Lc	CPM	1.3	cpm	T	<Lc	CPM
25	<Lc	CPM	1.3	cpm	R	<Lc	CPM
26	<Lc	CPM	1.3	cpm	T	<Lc	CPM
27	<Lc	CPM	1.3	cpm	R	<Lc	CPM
28	<Lc	CPM	1.3	cpm	T	<Lc	CPM
29	<Lc	CPM	1.3	cpm	R	<Lc	CPM
30	<Lc	CPM	1.3	cpm	R	<Lc	CPM
31	<Lc	CPM	1.3	cpm	T	<Lc	CPM
32	<Lc	CPM	1.3	cpm	R	<Lc	CPM
33	<Lc	CPM	1.3	cpm	T	<Lc	CPM
34	<Lc	CPM	1.3	cpm	R	<Lc	CPM
35	<Lc	CPM	1.3	cpm	R	<Lc	CPM
36	<Lc	CPM	1.3	cpm	T	<Lc	CPM
37	<Lc	CPM	1.3	cpm	R	<Lc	CPM
38	<Lc	CPM	1.3	cpm	T	<Lc	CPM
39	<Lc	CPM	1.3	cpm	R	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 1 Eff: .2130
Eff. for Total: Inst: 1 Eff: .2130
Default Bkg Value: 1.3
Default Bkg Units: cpm

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	<Lc	CPM	1.3	cpm	R	<Lc	CPM
41	<Lc	CPM	1.3	cpm	T	<Lc	CPM
42	<Lc	CPM	1.3	cpm	R	<Lc	CPM
43	<Lc	CPM	1.3	cpm	T	<Lc	CPM
44	<Lc	CPM	1.3	cpm	R	<Lc	CPM
45	<Lc	CPM	1.3	cpm	R	<Lc	CPM
46	<Lc	CPM	1.3	cpm	T	<Lc	CPM
47	<Lc	CPM	1.3	cpm	R	<Lc	CPM
48	<Lc	CPM	1.3	cpm	T	<Lc	CPM
49	<Lc	CPM	1.3	cpm	R	<Lc	CPM
50	<Lc	CPM	1.3	cpm	R	<Lc	CPM
51	<Lc	CPM	1.3	cpm	R	<Lc	CPM
52	<Lc	CPM	1.3	cpm	R	<Lc	CPM
53	<Lc	CPM	1.3	cpm	T	<Lc	CPM
54	<Lc	CPM	1.3	cpm	R	<Lc	CPM
55	<Lc	CPM	1.3	cpm	R	<Lc	CPM
56	<Lc	CPM	1.3	cpm	R	<Lc	CPM
57	<Lc	CPM	1.3	cpm	T	<Lc	CPM
58	<Lc	CPM	1.3	cpm	R	<Lc	CPM
59	<Lc	CPM	1.3	cpm	R	<Lc	CPM
60	<Lc	CPM	1.3	cpm	T	<Lc	CPM

UCOR Radiological Survey Report

Survey UCOR-I-20161003-47

General Information

Title: Biology Building 9401-1

Survey Date/Time: 10/3/2016 08:00

Lead Surveyor: Casselton, Dawn

Location: Biology Building 9401-1

Work Order/Task #: N/A

RWP: 30895

Badge: 714282

Purpose: Job Coverage

RP Area: BIOLOGY

Status: Approved by: Hensley, Mike, 10/10/2016 07:01:40 — Badge: 701090

Ready for Review by: Cross, Shasta, 10/6/2016 06:10:33 — Badge: 072167

Additional Surveyors

Surveyor	Badge	Concurrence
Cross, Shasta	072167	☑

Instruments Used

#	Instrument Model	Instrument Serial #	Inst Type	Probe Model	Probe Serial #	Probe Type	Calibration Date/Time	Efficiency		
								β/γ	β	α
1	LUDLUM 2360	K38473I	C	43-93	K68574P	C	6/21/2017	.1590		.2130

Comments:

Biology Building 9401-1

Survey of future Sampling Locations for RSI

Alpha Lc and MDC is provided by the instrumentation group

Contamination measurement(s) taken are 1 minute counts
100% scan of accessible 4' radius around areas to be sampled by RSI Sample Locations notated in detail section.

Smears taken in same location as direct readings, smears were field checked and area was posted accordingly.

Controlled Area
CA
RWP Required for Entry
Notify RADCON Prior to Entry

Instrument Info:

2360/43-93 Instrument # K38473I / K68574P

Alpha	Beta/Gamma
Bkg: 1.3 cpm	Bkg: 169 cpm
Lc: 4 cpm	Lc: 200 cpm
MDC: 33 dpm/100cm²	MDC: 400 dpm/100cm²
C.F.: 4.69	C.F.: 6.29
Eff: 0.2130	Eff: 0.1590

Itemized Details - Items

#	Item Location/Description	Notes
1	W1S020	Wall Direct
2	W1S020	Wall Smear
3	DC1S055	Ceiling Direct
4	DC1S055	Ceiling Smear
5	DC1S056	Ceiling Direct
6	DC1S056	Ceiling Smear
7	Count Station	Count Station Smear

Beta-Gamma Activity

Eff. for Removable: Inst: 1 Eff: .1590 Default Bkg Value: 169
Eff. for Total: Inst: 1 Eff: .1590 Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	2479	CPM	169	CPM	T	*14528.3*	DPM/100cm2
2	347	CPM	169	CPM	R	*1119.5*	DPM/100cm2
3	412	CPM	169	CPM	T	*1528.3*	DPM/100cm2
4	278	CPM	169	CPM	R	*685.5*	DPM/100cm2
5	252	CPM	169	CPM	T	*522*	DPM/100cm2
6	245	CPM	169	CPM	R	*478*	DPM/100cm2
7	<Lc	CPM	169	CPM	R	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 1 Eff: .2130 Default Bkg Value: 0.4
Eff. for Total: Inst: 1 Eff: .2130 Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	10	CPM	0.4	CPM	T	*45.1*	DPM/100cm2
2	4	CPM	0.4	CPM	R	*16.9*	DPM/100cm2
3	10	CPM	0.4	CPM	T	*45.1*	DPM/100cm2
4	11	CPM	0.4	CPM	R	*49.8*	DPM/100cm2
5	6	CPM	0.4	CPM	T	*26.3*	DPM/100cm2
6	<Lc	CPM	0.4	CPM	R	<Lc	CPM
7	<Lc	CPM	0.4	CPM	R	<Lc	CPM

UCOR Radiological Survey Report

Survey UCOR-I-20160712-36

General Information

Title: Steam Plant 9401-1 from Column 9 to Column 13

Survey Date/Time: 7/12/2016 09:30

Lead Surveyor: Baxter, Steve

Location: Steam Plant Building

Work Order/Task #: N/A

RWP: 30760

Badge: 714271

Purpose: Characterization

RP Area: BIOLOGY

Status: Approved by: Hensley, Mike, 7/13/2016 12:57:31 — Badge: 701090

Ready for Review by: Baxter, Steve, 7/13/2016 07:23:53 — Badge: 714271

Additional Surveyors

Surveyor	Badge	Concurrence
Haycraft, David	714260	☑

Instruments Used

#	Instrument Model	Instrument Serial #	Inst Type	Probe Model	Probe Serial #	Probe Type	Calibration Date/Time	Efficiency β/γ	Efficiency β	Efficiency α
1	LUDLUM 2360	K38567I	C	43-93	K68431P	C	3/29/2017	.2370		.2299
2	PROTEAN WPC-9550	K35613I	C		INTERNAL	C	2/4/2017	.3507		.2528
3	EBERLINE RO-20	K32052I	D		INTERNAL	D	3/29/2017			

Comments:

Steam Plant 9401-1

Column 9 to Column 13
(excludes rooms)

Characterization Survey

Alpha Lc and MDC is provided by the instrumentation group
Beta-Gamma Lc and MDC are based on average of (10) 1 minute background counts (see attached)

Contamination measurement(s) taken are 1 minute counts
10% scan of accessible areas performed.

Smears field counted with 2360 results <60,000 dpm/100cm2 total activity and placed into container labeled with UN2910 with a dose rate <0.2 mR/hr
to be transported to K-1310-HF.

Smears taken in same location as Direct readings.

SEE ATTACHMENT FOR PROTEAN DATA!!

Instrument Info:

2360/43-93 Instrument # K38567I

Alpha	Beta/Gamma
Bkg: 1.3 cpm	Bkg: 416 cpm
Lc: 4 cpm	Lc: 464 cpm
MDC: 31 dpm/100cm2	MDC: 413 dpm/100cm2
C.F.: 4.35	C.F.: 4.22
Eff: 0.2299	Eff: 0.2370

Protean Instrument # K356131I:

Alpha	Beta/Gamma
Bkg: 0.10 cpm	Bkg: 0.96 cpm
Eff : 0.2528	Eff: 0.3507
MDA: 15.99 dpm	MDA: 17.75 dpm

Itemized Details - Items

#	Item Location/Description	Notes
1	Floor South East	Direct
2	Floor South East	Direct
3	Floor South East	Direct
4	Floor South East	Direct
5	Floor South East	Direct
6	Floor South East	Direct
7	Floor South East	Direct
8	Floor South East	Direct
9	Floor South East	Direct
10	Floor South East	Direct
11	Floor North East	Direct
12	Floor North East	Direct
13	Floor North East	Direct
14	Floor North East	Direct
15	Floor North East	Direct
16	Floor North East	Direct
17	Floor North East	Direct
18	Floor North East	Direct
19	Floor North East	Direct
20	Floor North East	Direct
21	Floor North West	Direct
22	Floor North West	Direct
23	Floor North West	Direct
24	Floor North West	Direct
25	Floor North West	Direct
26	Floor North West	Direct
27	Floor North West	Direct
28	Floor North West	Direct
29	Floor North West	Direct
30	Floor North West	Direct
31	Floor South West	Direct
32	Floor South West	Direct
33	Floor South West	Direct
34	Floor South West	Direct
35	Floor South West	Direct
36	Floor South West	Direct
37	Floor South West	Direct
38	Floor South West	Direct
39	Floor South West	Direct
40	Floor South West	Direct

41	Wall South	Direct
42	Wall South	Direct
43	Wall South	Direct
44	Wall South	Direct
45	Wall South	Direct
46	Wall South	Direct
47	Wall South	Direct
48	Wall South	Direct
49	Wall South	Direct
50	Wall South	Direct
51	Wall North	Direct
52	Wall North	Direct
53	Wall North	Direct
54	Wall North	Direct
55	Wall North	Direct
56	Wall North	Direct
57	Wall North	Direct
58	Wall North	Direct
59	Wall North	Direct
60	Wall North	Direct
61	Wall East	Direct
62	Wall East	Direct
63	Wall East	Direct
64	Wall East	Direct
65	Wall East	Direct
66	Wall East	Direct
67	Wall East	Direct
68	Wall East	Direct
69	Wall East	Direct
70	Wall East	Direct
71	Wall West	Direct
72	Wall West	Direct
73	Wall West	Direct
74	Wall West	Direct
75	Wall West	Direct
76	Count Station	Smear

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3507
Eff. for Total: Inst: 1 Eff: .2370

Default Bkg Value: 416
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	483	CPM	416	CPM	T	*282.7*	DPM/100cm2
2	589	CPM	416	CPM	T	*730*	DPM/100cm2
3	477	CPM	416	CPM	T	*257.4*	DPM/100cm2
4	483	CPM	416	CPM	T	*282.7*	DPM/100cm2
5	<Lc	CPM	416	CPM	T	<Lc	CPM
6	<Lc	CPM	416	CPM	T	<Lc	CPM
7	731	CPM	416	CPM	T	*1329.1*	DPM/100cm2
8	19011	CPM	416	CPM	T	*78459.9*	DPM/100cm2
9	465	CPM	416	CPM	T	*206.8*	DPM/100cm2
10	<Lc	CPM	416	CPM	T	<Lc	CPM
11	<Lc	CPM	416	CPM	T	<Lc	CPM
12	<Lc	CPM	416	CPM	T	<Lc	CPM
13	1379	CPM	416	CPM	T	*4063.3*	DPM/100cm2
14	519	CPM	416	CPM	T	*434.6*	DPM/100cm2
15	<Lc	CPM	416	CPM	T	<Lc	CPM
16	<Lc	CPM	416	CPM	T	<Lc	CPM
17	<Lc	CPM	416	CPM	T	<Lc	CPM
18	<Lc	CPM	416	CPM	T	<Lc	CPM
19	<Lc	CPM	416	CPM	T	<Lc	CPM
20	<Lc	CPM	416	CPM	T	<Lc	CPM
21	<Lc	CPM	416	CPM	T	<Lc	CPM
22	487	CPM	416	CPM	T	*299.6*	DPM/100cm2
23	<Lc	CPM	416	CPM	T	<Lc	CPM
24	<Lc	CPM	416	CPM	T	<Lc	CPM
25	<Lc	CPM	416	CPM	T	<Lc	CPM
26	<Lc	CPM	416	CPM	T	<Lc	CPM
27	<Lc	CPM	416	CPM	T	<Lc	CPM
28	<Lc	CPM	416	CPM	T	<Lc	CPM
29	<Lc	CPM	416	CPM	T	<Lc	CPM
30	<Lc	CPM	416	CPM	T	<Lc	CPM
31	<Lc	CPM	416	CPM	T	<Lc	CPM
32	<Lc	CPM	416	CPM	T	<Lc	CPM
33	<Lc	CPM	416	CPM	T	<Lc	CPM
34	<Lc	CPM	416	CPM	T	<Lc	CPM
35	<Lc	CPM	416	CPM	T	<Lc	CPM
36	<Lc	CPM	416	CPM	T	<Lc	CPM
37	<Lc	CPM	416	CPM	T	<Lc	CPM
38	<Lc	CPM	416	CPM	T	<Lc	CPM
39	<Lc	CPM	416	CPM	T	<Lc	CPM

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3507
Eff. for Total: Inst: 1 Eff: .2370

Default Bkg Value: 416
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	<Lc	CPM	416	CPM	T	<Lc	CPM
41	530	CPM	416	CPM	T	*481*	DPM/100cm2
42	657	CPM	416	CPM	T	*1016.9*	DPM/100cm2
43	533	CPM	416	CPM	T	*493.7*	DPM/100cm2
44	513	CPM	416	CPM	T	*409.3*	DPM/100cm2
45	556	CPM	416	CPM	T	*590.7*	DPM/100cm2
46	<Lc	CPM	416	CPM	T	<Lc	CPM
47	<Lc	CPM	416	CPM	T	<Lc	CPM
48	<Lc	CPM	416	CPM	T	<Lc	CPM
49	<Lc	CPM	416	CPM	T	<Lc	CPM
50	<Lc	CPM	416	CPM	T	<Lc	CPM
51	815	CPM	416	CPM	T	*1683.5*	DPM/100cm2
52	662	CPM	416	CPM	T	*1038*	DPM/100cm2
53	<Lc	CPM	416	CPM	T	<Lc	CPM
54	523	CPM	416	CPM	T	*451.5*	DPM/100cm2
55	616	CPM	416	CPM	T	*843.9*	DPM/100cm2
56	532	CPM	416	CPM	T	*489.5*	DPM/100cm2
57	557	CPM	416	CPM	T	*594.9*	DPM/100cm2
58	578	CPM	416	CPM	T	*683.5*	DPM/100cm2
59	483	CPM	416	CPM	T	*282.7*	DPM/100cm2
60	595	CPM	416	CPM	T	*755.3*	DPM/100cm2
61	<Lc	CPM	416	CPM	T	<Lc	CPM
62	<Lc	CPM	416	CPM	T	<Lc	CPM
63	<Lc	CPM	416	CPM	T	<Lc	CPM
64	<Lc	CPM	416	CPM	T	<Lc	CPM
65	<Lc	CPM	416	CPM	T	<Lc	CPM
66	<Lc	CPM	416	CPM	T	<Lc	CPM
67	<Lc	CPM	416	CPM	T	<Lc	CPM
68	<Lc	CPM	416	CPM	T	<Lc	CPM
69	<Lc	CPM	416	CPM	T	<Lc	CPM
70	<Lc	CPM	416	CPM	T	<Lc	CPM
71	<Lc	CPM	416	CPM	T	<Lc	CPM
72	<Lc	CPM	416	CPM	T	<Lc	CPM
73	<Lc	CPM	416	CPM	T	<Lc	CPM
74	<Lc	CPM	416	CPM	T	<Lc	CPM
75	<Lc	CPM	416	CPM	T	<Lc	CPM
76	<Lc	CPM	416	CPM	R	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .2528
Eff. for Total: Inst: 1 Eff: .2299

Default Bkg Value: 1.3
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	8	CPM	1.3	CPM	T	*29.1*	DPM/100cm2
2	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
3	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
4	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
5	9	CPM	1.3	CPM	T	*33.5*	DPM/100cm2
6	<Lc	CPM	1.3	CPM	T	<Lc	CPM
7	8	CPM	1.3	CPM	T	*29.1*	DPM/100cm2
8	74	CPM	1.3	CPM	T	*316.2*	DPM/100cm2
9	<Lc	CPM	1.3	CPM	T	<Lc	CPM
10	8	CPM	1.3	CPM	T	*29.1*	DPM/100cm2
11	7	CPM	1.3	CPM	T	*24.8*	DPM/100cm2
12	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
13	<Lc	CPM	1.3	CPM	T	<Lc	CPM
14	<Lc	CPM	1.3	CPM	T	<Lc	CPM
15	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
16	<Lc	CPM	1.3	CPM	T	<Lc	CPM
17	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
18	8	CPM	1.3	CPM	T	*29.1*	DPM/100cm2
19	<Lc	CPM	1.3	CPM	T	<Lc	CPM
20	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
21	<Lc	CPM	1.3	CPM	T	<Lc	CPM
22	<Lc	CPM	1.3	CPM	T	<Lc	CPM
23	<Lc	CPM	1.3	CPM	T	<Lc	CPM
24	<Lc	CPM	1.3	CPM	T	<Lc	CPM
25	10	CPM	1.3	CPM	T	*37.8*	DPM/100cm2
26	<Lc	CPM	1.3	CPM	T	<Lc	CPM
27	<Lc	CPM	1.3	CPM	T	<Lc	CPM
28	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
29	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
30	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
31	<Lc	CPM	1.3	CPM	T	<Lc	CPM
32	<Lc	CPM	1.3	CPM	T	<Lc	CPM
33	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
34	7	CPM	1.3	CPM	T	*24.8*	DPM/100cm2
35	<Lc	CPM	1.3	CPM	T	<Lc	CPM
36	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
37	<Lc	CPM	1.3	CPM	T	<Lc	CPM
38	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
39	<Lc	CPM	1.3	CPM	T	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .2528
Eff. for Total: Inst: 1 Eff: .2299

Default Bkg Value: 1.3
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
41	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
42	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
43	<Lc	CPM	1.3	CPM	T	<Lc	CPM
44	<Lc	CPM	1.3	CPM	T	<Lc	CPM
45	<Lc	CPM	1.3	CPM	T	<Lc	CPM
46	<Lc	CPM	1.3	CPM	T	<Lc	CPM
47	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
48	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
49	<Lc	CPM	1.3	CPM	T	<Lc	CPM
50	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
51	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
52	<Lc	CPM	1.3	CPM	T	<Lc	CPM
53	<Lc	CPM	1.3	CPM	T	<Lc	CPM
54	<Lc	CPM	1.3	CPM	T	<Lc	CPM
55	<Lc	CPM	1.3	CPM	T	<Lc	CPM
56	<Lc	CPM	1.3	CPM	T	<Lc	CPM
57	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
58	<Lc	CPM	1.3	CPM	T	<Lc	CPM
59	<Lc	CPM	1.3	CPM	T	<Lc	CPM
60	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
61	<Lc	CPM	1.3	CPM	T	<Lc	CPM
62	<Lc	CPM	1.3	CPM	T	<Lc	CPM
63	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
64	<Lc	CPM	1.3	CPM	T	<Lc	CPM
65	<Lc	CPM	1.3	CPM	T	<Lc	CPM
66	6	CPM	1.3	CPM	T	*20.4*	DPM/100cm2
67	4	CPM	1.3	CPM	T	*11.7*	DPM/100cm2
68	<Lc	CPM	1.3	CPM	T	<Lc	CPM
69	<Lc	CPM	1.3	CPM	T	<Lc	CPM
70	<Lc	CPM	1.3	CPM	T	<Lc	CPM
71	<Lc	CPM	1.3	CPM	T	<Lc	CPM
72	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
73	<Lc	CPM	1.3	CPM	T	<Lc	CPM
74	<Lc	CPM	1.3	CPM	T	<Lc	CPM
75	5	CPM	1.3	CPM	T	*16.1*	DPM/100cm2
76	<Lc	CPM	1.3	CPM	R	<Lc	CPM

Attachments

Order	Filename	Description	Pages
1	Bkgd Column 9 to 13.pdf	Background Data	1
2	column 9 thru 13 Floor.pdf	Floor Data	1
3	Column 9 thru 13 walls.pdf	Walls Data	1

(10) 1 minute survey area background measurements with average background and standard deviation for Alpha and Beta Gamma

Instrument #			K38567I	
	α		βγ	
1)	2	cpm	394	cpm
2)	4	cpm	428	cpm
3)	4	cpm	431	cpm
4)	3	cpm	403	cpm
5)	2	cpm	416	cpm
6)	6	cpm	399	cpm
7)	4	cpm	435	cpm
8)	2	cpm	421	cpm
9)	2	cpm	411	cpm
10)	0	cpm	422	cpm
Avg	2.9	cpm	416	cpm
SD	1.66		13.98	

7/12/2016 10:07:52 AM
Routine 2 SMEAR 1 MINUTE Batch ID: 9401-1 Open Area C9 D13 Floor

Alpha MDA = 15.99 dpm Beta MDA = 17.75 dpm

ALPHA BKGD = 0.10 BETA BKGD = 0.96
ALPHA EFF. = 0.2528 BETA EFF. 0.3507
ALPHA F = 1.00 BETA F 1.00
Count Time = 1.00 mins BKGND Count Time = 720.00 mins

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Floor SE	0.000	4.000	-0.396	8.668
2	2	Floor SE	0.000	1.000	-0.396	0.114
3	3	Floor SE	0.000	2.000	-0.396	2.965
4	4	Floor SE	0.000	0.000	-0.396	-2.737
5	5	Floor SE	0.000	0.000	-0.396	-2.737
6	6	Floor SE	0.000	1.000	-0.396	0.114
7	7	Floor SE	0.000	5.000	-0.396	11.520
8	8	Floor SE	0.000	1.000	-0.396	0.114
9	9	Floor SE	1.000	7.000	3.560	17.223
10	10	Floor SE	0.000	1.000	-0.396	0.114
11	11	Floor NE	0.000	2.000	-0.396	2.965
12	12	Floor NE	0.000	5.000	-0.396	11.520
13	13	Floor NE	1.000	7.000	3.560	17.223
14	14	Floor NE	0.000	1.000	-0.396	0.114
15	15	Floor NE	0.000	2.000	0.396	2.965
16	16	Floor NE	0.000	0.000	0.396	-2.737
17	17	Floor NE	1.000	3.000	3.560	5.817
18	18	Floor NE	0.000	9.000	-0.396	22.926
19	19	Floor NE	0.000	4.000	0.396	8.668
20	20	Floor NE	0.000	0.000	0.396	-2.737
21	21	Floor NW	0.000	0.000	-0.396	2.737
22	22	Floor NW	2.000	1.000	7.516	0.114
23	23	Floor NW	0.000	3.000	-0.396	5.817
24	24	Floor NW	0.000	2.000	-0.396	2.965
25	25	Floor NW	0.000	5.000	-0.396	11.520
26	26	Floor NW	0.000	4.000	-0.396	8.668
27	27	Floor NW	1.000	2.000	3.560	2.965
28	28	Floor NW	0.000	5.000	-0.396	11.520
29	29	Floor NW	0.000	0.000	-0.396	-2.737
30	30	Floor NW	1.000	2.000	3.560	2.965
31	31	Floor SW	0.000	1.000	-0.396	0.114
32	32	Floor SW	1.000	1.000	3.560	0.114
33	33	Floor SW	1.000	1.000	3.560	0.114
34	34	Floor SW	0.000	2.000	-0.396	2.965
35	35	Floor SW	0.000	3.000	-0.396	5.817
36	36	Floor SW	0.000	3.000	-0.396	5.817
37	37	Floor SW	0.000	2.000	-0.396	2.965
38	38	Floor SW	0.000	2.000	-0.396	2.965
39	39	Floor SW	1.000	0.000	3.560	-2.737
40	40	Floor SW	0.000	0.000	-0.396	2.737

W356137

Counted By: _____ Reviewed By: _____ Date: _____

7/12/2016 11:02:30 AM
Routine 3 SMEAR 1 MINUTE Batch ID: 9401-1 Open Area C9-D13 Walls

Alpha MDA = 15.99 dpm Beta MDA = 17.75 dpm

ALPHA BKGD = 0.10 BETA BKGD = 0.96
ALPHA EFF. = 0.2528 BETA EFF. = 0.3507
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 mins BKGND Count Time = 720.00 mins

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	41	South Wall	2.000	2.000	7.516	2.965
2	42	South Wall	2.000	4.000	7.516	8.668
3	43	South Wall	0.000	3.000	-0.396	5.817
4	44	South Wall	1.000	0.000	3.560	-2.737
5	45	South Wall	1.000	2.000	3.560	2.965
6	46	South Wall	0.000	2.000	-0.396	2.965
7	47	South Wall	0.000	5.000	-0.396	11.520
8	48	South Wall	0.000	1.000	-0.396	0.114
9	49	South Wall	0.000	1.000	-0.396	0.114
10	50	South Wall	0.000	3.000	-0.396	5.817
11	51	North Wall	0.000	4.000	-0.396	8.668
12	52	North Wall	0.000	1.000	-0.396	0.114
13	53	North Wall	0.000	1.000	-0.396	0.114
14	54	North Wall	0.000	2.000	-0.396	2.965
15	55	North Wall	0.000	3.000	-0.396	5.817
16	56	North Wall	0.000	2.000	-0.396	2.965
17	57	North Wall	0.000	2.000	-0.396	2.965
18	58	North Wall	0.000	5.000	-0.396	11.520
19	59	North Wall	0.000	2.000	-0.396	2.965
20	60	North Wall	1.000	2.000	3.560	2.965
21	61	East Wall	0.000	0.000	-0.396	-2.737
22	62	East Wall	0.000	1.000	-0.396	0.114
23	63	East Wall	0.000	0.000	-0.396	-2.737
24	64	East Wall	1.000	0.000	3.560	-2.737
25	65	East Wall	1.000	2.000	3.560	2.965
26	66	East Wall	0.000	1.000	-0.396	0.114
27	67	East Wall	0.000	3.000	-0.396	5.817
28	68	East Wall	0.000	1.000	-0.396	0.114
29	69	East Wall	0.000	0.000	-0.396	-2.737
30	70	East Wall	0.000	4.000	-0.396	8.668
31	71	West Wall	0.000	0.000	-0.396	-2.737
32	72	West Wall	0.000	0.000	-0.396	-2.737
33	73	West Wall	0.000	3.000	-0.396	5.817
34	74	West Wall	0.000	0.000	-0.396	-2.737
35	75	West Wall	1.000	4.000	3.560	8.668

Counted By: _____ Reviewed By: _____ Date: _____

UCOR Radiological Survey Report

Survey UCOR-I-20160719-48

General Information

Title: Steam Plant 9401-1 Room 103 and 109

Survey Date/Time: 7/19/2016 10:00

Lead Surveyor: Baxter, Steve

Location: Steam Plant Building

Work Order/Task #: N/A

RWP: 30760

Badge: 714271

Purpose: Characterization

RP Area: BIOLOGY

Status: Approved by: Hensley, Mike, 7/25/2016 06:15:13 — Badge: 701090

Ready for Review by: Casselton, Dawn, 7/21/2016 06:15:39 — Badge: 714282

Additional Surveyors

Surveyor	Badge	Concurrence
Casselton, Dawn	714282	☑
Haycraft, David	714260	☑

Instruments Used

#	Instrument Model	Instrument Serial #	Inst Type	Probe Model	Probe Serial #	Probe Type	Calibration Date/Time	Efficiency		
								β/γ	β	α
1	LUDLUM 2360	K38586I	C	43-93	K68568P	C	3/29/2017	.1721		.1934
2	PROTEAN WPC-9550	K35613I	C		INTERNAL	C	2/4/2017	.3507		.2528
3	EBERLINE RO-20	K32052I	D		INTERNAL	D	3/29/2017			

Comments:

Steam Plant 9401-1

Room 103 and 109

Characterization Survey

Alpha Lc and MDC is provided by the instrumentation group
Beta-Gamma Lc and MDC are based on average of (10) 1 minute background counts (see attached)

Contamination measurement(s) taken are 1 minute counts
10% scan of accessible areas performed.

Smears field counted with 2360 results <60,000 dpm/100cm2 total activity and placed into container labeled with UN2910 with a dose rate <0.2 mR/hr
to be transported to K-1310-HF.

Smears taken in same location as Direct readings.

SEE ATTACHMENT FOR PROTEAN DATA!!

Instrument Info:

2360/43-93 Instrument # K38586I

Alpha	Beta/Gamma
Bkg: 3.2 cpm	Bkg: 354 cpm
Lc: 7 cpm	Lc: 398 cpm
MDC: 48 dpm/100cm2	MDC: 526 dpm/100cm2
C.F.: 5.17	C.F.: 5.81
Eff: 0.1934	Eff: 0.1721

Protean Instrument # K356131I:

Alpha	Beta/Gamma
Bkg: 0.10 cpm	Bkg: 0.96 cpm
Eff : 0.2528	Eff: 0.3507
MDA: 15.99 dpm	MDA: 17.75 dpm

Itemized Details - Items

#	Item Location/Description	Notes
1	Room 103 Floor South East	Direct
2	Room 103 Floor South East	Direct
3	Room 103 Floor South East	Direct
4	Room 103 Floor North East	Direct
5	Room 103 Floor North East	Direct
6	Room 103 Floor North East	Direct
7	Room 103 Floor North West	Direct
8	Room 103 Floor North West	Direct
9	Room 103 Floor North West	Direct
10	Room 103 Floor South West	Direct
11	Room 103 Floor South West	Direct
12	Room 103 Floor South West	Direct
13	Room 103 Wall South	Direct
14	Room 103 Wall South	Direct
15	Room 103 Wall South	Direct
16	Room 103 Wall South	Direct
17	Room 103 Wall South	Direct
18	Room 103 Wall East	Direct
19	Room 103 Wall East	Direct
20	Room 103 Wall North	Direct
21	Room 103 Wall North	Direct
22	Room 103 Wall North	Direct
23	Room 103 Wall North	Direct
24	Room 103 Wall North	Direct
25	Room 103 Wall West	Direct
26	Room 103 Wall West	Direct
27	Room 109 Floor	Direct
28	Room 109 Floor	Direct
29	Room 109 Floor	Direct
30	Room 109 Floor	Direct
31	Room 109 Floor	Direct
32	Room 109 Wall South	Direct
33	Room 109 Wall South	Direct
34	Room 109 Wall East	Direct
35	Room 109 Wall East	Direct
36	Room 109 Wall North	Direct
37	Room 109 Wall North	Direct
38	Room 109 Wall West	Direct
39	Room 109 Wall West	Direct
40	Count Station	Smear

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3507
Eff. for Total: Inst: 1 Eff: .1721

Default Bkg Value: 354
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	<Lc	CPM	354	CPM	T	<Lc	CPM
2	<Lc	CPM	354	CPM	T	<Lc	CPM
3	<Lc	CPM	354	CPM	T	<Lc	CPM
4	<Lc	CPM	354	CPM	T	<Lc	CPM
5	<Lc	CPM	354	CPM	T	<Lc	CPM
6	<Lc	CPM	354	CPM	T	<Lc	CPM
7	<Lc	CPM	354	CPM	T	<Lc	CPM
8	<Lc	CPM	354	CPM	T	<Lc	CPM
9	<Lc	CPM	354	CPM	T	<Lc	CPM
10	<Lc	CPM	354	CPM	T	<Lc	CPM
11	<Lc	CPM	354	CPM	T	<Lc	CPM
12	<Lc	CPM	354	CPM	T	<Lc	CPM
13	507	CPM	354	CPM	T	***889***	DPM/100cm2
14	<Lc	CPM	354	CPM	T	<Lc	CPM
15	472	CPM	354	CPM	T	***685.6***	DPM/100cm2
16	514	CPM	354	CPM	T	***929.7***	DPM/100cm2
17	550	CPM	354	CPM	T	***1138.9***	DPM/100cm2
18	528	CPM	354	CPM	T	***1011***	DPM/100cm2
19	463	CPM	354	CPM	T	***633.4***	DPM/100cm2
20	538	CPM	354	CPM	T	***1069.1***	DPM/100cm2
21	597	CPM	354	CPM	T	***1412***	DPM/100cm2
22	531	CPM	354	CPM	T	***1028.5***	DPM/100cm2
23	502	CPM	354	CPM	T	***860***	DPM/100cm2
24	643	CPM	354	CPM	T	***1679.3***	DPM/100cm2
25	520	CPM	354	CPM	T	***964.6***	DPM/100cm2
26	505	CPM	354	CPM	T	***877.4***	DPM/100cm2
27	<Lc	CPM	354	CPM	T	<Lc	CPM
28	<Lc	CPM	354	CPM	T	<Lc	CPM
29	<Lc	CPM	354	CPM	T	<Lc	CPM
30	<Lc	CPM	354	CPM	T	<Lc	CPM
31	<Lc	CPM	354	CPM	T	<Lc	CPM
32	<Lc	CPM	354	CPM	T	<Lc	CPM
33	<Lc	CPM	354	CPM	T	<Lc	CPM
34	<Lc	CPM	354	CPM	T	<Lc	CPM
35	<Lc	CPM	354	CPM	T	<Lc	CPM
36	<Lc	CPM	354	CPM	T	<Lc	CPM
37	<Lc	CPM	354	CPM	T	<Lc	CPM
38	<Lc	CPM	354	CPM	T	<Lc	CPM
39	<Lc	CPM	354	CPM	T	<Lc	CPM

Beta-Gamma Activity

Eff. for Removable: Inst: 2 Eff: .3507
Eff. for Total: Inst: 1 Eff: .1721
Default Bkg Value: 354
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	<Lc	CPM	354	CPM	R	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .2528
Eff. for Total: Inst: 1 Eff: .1934

Default Bkg Value: 3.2
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
1	<Lc	CPM	3.2	CPM	T	<Lc	CPM
2	<Lc	CPM	3.2	CPM	T	<Lc	CPM
3	7	CPM	3.2	CPM	T	***19.6***	DPM/100cm2
4	10	CPM	3.2	CPM	T	***35.2***	DPM/100cm2
5	<Lc	CPM	3.2	CPM	T	<Lc	CPM
6	<Lc	CPM	3.2	CPM	T	<Lc	CPM
7	<Lc	CPM	3.2	CPM	T	<Lc	CPM
8	<Lc	CPM	3.2	CPM	T	<Lc	CPM
9	8	CPM	3.2	CPM	T	***24.8***	DPM/100cm2
10	<Lc	CPM	3.2	CPM	T	<Lc	CPM
11	<Lc	CPM	3.2	CPM	T	<Lc	CPM
12	<Lc	CPM	3.2	CPM	T	<Lc	CPM
13	<Lc	CPM	3.2	CPM	T	<Lc	CPM
14	<Lc	CPM	3.2	CPM	T	<Lc	CPM
15	<Lc	CPM	3.2	CPM	T	<Lc	CPM
16	<Lc	CPM	3.2	CPM	T	<Lc	CPM
17	<Lc	CPM	3.2	CPM	T	<Lc	CPM
18	<Lc	CPM	3.2	CPM	T	<Lc	CPM
19	<Lc	CPM	3.2	CPM	T	<Lc	CPM
20	<Lc	CPM	3.2	CPM	T	<Lc	CPM
21	<Lc	CPM	3.2	CPM	T	<Lc	CPM
22	<Lc	CPM	3.2	CPM	T	<Lc	CPM
23	<Lc	CPM	3.2	CPM	T	<Lc	CPM
24	<Lc	CPM	3.2	CPM	T	<Lc	CPM
25	<Lc	CPM	3.2	CPM	T	<Lc	CPM
26	<Lc	CPM	3.2	CPM	T	<Lc	CPM
27	8	CPM	3.2	CPM	T	***24.8***	DPM/100cm2
28	<Lc	CPM	3.2	CPM	T	<Lc	CPM
29	<Lc	CPM	3.2	CPM	T	<Lc	CPM
30	<Lc	CPM	3.2	CPM	T	<Lc	CPM
31	<Lc	CPM	3.2	CPM	T	<Lc	CPM
32	<Lc	CPM	3.2	CPM	T	<Lc	CPM
33	<Lc	CPM	3.2	CPM	T	<Lc	CPM
34	<Lc	CPM	3.2	CPM	T	<Lc	CPM
35	<Lc	CPM	3.2	CPM	T	<Lc	CPM
36	<Lc	CPM	3.2	CPM	T	<Lc	CPM
37	<Lc	CPM	3.2	CPM	T	<Lc	CPM
38	13	CPM	3.2	CPM	T	***50.7***	DPM/100cm2
39	<Lc	CPM	3.2	CPM	T	<Lc	CPM

Alpha Activity

Eff. for Removable: Inst: 2 Eff: .2528
Eff. for Total: Inst: 1 Eff: .1934
Default Bkg Value: 3.2
Default Bkg Units: CPM

#	Data	Count Rate	Bkg.	Bkg Units	T/R	Activity	Activity Units
40	<Lc	CPM	3.2	CPM	R	<Lc	CPM

Attachments

Order	Filename	Description	Pages
1	Bkgd Room 103 and 109.pdf	Background Data	1
2	9401-1 Room _103.pdf	Room 103	1
3	9401-1 Room _109.pdf	Room 109	1

(10) 1 minute survey area background measurements with average background and standard deviation for Alpha and Beta Gamma

Instrument #			K38586I	
	α		βγ	
1)	2	cpm	377	cpm
2)	6	cpm	332	cpm
3)	2	cpm	368	cpm
4)	3	cpm	342	cpm
5)	5	cpm	330	cpm
6)	3	cpm	368	cpm
7)	2	cpm	366	cpm
8)	3	cpm	373	cpm
9)	5	cpm	353	cpm
10)	3	cpm	331	cpm
Avg	3.4	cpm	354	cpm
SD	1.43		18.74	

7/20/2016 12:20:29 PM
Routine 2 SMEAR 1 MINUTE Batch ID: 9401-1 Room #103

Alpha MDA = 16.19 dpm Beta MDA = 16.90 dpm

ALPHA BKGD = 0.11 BETA BKGD = 0.79
ALPHA EFF. = 0.2528 BETA EFF. = 0.3507
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 mins BKGND Count Time = 720.00 mins

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Floor SE	0.000	1.000	-0.435	0.599
2	2	Floor SE	0.000	1.000	-0.435	0.599
3	3	Floor SE	1.000	0.000	3.521	2.253
4	4	Floor NE	0.000	1.000	-0.435	0.599
5	5	Floor NE	0.000	0.000	-0.435	2.253
6	6	Floor NE	0.000	1.000	-0.435	0.599
7	7	Floor NW	1.000	0.000	3.521	2.253
8	8	Floor NW	0.000	2.000	-0.435	3.450
9	9	Floor NW	0.000	2.000	-0.435	3.450
10	10	Floor SW	3.000	4.000	11.432	9.153
11	11	Floor SW	0.000	2.000	-0.435	3.450
12	12	Floor SW	0.000	2.000	-0.435	3.450
13	13	Wall S	0.000	0.000	-0.435	2.253
14	14	Wall S	0.000	2.000	-0.435	3.450
15	15	Wall S	0.000	1.000	-0.435	0.599
16	16	Wall S	0.000	0.000	-0.435	2.253
17	17	Wall S	0.000	1.000	-0.435	0.599
18	18	Wall E	0.000	1.000	-0.435	0.599
19	19	Wall E	0.000	1.000	-0.435	0.599
20	20	Wall N	0.000	1.000	-0.435	0.599
21	21	Wall N	0.000	0.000	-0.435	2.253
22	22	Wall N	0.000	1.000	-0.435	0.599
23	23	Wall N	0.000	2.000	-0.435	3 450
24	24	Wall N	0.000	1.000	-0.435	0.599
25	25	Wall W	0.000	0.000	-0.435	-2.253
26	26	Wall W	0.000	2.000	-0.435	3.450

K35613I

Counted By: _____ Reviewed By: _____ Date: _____

7/20/2016 12:56:12 PM
Routine 3 SMEAR 1 MINUTE Batch ID: 9401-1 Room #109

Alpha MDA = 16.19 dpm Beta MDA = 16.90 dpm

ALPHA BKGD = 0.11 BETA BKGD = 0.79
ALPHA EFF. = 0.2528 BETA EFF. = 0.3507
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 mins BKGND Count Time = 720.00 mins

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	27	Floor	1.000	0.000	3.521	-2.253
2	28	Floor	0.000	2.000	-0.435	3.450
3	29	Floor	0.000	2.000	-0.435	3.450
4	30	Floor	0.000	0.000	-0.435	-2.253
5	31	Floor	0.000	0.000	-0.435	-2.253
6	32	Wall S	0.000	1.000	-0.435	0.599
7	33	Wall S	0.000	4.000	-0.435	9.153
8	34	Wall E	0.000	1.000	-0.435	0.599
9	35	Wall E	0.000	0.000	0.435	-2.253
10	36	Wall N	1.000	0.000	3.521	-2.253
11	37	Wall N	0.000	1.000	-0.435	0.599
12	38	Wall W	0.000	0.000	-0.435	-2.253
13	39	Wall W	0.000	0.000	-0.435	-2.253

Counted By: _____ Reviewed By: _____ Date: _____

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Y-9767-6
Radiological Release Report for 2016SRP-002-A07

Prepared By: Myra P. Long Date: 11-14-2016
Myra Long, Field Radiological Engineer

Reviewed By: Chip Oshier Date: 11-14-16
Chip Oshier, Field Radiological Engineer

Approved By: Ronald Creech Date: 11/14/2016
Ronald Creech, Deputy Field Radiological Protection Manager

Y-9767-6
Radiological Release Report for 2016SRP-002-A07

1.0 Introduction

Deactivation and Decommissioning (D&D) activities are currently being performed at the U.S. Department of Energy's (DOE's) Oak Ridge Reservation. Radiological characterization surveys are performed on facilities scheduled for D & D activities. These surveys are used to determine the appropriate radiological controls that may be needed and to establish a disposal path for the waste.

The Y-9767-6 is located at Y-12, south of Bear Creek Road and on the southeast corner of Y-9207. Before this building can be considered for unrestricted release (free of radiological controls), survey results must indicate that the radiological conditions satisfy the applicable UCOR requirements established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring,* for use without radiological restrictions.

A summary of the radiological survey data for Y-9767-6 is provided in Table 1. This report includes a full list of surveys performed in Attachment 1.

2.0 Objective

The objective of this survey was to demonstrate at a 95% confidence level that the surveys performed on Y-9767-6 satisfy applicable allowable surface contamination guidelines for unrestricted use.

Y-9767-6 was surveyed in accordance with the criteria established in 2016SRP-002, "Radiological Survey and Release Protocol for the UCOR Decontamination & Demolition Projects".

- **2016SRP-002-A07, Attachment A, *Facility/Equipment Specific Information for Survey Planning for the Y-9767-6.***

See Attachment 2.

The predominant radiological contaminant at Y-12 is processed uranium. The isotopic abundance of the processed uranium is primarily natural or depleted, but enrichments of U-235 are possible. Y-9207 was used for uranium salvage operations before being converted for ORNL Biological Research Operations. Y-9767-6 was built after the conversion was completed. The Y-9767-6 building is connected to Y-9207 but is not accessible from that building. Therefore there is little risk for cross contamination. Based on the close proximity to building Y-9207, Uranium isotopes are considered the primary contaminant of concern.

Historically, Naturally Occurring Radioactive Material (NORM) has been identified and found to be used in making prefabricated masonry materials, i.e., concrete block, brick, and ceramic tiles that were used in the construction of buildings at the Oak Ridge Reservation. Data from previous surveys of similar material and MARSSIM (NUREG-1575 and DOE/EH-0624) indicates that typical total beta-gamma readings could range up to 3,500 dpm/100cm^2.

Surface contamination criteria for release from radiological controls are established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring per DOE Order 458.1*: 5,000 dpm/100cm^2 total alpha and/or 5,000 dpm/100cm^2 total beta-gamma and 1,000 dpm/100cm^2 removable alpha and/or 1,000 dpm/100cm^2 removable beta-gamma.

3.0 Survey Methodology

3.1 General

Surveys were implemented in accordance with an approved release plan, 2016SRP-002-A07. Radiation Protection Technicians (RPTs) performed daily pre-operational checks and surveys in accordance with appropriate Radiological Protection (RP) written procedures. Count times, efficiencies, instrument minimum detectable activities, and calculations used to determine surface activity levels were based on the potential of uranium contaminants.

The following requirements applied:

- RPTs performing surveys were qualified in accordance with UCOR Procedures PROC-RP-4035, *Radiation Safety Training* and PROC-RP-4540, *Radiological Protection and Survey Technician Training*.
- Surveys were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring.*
- Surveys were performed in accordance with applicable instrument operating procedures.
- Surveys were documented in accordance with SURV-RAD-1.01 *Visual Survey Data System Users Guide* and maintained in accordance with UCOR Procedure PROC-RP-4518, *Radiation Protection Program Records*.

3.2 Instrumentation

With typical background counts and detector efficiencies, the sensitivity of the radiation detection instruments used for this survey were adequate to meet the Unrestricted Release Criteria given in Section 1 of the Survey and Release Plan's Attachment A. Instrumentation identification, the name of the technicians performing the surveys, and the critical levels (L_c) for direct and removable alpha and beta-gamma measurements can be found in the radiological surveys in Attachment 1. All instruments had current calibrations. Daily performance checks were performed and recorded daily and no instrument exhibiting questionable performance was used.

The Critical Level (L_c) is the level in net counts, at which there is a statistical probability (with a predetermined confidence) of correctly identifying a background value as a positive net count (referred to as a Type I error). Conversely, any response of an instrument that is above the L_c value is considered to be above background.

3.3 MARSSIM Classification Assignments

The Y-9767-6 building is identified as a utilities building. It was used as an office / control room. The building contents include electrical panels, office furniture and kitchen appliances. The building was posted as Fixed Contamination Areas (FCAs) based on its proximity to Y-9207.

Class 3 materials are those impacted areas or materials that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the release criteria based on site operating history and previous radiological surveys. While Y-9767-6 was posted as a FCA the building was only used as a utilities building and there was little risk of cross contamination from Y-9207 since they were not directly connected. This building was classified as Class 3 based upon its history and use.

The classification, survey units and survey methods used during this release plan are documented in 2016SRP-002-A07, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9767-6.*

3.4 Survey Approach

Ludlum Model 2360s with 43-93 detectors were used to perform the alpha and beta-gamma scans of 10% of the Class 3 units. The maximum scanning speed is approximately one detector width per second; 1-minute direct measurements of total alpha and beta-gamma activity were also made using the same detectors. Detectors were maintained approximately ¼" from the surface as practical. The audible signal was monitored for noticeable changes. If the count rate exceeded background, the location was identified for further investigation. Otherwise, survey locations were selected biased toward areas of highest potential (e.g. stained, damaged or discolored surfaces).

Removable activity was determined at locations where direct measurements were taken by smearing an area of approximately 100 cm^2. Quantitative smears or wipes with cloth or paper media were conducted over an area of approximately 100 cm^2 and alpha and beta-gamma activity collected on the sample was determined by counting in a sensitive, low-background counter. Direct measurements and smear results were converted to net surface activity in units of dpm/100 cm^2, and measurements were compared with release criteria.

Independent verification measurements were performed of approximately 5% of each survey unit. RPTs not involved in the execution of the initial survey repeated approximately 5% of the direct and removable activity measurements, which were utilized to satisfy release criteria. The results of this survey must confirm the initial findings for acceptance as satisfying release criteria.

4.0 Evaluation of Survey Results

Survey data were reviewed to assure all aspects of the approved release plan have been followed and included an evaluation of the documentation and acceptable quality assurance/quality control data.

- The radiological survey activities were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring*. The performance of the surveys were in accordance with the criteria identified in Survey Release Plan 2016SRP-002, *Radiological Survey and Release Protocol for UCOR Decontamination & Demolition, Environmental Restoration and Closure Projects* and 2016SRP-002-A07, *Attachment A, Facility/Equipment Specific Information for*

Survey Planning for the Y-9767-6. Table 1 shows a summary of the radiological survey data evaluated in this report.

- Survey units 1 and 2 were below the applicable radiological surface contamination criteria for unrestricted release.

As required by Section 9.0 of Survey Release Plan 2016SRP-002, independent verification measurements were performed on approximately 5% of each survey unit as part of a quality assurance survey. The QA verification surveys performed on the survey units are listed in Attachment 1 with the appropriate characterization survey. The results from the QA verification surveys support the results of the initial surveys.

All survey results are listed in Attachment 1. The survey results listed represent the maximum activities identified in the survey report.

5.0 Survey Plan Deviations

- Survey Unit 3, which includes the 4 foot basement below the concrete floor, could not be accessed and was not surveyed.
- There were no other deviations in the execution of this survey plan.

6.0 Conclusion

Based on the final surveys and the QA verification surveys results of the Y-9767-6, all of the surveyed structure materials satisfy the applicable radiological surface contamination release criteria for unrestricted release as stated in 2016SRP-002-A07, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9767-6.* The basement area was not surveyed.

Therefore Y-9767-6, <u>above the basement grade</u>, may be released from radiological controls and is approved for release to the Y-12 Landfill. If it is determined that the basement grade of the structure is to be released, the unit 3 basement may be surveyed once the basement area is made accessible

The Y-9767-6 contains masonry products (red brick, ceramic tile, cinder block, poured concrete, etc.) that were identified as containing NORM. These materials when placed in trucks and shipped to the Y-12 Landfill have the potential to set off the vehicle portal monitors at the Landfill. Building debris, i.e. steel and equipment should be separated from NORM materials and shipped separately. Haul trucks containing NORM debris may get a by-pass to go around vehicle portal monitors. Management of the NORM waste should be coordinated between the Project Waste Specialist and the Waste Disposal Facility to alleviate disruptions to disposal operations due to unanticipated vehicle portal monitor alarms.

Table 1: Summary of the Survey Data

Survey Unit	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta
	dpm/100cm^2		dpm/100cm^2	
1	<Lc	<Lc	263	1,116
2	<Lc	<Lc	47	1,807
3	Not Accessible	Not Accessible	Not Accessible	Not Accessible

Attachment 1

2016SRP-002-A06, Surveys of *Y-9767-6.*

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm2		dpm/100cm2		
20161101-2	1	Interior	<Lc	<Lc	23	<Lc	Floor
20161101-2	1	Interior	<Lc	<Lc	32	875	Wall
20161109-1	1	Interior	<Lc	<Lc	27	<Lc	Furniture Equipment
20161103-68	1	Interior QA	<Lc	<Lc	21	453	Floor
20161103-68	1	Interior QA	<Lc	<Lc	263	1,116	Wall
20161110-46	1	Interior QA	<Lc	<Lc	16	180	Furniture Equipment
20160906-36	2	Exterior	<Lc	<Lc	25	958	Wall
20161109-8	2	Exterior	<Lc	<Lc	18	1,293	Roof
20161103-67	2	Exterior QA	<Lc	<Lc	47	1,807	Wall
20161103-58	2	Exterior QA	<Lc	<Lc	26	575	Roof

Attachment 2

2016SRP-002-A06, Attachment A,
Facility/Equipment Specific Information for Survey Planning for the Y-9767-6.

ATTACHMENT A

Facility/Equipment Specific Information for Survey Planning

Assigned Form Number: 2016SRP-002-A07 **Date Initiated:** 03/29/2016

1. Description of Facility/Contents or Equipment to be surveyed:

Facility/Equipment: Building Y-9767-6

Location: Y-12 Biology Complex, southeast corner of Building 9207

Material of Construction: Single story structure constructed of cinder blocks with a flat built-up roof. There is a 4 ft basement below the concrete floor containing piping. Ductwork is located along the west part of the roof. ***The ductwork is not part of this survey and release plan unless it has been sampled and the interior surfaces characterized.***

Area (m^2): ~400 ft^2 or 37.2 m^2 foot print

Physical Condition: Building structure good. The interior is dry.

Surface Condition: Slightly degraded on interior. Paint peeling on exterior.

Contents: Electrical panels, kitchen appliances.

Radioactivity Content of Items: Masonry that may contain naturally occurring radioactive material (NORM).

History of Radiological Use: None. 9767-6 is identified as a utilities building. It was apparently last used as an office control room.

Primary Isotopes of Concern: Uranium and NORM

Applicable Radiological Surface Contamination Criteria for Unrestricted Release:

Building Structure and Contents		Other	
√	5,000 dpm/100cm2 total alpha		500 dpm/100cm2 total alpha
√	1,000 dpm/100cm2 removable alpha		20 dpm/100cm2 removable alpha
√	5,000 dpm/100cm2 total beta-gamma		1,000 dpm/100cm2 total beta-gamma
√	1,000 dpm/100cm2 removable beta-gamma		200 dpm/100cm2 removable beta-gamma
	Release to Public		10,000 dpm/100cm2 removable H-3

Potential Contaminates: Uranium and NORM

Current Radiological Posting(s): Fixed Contamination Area (FCA)

2. Previous Survey Results:

Survey Number	Date	Description	Results Summary
N/A	N/A	N/A	N/A

3. Type(s) of Survey:

☐ Screening ☑ Characterization ☑ Release

4. Instrumentation to be used:

Ludlum Detector Model	Ludlum Meter Model	Application
43-93	2224/ 2360	Beta-gamma scan & measurement
43-93	2224/ 2360	Alpha scan & measurement
43-68	2224/ 2360	Beta-gamma scan & measurement
43-68	2224/ 2360	Alpha scan & measurement
44-9	2221	Beta-gamma measurement
43-5	2221	Alpha scan & measurement
43-37 w/239-1 Floor Monitor	2221	Alpha scans
43-37 w/239-1 Floor Monitor	2221	Beta-gamma scans
WPC-9550		Alpha smear measurement
WPC-9550		Beta-gamma smear measurement
Protean Low Background Counter		Multiple Smear Counter
TRU Dedicated Instruments for the D&D Project Survey		
43-93	2224/ 2360	Alpha scan
Other Instruments		

5. For Release Surveys:

Disposal Status:

☐ Release to public ☑ Release to Y-12 Landfill ☐ Other _____

Contamination Potential Classification:

☐ Class 1 ☐ Class 2 ☑ Class 3

Number of Survey Units per Classification:

_____ Class 1 _____ Class 2 ___3___ Class 3

Survey Unit #1: Interior	Survey Unit #2: Exterior	Survey Unit #3: Basement

NOTE: Walls are constructed of masonry that may contain naturally occurring radioactive material (NORM).

6. Minimum Number of Measurements Required per Survey Unit :

Class 3:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Furniture and equipment / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	12	10% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	8	10% Scan
Unit 3		
Basement Walls, Floor, Piping / Smears and Directs / Alpha, Beta-Gamma	15	10% Scan

Class 2:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Furniture and equipment / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	24	25% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	16	25% Scan
Unit 2		
Basement Walls, Floor, Piping / Smears and Directs / Alpha, Beta-Gamma	30	25% Scan

Class 1:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan

Furniture and equipment / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	36	100% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	24	100% Scan
Unit 3		
Basement Walls, Floor, Piping / Smears and Directs / Alpha, Beta-Gamma	45	100% Scan

7. Survey Rigor:

Activity	Rigor (% Coverage per survey unit)			Comments
	Class 1	Class 2	Class 3	
Beta-gamma Scans	100%	25%	10%	
Alpha Scans	100%	25%	10%	

8. Specific Guidance:

a. For each instrument, 10 background determinations will be performed in a similar manner as that in which the measurements will be performed, and the average and standard deviation of measurements will be calculated. The accuracy of the average will be evaluated, relative to the +/-20% accuracy.
b. A MDC will be calculated based on this average background and compared to the release criteria to ensure adequate instrument sensitivity. The accuracy of the daily background will be evaluated, relative to the +/-20% accuracy. If the instrument daily background doesn't fall within +/-20% of the average background, the 10-background determination will be repeated and the MDC recalculated.
c. Perform 10% scan of the designated areas, biased toward areas of highest potential (e.g. ventilation ducting, stained, damaged or discolored surfaces).
d. Perform direct measurements and smears on areas selected in the field, biased toward areas of highest potential (e.g. elevated readings identified during 10% scan, ventilation ducting and stained, damaged or discolored surfaces). The minimum number of survey points is indicated in section 6.
e. All interior wall and exterior wall surfaces will be surveyed without the use of a lift or ladder up to a distance of approximately 7 feet from floor/ground level.
f. The roof survey unit will be limited to roof periphery (e.g. edges).
g. Increase the survey unit to Class 2 with an increase in the scan percentage and additional data points (See Section 6) if:
   - any result is >50% of the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, or
   - the area is discovered to contain a radiologically posted area.
h. Increase the survey unit to Class 1 with an increase in the scan percentage and additional data points (See Section 6) if:

- any result is ≥ the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, and
- post the area appropriately then contact the RP Supervisor and FRE.

NOTE: The building is presently posted as a Fixed Contamination Area (FCA) at all entrances to the building. If FCAs are located inside the building it is acceptable to establish FCAs "double post" within the building until the building characterization surveys are complete.

i. RPTs not involved in the execution of the initial survey will repeat approximately 5% of the direct and removable activity measurements as Quality Assurance surveys.

9. Additional Supporting Information:

- Prefabricated masonry materials (block/brick/tile) used in the construction of Y-12 Biology Complex is of the type that contains naturally occurring radioactive material. Based on data provided in MARSSIM (NUREG-1575 and DOE/EH-0624) and past survey experience demonstrates that natural readings may range up to 3,500 dpm/100cm^2.

10. Attached documents:

☐ **Photos** ☐ **Floor Plan**

☐ **Derived scan speed**

Prepared by: Megan P. Long 5-4-16
Date

Approved by: Ronald Couch 05/05/16
Date

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Y-9770-2
Radiological Release Report for 2016SRP-002-A05

Prepared By: Myra P. Long Date: 11-10-2016
Myra Long, CHP, Field Radiological Engineer

Reviewed By: Chip Osnier Date: 11-10-2016
Chip Osnier, Field Radiological Engineer

Approved By: Ronald Creech Date: 11/10/2016
Ronald Creech, Deputy Field Radiological Protection Manager

Y-9770-2
Radiological Release Report for 2016SRP-002-A05

1.0 Introduction

Deactivation and Decommissioning (D&D) activities are currently being performed at the U.S. Department of Energy's (DOE's) Oak Ridge Reservation. Radiological characterization surveys are performed on facilities scheduled for D & D activities. These surveys are used to determine the appropriate radiological controls that may be needed and to establish a disposal path for the waste.

The Y-9770-2 is located at Y-12, south of Bear Creek Road in between Y-9207 and Y-9210. Before this building can be considered for unrestricted release (free of radiological controls), survey results must indicate that the radiological conditions satisfy the applicable UCOR requirements established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring,* for use without radiological restrictions.

A summary of the radiological survey data for Y-9770-2 is provided in Table 1 of this report. This report includes a full list of surveys performed in Attachment 1.

2.0 Objective

The objective of this survey was to demonstrate at a 95% confidence level that the surveys performed on Y-9770-2 satisfy applicable allowable surface contamination guidelines for unrestricted use.

Y-9770-2 was surveyed in accordance with the criteria established in 2016SRP-002, "Radiological Survey and Release Protocol for the UCOR Decontamination & Demolition Projects".

- **2016SRP-002-A05, Attachment A, *Facility/Equipment Specific Information for Survey Planning for the Y-9770-2.***

See Attachment 2.

The predominant radiological contaminant at Y-12 is processed uranium. The isotopic abundance of the processed uranium is primarily natural or depleted, but enrichments of U-235 are possible. Y-9770-2 is a small masonry building that contained the 80 Ci Cs-137 sources used to irradiated mice and other biological specimens. The sources were sealed therefore there is little risk for cross contamination. Based on the close proximity to building Y-9207 and Y-9210, Uranium isotopes and Cs-137 are considered the primary contaminants of concern.

Historically, Naturally Occurring Radioactive Material (NORM) has been identified and found to be used in making prefabricated masonry materials, i.e., concrete block, cinder block, brick, and ceramic tiles that were used in the construction of buildings at the Oak Ridge Reservation. Data from previous surveys of similar material and MARSSIM (NUREG-1575 and DOE/EH-0624) indicates that typical total beta-gamma readings could range up to 3,500 dpm/100cm^2.

Surface contamination criteria for release from radiological controls are established in UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring per DOE Order 458.1*: 5,000 dpm/100cm^2 total alpha and/or 5,000 dpm/100cm^2 total beta-gamma and 1,000 dpm/100cm^2 removable alpha and/or 1,000 dpm/100cm^2 removable beta-gamma.

3.0 Survey Methodology

3.1 General

Surveys were implemented in accordance with an approved release plan, 2016SRP-002-A05. Radiation Protection Technicians (RPTs) performed daily pre-operational checks and surveys in accordance with appropriate Radiological Protection (RP) written procedures. Count times, efficiencies, instrument minimum detectable activities, and calculations used to determine surface activity levels were based on the potential of uranium contaminants.

The following requirements applied:

- RPTs performing surveys were qualified in accordance with UCOR Procedures PROC-RP-4035, *Radiation Safety Training* and PROC-RP-4540, *Radiological Protection and Survey Technician Training*.
- Surveys were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring.*
- Surveys were performed in accordance with applicable instrument operating procedures.
- Surveys were documented in accordance with SURV-RAD-1.01 *Visual Survey Data System Users Guide* and maintained in accordance with UCOR Procedure PROC-RP-4518, *Radiation Protection Program Records*.

3.2 Instrumentation

With typical background counts and detector efficiencies, the sensitivity of the radiation detection instruments used for this survey were adequate to meet the Unrestricted Release Criteria given in Section 1 of the Survey and Release Plan's Attachment A. Instrumentation identification, the name of the technicians performing the surveys, and the critical levels (L_c) for direct and removable alpha and beta-gamma measurements can be found in the radiological surveys in Attachment 1. All instruments had current calibrations. Daily performance checks were performed and recorded daily and no instrument exhibiting questionable performance was used.

The Critical Level (L_c) is the level in net counts, at which there is a statistical probability (with a predetermined confidence) of correctly identifying a background value as a positive net count (referred to as a Type I error). Conversely, any response of an instrument that is above the L_c value is considered to be above background.

3.3 MARSSIM Classification Assignments

Y-9770-2 is a small masonry building that contained sealed 80 Ci Cs-137 sources used to irradiated mice and other biological specimens. The sources have been removed and the building was not radiologically posted.

Class 3 materials are those impacted areas or materials that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the release criteria based on site operating history and previous radiological surveys. Y-9770-2 was classified as Class 3 based upon its history and use.

The classification, survey units and survey methods used during this release plan are documented in Attachment 2, 2016SRP-002-A05, *Facility/Equipment Specific Information for Survey Planning for the Y-9770-2.*

3.4 Survey Approach

Ludlum Model 2360s with 43-93 detectors were used to perform the alpha and beta-gamma scans of 10% of the Class 3 units. The maximum scanning speed is approximately one detector width per second; 1-minute direct measurements of total alpha and beta-gamma activity were also made using the same detectors. Detectors were maintained approximately ¼" from the surface as practical. The audible signal was monitored for noticeable changes. If the count rate exceeded background, the location was identified for further investigation. Otherwise, survey locations were selected biased toward areas of highest potential (e.g. stained, damaged or discolored surfaces).

Removable activity was determined at locations where direct measurements were taken by smearing an area of approximately 100 cm^2. Quantitative smears or wipes with cloth or paper media were conducted over an area of approximately 100 cm^2 and alpha and beta-gamma activity collected on the sample was determined by counting in a sensitive, low-background counter. Direct measurements and smear results were converted to net surface activity in units of dpm/100 cm^2, and measurements were compared with release criteria.

Independent verification measurements were performed of approximately 5% of each survey unit. RPTs not involved in the execution of the initial survey repeated approximately 5% of the direct and removable activity measurements, which were utilized to satisfy release criteria. The results of this survey must confirm the initial findings for acceptance as satisfying release criteria.

4.0 Evaluation of Survey Results

Survey data were reviewed to assure all aspects of the approved release plan have been followed and included an evaluation of the documentation and acceptable quality assurance/quality control data.

- The radiological survey activities were performed in accordance with UCOR Procedure PROC-RP-4516, *Radioactive Contamination Control and Monitoring*. The performance of the surveys were in accordance with the criteria identified in Survey Release Plan 2016SRP-002, *Radiological Survey and Release Protocol for UCOR Decontamination & Demolition, Environmental Restoration and Closure Projects* and 2016SRP-002-A05, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9770-2.*
- Survey units 1 and 2 were below the applicable radiological surface contamination criteria for unrestricted release.

As required by Section 9.0 of Survey Release Plan 2016SRP-002, independent verification measurements were performed on approximately 5% of each survey unit as part of a quality assurance survey. The QA verification surveys performed on the survey units are listed in Attachment 1 with the appropriate characterization survey. The results from the QA verification surveys support the results of the initial surveys.

All survey results are listed in Attachment 1. The survey results represent the maximum activities identified in the survey report.

5.0 Survey Plan Deviations

- There were no deviations in the execution of this survey plan.

6.0 Conclusion

Based on the final surveys and the QA verification surveys results of the Y-9770-2, all of the surveyed structure materials satisfy the applicable radiological surface contamination release criteria for unrestricted release as stated in Attachment 2, 2016SRP-002-A05, *Attachment A, Facility/Equipment Specific Information for Survey Planning for the Y-9770-2.*

Therefore the Y-9770-2 may be released from radiological controls and is approved for release to the Y-12 Landfill.

The Y-9770-2 contains masonry products (red brick, ceramic tile, poured concrete, etc.) that were identified as containing NORM. These materials when placed in trucks and shipped to the Y-12 Landfill have the potential to set off the vehicle portal monitors at the Landfill. Building debris, i.e. steel and equipment should be separated from NORM materials and shipped separately. Haul trucks containing NORM debris may get a by-pass to go around vehicle portal monitors. Management of the NORM waste should be coordinated between the Project Waste Specialist and the Waste Disposal Facility to alleviate disruptions to disposal operations due to unanticipated vehicle portal monitor alarms.

Table 1: Summary of the Survey Data

Survey Unit	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta
	dpm/100cm^2		dpm/100cm^2	
1	$<L_c$	$<L_c$	64	959
2	$<L_c$	$<L_c$	57	1,854

Attachment 1

Full List Of The Surveys Performed With The Maximum Survey Results

Survey Number, UCOR-I-	Survey Unit	Description	Maximum Removable Alpha	Maximum Removable Beta	Maximum Total Alpha	Maximum Total Beta	Comments
			dpm/100cm2		dpm/100cm2		
20161101-32	1	Interior	<Lc	<Lc	23	<Lc	Floor
20161101-32	1	Interior	<Lc	<Lc	32	265	Wall
20161101-32	1	Interior	<Lc	<Lc	64	<Lc	Well
20161103-60	1	Interior QA	<Lc	<Lc	10	477	Floor
20161103-60	1	Interior QA	<Lc	<Lc	16	959	Wall
20161102-43	2	Exterior	<Lc	<Lc	32	1,432	Wall
20161102-43	2	Exterior	<Lc	21	28	1,191	Roof
20161103-63	2	Exterior QA	<Lc	<Lc	57	1,854	Wall
20161103-59	2	Exterior QA	<Lc	<Lc	47	1,610	Roof

Attachment 2

2016SRP-002-A05, Attachment A
Facility/Equipment Specific Information for Survey Planning for the Y-9770-2

ATTACHMENT A

Facility/Equipment Specific Information for Survey Planning

Assigned Form Number: 2016SRP-002-A05 **Date Initiated:** 03/29/2016

1. Description of Facility/Contents or Equipment to be surveyed:

Facility/Equipment: Building Y-9770-2

Location: Y-12 Biology Complex, in between Buildings 9210 and 9207.

Material of Construction: Hollow clay tile walls sit on a concrete slab. Walls about 10 ft high. Pitched roof covered with asphalt shingles. Inside, behind a cinder block wall there is a dry empty source storage pit approximately 3 to 4 ft deep. Notes from previous walk downs suggest there was a 1-in thick lead lined interior wall and ceiling but the lead lining was not observed in the 2010 or 2016 walk downs.

Area (m^2): ~128 ft^2 or 12 m^2 foot print

Physical Condition: The interior is dry. Vegetation at the location during initial 2016 walk down was overgrown and as tall as the roof.

Surface Condition: Slightly degraded on interior. Paint peeling on exterior.

Contents: Steel beams and 2 overhead chain hoists remain in the building as well as control panels, associated electrical equipment.

Radioactivity Content of Items: Masonry that may contain naturally occurring radioactive material (NORM). Building originally contained a Cs-137 irradiation source. The source has been removed and storage pit appears to be empty.

History of Radiological Use: Contained a 80 Ci Cs-137 source used to irradiate mice.

Primary Isotopes of Concern: Cs-137, Uranium and NORM.

Applicable Radiological Surface Contamination Criteria for Unrestricted Release:

Building Structure and Contents		Other	
√	5,000 dpm/100cm2 total alpha		500 dpm/100cm2 total alpha
√	1,000 dpm/100cm2 removable alpha		20 dpm/100cm2 removable alpha
√	5,000 dpm/100cm2 total beta-gamma		1,000 dpm/100cm2 total beta-gamma
√	1,000 dpm/100cm2 removable beta-gamma		200 dpm/100cm2 removable beta-gamma
	Release to Public		10,000 dpm/100cm2 removable H-3

Potential Contaminants: Cs-137, Uranium and NORM.

Current Radiological Posting(s): None

2. **Previous Survey Results:**

Survey Number	Date	Description	Results Summary
N/A	N/A	N/A	N/A

3. **Type(s) of Survey:**

☐ Screening ☑ Characterization ☑ Release

4. **Instrumentation to be used:**

Ludlum Detector Model	Ludlum Meter Model	Application
43-93	2224/ 2360	Beta-gamma scan & measurement
43-93	2224/ 2360	Alpha scan & measurement
43-68	2224/ 2360	Beta-gamma scan & measurement
43-68	2224/ 2360	Alpha scan & measurement
44-9	2221	Beta-gamma measurement
43-5	2221	Alpha scan & measurement
43-37 w/239-1 Floor Monitor	2221	Alpha scans
43-37 w/239-1 Floor Monitor	2221	Beta-gamma scans
WPC-9550		Alpha smear measurement
WPC-9550		Beta-gamma smear measurement
Protean Low Background Counter		Multiple Smear Counter
TRU Dedicated Instruments for the D&D Project Survey		
43-93	2224/ 2360	Alpha scan
Other Instruments		

5. **For Release Surveys:**

Disposal Status:

☐ Release to public ☑ Release to Y-12 Landfill ☐ Other _____

Contamination Potential Classification:

☐ Class 1 ☐ Class 2 ☑ Class 3

Number of Survey Units per Classification:

_____ Class 1 _____ Class 2 __2__ Class 3

Survey Unit #1: Interior	Survey Unit #2: Exterior

NOTE: Walls are constructed of masonry that may contain naturally occurring radioactive material (NORM).

6. **Minimum Number of Measurements Required per Survey Unit :**

Class 3:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	15	10% Scan
Source Well / Smears / Alpha and Beta-Gamma	2	10% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	12	10% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	8	10% Scan

Class 2:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	30	25% Scan
Source Well / Smears / Alpha and Beta-Gamma	4	25% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	24	25% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	16	25% Scan

Class 1:

Location/Survey Type	Data Points	Percent Scan
Unit 1		
Interior Walls / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Interior Floors / Smears and Directs / Alpha and Beta-Gamma	45	100% Scan
Source Well / Smears / Alpha and Beta-Gamma	6	100% Scan
Unit 2		
Exterior Walls / Smears and Directs / Alpha and Beta-Gamma	36	100% Scan
Roof / Smears and Directs / Alpha and Beta-Gamma	24	100% Scan

7. Survey Rigor:

Activity	Rigor (% Coverage per survey unit)			Comments
	Class 1	Class 2	Class 3	
Beta-gamma Scans	100%	25%	10%	
Alpha Scans	100%	25%	10%	

8. Specific Guidance:

a. For each instrument, 10 background determinations will be performed in a similar manner as that in which the measurements will be performed, and the average and standard deviation of measurements will be calculated. The accuracy of the average will be evaluated, relative to the +/-20% accuracy.

b. A MDC will be calculated based on this average background and compared to the release criteria to ensure adequate instrument sensitivity. The accuracy of the daily background will be evaluated, relative to the +/-20% accuracy. If the instrument daily background doesn't fall within +/-20% of the average background, the 10-background determination will be repeated and the MDC recalculated.

c. Perform 10% scan of the designated areas, biased toward areas of highest potential (e.g. ventilation ducting, stained, damaged or discolored surfaces).

d. Perform direct measurements and smears on areas selected in the field, biased toward areas of highest potential (e.g. elevated readings identified during 10% scan, ventilation ducting and stained, damaged or discolored surfaces). The minimum number of survey points is indicated in section 6.

e. All interior wall and exterior wall surfaces will be surveyed without the use of a lift or ladder up to a distance of approximately 7 feet from floor/ground level.

f. The roof survey unit will be limited to roof periphery (e.g. edges).

g. Increase the survey unit to Class 2 with an increase in the scan percentage and additional data points (See Section 6) if:

- any result is >50% of the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, or

- the area is discovered to contain a radiologically posted area.

h. Increase the survey unit to Class 1 with an increase in the scan percentage and additional data points (See Section 6) if:
   - any result is ≥ the Surface Contamination Criteria for Unrestricted Release and not associated with masonry that may contain NORM, and
   - post the area appropriately then contact the RP Supervisor and FRE.

NOTE: The building is presently posted as a Fixed Contamination Area (FCA) at all entrances to the building. If FCAs are located inside the building it is acceptable to establish FCAs "double post" within the building until the building characterization surveys are complete.

i. RPTs not involved in the execution of the initial survey will repeat approximately 5% of the direct and removable activity measurements as Quality Assurance surveys.

9. Additional Supporting Information:

- Prefabricated masonry materials (block/brick/tile) used in the construction of Y-12 Biology Complex is of the type that contains naturally occurring radioactive material. Based on data provided in MARSSIM (NUREG-1575 and DOE/EH-0624) and past survey experience demonstrates that natural readings may range up to 3,500 dpm/100cm^2.

10. Attached documents:

☐ **Photos** ☐ **Floor Plan**

☐ **Derived scan speed**

Prepared by: [signature] 5-4-16
Date

Approved by: Ronald Creech 05/05/16
Date

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APPENDIX B.
ASBESTOS DATA

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Asbestos Waste Volumes

Table 1: Biology Complex Asbestos Totals by Type

	9207		
Asbestos Material		**Units**	**Volume (CF)**
Pipe Insulation[1,2]	89,708	LF	29,903
Transite board [3]	4,378	SF	91
Acoustical Wall Tile[4]	12,480	SF	1566
Acoustical Ceiling Tile[4]	8,930	SF	1,107
Duct Insulation[5]	35,097	SF	4,374
Floor Tile[6]	76,367	SF	1,591
Drop Ceiling[7]	42,742	SF	5,343
Plastered Walls[8]	185,063	SF	15,422
Plastered Ceiling[9]	44,904	SF	5,492
Fire Rated Doors[11]	158	Count	158 Count
ACM Debris in Attic Area[10]	39,757	SF	Unknown
Sprayed on Fire Proofing	2000	SF	167
Black Mastic 6th Floor S	3000	SF	21
Asbestos Floor Debris	88,000	SF	7334
Totals			72,411
	9210		
Pipe Insulation[1,2]	11,227	LF	3,742
Transite board [3]	1,373	SF	29
Acoustical Wall Tile[4]	1,152	SF	144
Acoustical Ceiling Tile[4]	2,296	SF	287
Duct Insulation[5]	2,880	SF	360
Floor Tile[6]	3,738	SF	75
Drop Ceiling[7]	1,688	SF	211
Plastered Ceiling and Walls8	180,925	SF	15077
Fire Rated Doors11	25	Count	25 Count

ACM Debris in Attic Area10	12,950	SF	Unknown
Sprayed on Fire Proofing	3,500	SF	295
Linoleum Flooring	350	SF	21
Asbestos Floor Debris			
Totals			20,241
9207A and 9207 Office Tower			
Pipe Insulation[1,2]	420	LF	140
Transite board [3]	800	SF	17
Acoustical Wall Tile[4]	NA	SF	NA
Acoustical Ceiling Tile[4]	333	SF	42
Duct Insulation[5]	NA	SF	NA
Floor Tile[6]	13,374	SF	279
Drop Ceiling[7]	NA	SF	NA
Plastered Ceiling and Walls[8]	NA	SF	NA
Fire Rated Doors[11]	10	Count	Count
ACM Debris in Attic Area[10]	NA	SF	NA
Totals			321
9401-1			
Pipe Insulation[1,2]	1329	LF	443
Transite board [3]	NA	SF	NA
Acoustical Wall Tile[4]	NA	SF	NA
Acoustical Ceiling Tile[4]	NA	SF	NA
Duct Insulation[5]	6630	SF	829
Floor Tile[6]	225	SF	5
Drop Ceiling[7]	NA	SF	NA
Plastered Ceiling and Walls[8]	NA	SF	NA
Fire Rated Doors[11]	NA	Count	NA
ACM Debris in Attic Area[10]	NA	SF	NA
Totals			1,277
Ancillary Facilities			
Pipe Insulation[1,2]	190	LF	64

Fire Rated Doors[11]	5	Count	Count

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IHAS Summary for Survey 38568

Sample ID	Bldg / Room / Location	Agent	Result	TWA
162354	9207 / First Floor / Various area in the first floor.	Asbestos - PCM	0.0385 f/cc	0.0096
162356	9207 / First Floor / Various area in the first floor.	Asbestos - PCM	0.022 f/cc	0.0055
162358	9207 / First Floor / Various area in the first floor.	Asbestos - PCM	0.0128 f/cc	0.0032
162701	9207 / First Floor / Room 145-A Duct work insulation falling on floor.	Asbestos - PLM	5 %	
162702	9207 / First Floor / Room 145-A Duct work insulation falling on floor.	Asbestos - PLM	5 %	
162703	9207 / First Floor / Room 145-A Duct work insulation falling on floor.	Asbestos - PLM	5 %	
162704	9207 / First Floor / Room 7-140 TSI on floor	Asbestos - PLM	5 %	
162705	9207 / First Floor / Room 7-140 TSI on floor	Asbestos - PLM	<1 %	
162706	9207 / First Floor / Room 7-140 TSI on floor	Asbestos - PLM	5 %	
162707	9207 / First Floor / Room 7-1014 Ceiling plaster falling on floor.	Asbestos - PLM	<1 %	
162708	9207 / First Floor / Room 7-1014 Ceiling plaster falling on floor.	Asbestos - PLM	<1 %	
162709	9207 / First Floor / Room 7-1014 Ceiling plaster falling on floor.	Asbestos - PLM	<1 %	
162710	9207 / First Floor / Asbetsos Blank	Asbestos - PCM		
162711	9207 / First Floor / Asbetsos Blank	Asbestos - PCM		

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IHAS Summary for Survey 38584

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
162726	9207 / Second floor / Second floor and mezzanine		Asbestos - PCM	0.0533 f/cc	0.018
162727	9207 / Second floor / Second floor and mezzanine		Asbestos - PCM	0.0675 f/cc	0.023
162729	9207 / Second floor / Second floor and mezzanine		Asbestos - PCM	0.0521 f/cc	0.018
162747	9207 / Second floor / TSI on the second floor room 7-221		Asbestos - PLM	20 Percent	
162748	9207 / Second floor / TSI on the second floor room 7-221		Asbestos - PLM	20 Percent	
162749	9207 / Second floor / TSI on the second floor room 7-221		Asbestos - PLM	20 Percent	
162750	9207 / Second floor / Second floor room 7-2014 upstairs.		Asbestos - PLM	10 Percent	
162751	9207 / Second floor / Second floor room 7-2014 upstairs.		Asbestos - PLM	10 Percent	
162752	9207 / Second floor / Second floor room 7-2014 upstairs.		Asbestos - PLM	10 Percent	
162753	9207 / Second floor / Second floor mezzanine stairwell 2502		Asbestos - PLM	<1 Percent	
162754	9207 / Second floor / Second floor mezzanine stairwell 2502		Asbestos - PLM	<1 Percent	
162755	9207 / Second floor / Second floor mezzanine stairwell 2502		Asbestos - PLM	<1 Percent	
162756	9207 / Second floor / Second floor 2026B white plaster falling on the floor		Asbestos - PLM	<1 Percent	
162757	9207 / Second floor / Second floor 2026B white plaster falling on the floor		Asbestos - PLM	<1 Percent	
162758	9207 / Second floor / Second floor 2026B white plaster falling on the floor		Asbestos - PLM	<1 Percent	
162759	9207 / Second floor / Second floor 7-210		Asbestos - PLM	<1 Percent	
162760	9207 / Second floor / Second floor 7-210		Asbestos - PLM	<1 Percent	
162761	9207 / Second floor / Second floor 7-210		Asbestos - PLM	<1 Percent	
162762	9207 / Second floor / Second floor 2507B mezzanine hallway		Asbestos - PLM	<1 Percent	
162763	9207 / Second floor / Second floor 2507B mezzanine hallway		Asbestos - PLM	<1 Percent	
162764	9207 / Second floor / Second floor 2507B mezzanine hallway		Asbestos - PLM	<1 Percent	
162765	9207 / Second floor / Asbestos Blank		Asbestos - PCM		
162766	9207 / Second floor / Asbestos Blank		Asbestos - PCM		

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IHAS Summary for Survey 38612

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
162911	9207 / Fourth floor / 7-4012 hallway		Asbestos - PLM	2 Percent	
162912	9207 / Fourth floor / 7-4012 hallway		Asbestos - PLM	2 Percent	
162913	9207 / Fourth floor / 7-4012 hallway		Asbestos - PLM	2 Percent	
162914	9207 / Fourth floor / 7-4008 center of room		Asbestos - PLM	2 Percent	
162915	9207 / Fourth floor / 7-4008 center of room		Asbestos - PLM	2 Percent	
162916	9207 / Fourth floor / 7-4008 center of room		Asbestos - PLM	2 Percent	
162917	9207 / Fourth floor / 7-4038 far right corner		Asbestos - PLM	<1 Percent	
162918	9207 / Fourth floor / 7-4038 far right corner		Asbestos - PLM	<1 Percent	
162919	9207 / Fourth floor / 7-4038 far right corner		Asbestos - PLM	<1 Percent	

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IHAS Summary for Survey 39195

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
164800	9207 / Various / 5th and 6th floor East tower		Asbestos - TEM	0.054 f/cc	0.009
164802	9207 / Various / 5th and 6th floor East tower		Asbestos - TEM	0.0138 f/cc	0.0024
164803	9207 / Various / Asbestos blank		Asbestos - TEM		
164804	9207 / Various / Asbestos blank		Asbestos - TEM		
164807	9207 / Various / Room 2050 2nd floor south wall (W2S025-RSI)		Asbestos - PLM	<1 %	
164808	9207 / Various / Room 2050 2nd floor south wall (W2S025-RSI)		Asbestos - PLM	<1 %	
164809	9207 / Various / Room 2050 2nd floor south wall (W2S025-RSI)		Asbestos - PLM	<1 %	
164810	9207 / Various / Room 505 Hallway-2nd layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	
164811	9207 / Various / Room 505 Hallway-2nd layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	
164812	9207 / Various / Room 505 Hallway-2nd layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	
164813	9207 / Various / Room 505 Hallway-First layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	
164814	9207 / Various / Room 505 Hallway-First layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	
164815	9207 / Various / Room 505 Hallway-First layer of wall (F5S032) east tower		Asbestos - PLM	<1 %	

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IHAS Summary for Survey 39668

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
166557	9207 / Sixth floor / Building 9207 6th floor east tower- room G-057-5 hallway		Asbestos - PLM	<1 Percent	
166558	9207 / Sixth floor / Building 9207 6th floor east tower- room 6019 hallway		Asbestos - PLM	15 Percent	
166559	9207 / Sixth floor / Building 9207 6th floor east tower- room 6019 hallway		Asbestos - PLM	20 Percent	
166560	9207 / Sixth floor / Building 9207 6th floor east tower- room 6019 hallway		Asbestos - PLM	20 Percent	
166563	9207 / Sixth floor / Building 9207 6th floor east tower- room G-057-5 hallway		Asbestos - PLM	<1 Percent	
166564	9207 / Sixth floor / Building 9207 6th floor east tower- room G-057-5 hallway		Asbestos - PLM	<1 Percent	

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IHAS Summary for Survey 39122

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
164773	9210 / First floor / Room 10-136 First floor (ceiling)		Asbestos - PLM	5 %	
164774	9210 / First floor / Room 10-136 First floor (ceiling)		Asbestos - PLM	5 %	
164775	9210 / First floor / Room 10-136 First floor (ceiling)		Asbestos - PLM	5 %	
164776	9210 / First floor / Room 10-115 First floor North wall		Asbestos - PLM	<1 %	
164777	9210 / First floor / Room 10-115 First floor East wall		Asbestos - PLM	<1 %	
164778	9210 / First floor / Room 10-115 First floor South wall		Asbestos - PLM	<1 %	

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IHAS Summary for Survey 39353

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
165829	9210 / Third floor / Third floor northeast corner		Asbestos - PLM	< 1 Percent	
165830	9210 / Third floor / Third floor northeast corner		Asbestos - PLM	< 1 Percent	
165831	9210 / Third floor / Third floor northeast corner		Asbestos - PLM	< 1 Percent	

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IHAS Summary for Survey 38715

Sample ID	Bldg / Room / Location	Person	Agent	Result	TWA
163100	9210 / first and third floor / First and third floor		Asbestos - TEM	<0.005 f/cc	<0.00053
163102	9210 / first and third floor / Room 11-216 second floor/hallway		Asbestos - PLM	2 Percent	
163103	9210 / first and third floor / Room 11-216 second floor/hallway		Asbestos - PLM	2 Percent	
163104	9210 / first and third floor / Room 11-216 second floor/hallway		Asbestos - PLM	2 Percent	
163105	9210 / first and third floor / Room 10-314 third floor/hallway		Asbestos - PLM	2 Percent	
163106	9210 / first and third floor / Room 10-314 third floor/hallway		Asbestos - PLM	2 Percent	
163107	9210 / first and third floor / Room 10-314 third floor/hallway		Asbestos - PLM	2 Percent	
163108	9210 / first and third floor / Asbestos Blank		Asbestos - TEM	f/cc	
163109	9210 / first and third floor / Asbestos Blank		Asbestos - TEM	f/cc	

Sample Report by Agent

AMOSITE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
AMOSITE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450153	15 - 30		PERC	

Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA
Location description SOUTH WALL - HVAC LINE VERTICAL STRAIGHT

AMOSITE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450160	5 - 15		PERC	

Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA
Location description SOUTH WALL - HVAC LINE DAMAGED/UNCOVERED PIPE INSULATION

AMOSITE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450169	15 - 30		PERC	

Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA
Location description EAST WALL - HVAC LINE HORIZONTAL STRAIGHT

AMOSITE	26 AUG 2015	BULK SAMPLING	OUTER LAYER	IHS-69754	69754-1	10		PERC	

Survey title: 9401-1, ASBESTOS, BULK, D. JACKSON
Location description NORTH SIDE: STEAM LINE ACROSS FROM 9302A LOADING DOCK. MATERIAL ON GROUND FROM DAMAGED OVERHEAD LINE - MUDDED JOINT MATERIAL ON GROUND

AMOSITE	26 AUG 2015	BULK SAMPLING	OUTER LAYER	IHS-69754	69754-2	10		PERC	

Survey title: 9401-1, ASBESTOS, BULK, D. JACKSON
Location description NORTH SIDE: STEAM LINE ACROSS FROM 9302A LOADING DOCK. MATERIAL ON GROUND FROM DAMAGED OVERHEAD LINE - MUDDED JOINT MATERIAL ON GROUND

ASBESTOS

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
ASBESTOS	23 JAN 1992	PERSONAL AIR	8 HOUR TWA	4214	1362b	0.0200	.2	F/CC	10
ASBESTOS	23 JAN 1992	PERSONAL AIR	8 HOUR TWA	4214	1368b	0.0137	.2	F/CC	7
ASBESTOS	23 JAN 1992	PERSONAL AIR	8 HOUR TWA	4214	1369b	0.0098	.2	F/CC	5
ASBESTOS	23 JAN 1992	PERSONAL AIR	8 HOUR TWA	4214	1370b	0.0160	.2	F/CC	8
ASBESTOS	24 JAN 1992	PERSONAL AIR	8 HOUR TWA	4215	1381b	0.0049	.2	F/CC	2

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

Sample Report by Agent

ASBESTOS

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	
Survey title: 9401-1, ASBESTOS, BZ, B. SLISKI									
ASBESTOS	27 AUG 2015	PERSONAL AIR	EXCURSION	IHS-69755	69755-1	0.04	1	F/CC	4
Survey title: 9401-1, ASBESTOS, BZ, D. JACKSON									
ASBESTOS	27 AUG 2015	PERSONAL AIR	8 HOUR TWA	IHS-69755	69755-2	0.0098	.1	F/CC	10
Survey title: 9401-1, ASBESTOS, BZ, D. JACKSON									
ASBESTOS	28 AUG 2015	PERSONAL AIR	EXCURSION	IHS-69756	69756-1	0.04	1	F/CC	4
Survey title: 9401-1, ASBESTOS, BZ, D. JACKSON									
ASBESTOS	28 AUG 2015	PERSONAL AIR	8 HOUR TWA	IHS-69756	69756-2	0.0104	.1	F/CC	10
Survey title: 9401-1, ASBESTOS, BZ, D. JACKSON									
ASBESTOS	28 SEP 2015	PERSONAL AIR	EXCURSION	IHS-71783	A152710160	< 0.04	1	F/CC	
Survey title: 9401-1, ASBESTOS, BZA, D. JACKSON									
ASBESTOS	28 SEP 2015	PERSONAL AIR	8 HOUR TWA	IHS-71783	A152710161	< 0.0055	.1	F/CC	
Survey title: 9401-1, ASBESTOS, BZA, D. JACKSON									
ASBESTOS	28 SEP 2015	AREA AIR	GENERAL AREA	IHS-71783	A152710162	< 0.01038		F/CC	
Survey title: 9401-1, ASBESTOS, BZA, D. JACKSON									
Location description BETWEEN COLUMN B-Z AND ROOM 108 IN BUILDING 9401-1.									

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590040	< 0.01		UG/100CM2	
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI									
Sample comments GA07159005									

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 7								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590047	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 8								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590048	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 9								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590049	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 10								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590050	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 11								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590051	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 18								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590058	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 1 - LAMP 19 (BROKEN)								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590059	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 20								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590060	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 21								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590061	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 22								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590062	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

Sample Report by Agent

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 29								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590069	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 30								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590070	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 31								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590071	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 32								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590072	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 2 - LAMP 33								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590073	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 3 - LAMP 40								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590080	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 3 - LAMP 41								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590081	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 3 - LAMP 42								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590082	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 3 - LAMP 43								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590083	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005 **Location description** BOX 3 - LAMP 44								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590084	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI **Sample comments** GA07159005								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

BERYLLIUM

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI								
Sample comments GA07159005								
Location description BOX 3 - LAMP 51								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590091	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI								
Sample comments GA07159005								
Location description BOX 3 - LAMP 52								
BERYLLIUM	08 JUN 2007	WIPE SAMPLING	OTHER	IHS-35198	A071590092	< 0.01		UG/100CM2
Survey title: 9401-1, BERYLLIUM, NRS, W. SLISKI								
Sample comments GA07159005								
Location description BOX 3 - LAMP 53								

CARBON MONOXIDE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
CARBON MONOXIDE	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	001	2		PPM	
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA									
Location description WEST END COLUMN D-14									
CARBON MONOXIDE	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	002	0		PPM	
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA									
Location description WEST END COLUMN D-14									
CARBON MONOXIDE	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	003	0		PPM	
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA									
Location description WEST END COLUMN D-14									
CARBON MONOXIDE	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	004	0		PPM	

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

CARBON MONOXIDE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit

Survey title: 9401-1, CO/02, DR, H. PICHIARELLA

Location description EAST END AT ROLL-UP DOOR

CELLULOSE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
CELLULOSE	16 MAY 1994	BULK SAMPLING	OUTER LAYER	AOZ113	1	< 0.05		PERC	
Location description WEST WALL									
CELLULOSE	16 MAY 1994	BULK SAMPLING	OUTER LAYER	AOZ113	2	< 0.05		PERC	
Location description WEST WALL									
CELLULOSE	16 MAY 1994	BULK SAMPLING	OUTER LAYER	AOZ113	3	< 0.05		PERC	
Location description EAST WALL									
CELLULOSE	16 MAY 1994	BULK SAMPLING	OUTER LAYER	AOZ113	4	< 0.05		PERC	
Location description EAST WALL									
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450151	1 - 5		PERC	
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA									
Location description NORTH WALL- SMALL PROCESS COLD WATER HORIZONTAL STRAIGHT									
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450152	1 - 5		PERC	
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA									
Location description NORTH WALL- PROCESS COLD WATER VERTICAL STRAIGHT									
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450153	5 - 15		PERC	
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA									
Location description SOUTH WALL - HVAC LINE VERTICAL STRAIGHT									
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450154	30 - 50		PERC	

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

CELLULOSE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL -HVAC LINE LOWER ELBOW								
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450165	30 - 50		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL - HVAC LINE VERTICAL STRAIGHT								
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450167	15 - 30		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description SOUTH WALL - FILTERED COLD WATER HORIZONTAL STRAIGHT								
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450168	50 - 75		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL - HVAC LINE SOUTH ELBOW								
CELLULOSE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450169	15 - 30		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL - HVAC LINE HORIZONTAL STRAIGHT								
CELLULOSE	09 MAY 2003	BULK SAMPLING	INNER & OUTER	IHS-18865	A031320000	<1.0		PERC
Survey title: 9401-1, ASBESTOS, BULK, B. SLISKI								
Location description GREEN WALL PAINT NORTHEAST ROOM								
CELLULOSE	09 MAY 2003	BULK SAMPLING	INNER & OUTER	IHS-18865	A031320001	<1.0		PERC
Survey title: 9401-1, ASBESTOS, BULK, B. SLISKI								
Location description GREEN WALL PAINT NORTHEAST ROOM								
CELLULOSE	06 FEB 2014	BULK SAMPLING	OUTER LAYER	IHS-64160	A140370089	15-30		PERC

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

CHRYSOTILE

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
CHRYSOTILE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450155	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description NORTHWEST CORNER - SMALL PROCESS COLD ELBOW								
CHRYSOTILE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450156	15 - 30		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description WEST WALL - SMALL PROCESS COLD WATER ELBOW BELOW BREAKER BOX								
CHRYSOTILE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450164	1 - 5		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL -HVAC LINE LOWER ELBOW								
CHRYSOTILE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450166	1 - 5		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description SOUTH WALL - FILTERED COLD WATER EAST ELBOW								
CHRYSOTILE	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450167	1 - 5		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description SOUTH WALL - FILTERED COLD WATER HORIZONTAL STRAIGHT								

FIBERGLASS

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit	% of OEL
FIBERGLASS	06 APR 1995	BULK SAMPLING	OUTER LAYER	A1K081	1	< 0.05		PERC	
Location description WHITE AND GREEN PAINT WEST WALL.									
FIBERGLASS	06 APR 1995	BULK SAMPLING	OUTER LAYER	A1K081	2	< 0.05		PERC	
Location description WHITE AND GREEN PAINT WEST WALL.									
FIBERGLASS	06 APR 1995	BULK SAMPLING	OUTER LAYER	A1K081	3	< 0.05		PERC	

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

FIBERGLASS

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Location description WEST WALL - SMALL PROCESS COLD WATER ELBOW BELOW BREAKER BOX								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450157	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description WEST WALL - SMALL PROCESS COLD WATER ELBOW AT HOT WATER HEATER								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450158	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description WEST WALL - SMALL PROCESS COLD WATER T-SECTION AT HOT WATER HEATER								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450159	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description SOUTH WALL - HVAC LINE 45 DEGREE ANGLE VALVE								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450161	15 - 30		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description SOUTH WALL - HVAC LINE DAMAGED/COVERED PIPE INSULATION								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450162	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description WEST WALL - PROCESS WATER HOTWATER SUPPLY FROM WATER HEATER TO SINK								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450163	30 - 50		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description NORTH WALL - PROCESS COLD WATER VERTICAL STRAIGHT								
FIBERGLASS	11 DEC 2001	BULK SAMPLING	OUTER LAYER	A2D827	A013450164	5 - 15		PERC
Survey title: 9401-1, ASBESTOS, BULK, H. PICHIARELLA								
Location description EAST WALL -HVAC LINE LOWER ELBOW								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

LEAD METAL

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Location description GRAY PAINT								
LEAD METAL	18 AUG 1997	BULK SAMPLING	TOP LAYER	A1K604	A972330285	< 0.05		MG/KG
Location description THE THE EMPLOYEE WAS WEARING SURGICAL GLOVES, COVERALLS, AND A LAB COAT.								
LEAD METAL	18 AUG 1997	BULK SAMPLING	TOP LAYER	A1K604	A972330286	< 0.05		MG/KG
LEAD METAL	21 AUG 1997	BULK SAMPLING	TOP LAYER	A1K604	A972330284	210		MG/KG
Location description THE EMPLOYEE WAS WEARING SURGICAL GLOVES, COVERALLS, AND A LAB COAT.								
LEAD METAL	21 AUG 1997	BULK SAMPLING	OUTER LAYER	A1K604	A972330284b	210		MG/KG
Location description THE EMPLOYEE WAS WEARING SURGICAL GLOVES AND A LAB COAT.								
LEAD METAL	21 AUG 1997	BULK SAMPLING	OUTER LAYER	A1K604	A972330285b	< 0.05		MG/KG
Location description THE EMPLOYEE WAS WEARING A HALF FACE RESPIRATOR WITH HEPA CARTRIDGES, SURGICAL GLOVES, SAFETY GLASSES, AND A LAB COAT.								
LEAD METAL	21 AUG 1997	BULK SAMPLING	OUTER LAYER	A1K604	A972330286b	< 0.05		MG/KG
LEAD METAL	09 MAY 2003	BULK SAMPLING	INNER & OUTER	IHS-18866	A031320012	1750		UG/G
Survey title: 9401-1, LEAD, BULK, B. SLISKI **Location description** GREEN WALL PAINT NORTHEAST ROOM								
LEAD METAL	04 MAY 2006	BULK SAMPLING	OUTER LAYER	IHS-32961	A061280064	4730		UG/G
Survey title: 9104-1, LEAD, BULK, J. HENDERSHOT **Location description** CREAM OVER GREEN INTERIOR WALL PAINT								
LEAD METAL	04 MAY 2006	BULK SAMPLING	OUTER LAYER	IHS-32961	A061280065	7440		UG/G
Survey title: 9104-1, LEAD, BULK, J. HENDERSHOT **Location description** GREEN PAINT ON WALL IN UTILITY CLOSET								
LEAD METAL	04 MAY 2006	BULK SAMPLING	OUTER LAYER	IHS-32961	A061280066	< 48		UG/G

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

OXYGEN

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
Location description CENTER OF BUILDING COLUMN C-8								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	005	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** CENTER OF BUILDING COLUMN C-8								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	006	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END COLUMN C-4								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	007	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END COLUMN C-4								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	008	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END COLUMN C-2								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	009	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END COLUMN C-2								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	010	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END AT ROLL-UP DOOR								
OXYGEN	21 APR 2003	DIRECT READING	GENERAL AREA	IHS-18492	011	21		PERC
Survey title: 9401-1, CO/02, DR, H. PICHIARELLA **Location description** EAST END AT ROLL-UP DOOR								

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

VELOCITY

Agent	Sample date	Assessment	Result type	Survey ID	Sample ID	Result	OEL	Unit
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	2	1460		FPM
Location description	COL B16 1/2 #2 WELD BOOTH FLUSH WITH OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	3	70		FPM
Location description	COL B16 1/2 #2 WELD BOOTH APPROX. 10" BELOW OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	4	1690		FPM
Location description	COL B17 1/2 #4 WELD BOOTH FLUSH WITH OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	5	82		FPM
Location description	COL B17 1/2 #4 WELD BOOTH 10" FROM OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	6	1190		FPM
Location description	COL B17 1/2 #5 WELD BOOTH FLUSH WITH OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	7	64		FPM
Location description	COL B17 1/2 #5 WELD BOOTH 10" FROM OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	8	1030		FPM
Location description	COL B18 1/2 #7 WELD BOOTH FLUSH WITH OPENING.							
VELOCITY	29 FEB 1996	AREA AIR	DIRECT READING	9379	9	98		FPM
Location description	COL B18 1/2 #7 WELD BOOTH APPROX 10" FROM OPENING.							

Report Filters: Location: 9401-1, ** Preliminary Unlocked records included **

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APPENDIX C.
PERCHLORATES REPORT

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Date: January 18, 2017

From: The ORNL Perchloric Acid Team

To: Tony Long

Subject: Perchlorate Testing and Analysis Report

Between November 2016 and January 2017, the Perchloric Acid Sampling Team collected and analyzed seventy samples from building 9207, ventilation systems. All ventilation systems showed concentrations of perchlorates low enough to be considered negative for perchlorate contamination. No additional controls are required due to perchlorates.

The table below shows sampling locations and analysis results.

If you have any questions or comments, please do not hesitate to contact me.

Marwan Bader, CIH

Perchlorate Sampling Team

Building 4500S, MS 6175

576-1231

9207 Ventilation Systems Survey for Perchlorates

Floor Level	Room #	Hood/Fan ID	Sample Location	Results
1st	7-1006D	7, EF 705	Hood/Duct	<10 PPM
1st	7-102	11	Hood/Duct	<10 PPM
1st	7-108	9	Hood/Duct	<10 PPM
1st	7-113	12, EF 713	Hood/Duct	42 PPM
1st	7-117	13	Hood/Duct	30 PPM
1st	7-120	Y154197	Hood/Duct	<10 PPM
1st	7-120	H1S012	Hood/Duct	<10 PPM
1st	7-121	14	Hood/Duct	<10 PPM
1st	7-144	16	Hood/Duct	<10 PPM
2nd	7-2013	23	Hood/Duct	<10 PPM
2nd	7-2017	42	Hood/Duct	<10 PPM
2nd	7-2028	47, EF 702	Hood/Duct	<10 PPM
2nd	7-2028	48, EF 702	Hood/Duct	<10 PPM
2nd	7-214	H2S015, EF 717	Hood/Duct	<10 PPM
2nd	7-243	19, EF 725	Hood/Duct	<10 PPM
2nd	7-245	18	Hood/Duct	<10 PPM
2nd	7-245	17	Hood/Duct	<10 PPM
2nd	In Hallway	Y93556	Hood/Duct	<10 PPM
3rd	7-3035	65, EF 707	Hood/Duct	<10 PPM
3rd	7-3035	66, EF 707	Hood/Duct	<10 PPM
3rd	7-3035	67, EF 707	Hood/Duct	<10 PPM
3rd	7-3035F	63, EF 704	Hood/Duct	<10 PPM
3rd	7-3027	64, EF 703	Hood/Duct	<10 PPM
3rd	7-3033	68	Hood/Duct	<10 PPM
3rd	7-3025F	61, EF 704	Hood/Duct	<10 PPM

- Results <100 PPM are considered negative (no perchlorate issues)
- Results between 100-499 PPM are considered suspect for perchlorates
- Results 500 PPM or greater are considered positive for perchlorates

9207 Ventilation Systems Survey for Perchlorates

Floor Level	Room #	Hood/Fan ID	Sample Location	Results
3rd	7-3025F	62	Hood/Duct	<10 PPM
3rd	7-3029	60, EF 703	Hood/Duct	<10 PPM
3rd	7-3029	59, EF 703	Hood/Duct	<10 PPM
3rd	7-3025	58, EF 703	Hood/Duct	<10 PPM
3rd	7-3009	80, EF 702	Hood/Duct	<10 PPM
3rd	7-3011A	76, EF 701	Hood/Duct	<10 PPM
3rd	7-3011	77, EF 702	Hood/Duct	<10 PPM
3rd	7-3011	78, EF 702	Hood/Duct	<10 PPM
3rd	7-335	38	Hood/Duct	<10 PPM
3rd	7-3031	71, EF 707	Hood/Duct	<10 PPM
3rd	7-3033	70, EF 707	Hood/Duct	<10 PPM
3rd	7-313	Y155518	Hood/Duct	<10 PPM
3rd	7-313	Y155519	Hood/Duct	<10 PPM
3rd	7-334	37	Hood/Duct	<10 PPM
3rd	7-336	39	Hood/Duct	<10 PPM
3rd	7-3023	49	Hood/Duct	<10 PPM
3rd	7-3023	50	Hood/Duct	<10 PPM
3rd	7-3006	51	Hood/Duct	<10 PPM
3rd	7-3006	53, EF 701	Hood/Duct	<10 PPM
3rd	7-3006	55	Hood/Duct	<10 PPM
3rd	7-3006	56	Hood/Duct	<10 PPM
3rd	7-3006	57	Hood/Duct	<10 PPM
3rd	7-3006	52	Hood/Duct	<10 PPM
3rd	7-3006	54	Hood/Duct	<10 PPM
3rd	7-3006	98, EF 701	Hood/Duct	<10 PPM

- Results <100 PPM are considered negative (no perchlorate issues)
- Results between 100-499 PPM are considered suspect for perchlorates
- Results 500 PPM or greater are considered positive for perchlorates

9207 Ventilation Systems Survey for Perchlorates

Floor Level	Room #	Hood/Fan ID	Sample Location	Results
3rd	7-3020N	74, EF 705	Hood/Duct	<10 PPM
3rd	7-3020N	40, EF 705	Hood/Duct	<10 PPM
3rd	7-3020S	72	Hood/Duct	<10 PPM
3rd	7-3020S	73	Hood/Duct	<10 PPM
3rd	7-306C	105	Hood/Duct	<10 PPM
3rd	7-306C	104	Hood/Duct	<10 PPM
3rd	7-3011	79, EF 702	Hood/Duct	<10 PPM
4th	7-4020	81, EF 703	Hood/Duct	<10 PPM
4th	7-415	100	Hood/Duct	<10 PPM
4th	7-409	87	Hood/Duct	30 PPM
5th	7-5015	85	Hood/Duct	<10 PPM
5th	7-510	92, EF 725	Hood/Duct	<10 PPM
5th	7-509	Y145989	Hood/Duct	<10 PPM
Roof	Roof	2	Fan	<10 PPM
Roof	Roof	1	Fan	<10 PPM
Roof	Roof	9	Fan	<10 PPM
Roof	Roof	6	Fan	<10 PPM
Roof	Roof	8	Fan	<10 PPM
Roof	Roof	7	Fan	<10 PPM
Roof	Roof	5	Fan	<10 PPM

- Results <100 PPM are considered negative (no perchlorate issues)
- Results between 100-499 PPM are considered suspect for perchlorates
- Results 500 PPM or greater are considered positive for perchlorates

APPENDIX D.
LWD

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Y-12 LISTED WASTE DETERMINATION FOR BIOLOGY COMPLEX FACILITIES 9207, 9207A, 9210, 9743-2, 9767-6, 9767-7, AND 9770-2

Project Name: Biology Complex	**Date:** December 15, 2011
Project Scope: The project is characterizing the facility for future demolition.	
Organization originating this review: Alliant Corporation on behalf of ORISE	

1. Description of the waste stream being evaluated:

1.1 Complex Description

The Y-12 Biology Complex originally consisted of twelve buildings. Four of the buildings were demolished in 2010 under the auspices of the American Recovery and Reinvestment Act, and one building, the Maintenance/Recycle Storage Building or (Building 9401-1), has been removed from the current action. The remaining seven Biology Complex buildings to be addressed in this document (as shown in Table 1) were last operated by the Oak Ridge National Laboratory (ORNL) Biology Division. The facilities are currently managed by the prime contractor for management and operations at ORNL, the University of Tennessee–Battelle, LLC (UT-B), for the U.S. Department of Energy (DOE) Office of Science. Facility infrastructure for the Biology facilities is coordinated with Consolidated Nuclear Security, LLC (CNS), the management and operations prime contractor for the Y-12 National Security site (Y-12).

Table 1. Summary information for the seven Biology D&D facilities

Facility Number	FIMS Title	Footprint Reduction	Gross SF	No. of Floors	Year Built	Hazard Category[a]
9207 Building Complex						
9207	Biology	49,686	256,660	6[b]	1945	LRHF
9207A	9207 Annex	9198	8108	1	1965	SIF
9767-6	Utilities	392	400	1	1967	SIF
9767-7	Utilities	280	393	1	1968	SIF
Other Project Buildings						
9210	Mammalian Genetics[c]	22,166	64,737	3[b]	1945	LRHF
9743-2	Pigeon Quarters	3200	2371	1	1949	SIF
9770-2	Radiation Source Building	128	155	1	1945	LRHF
	TOTAL:	85,050	332,824			

[a]Only one document, a Preliminary Hazard Screening Report for Building 9207, addresses hazard categorization of the project facilities.
[b]Unoccupied basement areas covering the entire building footprint
[c]Also known as the "Mouse House"
FIMS – Facilities Information Management System
LRHF – Low Radiological Hazard Facility
SF – square feet
SIF – Standard Industrial Facility

1.2 EVALUATION OF POTENTIALLY LISTED CHEMICALS

The original uranium process equipment was removed from the Biology Complex facilities in anticipation of occupancy by the Biology Division. All surplus chemical products were removed from the facilities following the relocation of the Biology Division to ORNL. Numerous chemicals were used in the Biology program, but

Living Memory interviews suggest that the chemicals were present in laboratory quantities and were stored in their original containers. No evidence of chemical spills was obtained for this evaluation.

A chemical list observed in a hood in Building 9207 during walkdowns identified the following chemicals that may be considered as contaminants of potential concern (COPCs):

- Acetonitrile
- Acetic acid
- Amyl acetate
- Hydrofluoric acid
- Nitric acid
- Phosphoric acid
- Phenol
- Toluene
- Trifluoroacetic acid
- Sulfuric acid

In addition, the use of ethyl ether was described during a Living Memory interview. The chemicals listed below (with associated waste codes) were considered, but have been eliminated, as potential listed waste streams for the reason stated:

- U003; acetonitrile – All surplus inventory has been removed; there were no documented spills of unused product.
- U134; hydrofluoric acid – All surplus inventory has been removed; there were no documented spills of unused product.
- U188; phenol – All surplus inventory has been removed; there were no documented spills of unused product.
- U220; toluene – All surplus inventory has been removed; there were no documented spills of unused product.
- F003; spent solvents that are listed only for ignitibility – These chemicals were disposed of; spills would likely lose their ignitable characteristic and would no longer be considered listed.

2. Were there any activities that could cause this waste stream to be a K-listed waste? ☐Yes ☒No

If yes, please explain below.

Not Applicable

3. Is there documented evidence of spills or releases of listed waste, or of chemicals or substances that would have caused this waste stream to be managed as, or contaminated by, a U-listed or P-listed waste? ☐Yes ☒No

If yes, please explain below.

There were no documented spills of P or U listed waste. Therefore this waste stream should not be managed as U-listed or P-listed.

4. Did the building/facility where the waste was generated operate under a RCRA permit or undergo RCRA closure? ☐Yes ☒No

If yes, please explain below.

Not Applicable

5. Has the waste stream in question been determined to be a characteristically hazardous waste (D001 – D043)? ☐Yes ☒No

If yes, indicate the waste codes that apply and the method of characterization (process knowledge, analytical, etc).

There is historical information that materials of construction may be present (e.g., lead flashing) that would exceed RCRA Toxicity Characteristic thresholds. These materials will be evaluated or sampled prior to demolition to determine if the waste will be characteristically hazardous.

6. Is the waste stream generated by a CERCLA action? ☒Yes ☐No

7. Were interviews conducted to obtain additional process knowledge? ☒Yes ☐No

If yes, provide name, position, date, and summary of conversation.

Attachment 1 provides this.

8. Please complete the following sections regarding spent solvents.

8a. **F001spent solvents**

The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents? ☒Yes ☐No
Does this waste stream contain any of the above solvents? ☐Yes ☒No
If yes to above, was the waste stream generated by a degreasing process? ☐Yes ☒No
Is this waste stream contaminated with a F001 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Halogenated solvents may have been used in the Biology Complex. However, based on the mission of the Biology Complex facilities, they were not used as degreasers. Therefore the waste is not F001.

8b. **F002 spent solvents**

The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2 trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents? ☒Yes ☐No
Does this waste contain any of the above solvents? ☐Yes ☒No

If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F002 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Halogenated solvents may have been used in the Biology Complex. However, Living Memory interviews and information obtained from the Y-12 Environmental Compliance department do not suggest that these chemicals were spilled or stored outside their original containers. All chemical containers have been removed from the facility. Therefore the waste is not F002.

8c. **F003 spent solvents**

The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents in this method? ☒Yes ☐No
Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F003 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

The above non-halogenated solvents were used in the Biology Complex. However, Living Memory interviews and information obtained from the Y-12 Environmental Compliance department do not suggest that these chemicals were spilled or stored outside their original containers. All chemical containers have been removed from the facility. Therefore the waste is not F003.

8d. **F004 spent solvents**

The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F004 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not Applicable

8e. **F005 spent solvents**

The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Does this waste contain any of the above solvents?	☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties?	☐Yes ☒No
Is this waste stream contaminated with a F005 waste?	☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Some of the above non-halogenated solvents were used in the Biology Complex. However, Living Memory interviews and information obtained from the Y-12 Environmental Compliance department do not suggest that these chemicals were spilled or stored outside their original containers. All chemical containers have been removed from the facility. Therefore, the waste is not F005.

9. Please complete the following sections regarding spent plating waste.

9a. **Electroplating waste (F006 – F009)**

F006 Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.

F007 Spent cyanide plating bath solutions from electroplating operations.

F008 Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.

F009 Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.

Was electroplating done in this facility?	☐Yes ☒No
If yes, is there documentation of proper waste management/disposal?	☐Yes ☒No
Is there evidence of any spills/releases of electroplating waste?	☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not Applicable

9b. **Metal finishing waste F010, F011, F012, and F019**

F010 Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.

F011 Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.

F012 Quenching waste water treatment sludges from metal heat treating operations where 19 cyanides are used in the process.

F019 Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion

Was metal finishing done in this facility?	☐Yes ☒No
If yes, is there documentation of proper waste management/disposal?	☐Yes ☒No
Is there evidence of any spills/releases of electroplating waste?	☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not Applicable

10. Is there documentation/process knowledge available that indicates the following listed waste codes could apply to this waste stream?

Production of chlorinated aliphatic hydrocarbons (F020 – F027)	☐Yes ☒No
Residues from the incineration or thermal treatment of soil (F028)	☐Yes ☒No
Wastewaters resulting from the manufacturing of wood preservatives (F032 – F035)	☐Yes ☒No
Petroleum refinery operations (F037 – F038)	☐Yes ☒No
Multisource leachate (F039)	☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not Applicable
11. Is analytical information available for this waste stream? ☐Yes ☒No **If yes, please summarize the analytical data below** Not Applicable
12. Describe any other relevant records or information used to characterize this waste stream Technical reports are available and can be used for additional data.
Final Determination This waste stream has been characterized using a combination of process knowledge, analytical data, and available records as indicated in this document. The following listed waste determination statement applies: ☒**This waste stream IS NOT a listed waste.** ☐**This waste stream IS a listed waste.** ☐**This waste stream MAY BE a listed waste, but the available evidence is inconclusive.**

Originator (Name & Signature)	Title:	Badge:	Date:
Dean Williams Dean E (DWX) Williams Digitally signed by Dean E (DWX) Williams DN: c=US, o=U.S. Government, ou=Department of Energy, ou=Y-12 National Security Complex, ou=CAs, ou=people, cn=Dean E (DWX) Williams Reason: I am the author of this document Date: 2016.08.09 10:21:54 -04'00'	Waste Management Lead	708579	
Waste Engineer (Name & Signature) Linda Albrecht Linda Albrecht	Title: Waste Engineer	Badge: 721965	Date: 3-22-17
EC Approval (Name & Signature) HOWELL ESES Howell Eses	Title: EC&P LEAD	Badge: 071265	Date: 21 MAR 17

LISTED WASTE DETERMINATION FOR BLDG 9401-1

Project Name: Biology Complex Characterization	**Date:** February 22, 2017

Project Scope: The project is characterizing several buildings that are part of ORNL's Biology Complex at Y-12 for future demolition. Although it is not part of the complex, Bldg 9401-1 was most recently used by ORNL and has been included with the Biology Complex buildings for characterization and disposition. (The listed waste determination for the remaining Biology Complex buildings is in a separate document.)

Organization originating this review: UCOR Environmental Compliance & Protection

1. Description of the waste stream being evaluated:
Materials of construction for a building scheduled for demolition

Facility Description
Building 9401-1, currently designated as a Maintenance/Recycle Storage building, was originally a steam plant built in 1943. This single-story facility encompasses 13,227 gross square feet, has 30-ft high walls, and is constructed with a reinforced concrete floor, hollow clay tile (HCT block) walls, and brick exterior on portions of the building. The building includes a high-bay section that extends approximately 25 feet above the building floor. The roof is flat with concrete panels and metal covering. Interior built out walls are constructed of hollow core cinder block with metal covered wall board. Three rooms were added to the original building along the north side. One located along the centerline of the building is identified as a cooling room on a 1973 Master Plan floor plan drawing. This addition houses a large air-handling unit with metal walls and roof. A second room identified as storage on the same drawing is constructed of the same materials. The third addition was a bag house (identified as an equipment room on the 1973 floor plans) constructed with metal walls and a slightly pitched metal roof supported with wooden framing. Each of the attached facilities has reinforced concrete floors. Bldg. 9401-1 is classified as a radiological facility and is posted as a "fixed contamination area." Various types of asbestos are present in Bldg. 9401-1.

History
The facility was built in 1943 as a steam plant. By 1945 it was excess because it could not meet the demand of the Y-12 facilities. In the sixties and seventies, Y-12 Development used the facility. They were developing a dipping process for uranium parts. The process used natural and depleted uranium parts and dipped them in a carbon tank. The carbon was a tar-like substance that was kept in a heated dipping tank. This process was later moved to Building 9731.

When development no longer needed the facility, the floor in the main hallway was scabbled and sealed, and the facility was leased to ORNL. ORNL used the facility to test fuels. No radiological work was done by the lab in this facility. They primarily tested fuels – ethanol, jet fuels (e.g., JP-8), and car fuels (e.g., diesel). The ORNL materials were removed from the facility during the 2001-2003 period.

ORNL returned the facility to Y-12 in 2002. In 2004, Y-12 located the cardboard recycling center there. Later it was used to store equipment and tools and was also used as a breaker shop for power operations.

2. Were there any activities that could cause this waste stream to be a K-listed waste? ☐Yes ☒No

If yes, please explain below.

Not applicable.

3. Is there documented evidence of spills or releases of listed waste, or of chemicals or substances that would have caused this waste stream to be managed as, or contaminated by, a U-listed or P-listed waste? ☐Yes ☒No

If yes, please explain below.

Not applicable.

4. Did the building/facility where the waste was generated operate under a RCRA permit or undergo RCRA closure? ☒Yes ☐No

If yes, please explain below.

A permitted RCRA storage area was located inside the western end of the building at one point for "storage of small volumes of chemicals," but the area was clean closed under RCRA in 1986 per Y-TS-216/5 Hazardous Waste Storage Area (S-029) Old Steam Plant, Building 9401-1: *Summary of Resource Conservation and Recovery Act Closure* (Shelton and Willoughby 1986). Ref: Y/ER-274 *Compendium of Available Documentation on Upper East Fork Poplar Creek Study Area,* July 1996.

5. Has the waste stream in question been determined to be a characteristically hazardous waste (D001 – D043)? ☐Yes ☒No

If yes, indicate the waste codes that apply and the method of characterization (process knowledge, analytical, etc.).

Not applicable.

6. Is the waste stream generated by a CERCLA action? ☒Yes ☐No

7. Were interviews conducted to obtain additional process knowledge? ☒Yes ☐No

If yes, provide name, position, date, and summary of conversation.

- Donald Bohrman (Ph. 865-574-8494) Environmental Scientist for CNS and Y-12 employee for over 30 years. Via phone call on 2/22/2017, Mr. Bohrman said he was not aware of any processes conducted in Bldg 9401-1 that would have produced a listed waste.

- John David May, Jr (Ph. 865-574-0231) Facility Manager for CNS for 9401-1. Via phone call on 2/22/2017, Mr. May said he was not aware of any processes conducted in Bldg 9401-1 that would have produced a listed waste.

8. Please complete the following sections regarding spent solvents.

8a. F001 spent solvents

The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents? ☐Yes ☒No
Does this waste stream contain any of the above solvents? ☐Yes ☒No
If yes to above, was the waste stream generated by a degreasing process? ☐Yes ☒No
Is this waste stream contaminated with a F001 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not applicable.

8b. F002 spent solvents

The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2 trichloroethane; all spent solvent mixtures/blends containing, before use, a

total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents? ☐Yes ☒No
Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F002 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not applicable.

8c. F003 spent solvents
The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Did the facility use these solvents in this method? ☐Yes ☒No
Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F003 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not applicable.

8d. F004 spent solvents
The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No
Is this waste stream contaminated with a F004 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not Applicable

8e. F005 spent solvents
The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Does this waste contain any of the above solvents? ☐Yes ☒No
If yes to above, were the chemical constituents used for their solvent properties? ☐Yes ☒No

Is this waste stream contaminated with a F005 waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not applicable.

9. Please complete the following sections regarding spent plating waste.

9a. Electroplating waste (F006 – F009)

F006 Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.

F007 Spent cyanide plating bath solutions from electroplating operations.

F008 Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.

F009 Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.

Was electroplating done in this facility? ☐Yes ☒No

If yes, is there documentation of proper waste management/disposal? ☐Yes ☒No

Is there evidence of any spills/releases of electroplating waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

9b. Metal finishing waste F010, F011, F012, and F019

F010 Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.

F011 Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.

F012 Quenching waste water treatment sludges from metal heat treating operations where 19 cyanides are used in the process.

F019 Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion

Was metal finishing done in this facility? ☐Yes ☒No

If yes, is there documentation of proper waste management/disposal? ☐Yes ☒No

Is there evidence of any spills/releases of electroplating waste? ☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.

Not applicable.

10. Is there documentation/process knowledge available that indicates the following listed waste codes could apply to this waste stream?

Production of chlorinated aliphatic hydrocarbons (F020 – F027)	☐Yes ☒No
Residues from the incineration or thermal treatment of soil (F028)	☐Yes ☒No
Wastewaters resulting from the manufacturing of wood preservatives (F032 – F035)	☐Yes ☒No
Petroleum refinery operations (F037 – F038)	☐Yes ☒No
Multisource leachate (F039)	☐Yes ☒No

Please provide an explanation for any of the above questions that were answered yes.
Not applicable.

11. Is analytical information available for this waste stream? ☐Yes ☒No

If yes, please summarize the analytical data below

12. Describe any other relevant records or information used to characterize this waste stream

Spill report listing; EPCRA chemical listing; CNS waste disposal information, process knowledge document.

Final Determination

This waste stream has been characterized using a combination of process knowledge, analytical data, and available records as indicated in this document. The following listed waste determination statement applies:

☒ **This waste stream IS NOT a listed waste.**

☐ **This waste stream IS a listed waste.**

☐ **This waste stream MAY BE a listed waste, but the available evidence is inconclusive.**

Originator (Name & Signature)	Title:	Badge:	Date:
Jill A. Mortimore Jill A. Mortimore	EC&P Representative	655707	3/21/17
Waste Engineer (Name & Signature)	**Title:**	**Badge:**	**Date:**
Linda Albrecht Linda Albrecht	Waste Engineer	721965	3/21/17
EC Approval (Name & Signature)	**Title:**	**Badge:**	**Date:**
Howell Estes Howell Estes	EC&P Lead	071265	21 MAR 17

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APPENDIX E.
SUMMARY STATISTICS

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Characterization Waste

During characterization, three types of waste were generated – 1) wood and plant debris from the clearing and grubbing activities 2) construction debris from the interference removal and 3) PPE from the sampling. Twenty-four shipments of waste were made including nine to the ORNL burn pile, ten to the landfill, and one shipment of universal waste consisting of light bulbs and batteries. A total of 259 cubic meters were disposed of. Two additional shipments need to be made before the characterization project closes. These are1) two B25 boxes with radioactive low-level waste to Nevada and 2) two 5-gallon buckets of water from the sink drain sampling.

UCOR Shipment #:	Shipment Date:	Disposal Site:	**Container Type:**	Material Type:	**Total Volume: (m^3)**
XSFBio2016-001A	22-Aug-16	ORRFL	Roll-Off	PPE and Construction Debris	12.6
XSFBio2016-001B	22-Aug-16	ORRFL	Roll-Off	PPE and Construction Debris	0.142
XSFBio2016-002	31-Aug-16	ORRFL	Roll-Off	PPE and Construction Debris	12.74
XSFBio2016-003	12-Sep-16	ORRFL	Roll-Off	PPE and Construction Debris	12.74
XSFBio2016-004	4-Oct-16	ORNL Burn Pile	Roll-Off	Wood debris for burn pile	12.74
16-BPBIO-001	13-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-002	18-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-003	18-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-004	20-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-005	24-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-006	24-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-007	25-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
16-BPBIO-008	26-Oct-16	ORNL Burn Pile	Dump Truck	Wood debris for burn pile	11.32
XSFBio2016-009A	9-Nov-16	ORR Landfill V	Roll-Off	PPE - Sanitary Waste	14.16
XSFBio2016-009B	9-Nov-16	ORR Landfill V	Roll-Off	S-040 Filters	14.16
XSFBio2016-010	9-Nov-16	ORR Landfill VII	Roll-Off	Construction Debris	14.16
XSFBio-17-02	13-Feb-17	ORR Landfill VII	Roll-Off	non-friable Cat. II asbestos	26.00
XSFBio-17-03	2/13/2017	ORR Landfill VII	Roll-Off	Construction Debris	26
XSFBio-17-04	2/13/2017	ORR Landfill V	Roll-Off	PPE	14.16
XSFBio-17-05	2/13/2017	K-1423	Various	Bulbs, Batteries, Ballasts	8.50
			Totals:		**258.66**

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APPENDIX F.
SIGNED SAMPLE REQUESTS

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Sampling Request

Request Title:	**FINAL** **Biology Complex** **Biology Exterior Paint Sampling**	**Request No.:**	**BIOLOGYOS-001** **Rev 0**
Requestor: Linda Albrecht		Date: Received:	09/12/2016
Priority: ☐ Low ☐ Medium **HIGH**		Date Needed:	09/16/2016
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Tony Long 574-5474	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	Contaminants of Concern (COCs) are: PCBs, total metals, and RCRA Toxicity Characteristic (TC) Metals
Historical Information	☒	☐	☐	Per Waste Coordinator (WC): past Biology profiles paint is PCB Bulk Product (BP), contains asbestos and could be RCRA TC Hazardous Waste due to metals.
Sampling Purpose	☒	☐	☐	To support Characterization
Relevant Photographs or Drawings	☐	☐	☒	NA
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

Two (2) samples to be collected. One composite from the **RED** paint chips around the 9207 and 9210 Facilities and One composite from the **MAROON** paint at the 9207 Tower Annex (the tall office building).

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*

What is to be sampled?	RED and MAROON paint chips.
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site
List required tools and sampling devices.	Sample personnel will collect the samples using new/disposable stainless steel paint scraper or scoop.

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List sample method(s).	**Paint Scrape Samples:** Two (2) total samples - A composite of RED paint scrapings and a composite of Maroon paint scrapings will be collected utilizing the following sample collection method at each location: 1. A new/disposable scraper will be utilized to remove ~equal weight volumes from 3 different areas with the same paint color from the surface; 2. The paint chips will be scraped directly into a stainless steel bowl lined with new/disposable aluminum foil; 3. Using field scales, tare out the weight of the sample container; 4. Paint chips will be transferred from the aluminum foil directly into the sample container; 5. Weigh the sample container including paint chips to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook.
List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) per section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	TBD by SMO
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	Field observations will be documented in field logbook for sampling event. HP coverage is required during sampling. WC will request HP Direct and Removable Survey if elevated readings – that are not expected are found on sampled items.
Other?	NA
Special Requirements / Hazards	☒ RADPRO ☒ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:
NA

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No.: **None per Requestor**	Type:	☐ Trip Blank	☐ Field Duplicate	☐ MS/MSD
☐ N/A (rationale):		☐ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 ☐ SW-____ Method ____ ☐ SW-____ Method ____ ☐ Other: ____

3c. Sample Types:

☐ sludge ☐ wood ☐ concrete ☐ liquid ☐ soil ☒ Other: **Paint Chips**

3d. Sample Method:

☒ composite ☐ grab ☐ discrete ☐ Other: ____

3e. Laboratory and SOW Number:

☒ GEL UYDD03812 ☐ EBERLINE ____ ☐ CEBAM ____ ☐ Other: ____
☐ ALS ____ ☐ TEST AMERICA ____ ☐ MCL ____ ☐ Other: ____

3f. Laboratory SOW Due By: Date: 09/15/2016

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3g. Analytical TAT:

☐ 3 day ☒ 7 day ☐ 14 day ☐ 21 day ☐ 28 day ☐ Other: ____

3h. Validation Level:	**3i. Requested Validation TAT:**
☐ Level I ☐ Level II ☐ Level III ☐ Level IV ☐ Other: ____	☐ 2 day ☐ 5 day ☐ Other: None

Enter additional SMO information, as needed:

Attachment 1 - Analytical Requirements; Project requests both Total and TCLP Metals with No Mercury analysis; along woth PCB analysis. NO Validation required.

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

Area Surrounding Facility 9207 and 9210 Facilities. NOTE: 9207 Tower Annex is the tall office building.

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If Yes, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	~~Exempt Work~~
	☐ SAP	KD5290
	☐ SAP Suppl.	
	☐ WCP	
	☐ Other:	

If No, can the project provide a work control document?		
☒ Yes	Enter Availability Date:	Prior to Sampling
☐ No	Characterization Operations will develop the appropriate work control document.	

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
	Routine Environmental Monitoring and Sampling, Surveys and Inspections (excluding drilling).	Exempt Code: EWL-009

6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*

Does this work require Core Team Approval / Concurrence?	☐ Yes	☒ No

If Yes, then enter Core Team Approval / Concurrence Document No.:

7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*

Does this work require additional documents (e.g., Security Plan, NCSE)?	☐ Yes	☒ No

If Yes, list required documents and explain the need: NA

If No, explain: No additional documents are required. Relatively low radioactivity per sample.

8. Records Management: *(to be completed by Characterization Operations Field Lead)*

Does this work require submittal to the DMC and/or PDCC following completion of this field activity?	☒ Yes	☐ No

If Yes, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		

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9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*			
Data Management notified:	Date: 9/15/2016		
Assigned Characterization Sample Lead:	Josh Moore		Date: 9/15/2016
Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*
Enter additional information, as needed: None			

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*			
☒ Requestor	☐ EPA	☐ Data Management	Date: 09/13/2016
☐ SMO	☐ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Scott Toler & Linda Albrecht		
☒ Distribution List:	Howell Estes, Robin Crabtree, Tony Long, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead)*:			
Requestor:		**Characterization Operations Field Lead:**	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
Linda Albrecht	4/20/16	[signature]	9-20-16
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*

Analyte	Method	Units	Reference Levels[a]	Target Detection Limit	Max Detection Limit
Parameter Analysis Group: PCBs					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: Total & TCLP Metals (NO Mercury)					
See Attachment 1 - Analytical Requirements					
Foot Notes:					

[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).

Attachment 1
Analytical Requirements
BIOLOGYOS-001
Biology Complex
Biology Exterior Paint Sampling

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Paint Chips / Scrapings	TCLP and Total Metals	180 days	SW846 1311 and SW846 6010/6020	Arsenic	0.5	mg/L
				Barium	0.5	mg/L
				Cadmium	0.1	mg/L
				Chromium	0.5	mg/L
				Lead	0.5	mg/L
				Selenium	0.5	mg/L
				Silver	0.1	mg/L
	PCB (Total)	NA	SW846 8082	Aroclor-1016	1	µg/g
				Aroclor-1221	1	µg/g
				Aroclor-1232	1	µg/g
				Aroclor-1242	1	µg/g
				Aroclor-1248	1	µg/g
				Aroclor-1254	1	µg/g
				Aroclor-1260	1	µg/g
				Aroclor-1262	1	µg/g
				Aroclor-1268	1	µg/g
				Total PCB		

Attachment 2
Recommended Weight of Sample Media Required per Analyses

Analysis	Weight (Grams)
TCLP Metals	105
Total Metals	5
PCBs	5

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Sampling Request

Request Title:	FINAL Y-12 Biology 9401-1 Characterization Sampling	**Request No.:**	BIOLOGYOS-002 Rev 0
Requestor: Scott Toler 576-5389 or 865-771-7658		Date Received:	10/04/2016
Priority: ☐ Low ☒ Medium		Date Needed:	11/28/2016
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Tony Long 574-5474	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	Contaminants of Concern (COCs) are volumetric Rad and within the CA chemical characterization is known.
Historical Information	☒	☐	☐	There are several suspect areas for radioactive contamination that require characterization.
Sampling Purpose	☒	☐	☐	Chemical and RAD Characterization – to verify WAC parameters for final shipping treatment, and disposal options.
Relevant Photographs or Drawings	☒	☐	☐	Available on Project Q drive –Biology under Excess Facilities D&D folders
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

Waste Streams have been identified for Y-12 biology and are part of a statistically based SAP, however, some waste requires additional characterization by sampling and analysis to support waste dispositioning. These waste streams and the DQOs for completing characterization are provided in Attachments 1 and 4. The general waste streams to be characterized for Y-12 9401-1 Biased Sampling are:

1) Contamination Area – verify product remaining and sample items within.
2) Duct and fan room – verify radioactive contamination levels
3) Higher fixed contamination area in Cell 2 wall – verify radioactive contamination levels

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*

What is to be sampled?	Tanks, debris and residual on floor in the CA. Contaminated ducts and fan room filters.
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks; PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site.
List required tools and sampling devices.	Sample personnel will collect the core type samples using new/disposable hole saws, reciprocating saw blades, scoops, or equivalent.

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List sample method(s).	**Coupon Samples:** Each metal coupon sample will be collected utilizing a new/disposable hole saw or reciprocating saw blade. Using field information only scales, weigh each coupon sample to ensure the total weight of the sample is ≥ to the required weight listed in Attachment 3. The weight of each coupon sample will be documented on the FSL and in the field logbook. **Core Samples:** Core samples will be collected using a drill and drilling to 1.5 inches. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook. **Grab Samples** Residual and debris samples will be taken using a decontaminated or new/disposable scoop, hand auger or similar sample tooling. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook.
List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) per section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	See Attachment 2
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	Field observations will be documented in field logbook for sampling event.
Other?	NA
Special Requirements / Hazards	☒ RADPRO ☒ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:

A total of fourteen (14) samples are planned for collection under this Sample Request.
These samples will consist of:

- seven (7) samples in the CA: five (5) metal coupon, one (1) liquid, and one (1) debris;
- four (4) filter samples;
- one (1) sample of the concrete wall in cell 2; and
- two (2) smear samples of duct in the 9401-1 facility.

The specific sample locations will be selected and marked in the field with assistance from Waste Management. Samples are all single point coupon or grab samples.

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No.: **None per Requestor**	Type:	☐ Trip Blank	☐ Field Duplicate	☐ MS/MSD
☐ N/A (rationale):		☐ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 Analytical Requirements ☐ SW-____ Method ____ ☐ SW-____ Method ____ ☐ Other: ____

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Sampling Request

3c. Sample Types:

☐ sludge ☐ Wood ☒ concrete ☐ liquid ☐ Grit & Soil ☒ Other: Metal Coupons; Debris; and Filters

3d. Sample Method:

☒ composite ☒ grab ☐ discrete ☐ Other: ____

3e. Laboratory and SOW Number:

☒ GEL UYDD03934 ☐ EBERLINE ____ ☐ CEBAM ____ ☐ Other: ____
☐ ALS ____ ☐ TEST AMERICA ____ ☐ MCL ____ ☐ Other: ____

3f. Laboratory SOW Due By: Date: 11/18/16

3g. Analytical TAT:

☐ 3 day ☐ 7 day ☒ 14 day ☐ 21 day ☐ 28 day ☐ Other: ____

3h. Validation Level:

☐ Level I ☐ Level II ☒ Level III ☐ Level IV ☐ Other: ____

3i. Requested Validation TAT:

☐ 2 day ☐ 5 day ☒ Other: 14 day

Enter additional SMO information, as needed:

Attachment 1 – Analytical Requirements
Attachment 2 – Analyses by Sample (includes Sample IDs to be used)
Attachment 3 – Minimum Sample Size by Analyses
Attachment 4 – DQOs

Lab to report filter media and smears per gram.

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

Prior to sampling, the Waste Coordinator (WC) will assist RSI in marking of sample locations.

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If Yes, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	WP2-16-KD5290
	☐ SAP	
	☐ SAP Suppl.	
	☐ WCP	
	☒ Other: DQO-BIOLOGYOS-002 (see Attachment 4)	

If No, can the project provide a work control document?	☒ Yes	Enter Availability Date: Prior to Sampling
	☐ No	Characterization Operations will develop the appropriate work control document.

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
		Exempt Code:

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6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*			
Does this work require Core Team Approval / Concurrence?		☐ Yes	☒ No
If **Yes**, then enter Core Team Approval / Concurrence Document No.:			
7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*			
Does this work require additional documents (e.g., Security Plan, NCSE)?		☐ Yes	☒ No
If **Yes**, list required documents and explain the need: NA			
If **No**, explain: No additional documents are required. Relatively low radioactivity per sample. No accountable NM quantities per sample. No chance of significant fissile material in debris items.			
8. Records Management: *(to be completed by Characterization Operations Field Lead)*			
Does this work require submittal to the DMC and/or PDCC following completion of this field activity?		☒ Yes	☐ No
If **Yes**, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		
9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*			
Data Management notified:	Date: 10/20/2016		
Assigned Characterization Sample Lead:	Gregory Foust		Date: 10/20/2016
Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*
Enter additional information, as needed: None			

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*			
☒ Requestor	☐ EPA	☐ Data Management	Date: 10/24/16
☐ SMO	☒ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Linda Albrecht / Scott Toler		
☒ Distribution List:	Howell Estes, Robin Crabtree, Tony Long, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead)*:			
Requestor:		**Characterization Operations Field Lead:**	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
Scott Toler	12/1/16		12-1-16
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*					
Analyte	**Method**	**Units**	**Reference Levels[a]**	**Target Detection Limit**	**Max Detection Limit**
Parameter Analysis Group: Radiological					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: PCB					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: Total Metals/Mercury					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: (TCLP VOA, SVOA PEST, HERB, & Metals)					
See Attachment 1 - Analytical Requirements					
Foot Notes:					
[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).					

Attachment 1
Analytical Requirements for BIOLOGYOS-002

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Metal; Debris; and Liquid	Total Metals	180 days	SW846 6010/6020	Arsenic	1	mg/kg
				Barium	0.5	mg/kg
				Cadmium	0.2	mg/kg
				Chromium	0.5	mg/kg
				Lead	0.5	mg/kg
				Selenium	1	mg/kg
				Silver	0.5	mg/kg
		28 days	SW846 7471	Mercury	0.02	mg/kg
	TCLP Metals	180 days	SW846 1311 and SW846 6010/6020	Arsenic	0.05	mg/L
				Barium	0.02	mg/L
				Cadmium	0.01	mg/L
				Chromium	0.1	mg/L
				Lead	0.01	mg/L
				Selenium	0.05	mg/L
				Silver	0.01	mg/L
		28 days	SW846 7471	Mercury	0.002	mg/L
	TCLP VOA	7 Days	SW846 1311; SW846 8260	Standard Lab Library	SLDL[1]	mg/L
	TCLP SVOA	14 Days	SW846 1311; SW846 8270	Standard Lab Library	SLDL[1]	mg/L
	TCLP PEST	7 Days	SW846 1311; SW846 8081	Standard Lab Library	SLDL[1]	mg/L
	TCLP HERB	7 Days	SW846 1311; SW846 8151	Standard Lab Library	SLDL[1]	mg/L
	PCB (Total)	NA	SW846 8082	Aroclor-1016	1	µg/g
				Aroclor-1221	1	µg/g
				Aroclor-1232	1	µg/g
				Aroclor-1242	1	µg/g
				Aroclor-1248	1	µg/g
				Aroclor-1254	1	µg/g
				Aroclor-1260	1	µg/g
				Aroclor-1262	1	µg/g
				Aroclor-1268	1	µg/g
				Total PCB		
[1] LDL Standard Lab Detection Limit						
Metal; Debris; and Liquid PLUS Concrete, Ducts; Filter House and Cell 2 Samples	RAD	6 months	Alpha Spec	Th-228	1	pCi/g
				Th-230	1	pCi/g
				Th-232	1	pCi/g
				U-233/234	1	pCi/g
				U-235/236	1	pCi/g
				U-238	1	pCi/g
			ICP-MS (ICP-MS for U-isotopes ONLY WHEN U 233 or U 236 are reasonably present)	U-233	0.1	pCi/g
				U-234	0.1	pCi/g
				U-235	0.1	pCi/g
				U-236	0.1	pCi/g
				U-238	0.1	pCi/g
				Total U	0.1	pCi/g
			Beta LSC	Tc-99	10	pCi/g

Attachment 2
BIOLOGYOS-002

Y-12 9401-1
Analyses by Sample Media

Media Sampled	Sample ID	Media	Sample Type	TOTAL Metals	TCLP Metals	TCLP (VOA, SVOA, PEST, and HERB)	PCBs	RAD (U, Th, & Tc-99)
CA Samples	9401W1B001	Wall	Coupon	X	X	X	X	X
	9401E1B002	Dip Tank		X	X	X	X	X
	9401E1B003	Cage and Residuals		X	X	X	X	X
	9401E1B004	Trap		X	X	X	X	X
	9401E1B005	Vacuum		X	X	X	X	X
	9401R1B006	Floor Residual	Debris	X	X	X	X	X
	9401R1B014	Liquid in Tank	Liquid	X	X	X	X	X
Duct Samples	9401D1B007	Duct	Smear					X
	9401D1B008							X
Fan House Samples	9401D1B009	Liquid in Drum	Liquid					X
	9401D1B010	Filter	Coupon					X
	9401D1B011	Filter						X
	9401D1B012	Louvre						X
Cell 2 Sample	9401W1B013	Wall	Core					X

Note: D = duct; E = equipment; R = residual; and W= Wall

Attachment 3
BIOLOGYOS-002
Y-12 9401-1
Recommended Weight of Sample Media Required per Analyses

Coupon (coupons should be 100 cm^2)

Analysis		Analysis	
RAD & Total Metals	1 coupon	TCLP:	105 grams
		VOA	1 coupon
PCB	1 coupon	SVOA	1 coupon
		PEST	
		HERB	
		Metals	

Debris

Analysis	Weight (Grams)	Analysis	Weight (Grams)
RAD	50	TCLP:	
PCB	30	VOA	50
Total Metals	5	SVOA	105
TCLP Metals	105	PEST	
		HERB	

Core

Analysis	Weight (Grams)
RAD	50 grams minimum 300 grams preferred

Attachment 4
DQOs
DQO- BIOLOGYOS-002

State The Problem

This characterization effort is focused upon the 9401-1 Old Steam Plant which is being characterized as part of the Biology Complex by the UCOR Excess Facilities Project at Y-12. The old Steam Plant was only used for power for a short time, it transitioned to development and then to ORNL Propulsion division. Contaminants of concern and waste forms are known, but the maximum level of concentrations of contaminants in some wastes are unknown. Data gaps must be resolved to facilitate characterization and later waste dispositioning. Surface HP surveys and process knowledge have been used to determine areas of higher contamination that are not being sampled by the SAP. Samples of this higher contamination will be collected to make a volumetric radiological waste determination.

Critical Decisions and Data Gaps

Waste streams that require additional characterization based upon current information include:

- **RCRA Hazardous Waste Debris** - includes waste remaining in dip tank, ancillary tank and on the floor of the CA.

- **Low Level Waste** – includes duct work, filter/fan housing and concrete need to be verified to be within the UCL 95 for EMWMF or ORR.

The primary decision to be made for waste disposal is if the biased samples are contained within the profile results for the remainder of the facility.

Sampling and Characterization Approach

A biased, or judgmental, sampling approach will be used to select sample locations. Areas where metals are likely to have been contaminated using process knowledge will be selected for coupon sampling. This bias sampling strategy will ensure a conservative estimate of the mean and variance for concentrations. Sample results will be used to calculate UCL 95 concentrations.

In general, if volumetric radioactivity is detected above background, it would be considered to be a LLW type -- and possibly RCRA/PCB/LLW – unless radioactivity can be attributed to naturally occurring sources.

Decision Rules

- RCRA determinations will be based upon biased sampling concentrations. If the concentrations exceed RCRA regulatory thresholds (for RCRA metals), waste will be considered to be a RCRA HW.
- A Radioactive Waste determination (LLW) will be made based upon a "rad. added" evaluation. If volumetric radioactivity in this waste is deemed above background and NORM values, it will be declared a LLW. If the waste is not bounded by the profile, it will be segregated and disposed as LLW.

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Sampling Request

Request Title:	**FINAL Biology Trap Water Sampling**	**Request No.:**	**BIOLOGYOS-003 Rev 0**
Requestor:	Scott Toler 576-5389 or 865-771-7658	Date Received:	11/29/2016
Priority:	☐ Low ☒ Medium	Date Needed:	1/17/2017
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Tony Long 574-5474	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	pH known. No VOCs. Aqueous and Oily liquids
Historical Information	☒	☐	☐	From Y-12 9210 & 9207 sink drain traps
Sampling Purpose	☒	☐	☐	Determine treatment and/or disposal options.
Relevant Photographs or Drawings	☒	☐	☐	Available on Project Q drive –Biology under Excess Facilities D&D folders
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

This Request is for four (4) containers, located at the Biology Complex, to be sampled.
Three of the four (4) containers have barcode IDs.
Containers are:

- K25C1509367 (5 gallons);
- K25C1612175 (1 gallon jug overpack (pH of 3) 20 oz.);
- K25C1612177 (1 gallon jug overpack (oily trap) approximately 6 oz.); and
- The fourth container is a gasoline can (~ 5 gallon capacity) with < 1 gallon of liquid remaining in the bottom to be sampled.

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*

What is to be sampled?	Four (4) containers located at the Biology Complex. Drum IDs are: K25C1509367; K25C1612175; and K25C1612177. One gasoline can has no ID, but is located in RMA "closet" on 9207 South Dock.
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks; PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site.
List required tools and sampling devices.	Sample personnel will collect the samples utilizing a peristaltic pump with new/disposable tubing, dippers, or equivalent sample equipment. Sample personnel are to minimize the sediment in the water samples to the best of their ability.
List sample method(s).	Grab

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List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) noted in section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	TBD by the SMO
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	A pH will be taken from the sample if it is mostly water and very little is present, immediately in the Field using a calibrated pH meter once collected. Field observations will be documented in field logbook for sampling event.
Other?	Coordination with FM and appropriate UCOR craft for access to the containers.
Special Requirements / Hazards	☒ RADPRO ☒ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:

Collection of four (4) liquid samples from the following containers:

- K25C1509367 (3.5 gallons);
- K25C1612175 (1 gallon jug overpack (pH of 3) 20 oz.);
- K25C1612177 (1 gallon jug overpack (oily trap) approximately 6 oz.); and
- the fourth container is a gasoline can in the 9207 South Dock RMA "closet".

The Sample Team Lead will determine exact sample locations prior to or upon mobilization taking into account accessibility and the safety of the sampling crew. Sample Crew will record container IDs on FSL to populate PEMs.

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No.: **None per Requestor**	Type:	☐ Trip Blank	☐ Field Duplicate	☐ MS/MSD
☐ N/A (rationale):		☐ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 Analytical Requirements ☐ SW-____ Method ____ ☐ SW-____ Method ____ ☐ Other: ____

3c. Sample Types:

☐ sludge ☐ Wood ☐ concrete ☒ liquid ☐ Grit & Soil ☐ Other:

3d. Sample Method:

☐ composite ☒ grab ☐ discrete ☐ Other: ____

3e. Laboratory and SOW Number:

☒ GEL UYDD03960 ☐ EBERLINE ____ ☐ CEBAM ____ ☐ Other: ____
☐ ALS ____ ☐ TEST AMERICA ____ ☐ MCL ____ ☐ Other: ____

3f. Laboratory SOW Due By: Date: 1/17/17

3g. Analytical TAT:

☐ 3 day ☐ 7 day ☒ **14 day** ☐ 21 day ☐ 28 day ☐ Other: ____

3h. Validation Level:					**3i. Requested Validation TAT:**		
☐ Level I	☐ Level II	☐ Level III	☐ Level IV	☒ Other: CCV only	☐ 2 day	☐ 5 day	☐ Other:

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Enter additional SMO information, as needed:

Attachment 1 – Analytical Requirements
Attachment 2 – Analyses by Sample
Attachment 3 – Minimum Sample Size by Analyses
Attachment 4 – DQOs

Lab will NOT separate the oily layer from the water/liquid layer. Lab will homogenize the applicable sample(s) prior to taking the sample aliquots.

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

The three (3) container with container IDs are:

- K25C1509367 (3.5 gallons);
- K25C1612175 (1 gallon jug overpack (pH of 3) 20 oz.); and
- K25C1612177 (1 gallon jug overpack (oily trap) approximately 6 oz.).

The fourth container is a gasoline can in the 9207 South Dock RMA "closet".

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If **Yes**, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	WP2-16-KD5290
	☐ SAP	
	☐ SAP Suppl.	
	☐ WCP	
	☒ Other: DQO-BIOLOGYOS-003 (see Attachment 4)	

If **No**, can the project provide a work control document?		
☒ Yes	Enter Availability Date:	Prior to Sampling
☐ No	Characterization Operations will develop the appropriate work control document.	

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
		Exempt Code:

6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*

Does this work require Core Team Approval / Concurrence?	☐ Yes	☒ No

If **Yes**, then enter Core Team Approval / Concurrence Document No.:

7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*

Does this work require additional documents (e.g., Security Plan, NCSE)?	☐ Yes	☒ No

If **Yes**, list required documents and explain the need: NA

If **No**, explain: No additional documents are required. Relatively low radioactivity per sample. No accountable NM quantities per sample. No chance of significant fissile material in debris items.

8. Records Management: *(to be completed by Characterization Operations Field Lead)*

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Does this work require submittal to the DMC and/or PDCC following completion of this field activity?	☒ Yes	☐ No	
If Yes, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		

9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*

Data Management notified:	Date: 1/10/2017		
Assigned Characterization Sample Lead:	Bobby Boltin		Date: 1/10/2017
Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*

Enter additional information, as needed: None

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*

☒ Requestor	☐ EPA	☐ Data Management	Date: 1/11/17
☐ SMO	☒ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Scott Toler / Linda Albrecht		
☒ Distribution List:	Howell Estes, Robin Crabtree, Tony Long, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead):*

Requestor:		Characterization Operations Field Lead:	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
Linda Albrecht	1-18-17	[illegible]	1-18-17
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*

Analyte	Method	Units	Reference Levels[a]	Target Detection Limit	Max Detection Limit
Parameter Analysis Group: Radiological					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: SVOA; PCBs; and Total Metals					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: OTHER					
See Attachment 1 - Analytical Requirements					

Foot Notes:

[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).

Attachment 1
Analytical Requirements for BIOLOGYOS-003

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Oily Liquid (Samples 1-3)	RAD	6 months	GPC	Gross Alpha Activity	5	pCi/L
				Gross Beta Activity	5	pCi/L
	SVOC	14 Days	SW846-8270	Standard Lab Library	SLDL[1]	µg/L
	pH	Immediately	SW846-9040	pH	pH	
	pH	Done Immediately in the Field using a calibrated instrument				

[1] LDL Standard Lab Detection Limit

Matrix	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Detection Limit	Units
Liquid (suspect gasoline – Sample 4)	RAD	6 months	GPC	Alpha activity	5	pCi/L
				Beta activity	5	pCi/L
			GAMMA SPEC	Cs-137	10	pCi/L
				All other isotopes greater than MDA		
	PCB (TOTAL)	NA	SW 846 8082	Aroclor-1016	1	mg/kg
				Aroclor-1221	1	mg/kg
				Aroclor-1232	1	mg/kg
				Aroclor-1242	1	mg/kg
				Aroclor-1248	1	mg/kg
				Aroclor-1254	1	mg/kg
				Aroclor-1260	1	mg/kg
				Aroclor-1262	1	mg/kg
				Aroclor-1268	1	mg/kg
				Total PCBs		
	Total Metals	180 days	SW846 6010/6020	Arsenic	1	mg/kg
				Cadmium	0.2	mg/kg
				Chromium	0.6	mg/kg
				Lead	0.4	mg/kg
	Flash Point	NA	SW 846 1020A	Ignitability	75°	F
	Total Halogens (as Extractable Organic Halides - EOX)	28 days	SW 846 9023		75	Mg/kg
	Karl Fisher Water Content	Immediate	ASTM E203	Water Content (% Water)	0.1%	

Attachment 2
BIOLOGYOS-003
Analyses by Sample Media

Sample Type	Container Id	RAD GA/GB	RAD	SVOCs	PCB, Tot Metals, and Others	pH (Laboratory)	pH (in field)
Liquid	K25C1509367	X				X	X
	K25C1612175	X				X	X
	K25C1612177 (Oily Trap)	X		X		X	X
	Gasoline Can in the 9207 South Dock RMA closet		X		X		

Attachment 3
BIOLOGYOS-003
Recommended Sample Volume Required per Analyses for Samples 1-3

Analysis	Volume
RAD	2 X 1L
SVOC	2 X 1L
pH	40 ml GLS vial-chilled

Recommended Sample Volume Required per Analyses for Sample 4

Analysis	Sample Volume
RAD	3 40 ml Vials each sample
PCB	
Total Metals	
Flashpoint	
Total Halogens	
% Water	

Attachment 4
DQOs
DQO- BIOLOGYOS-003

State The Problem

This characterization effort is focused upon liquid waste generated at the Biology Complex by the UCOR Excess Facilities Project at Y-12. We have aqueous, organic, and petroleum based liquids that require further characterization to determine waste types and to identify waste disposition paths. Surface HP surveys, VOC monitoring, pH field testing, mercury vapor sniffing, and process knowledge have been used to perform initial characterization on these wastewaters. Grab samples of waste liquids must be collected to make volumetric radiological waste determinations.

Critical Decisions and Data Gaps

Waste streams that require additional characterization based upon current information include:

- **Aqueous Liquids** – from Biology complex sink trap draining and perchlorate study. These wastewaters are expected to be disposed of at an ORNL LGWO facility.
- **Organic Liquids** – includes sink drain liquids and petroleum liquid. These liquid wastes are in two discrete containers. Off-site disposal by commercial vendor, or disposal at an approved wastewater treatment facility is expected.

Primary decisions are to make final rad. waste and RCRA hazardous waste determinations on each of the four discrete containers.

From a RCRA perspective, there could be corrosive waste (D002), ignitable waste (D001), other RCRA TC codes for organic and inorganic species, and other RCRA codes – depending upon sample results.

Waste type, waste profiling, and WAC determinations will be made based upon sampling and analyses results – and already gathered process knowledge.

Some liquids may be combined upon final characterization to facilitate efficient disposal.

Sampling and Characterization Approach

Representative grab samples will be taken from each of the four (4) wastewater containers.

Decision Rules

- Results for RCRA characteristics and other RCRA codes will be based upon single sample results.
- A Radioactive Waste determination (LLW) will be made based upon a "rad. added" evaluation. If volumetric radioactivity in this waste is deemed above background and

NORM values, it will be declared a LLW. If the waste is not bounded by the profile, it will be segregated and disposed as LLW.

- Other waste profiling and disposal decisions will be based upon sampling and analyses results.

Planned Disposal Paths

Aqueous wastewater is expected to be disposed of at the ORNL LGWO 3544 or 3608 facility as non-RCRA waste. Organic liquid, including oily liquid and petroleum based liquid, is expected to be disposed of at an appropriate off-site commercial TSDRF – depending upon final waste characterization.

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Sampling Request

Request Title:	**FINAL Biology 9767-7**	**Request No.:**	**BIOLOGYOS-004 Rev 0**
Requestor: Linda Albrecht		Date Received:	12/20/2016
Priority: ☐ Low ☒ Medium		Date Needed:	1/09/2017
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Paul Larson 574-9905	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	This building (9767-7) was the air intake for Building 9207.
Historical Information	☒	☐	☐	Facility is expected to be NON-Contaminated.
Sampling Purpose	☒	☐	☐	Prove filters and ducts are NOT volumetrically contaminated.
Relevant Photographs or Drawings	☒	☐	☐	Available on Project Q drive –Biology under Excess Facilities D&D folders
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

Waste Streams have been identified for Y-12 Biology and are part of a statistically based SAP, however, some waste requires additional characterization by sampling and analysis to support waste dispositioning. These waste streams and the DQOs for completing characterization are provided in Attachments 1 and 4.

The general waste streams to be characterized for the 9767-7 Biased Sampling are the filter banks and ducts. A sample will be collected in each filter house at a location idenified by radcon as the highest contaminated. If no contamination is seen during a surficial survey, location shall be randomly selected by the sample team lead. Filter media samples shall be collected at the inlet of filter banks.

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*

What is to be sampled?	Four (4) filter banks and Two (2) metal duct samples.
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks; PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site.
List required tools and sampling devices.	Sample personnel will collect the core samples utilizing new/disposable hole saws, reciprocating saw blades, scoops, or equivalent sample equipment.

List sample method(s).	**Coupon Samples:** Each metal coupon sample will be collected utilizing a new/disposable hole saw or reciprocating saw blade. Using field information only scales, weigh each coupon sample to ensure the total weight of the sample is ≥ to the required weight listed in Attachment 3. The weight of each coupon sample will be documented on the FSL and in the field logbook. **Grab Samples** Residual and debris samples will be taken using a decontaminated or new/disposable scoop, hand auger or similar sample tooling. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook.
List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) noted in section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	See Attachment 2
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	Field observations will be documented in field logbook for sampling event.
Other?	NA
Special Requirements / Hazards	☒ RADPRO ☐ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:

Six (6) TOTAL samples will be collected – Four (4) filter samples and Two (2) ducts (metal coupons).
The specific sample locations will be selected and marked in the field with assistance from Waste Management.

Samples are all single point coupon or grab samples.

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No.: **None per Requestor**	Type:	☐ Trip Blank	☐ Field Duplicate	☐ MS/MSD
☒ N/A (rationale): Not required for verification		☐ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 Analytical Requirements ☐ SW-_____ Method _____ ☐ SW-_____ Method _____ ☐ Other: _____

3c. Sample Types:

☐ sludge ☐ Wood ☐ concrete ☐ liquid ☐ Grit & Soil ☒ Other: Metal

3d. Sample Method:

☐ composite ☐ grab ☒ discrete ☐ Other: _____

3e. Laboratory and SOW Number:

☒ GEL **UYDD03970**	☐ EBERLINE _____	☐ CEBAM _____	☐ Other: _____
☐ ALS _____	☐ TEST AMERICA _____	☐ MCL _____	☐ Other: _____

3f. Laboratory SOW Due By:	Date: 1/09/17

3g. Analytical TAT:

☐ 3 day ☐ 7 day ☒ **14 day** ☐ 21 day ☐ 28 day ☐ Other: ____

3h. Validation Level:	**3i. Requested Validation TAT:**
☐ Level I ☐ Level II ☐ Level III ☒ **Level IV** ☐ Other:	☐ 2 day ☐ 5 day ☒ Other: **14 day**

Enter additional SMO information, as needed:

Attachment 1 – Analytical Requirements
Attachment 2 – Analyses by Sample Media
Attachment 3 – Recommended Sample Size by Media
Attachment 4 – DQOs

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

Prior to sampling, the Waste Coordinator (WC) will assist the Sampling Team in the marking of the sample locations.

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If **Yes**, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	WP2-16-KD5290
	☐ SAP	
	☐ SAP Suppl.	
	☐ WCP	
	☒ Other: DQO-BIOLOGYOS-004 (see Attachment 4)	

If No, can the project provide a work control document?	☒ Yes	Enter Availability Date:	Prior to Sampling
	☐ No	Characterization Operations will develop the appropriate work control document.	

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
		Exempt Code:

6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*

Does this work require Core Team Approval / Concurrence?	☐ Yes	☒ No

If **Yes**, then enter Core Team Approval / Concurrence Document No.:

7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*

Does this work require additional documents (e.g., Security Plan, NCSE)?	☐ Yes	☒ No

If **Yes**, list required documents and explain the need: NA

If **No**, explain: No additional documents are required. Relatively low radioactivity per sample. No accountable NM quantities per sample. No chance of significant fissile material in debris items.

8. Records Management: *(to be completed by Characterization Operations Field Lead)*

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Does this work require submittal to the DMC and/or PDCC following completion of this field activity?	☒ Yes	☐ No	
If **Yes**, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		

9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*

Data Management notified:	Date: 01/04/2017		
Assigned Characterization Sample Lead:	Stacy Goss		Date: 01/04/2017
Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*

Enter additional information, as needed: None

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*

☒ Requestor	☐ EPA	☐ Data Management	Date: 12/21/16
☐ SMO	☒ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Linda Albrecht / Scott Toler		
☒ Distribution List:	Howell Estes, Robin Crabtree, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead)*:

Requestor:		**Characterization Operations Field Lead:**	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
Linda Albrecht	1/5/17	[illegible]	1-5-17
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*

Analyte	Method	Units	Reference Levels[a]	Target Detection Limit	Max Detection Limit
Parameter Analysis Group: Radiological					
See Attachment 1 - Analytical Requirements					
Parameter Analysis Group: TCLP Metals					
See Attachment 1 - Analytical Requirements					

Foot Notes:

[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).

Attachment 1
Analytical Requirements for BIOLOGYOS-004

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Solid (Filters and Duct)	RAD	6 months	GPC	Gross Alpha Activity	5	pCi/g
				Gross Beta Activity	5	pCi/g
			Alpha Spec	U-233/234	1	pCi/g
				U-235/236	1	pCi/g
				U-238	1	pCi/g
			Beta LSC	Tc-99	10	pCi/g
	TCLP Metals	180 days	SW846 1311 SW846 6020	Arsenic	0.5	mg/L
				Barium	2	mg/L
				Cadmium	0.1	mg/L
				Chromium	0.05	mg/L
				Lead	0.05	mg/L
				Selenium	0.1	mg/L
				Silver	0.5	mg/L
		28 days	SW8461311 SW846 7470	Mercury	0.002	mg/L

Attachment 2
BIOLOGYOS-004
Analyses by Sample Media

Sample Type	Sample Id	RAD	TCLP Metals
Filter	9767D1B001	X	X
	9767D1B002	X	X
	9767D1B003	X	X
	9767D1B004	X	X
Duct (Metal Coupons)	9767D1B005	X	X
	9767D1B006	X	X

Attachment 3
BIOLOGYOS-004
Recommended Sample Volume Required per Media

Analysis	Filter	Duct (Metal Coupons)
RAD	125 g	100 cm^2
TCLP Metals	105 g	105 g

Attachment 4
DQOs
DQO- BIOLOGYOS-004

State The Problem

This characterization effort is focused upon the 9767-7 which is being characterized as part of the Biology Complex by the UCOR Excess Facilities Project at Y-12. 9767-7 was used as a clean intake facility for the 9207 facility. The building is a brick and mortar facility with about a 15 ft x 15 ft footprint. It contains 3 filtration banks, two still contain metal/cloth/cellulose filter media. This presents potential for radioactive contamination and RCRA metal toxicity characteristic waste. This facility could not be released for ORRILF disposal using HP surface surveys due to the potential for rad. contamination inside the 3 filtration ducts. Therefore, ductwork and filter media will be sampled to determine if they are volumetrically rad. contaminated, or if they can meet the ORRILF S-040 volumetric screening criteria. In addition, RCRA metals will be evaluated to determine if filters and/or ductwork is RCRA toxicity characteristic hazardous waste. Data gaps must be resolved to facilitate characterization and later waste dispositioning. Surface HP surveys and process knowledge will be used to determine areas of higher contamination. Samples in areas of any elevated rad. contamination will be collected to make a volumetric radiological waste determination. RCRA potential is highest in filter media within the ductwork. Once the filtration banks are characterized, and possibly removed, it will be possible to use HP surface surveys to release the building structure for disposal at the ORRILF.

Critical Decisions and Data Gaps

Waste streams that require additional characterization based upon current information include:

- **RCRA Hazardous Waste Debris** – the filters and/or ductwork may be RCRA TC hazardous waste. Coupon sampling of filter media and ductwork will be performed and analyzed by EPA Method 1311 (TCLP) to make RCRA determinations.

- **Low Level Waste** – includes duct work and filter/fan housing need to be evaluated against ORRILF S-040 volumetric screening criteria.

The primary decision to be made for waste disposal is if the biased samples are contained within the profile results for the remainder of the facility.

Sampling and Characterization Approach

A biased, or judgmental, sampling approach will be used to select sample locations. Areas where ductwork and filter media are likely to have been contaminated using HP surveys and process knowledge will be selected for coupon sampling. This bias sampling strategy will ensure a conservative estimate of the mean and variance for Rad. and RCRA concentrations.

Decision Rules

- RCRA determinations will be based upon biased sampling concentrations. If TCLP UCL90 values exceed respective RCRA metal regulatory thresholds, the waste will be considered to be a RCRA HW.
- If volumetric radioactivity in this waste exceeds the S-040 volumetric screening criteria for the ORRILF, it will be declared a LLW.

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Sampling Request

Request Title:	FINAL Biology 9210 Biased	**Request No.:**	BIOLOGYOS-005 Rev 0
Requestor:	Linda Albrecht	Date Received:	1/04/2017
Priority:	☐ Low ☒ Medium	Date Needed:	1/09/2017
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Paul Larson 574-9905	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	These are biased samples from 9210 of suspected contamination areas.
Historical Information	☒	☐	☐	Facility is an asbestos facility and samples are expected to be Industrial Waste or LLW Contaminated with PCBs and asbestos.
Sampling Purpose	☒	☐	☐	Determine higher radiological contamination and if items are anomalous.
Relevant Photographs or Drawings	☒	☐	☐	Available on Project Q drive –Biology under Excess Facilities D&D folders
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

Waste Streams have been identified for Y-12 Biology 9210 and are part of a statistically based SAP, however, some concern still exists for radioactivity in overhead rafters, ducts, and other areas. This requires additional biased RAD characterization employing HP surveys, smears (when rad. is detected by HP Survey in overhead), core, and scrape samples. RAD analysis for Uranium isotopic and Tc-99 will support final 9210 D&D waste dispositioning. Extensive recent grab samples in 9210 – analyzed for full rad. panel -- will support the basis for eliminating or adding other radionuclide concentrations to positive rad. results obtained in this sample request using activity/radionuclide ratios.

These waste streams and the DQOs for completing characterization are provided in Attachments 1 and 3. Prior to sampling, an area survey will be conducted by radcon. The sample will come from the highest contaminated area. If no contamination is seen during this HP survey, the specific sample location shall be selected by the sample team lead. The locations are:

1. Rm 10-130 - 1st floor wash room – scabbled concrete area
2. Rm 231 - NW room –sample floor as close to the drain as possible or where HP surface survey detected positive rad. contamination (need grate removed)
3. Rm 224 - CA on counter and pipe (no interferences)
4. Rm 10-328 - hood (need standard surveys etc.)
5. Rm 330/331 - original duct present (access to metal platform once safety chain is added.)
6. One smear overhead in case the last three surveys show anything in the overheads (the five areas we could access the overhead, showed nothing)

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*

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What is to be sampled?	Two (2) cores of concrete (Rm 10-130 and 231) Two (2) coupons (10-328, 330/331) One (1) scrape (224) One (1) smear (overhead)
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks; PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site.
List required tools and sampling devices.	Sample personnel will collect the core samples utilizing new/disposable hole saws, reciprocating saw blades, scoops, or equivalent sample equipment.
List sample method(s).	**Core Samples:** Core samples will be collected using a drill and drilling to 1.5 inches. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook. **Coupon Samples:** Each metal coupon sample will be collected utilizing a new/disposable hole saw or reciprocating saw blade. Using field information only scales, weigh each coupon sample to ensure the total weight of the sample is ≥ to the required weight listed in Attachment 3. The weight of each coupon sample will be documented on the FSL and in the field logbook. **Smear Sample** The smear sample will be taken using classic HP smear survey techniques for delivery to the laboratory by sample personnel for radionuclide analyses. This will provide relative U isotopic and Tc-99 activity ratios. This smear sample will only be obtained IF at least one overhead HP surface survey is positive.
List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) noted in section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	See Attachment 2
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	Field observations will be documented in field logbook for sampling event.
Other?	NA
Special Requirements / Hazards	☒ RADPRO ☐ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:

A Total of Six (6) samples are to be collected –

1. Rm 10-130 -1st floor wash room – scabbled concrete area
2. Rm 231 - NW room –sample floor as close to the drain as possible or where rad survey indicates greater contamination (need grate removed)
3. Rm 224 – CA on counter and pipe (no interferences)
4. Rm 10-328 – hood (need standard surveys etc.)
5. Rm 330/331 – original duct present (access to metal platform once safety chain is added.)
6. One smear overhead in case the last three surveys show anything in the overheads (the five areas we could access the overhead, showed nothing.

The specific sample locations will be selected and marked in the field with assistance from Waste Management.

Discrete samples types may include single point coupon, smear, core and/or scrape samples.

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No.: **None per Requestor**	Type:		
☒ N/A (rationale): Not required for verification	☐ Trip Blank	☐ Field Duplicate	☐ MS/MSD
	☐ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 Analytical Requirements ☐ SW-_____ Method _____ ☐ SW-_____ Method _____ ☐ Other: _____

3c. Sample Types:

☐ sludge ☐ Wood ☐ concrete ☐ liquid ☐ Grit & Soil ☒ Other: Metal

3d. Sample Method:

☐ composite ☐ grab ☒ discrete ☐ Other: _____

3e. Laboratory and SOW Number:

☒ GEL UYDD03973 ☐ EBERLINE _____ ☐ CEBAM _____ ☐ Other: _____
☐ ALS _____ ☐ TEST AMERICA _____ ☐ MCL _____ ☐ Other: _____

3f. Laboratory SOW Due By: Date: 01/09/17

3g. Analytical TAT:

☐ 3 day ☐ 7 day ☒ **14 day** ☐ 21 day ☐ 28 day ☐ Other: _____

3h. Validation Level:	**3i. Requested Validation TAT:**		
☐ Level I ☐ Level II ☐ Level III ☒ **Level IV** ☐ Other:	☐ 2 day	☐ 5 day	☐ Other: **14 day**

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Sampling Request

Enter additional SMO information, as needed:

Attachment 1 – Analytical Requirements
Attachment 2 – Analyses by Sample Media
Attachment 3 – DQOs

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

Prior to sampling, the Waste Coordinator (WC) will assist the Sampling Team in the marking of the sample locations.

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If **Yes**, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	WP2-16-KD5290
	☐ SAP	
	☐ SAP Suppl.	
	☐ WCP	
	☒ Other: DQO-BIOLOGYOS-005 (see Attachment 3)	

If No, can the project provide a work control document?			
	☒ Yes	Enter Availability Date:	Prior to Sampling
	☐ No	Characterization Operations will develop the appropriate work control document.	

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
		Exempt Code:

6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*

Does this work require Core Team Approval / Concurrence?	☐ Yes	☒ No

If **Yes**, then enter Core Team Approval / Concurrence Document No.:

7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*

Does this work require additional documents (e.g., Security Plan, NCSE)?	☐ Yes	☒ No

If **Yes**, list required documents and explain the need: NA

If **No**, explain: No additional documents are required. Relatively low radioactivity per sample. No accountable NM quantities per sample. No chance of significant fissile material in debris items.

8. Records Management: *(to be completed by Characterization Operations Field Lead)*

Does this work require submittal to the DMC and/or PDCC following completion of this field activity?	☒ Yes	☐ No	
If **Yes**, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		

9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*

Data Management notified:	Date: 01/04/2017	
Assigned Characterization Sample Lead:	Bobby Boltin	Date: 01/04/2017

Attachment 1
Analytical Requirements for BIOLOGYOS-005
Biology 9210 Biased

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Solid (Coupons, Smear[1], Core, and Scrape)	RAD	6 months	GPC	Gross Alpha Activity	5	pCi/g
				Gross Beta Activity	5	pCi/g
			Alpha Spec	U-233/234	1	pCi/g
				U-235/236	1	pCi/g
				U-238	1	pCi/g
			Beta LSC	Tc-99	10	pCi/g

[1]Report smear results as pCi/smear or sample

1. Rm 10-130 -1st floor wash room – scabbled concrete area
2. Rm 231 - NW room –sample floor as close to the drain as possible or where rad survey indicates greater contamination (need grate removed)
3. Rm 224 – CA on counter and pipe (no interferences)
4. Rm 10-328 – hood (need standard surveys etc.)
5. Rm 330/331 – original duct present (access to metal platform once safety chain is added.)

One overhead in case the last three surveys show anything in the overheads (the five areas we could access the overhead, showed nothing

Attachment 2
BIOLOGYOS-005
Analyses by Sample Media

Sample Type	Sample Id	Sample Location	RAD	Recommended Sample Size
Coupon	9210H3B001	Rm 10-328	X	100cm^2
	9210D3B002	Rm 330/331	X	100cm^2
~~Smear~~	~~9210D1B003~~	~~Overhead~~	~~X~~	
Core	9210F1B004	Rm 10-130	X	2" or 3" core
	9210F2B005	Rm 231	X	2" or 3" core
Scrape	9210W2B006	Rm 224	X	300 grams

Cancelled – No detection of Contamination based on Linda's feedback from Radcon

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Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*
Enter additional information, as needed: None			

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*

☒ Requestor	☐ EPA	☐ Data Management	Date: 01/05/17
☐ SMO	☒ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Linda Albrecht / Scott Toler		
☒ Distribution List:	Howell Estes, Robin Crabtree, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead)*:

Requestor:		Characterization Operations Field Lead:	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
for Linda Albrecht	1-9-17		1-9-17
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*

Analyte	Method	Units	Reference Levels[a]	Target Detection Limit	Max Detection Limit
Parameter Analysis Group: Radiological					
See Attachment 1 - Analytical Requirements					

Foot Notes:

[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).

Attachment 3
DQOs
DQO- BIOLOGYOS-005

State The Problem

This characterization effort is focused upon the 9210 which is being characterized as part of the Biology Complex by the UCOR Excess Facilities Project at Y-12. 9210 was the "Mouse House". Contaminants of concern and waste forms are known, but residual radioactivity may exist from past uranium recovery and processing activities in the building. The problem is that we must have completely characterized the 9210 facility for rad. contamination. MARSSIM surveys would be too extensive. So, random sampling coupled with biased sampling was selected as the method of choice for facility rad. characterization. HP surveys and grab/core/scrape/smear sampling will be performed to explore the possibility of yet undetected radioactivity in targeted areas of the building. The specified smear sample will only be obtained for laboratory analyses if HP surveys are positive during biased sampling field screening in overhead locations.

Previous surface HP surveys and process knowledge have been used to determine areas of higher contamination that are not being sampled by the random samples specified in the Biology Complex SAP. The biased sampling results obtained through this sample request will supplement random samples already obtained in 9210.

Critical Decisions and Data Gaps

The critical decision to be made is whether the 9210 facility will produce construction debris from demolition of the building that is suitable for the ORRILF, or the EMWMF. This is primarily based upon volumetric radioactivity concentrations obtained from random and biased intrusive sampling. There is a possibility that the facility could be segregated into two waste types. They are:

1) **Special Waste under S-040 - Sanitary/Industrial (ORRILF V)** – an overall determination for 9210 D&D waste is required to determine if construction debris meets the S-040 volumetric screening criteria. These "biased" samples will help determine if rad. hot spots exceed this criteria, and, will support D&D strategies for waste disposal.
2) **Low-level Radioactive Waste – EMWMF** – If volumetric radioactivity concentrations exceed the S-040 ORRILF limits, the waste will go to EMWMF under an approved profile.

It is possible that 9210 D&D construction debris may be segregated into separate sub-populations for disposal at EMWMF and the ORRILF V.

Sampling and Characterization Approach

A biased, or judgmental, sampling approach will be used to select sample locations. Areas where metals are likely to have been contaminated using process knowledge will be selected for coupon sampling. This bias sampling strategy will ensure a conservative estimate of the mean

and variance for concentrations. Sample results will be used to calculate UCL 95 concentrations.

In general, if volumetric radioactivity exceeds ORRILF S-040 volumetric screening limits the waste would be considered to be a LLW type -- and possibly RCRA/PCB/LLW – unless radioactivity can be attributed to naturally occurring sources.

Decision Rules

- A Radioactive Waste determination (LLW) will be made based upon a "rad. added" evaluation. HP Surveys will be used to explore addition grab/core sampling locations in the facility. Ductwork and overhead rafters are of specific concern, as are areas where rad. contamination has been detected by recent rad. surface surveys. ORRILF volumetric radiological screening criteria under S-040 will be used to determine if 9210 facility structures are suitable for disposal in the ORRILF. Waste exceeding S-040 limits will be disposed of as radioactive waste at the EMWMF. Segregation into ORRILF and EMWMF waste will require input from the D&D Project Team – based upon viability of segregation, cost, and schedule.

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Sampling Request

Request Title:	**FINAL Biology 9207 Biased**	**Request No.:**	**BIOLOGYOS-006 Rev 0**
Requestor:	Linda Albrecht	Date Received:	1/12/2017
Priority:	☐ Low ☒ Medium	Date Needed:	1/18/2017
Technical POC: Linda Albrecht	Phone: 865-356-6674	Charge No.: UKGS2SMP	
PM: Paul Larson 574-9905	CAM: Tony Long 574-5474	FM: Peyton Northington 574-0143	

1. Description / Rationale: *(to be completed by Requestor)*

Include the following:	Y	N	N/A	Comments:
Process Knowledge	☒	☐	☐	These are biased samples from 9207 of suspected contamination areas.
Historical Information	☒	☐	☐	Facility is an asbestos facility and samples are expected to be Contaminated.
Sampling Purpose	☒	☐	☐	Determine higher radiological contamination and if items are anomalous.
Relevant Photographs or Drawings	☒	☐	☐	Available on Project Q drive –Biology under Excess Facilities D&D folders
Other:	☐	☐	☒	NA

Enter additional description and/or rationale information, as needed.

Waste Streams have been identified for Y-12 Biology and are part of a statistically based SAP, however, some concern still exists for radioactivity in overhead rafters, ducts, and other areas areas. This requires additional biased RAD characterization employing HP surveys, smears (when rad. is detected by HP Survey in overhead), core, and scrape samples. RAD analysis for Uranium isotopic and Tc-99 will support final 9207 D&D waste dispositioning. Extensive recent grab samples in 9207 – analyzed for full rad. panel -- will support the basis for eliminating or adding other radionuclide concentrations to positive rad. results obtained in this sample request using activity/radionuclide ratios.

These waste streams and the DQOs for completing characterization are provided in Attachments 1 and 4 of this request. The general waste streams to be characterized for the 9207 Biased Sampling are the contamination areas. Prior to sampling an area survey will be conducted by radcon. The sample will come from the highest contaminated area. If no contamination is seen during a surficial survey, location shall be selected by the sample team lead. The locations are:

1. Room 113 – wooden hood - sample
2. Room 120-A – sample the contaminated countertop
3. Contamination Area by south dock – sample CA
4. Neutron Room (by 1006) – sample the sump liquids
5. Neutron Room (by 1006) – sample the sump sediment
6. Room 1006D – left bottom cabinet surveyed at 20K
7. Room 7-1011 – exterior of old duct above the stairs
8. Room 7-1011 –floor contamination
9. Room 4028 – old duct present on south wall
10. Room 4074 – overhead access to tiled in duct work
11. 521 biohazard room –sample duct marked
12. Room 5041 a/b – sample the floor
13. 6013 –sample Original duct

2. Scope of Work: *(to be completed by Requestor with Characterization Operations Field Lead support)*	
What is to be sampled?	Three (3) Cores of concrete (CA interior to south dock, 7-1011, and 5041) Seven (7) coupons (113, 120A, 1006D, 4028, 4074, 521, and 6013) One (1) scrape sample (7-1011) One (1) Liquid (Perform digital field pH) & One (1) Sediment (sump in neutron room)
List applicable procedures.	RSI personnel will have and maintain custody of the samples until shipment. Each of the samples will be processed, documented, and handled in accordance with: PROC-ES-2700 - Field Logbooks; PROC-ES-2708 - Chain of Custody Protocol for Environmental Sampling; and PROC-ES-5007 - Sample Preservation Protocol for Environmental Sampling. Transportation of the samples will be in accordance with: PROC-TR-9503 - Shipping Samples from a Company Site.
List required tools and sampling devices.	Sample personnel will collect the core samples utilizing new/disposable hole saws, reciprocating saw blades, scoops, or equivalent sample equipment.
List sample method(s).	**Core Samples:** Core samples will be collected using a drill and drilling to 1.5 inches. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook. **Coupon Samples:** Each metal coupon sample will be collected utilizing a new/disposable hole saw or reciprocating saw blade. Using field information only scales, weigh each coupon sample to ensure the total weight of the sample is ≥ to the required weight listed in Attachment 3. The weight of each coupon sample will be documented on the FSL and in the field logbook. **Smear Sample** The smear sample will be taken using classic HP smear survey techniques for delivery to the laboratory by sample personnel for radionuclide analyses. This will provide relative U isotopic and Tc-99 activity ratios. This smear sample will only be obtained IF at least one overhead HP surface survey is positive. **Grab Samples** Residual and debris samples will be taken using a decontaminated or new/disposable scoop, hand auger or similar sample tooling. These samples may be size reduced if needed. The sample container shall be weighed to ensure the total weight of the sample is ≥ to the required weight needed for analysis and document the weight on the FSL and in the field logbook.

List any shipping requirements.	RSI to use applicable procedures listed above and ship to SMO designated Lab (s) noted in section 3e.
List proposed Sample Identification Numbers (if Requestor chooses to specify).	See Attachment 2
List any field testing, field readings, surveys, non-intrusive testing, GPS, and field observation requirements, if any.	Field observations will be documented in field logbook for sampling event.
Other?	NA
Special Requirements / Hazards	☒ RADPRO ☐ IH ☐ SE ☐ NCS ☐ Other:

Enter additional scope of work information, as needed:

A total of Thirteen (13) samples are to be collected –

1. Room 113 – wooden hood - sample
2. Room 120-A – sample the contaminated countertop
3. Contamination Area by south dock – sample CA
4. Neutron Room (by 1006) – sample the sump liquids
5. Neutron Room (by 1006) – sample the sump sediment
6. Room 1006D – left bottom cabinet surveyed at 20K
7. Room 7-1011 – exterior of old duct above the stairs
8. Room 7-1011 –floor contamination
9. Room 4028 – old duct present on south wall
10. Room 4074 – overhead access to tiled in duct work
11. 521 biohazard room –sample duct marked
12. Room 5041 a/b – sample the floor
13. 6013 –sample Original duct

The specific sample locations will be selected and marked in the field with assistance from Waste Management.

Discrete samples types may include single point coupon, smear, core and/or grab samples, and liquids.

3. SMO Information: *(to be completed by Requestor with SMO APM Support)*

3a. Field Quality Control Samples

Total No: **2 of each**	Type:	☐ Trip Blank	☒ Field Duplicate	☒ MS/MSD
☐ N/A (rationale): Not required for verification		☒ Field Blank	☐ Equipment Rinse Blank	☐ Other:

3b. Analytical Method *(Attachment should include any additional requirements or limitations [e.g., Max DL])*

☒ See Attachment 1 Analytical Requirements ☐ SW-____ Method ____ ☐ SW-____ Method ____ ☐ Other: ____

3c. Sample Types:

☐ sludge ☒ **Wood** ☒ concrete ☒ **liquid** ☐ Grit & Soil ☒ **Other: Metal**

3d. Sample Method:

☐ composite ☐ grab ☒ discrete ☐ Other: ____

3e. Laboratory and SOW Number:

☒ GEL **UYDD03977** ☐ EBERLINE ____ ☐ CEBAM ____ ☐ Other: ____
☐ ALS ____ ☐ TEST AMERICA ____ ☐ MCL ____ ☐ Other: ____

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3f. Laboratory SOW Due By:	Date: 1/18/17

3g. Analytical TAT:

☐ 3 day ☒ **7 day** ☐ 14 day ☐ 21 day ☐ 28 day ☐ Other: ____

3h. Validation Level:	**3i. Requested Validation TAT:**	
☐ Level I ☐ Level II ☐ Level III ☒ **Level IV** ☐ Other:	☐ 2 day	☐ 5 day ☐ Other: **7 day**

Enter additional SMO information, as needed:

Attachment 1 – Analytical Requirements for BIOLOGYOS-006
Attachment 2 – Sample ID(s) and Analyses by Sample Media
Attachment 3 – Recommended Sample Requirements per Sample Media
Attachment 4 – DQOs for BIOLOGYOS-006

4. Sample Location(s): *(to be completed by Requestor)*

Requestor must provide specific sample location information including any container identification number as appropriate (i.e., drum number, B25 box number, Facility Number, GPS coordinates).

Prior to sampling, the Waste Coordinator (WC) will assist the Sampling Team in the marking of the sample locations.

5. Supporting Documentation: *(to be completed by Characterization Operations Field Lead)*

Work must be performed under an approved work control document. Work control documents may be one of the following: Work Package (WP), Sampling and Analysis Plan (SAP), Waste Handling Plan (WHP), Waste Characterization Plan (WCP). If the field activity is exempt from a work package then a Technical Procedure may be used as the guiding work control document.

Can be performed under an existing work control document? ☒ Yes ☐ No ☐ N/A

If **Yes**, specify work control document type and provide the document number:	Check Type:	Document No.:
	☒ WP	WP2-16-KD5290
	☐ SAP	
	☐ SAP Suppl.	
	☐ WCP	
	☒ Other: DQO-BIOLOGYOS-006 (see Attachment 4)	

If No, can the project provide a work control document?	☒ Yes	Enter Availability Date:	Prior to Sampling
	☐ No	Characterization Operations will develop the appropriate work control document.	

If N/A, explain:	*Insert additional information below including if work is exempt under PROC-FS-1001 and exempt codes, as applicable.*	
		Exempt Code:

6. Core Team Approval / Concurrence: *(to be completed by Characterization Operations Field Lead)*

Does this work require Core Team Approval / Concurrence?	☐ Yes	☒ No

If **Yes**, then enter Core Team Approval / Concurrence Document No.:

7. Additional Document Requirements: *(to be completed by Characterization Operations Field Lead)*

Does this work require additional documents (e.g., Security Plan, NCSE)?	☐ Yes	☒ No

If **Yes**, list required documents and explain the need: NA

If **No**, explain: No additional documents are required. Relatively low radioactivity per sample. No accountable NM quantities per sample. No chance of significant fissile material in debris items.

8. Records Management: *(to be completed by Characterization Operations Field Lead)*

UCOR
URS | CH2M
Oak Ridge LLC

Sampling Request

Does this work require submittal to the DMC and/or PDCC following completion of this field activity?	☒ Yes	☐ No	
If **Yes**, check applicable documents	☒ Logbook	☐ Photographs	☒ Laboratory Data
	☐ Other:		

9. Additional Information and Notification: *(to be completed by Characterization Operations Field Lead)*

Data Management notified:	Date: 1/12/2017		
Assigned Characterization Sample Lead:	Darlene Mullins		Date: 1/12/2017
Does the data need to be submitted to OREIS?	☐ Yes	☒ No	If Yes, then submit data per PROC-ES-1001, *Transmitting Environmental Data to the OREIS.*

Enter additional information, as needed: None

10. Distribution of Final Data Results: *(to be completed by Characterization Operations Field Lead)*

☒ Requestor	☐ EPA	☐ Data Management	Date: 1/12/17
☐ SMO	☒ Data Validation	☐ Analytical Data Coordinator	
☒ Waste Coordinator:	Linda Albrecht / Scott Toler		
☒ Distribution List:	Howell Estes, Robin Crabtree, & Mike Ferrari		

11. Final Approval *(to be completed by Requestor and Characterization Operations Field Lead)*:

Requestor:		**Characterization Operations Field Lead:**	
By signing below, signature indicates that the information herein has been reviewed and is accurate.		*By signing below, signature indicates that the information herein has been reviewed and that field sampling activities may commence.*	
Linda Albrecht	1-17-17		
Signature	*Date*	*Signature*	*Date*

12. Analytical Information *(Optional)*

Analyte	Method	Units	Reference Levels[a]	Target Detection Limit	Max Detection Limit
Parameter Analysis Group: Radiological					
See Attachment 1 - Analytical Requirements					

Foot Notes:

[a] Reference Levels should include a referenced source of the levels (e.g., water discharge criteria, Y-12 Landfill profile, EMWMF WAC, CNF WEC).

Attachment 1
Analytical Requirements for BIOLOGYOS-006

Sample Media	Analysis Type	Hold Time	Method	Minimum Parameters to be Reported	Target Detection Limit	Unit
Misc. Solids (coupons, scrape, liquid, sediment. and cores)	RAD	6 months	GPC	Gross Alpha Activity	5	pCi/g
				Gross Beta Activity	5	pCi/g
			Alpha Spec	U-233/234	1	pCi/g
				U-235/236	1	pCi/g
				U-238	1	pCi/g
			Beta LSC	Tc-99	10	pCi/g

Attachment 2
BIOLOGYOS-006
Sample ID(s) and Analyses by Sample Media

Sample Type	Sample Id	Sample Location	RAD
Coupon	9207H1B001	Room 113	X
	9207E1B002	Room 120-A	X
	9207E1B003	Room 1006D	X
Scrape	9207E1B004	Room 1011	X
Coupon	9207D4B005	Room 4028	X
	9207D4B006	Room 4074	X
	9207D5B007	Room 521	X
	9207D6B008	Room 6013	X
liquid	9207E1B009	Neutron Room	X
Sediment	9207E1B010	Neutron Room	X
Core	9207F1B011	By South Dock	X
	9207F1B012	Room 1011	X
	9207F5B013	Room 5041 A/B	X

Attachment 3
BIOLOGYOS-006
Recommended Sample Requirements per Sample Media

Analysis	Min Sample Requirements
Coupon	100 cm^2
Smear	100 cm^2 wipes
Liquid	2 Liters
Sediment	100 grams
Core	2"-3" core

Attachment 4
DQOs
DQO- BIOLOGYOS-006

State The Problem

This characterization effort is focused upon the 9207 which is being characterized as part of the Biology Complex by the UCOR Excess Facilities Project at Y-12. 9207 was a laboratory facility. Contaminants of concern and waste forms are known, but the maximum level of concentrations of contaminants in some wastes are unknown. Data gaps must be resolved to facilitate characterization and later waste dispositioning. Surface HP surveys and process knowledge have been used to determine areas of higher contamination that are not being sampled by the SAP. Samples of this higher contamination will be collected to make a volumetric radiological waste determination.

Critical Decisions and Data Gaps

The low level waste stream requires additional characterization based upon current information:

- a determination will be made as to includes these samples as bounded by the statistical sampling in the SAP or as an anomalous population depending on the results.

The primary decision to be made for waste disposal is if the biased samples are contained within the profile results for the remainder of the facility.

Sampling and Characterization Approach

A biased, or judgmental, sampling approach will be used to select sample locations. Areas where metals are likely to have been contaminated using process knowledge will be selected for coupon sampling. This bias sampling strategy will ensure a conservative estimate of the mean and variance for concentrations. Sample results will be used to calculate UCL 95 concentrations. Biased results will be used for comparison with statistical based sampling results from 9207. Ultimately, the use of biased data will be documented appropriately in waste profiles.

In general, if volumetric radioactivity is detected above background, it would be considered to be a LLW type -- and possibly RCRA/PCB/LLW – unless radioactivity can be attributed to naturally occurring sources.

Decision Rules

- A Radioactive Waste determination (LLW) will be made based upon a "rad. added" evaluation. If volumetric radioactivity exceeds the ORRILF S-040 volumetric rad. screening criteria, it will be sent to EMWMF – most likely.

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APPENDIX G.
DATA QUALITY ASSESSMENT

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APPENDIX G: DATA QUALITY ASSESSMENT

G.4 DATA REDUCTION

The data set for the Y-12 Building Complex building debris for Y-12 buildings 9207, 9210, 9401-1 and 9767-7 was provided by the project in the following five Excel files:

- BIOLOGY FINAL Data as of 3-01-17.xlsx
- BIOLOGYOS-006 FINAL Data as of 2-14-17.xlsx
- BIOLOGYOS-005 FINAL Data.xlsx
- BIOLOGYOS-004 FINAL Data.xlsx
- BIOLOGYOS-002 Building 9401-1 Characterization Sampling FINAL Data as of 2-20-17.xlsx.

The building debris included statistically random samples from ceiling, ducts, exterior walls, floor, hoods, interior walls, roof and sink drains. Biased samples were collected from a countertop/pipe, ducts, equipment, floor, hoods, interior walls and residue.

Data reduction was performed on the data. Tentatively identified compounds (TICs) and unknown chemicals were deleted. Chemical names were standardized to match their Chemical Abstract Services (CAS) numbers. Solid units were converted to mg/kg for organics and inorganics and pCi/g for radionuclides, while TCLP units were converted to mg/L. Data with validation or laboratory rejected qualifiers of 'R' were also deleted. The quality control data (trip blanks, field blanks, rinsates, tracers, surrogates, etc.) were removed from the laboratory data set during data reduction. Biased liquid samples 9401D1B009, 9401R1B014 and 9207E1B009 from duct, residue and equipment, respectively, were deleted from the reduced data set.

Sampling was performed in accordance with the *Sampling and Analysis Plan for the Biology Complex Located at the Y-12 National Security Complex, Oak Ridge, Tennessee* (UCOR-4894/R2) December 2016. The number of statistically random and biased samples actually collected by building and media are as follows:

<u>Building 9207</u>:

- 19 random ceiling samples
- 14 random duct samples and 4 biased samples
- 4 biased equipment samples
- 4 random exterior wall samples
- 42 random floor samples and 3 biased samples
- 27 random hood samples and 1 biased sample
- 19 random interior wall samples
- 19 random roof samples
- 18 random sink drain samples

<u>Building 9210</u>:

- 8 random ceiling samples
- 1 biased countertop/pipe sample
- 14 random duct samples and 1 biased sample
- 3 random exterior wall samples
- 19 random floor samples and 2 biased samples
- 11 random hood samples and 1 biased sample
- 8 random interior wall samples
- 14 random roof samples

- 29 random sink drain samples

Building 9401-1:

- 26 random ceiling samples
- 13 random duct samples and 5 biased samples
- 3 biased equipment samples
- 2 random exterior wall samples
- 19 random interior wall samples and 2 biased samples
- 1 biased residue sample

Building 9767-7:

- 6 biased duct samples

The statistical sampling plans for Y-12 buildings 9210, 9207 and 9401-1 as described in UCOR-4894/R2 were designed to provide statistically representative characterization data for the various structural media in order to meet the waste acceptance criteria (WAC) for disposal at the Environmental Management Waste Management Facility (EMWMF). The structural media include floor, interior walls, exterior walls, roof, metal and stainless steel hoods, duct insulation, sink drains and traps and ceilings.

The statistical sampling design for characterizing the various media uses a UTL on the largest order statistic (i.e., maximum) to determine the number of samples to collect from a population. The nonparametric UTL was selected because it does not assume any particular underlying statistical distribution of the data, such as normality or lognormality. A UTL does assume the data are a random and representative sample from the population. The use of the UTL is recommended by the EPA for characterization (EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide [QA/G-9R]* and EPA/240/B-06/003, *Data Quality Assessment: Statistical Tools for Practitioners [QA/G-9S]*).

A UTL has both coverage and confidence attributes. The *coverage* of a UTL is the percentage of the contaminant distribution from the population that the largest order statistic (i.e., maximum) collected from the samples will bound. The *confidence* of a UTL is $(1 - \alpha) \times 100\%$ where α is the Type I error rate ($0 < \alpha < 1$), or how confident one is that the largest concentration found in the sample will bound the specified coverage in the population. An infinitely large population is assumed for all populations for conservativeness since the total area of floors and walls is so large. The theory of order statistics, as shown in Hahn and Meeker (*Statistical Intervals: A Guide for Practitioners*), is used to calculate the number of samples for a given confidence and coverage for a nonparametric UTL where each square foot of floor, ceiling or wall or each item in a discrete population is equally likely to be sampled.

The random samples from the various media and buildings have the following confidence and coverage:

Building 9210:

- 8 ceiling, 8 interior wall and 3 exterior wall random samples provide 85% coverage with 95% confidence
- 14 random roof samples provide 80% coverage with 95% confidence
- 14 duct, 11 hood and 29 random sink drain samples provide 94.6% coverage with 95% confidence
- 19 random floor samples provide 85% coverage with 95% confidence

Building 9207:

- 19 ceiling, 19 interior wall and 4 exterior wall random samples provide 93% coverage with 95% confidence
- 19 random roof samples provide 85% coverage with 95% confidence
- 14 duct, 27 hood and 18 random sink drain samples provide 95% coverage with 95% confidence
- 42 random floor samples provide 93% coverage with 95% confidence

Building 9401-1:

- 19 interior wall and 2 exterior wall random samples provide 86.7% coverage with 95% confidence
- 26 ceiling and 13 random duct samples provide 92.6% coverage with 95% confidence

Duplicate samples were handled as follows. The larger of a detected duplicate and its associated detected regular sample was kept in the reduced data set for conservativeness. If a duplicate or its associated regular result was detected, while the other result was not detected, the detected result was kept in the reduced data set. If neither the duplicate nor its associated regular result was detected, then for radionuclides the largest non-detect was kept in the reduced data set, while for chemicals the smallest non-detect was kept in the reduced data set.

G.5 STATISTICAL ANALYSIS AND SUMMARY STATISTICS

Summary Statistics

Summary statistics were calculated in SAS® v. 9.4 and exported to Excel. There are five detected concentrations in the reduced data set that exceed their respective Environmental Management Waste Management Facility (EMWMF) carcinogenic analytic (CA) or hazard index (HI) waste acceptance criteria (WAC) limits.

- One lead concentration collected from random ceiling sample 9207C1S001 in Building 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg.

- One Tc-99 concentration collected from biased equipment sample 9207E1B002 in Building 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g.

- One C-14 concentration collected from random hood sample 9210H1S005 in Building 9210 with a concentration of 416 pCi/g exceeds the CA WAC limit of 165 pCi/g.

- One U-238 concentration collected from biased interior wall sample 9401W1B013 in Building 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g.

- One benzidine concentration collected from random interior wall sample 9207W4S030 in Building 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg.

All other detected concentrations are below their respective CA, HI and auditable safety analysis (ASA) WAC limits.

Tables G.1 through G.89 present a summary of concentrations from all data combined, by media, by building, by building and media, by random and biased samples and by floor. The summary statistics reported include:

- Frequency of detection (number of detected results / number of results),
- Minimum and maximum detection limits,
- Minimum, mean, median, maximum, and standard deviation using both detects and proxy values from non-detects,
- Minimum, mean, maximum, and standard deviation of detected results,
- Mean and standard deviation of all natural logarithm (Ln) transformed results,
- Mean and standard deviation of detected Ln transformed results,
- Distribution indicating normal, lognormal, or PERT Beta distributions at the 0.10 significance level,
- Expected value E(X) of the probability distribution,
- Upper confidence limits on the mean with 90% and 95% confidence,
- Upper tolerance limit (UTL) on individual concentrations with 95% confidence and 95% coverage,
- CA, HI and ASA WAC limits,
- Expected value of the probability distribution divided by the CA and HI WAC limits, and
- CA and HI sum of fractions (SOFs).

Table G.1 summarizes all random and biased data from all media from Buildings 9207, 9210, 9401-1 and 9767-7 combined as a single population. The samples from these locations were analyzed for metals, TCLP metals, herbicides, TCLP herbicides, pesticides, TCLP pesticides, polychlorinated biphenyls (PCBs), semivolatile organics, TCLP semivolatile organics, TCLP volatile organics and radionuclides. Five detected concentrations from various media and buildings exceed their respective CA or HI WAC limits: one lead concentration collected from random ceiling sample 9207C1S001 in Building 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg; one Tc-99 concentration collected from biased equipment sample 9207E1B002 in Building 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g; one C-14 concentration collected from random hood sample 9210H1S005 in Building 9210 with a concentration of 416 pCi/g exceeds the CA WAC limit of 165 pCi/g; one U-238 concentration collected from biased interior wall sample 9401W1B013 in Building 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g; one benzidine concentration collected from random interior wall sample 9207W4S030 in Building 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg. Of these five WAC exceedances, three are from Building 9207 and one each from Buildings 9210 and 9401-1. Chromium, copper, lead, manganese, nickel and zinc were detected in all samples analyzed for these metals. One TCLP lead concentration of 5.97 mg/L exceeds its RCRA limit of 5 mg/L in random hood sample 9207H5S009 in Building 9207. However, all UCL90 TCLP metal concentrations are below their RCRA limits. TCLP barium was the most frequently detected TCLP metal in all 42 samples. 2,4-D was the only herbicide detected in one of 39 samples analyzed for herbicides. Similarly, 2,4-D was the only TCLP herbicide detected in one of five samples analyzed for TCLP herbicides. Seven pesticides were detected, while 4,4'-DDE was the most frequently detected pesticide in nine of 38 samples analyzed for pesticides. No TCLP pesticides were detected in any of the five samples analyzed for TCLP pesticides. Three PCBs were detected, while total PCBs and PCB-1254 were detected in all five samples analyzed for PCBs. The maximum total PCB and PCB-1254 concentration was 176 mg/kg in biased interior wall sample 9401W1B001 in Building 9401-1. Sixteen semivolatile organics were detected, while carbazole was the most frequently detected semivolatile organic in 35 of 295 samples analyzed for semivolatile organics. No TCLP semivolatile organics were detected in any of the five samples analyzed for TCLP semivolatile organics. Three TCLP volatile organics were detected in one of three samples analyzed for TCLP volatile organics. Twenty-eight radionuclides were detected, while beta activity was detected the most frequently in 196 out of 351 samples analyzed for beta activity. The maximum detected radionuclide concentration of 796 pCi/g was for U-234 in biased interior wall sample 9401W1B013 in Building 9401-1. Ac-228, Bi-214, Pb-212, Pb-214, K-40, Tl-208 and Th-234 were detected in all samples analyzed for these radionuclides. All detected herbicides, pesticides, PCBs and semivolatile organics are PERT Beta distributed, as are most detected metals and radionuclides. Ac-228,

Bi-214, Pb-212 and Tl-208 are the only detected constituents that are normally distributed. The CA SOF is 0.966, while the HI SOF is 0.979 for all data combined. The constituent with the largest contribution towards the 0.966 CA SOF is U-238 (0.786 ratio). The constituent with the largest contribution towards the 0.979 HI SOF is U-238 (0.629 ratio).

Tables G.2 through G.5 summarize all random and biased data from all media from Buildings 9207, 9210, 9401-1 and 9767-7 by building.

Tables G.6 through G.15 summarize all random and biased data from Buildings 9207, 9210, 9401-1 and 9767-7 combined by individual media.

Tables G.16 through G.21 summarize all random and biased data from Building 9207 by floor.

Tables G.22 through G.24 summarize all random and biased data from Building 9210 by floor.

Tables G.25 through G.32 summarize all random and biased data by building and media.

Tables G.33 through G.61 summarize all random data by building and media.

Tables G.62 through G.79 summarize all biased data by building and media.

Tables G.80 through G.89 summarize all random and biased data by various combinations of buildings.

All reduced data for the detected constituents with a WAC limit are shown in Appendix G Tables G.90 through G.148 in accordance with the *Waste Acceptance Criteria Attainment Team Project Execution Plan Environmental Management Waste Management Facility, Oak Ridge Reservation, Tennessee* (BJC/OR-1091-R6) specifications sorted alphabetically. Separate tables for each constituent show the location ID, sample ID, analytical result as reported by the laboratory, laboratory qualifier, validation qualifier, detection limit, detection status flag (0 = not detected, 1 = detected), proxy value used in the statistical summaries and analysis, and Ln transformed proxy value. Results are sorted from highest to lowest proxy values for each detected constituent. Summary statistics shown at the bottom of each of the Appendix G Tables G.90 through G.148 include the number of samples, number of detected results, minimum, median, maximum, arithmetic average (mean), standard deviation, expected value (mean) of the PERT Beta distribution, Ln transformed mean, and Ln transformed standard deviation. For constituents with at least six but no more than 50 samples, the Shapiro-Wilk (S-W) *p*-values for normality and lognormality are shown. For constituents with more than 50 samples, Lilliefors *p*-values for normality and lognormality are shown.

Statistical Analysis and Graphics

Bar Charts

Fig. G.1 shows vertical bar charts of the CA and HI SOFs for all WL 304.3 random and biased data combined and by building. The number of U-238 samples (n) is shown under the horizontal axis for each data aggregate. The top figure shows vertical bar charts for CA SOFs. The first bar for all n = 360 U-238 samples for all buildings combined has a CA SOF of 0.966. The next four vertical bars show the CA SOFs by individual building:

- Building 9207 random and biased data have a CA SOF of 0.733 from n = 174 U-238 samples.
- Building 9210 random and biased data have a CA SOF of 0.004 from n = 111 U-238 samples.
- Building 9401-1 random and biased data have a CA SOF of 0.943 from n = 69 U-238 samples.
- Building 9767-7 biased data have a CA SOF of 0.005 from n = 6 samples.

In addition to the CA SOF at the top of each bar, the contribution of each constituent to the CA SOF is shown by color. Fig. G.1 shows U-238 contributes most of the CA SOFs for all data combined, 9210 and 9401-1. However, Tc-99 contributes most of the CA SOF for 9207. U-233/234 contributes most of the CA SOF for 9767-7. Building 9401-1 contributes the most towards the CA SOF for all data combined, followed by 9207. Buildings 9210 and 9767-7 contribute very little towards the CA SOF for all data combined. Other constituents that contribute towards the CA SOFs include U-235/236, U-235, U-236, isophorone, carbazole and lindane.

The bottom graph of Fig. G.1 shows vertical bar charts for HI SOFs. The first bar for all n = 360 U-238 samples for all buildings combined has a HI SOF of 0.979. The next four vertical bars show the HI SOFs by individual building:

- Building 9207 random and biased data have a HI SOF of 0.505 from n = 174 U-238 samples.
- Building 9210 random and biased data have a HI SOF of 0.18 from n = 111 U-238 samples.
- Building 9401-1 random and biased data have a HI SOF of 0.703 from n = 69 U-238 samples.
- Building 9767-7 biased data have a HI SOF of 0.001 from n = 6 samples.

Fig. G.1 shows U-238 contributes most of the HI SOFs for all data combined and 9401-1 followed by lead and antimony. However, lead contributes most of the HI SOF for 9207. Antimony contributes most of the HI SOF for 9210. Building 9401-1 contributes the most towards the HI SOF for all data combined, followed by 9207. Building 9210 contributes little and 9767-7 contributes very little towards the HI SOF for all data combined. Other constituents that contribute towards the HI SOFs include boron, di-n-butyl phthalate, tin, barium and U-235/236.

Similarly, Fig. G.2 shows vertical bar charts of the CA and HI SOFs for the random data combined and by building. Fig. G.3 shows vertical bar charts of the CA and HI SOFs for the biased data combined and by building.

Fig. G.4 shows vertical bar charts of the CA and HI SOFs for all WL 304.3 random and biased data combined and by media. The number of U-238 samples (n) is shown under the horizontal axis for each data aggregate. The top figure shows vertical bar charts for CA SOFs. The first bar for all n = 360 U-238 samples for all media combined has a CA SOF of 0.966. The next nine vertical bars show the CA SOFs by individual media:

- Ceiling random data have a CA SOF of 0.001 from n = 53 U-238 samples.
- Ducts random and biased data have a CA SOF of 0.002 from n = 55 U-238 samples.
- Equipment biased data have a CA SOF of 0.737 n = 7 U-238 samples.
- Exterior wall random data have a CA SOF of 0.03 from n = 9 samples.
- Floor random and biased data have a CA SOF of 0.018 from n = 66 U-238 samples.
- Hoods random and biased data have a CA SOF of 0.424 from n = 40 U-238 samples.
- Interior wall random and biased data have a CA SOF of 1.38 from n = 48 U-238 samples.
- Roof random data have a CA SOF of 0.058 from n = 33 U-238 samples.
- Sink drain data have a CA SOF of 5.2E-4 from n = 47 U-238 samples.

One biased sample of residue and one biased sample of a countertop/pipe was not included in Fig. G.4. In addition to the CA SOF at the top of each bar, the contribution of each constituent to the CA SOF is shown by color. Fig. G.4 shows U-238 contributes most of the CA SOFs for all data combined, exterior walls and interior walls. However, Tc-99 contributes most of the CA SOF for equipment and roof. C-14 contributes most of the CA SOF for hoods. Interior walls, equipment and hoods contribute the most towards the CA SOF for all data combined. The other media contribute little towards the CA SOF for all data combined. Other constituents that contribute towards the CA SOFs include U-235, U-235/236 and U-236.

The bottom graph of Fig. G.4 shows vertical bar charts for HI SOFs. The first bar for all n = 360 U-238 samples for all media combined has a HI SOF of 0.979. The next nine vertical bars show the HI SOFs by individual media:

- Ceiling random data have a HI SOF of 0.445 from n = 53 U-238 samples.
- Ducts random and biased data have a HI SOF of 0.31 from n = 55 U-238 samples.
- Equipment biased data have a HI SOF of 0.028 n = 7 U-238 samples.
- Exterior wall random data have a HI SOF of 0.032 from n = 9 samples.
- Floor random and biased data have a HI SOF of 0.027 from n = 66 U-238 samples.
- Hoods random and biased data have a HI SOF of 0.247 from n = 40 U-238 samples.
- Interior wall random and biased data have a HI SOF of 0.657 from n = 48 U-238 samples.
- Roof random data have a HI SOF of 0.06 from n = 33 U-238 samples.
- Sink drain data have a HI SOF of 0.029 from n = 47 U-238 samples.

Fig. G.4 shows U-238 contributes most of the HI SOFs for all data combined, equipment, exterior walls and interior walls. However, lead contributes most of the HI SOF for ceilings, hoods, roof and sink drains. Antimony contributes most of the HI SOF for ducts. Interior walls, ceilings, ducts and hoods contribute the most towards the HI SOF for all data combined. The other media contribute little towards the HI SOF for all data combined. Other constituents that contribute towards the HI SOFs include boron, di-n-butyl phthalate, molybdenum, tin, barium and U-235.

Similarly, Fig. G.5 shows vertical bar charts of the CA and HI SOFs for the random data combined and by media. Fig. G.6 shows vertical bar charts of the CA and HI SOFs for the biased data combined and by media.

Fig. G.7 shows vertical bar charts of the number of CA or HI WAC exceedances by building and constituent. Three WAC exceedances are from Building 9207 (benzidine, lead and Tc-99), one WAC exceedance from Building 9210 (C-14) and one WAC exceedance from Building 9401-1 (U-238).

Lognormal Probability Plots

Lognormal probability plots are statistical graphs that visually show characteristics of the distribution of data. The vertical axis shows concentrations on a $\log_{10}$ scale because the data plot over several orders of magnitude. Straight lines through the data are best fit linear regression lines for each distribution. If the data plot approximately linearly along the regression line, the data are lognormally or normally distributed. Otherwise, curvatures, breaks, or inflection points in the plots denote departures from normality or lognormality. The frequency of detection is shown next to each constituent in the legend. Open symbols denote the detection limit was plotted for non-detects, while solid symbols denote detected concentrations.

Fig. G.8 shows lognormal probability plots of detected radionuclides Tc-99, U-233/234, U-234, U-235, U-235/236, U-236 and U-238 for all random and biased data combined. One Tc-99 concentration collected from biased equipment sample 9207E1B002 in Building 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g. One U-238 concentration collected from biased interior wall sample 9401W1B013 in Building 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g. All other detected radionuclide concentrations are below their respective CA, HI and ASA WAC limits. The station IDs are identified for the maximum concentrations. The distribution of Tc-99 plots higher than the other radionuclides in the center of their distributions. U-235 and U-236 plot consistently lower than the other radionuclides for most of their distributions. The maximum detected U-233/234, U-234, U-235, U-236 and U-238 concentrations are from biased interior wall sample 9401W1B013 in Building 9401-1. There are significant inflection points and curvature in the distributions for Tc-99, U-233/234, U-234, U-235/236, U-236 and U-238 which

cause them to be PERT Beta distributed as confirmed in Table G.1. U-235 is lognormally distributed. U-233/234 is the most frequently detected among these radionuclides in 175 of 360 samples.

The bottom graph of Fig. G.8 shows lognormal probability plots of the detected radionuclides Ac-228, Bi-214, alpha activity and beta activity for all random and biased data combined. None of these radionuclides have CA, HI or ASA WAC limits. The maximum Ac-228 (3.08 pCi/g) and Bi-214 (2.16 pCi/g) are from Building 9210 interior wall sample 9210W1S015. The maximum alpha activity (575 pCi/g) is from biased equipment sample 9207E1B004 in Building 9207, while the maximum beta activity (757 pCi/g) is from random roof sample 9210RS005 in Building 9210. The distributions of Ac-228 and Bi-214 plot consistently lower than alpha activity and beta activity and Ac-228 plots consistently higher than Bi-214. The distributions for alpha activity and beta activity cross each other twice. There are significant inflection points and curvature in the distributions for alpha activity and beta activity which cause them to be PERT Beta distributed as confirmed in Table G.1. However, Ac-228 and Bi-212 are normally distributed since they plot approximately linearly along their regression lines. Beta activity is the most frequently detected among these radionuclides in 196 of 351 samples.

Similarly, Fig. G.9 shows lognormal probability plots of the detected radionuclides K-40, Pb-212, Pb-214, Ra-226, Tl-208, Cs-137, Th-228, Th-230, Th-232 and Th-234 for all random and biased data combined for all buildings.

Fig. G.10 shows lognormal probability plots of the detected metals antimony, barium, boron, chromium, lead, manganese, molybdenum, selenium, strontium, tin and vanadium for all random and biased data combined for all buildings. One lead concentration collected from random ceiling sample 9207C1S001 in Building 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg

Fig. G.11 shows lognormal probability plots of detected TCLP metals barium, cadmium, chromium and lead for all random and biased data combined for all buildings. One TCLP lead concentration of 5.97 mg/L exceeds its RCRA limit of 5 mg/L in random hood sample 9207H5S009 in Building 9207.

Lognormal Probability and Box Plots by Building

A box plot is a graphical technique that compares the distributions of different populations in side-by-side comparisons. The number of samples (*n*) collected within each location is shown under each location. The top of each box represents the 75th percentile, while the bottom of each box represents the 25th percentile. Therefore, the length of the box represents the middle 50% of the distribution. The maximum concentration is represented by the highest bar, while the minimum concentration is represented by the lowest bar. The mean is denoted by a blue star, while the median (50th percentile) is denoted by a horizontal line within the box. A distribution skewed to the right is shown by a box plot with a long whisker between the top of the box (75th percentile) and the maximum concentration and the mean is larger than the median. A long box indicates large variability, while a short box indicates small variability. Detection limits were used as proxy values for non-detects in accordance with the EMWMF WAC guidance.

The top graph of Fig. G.12 shows a lognormal probability plot for Tc-99 by building on a $\log_{10}$ scale. The plot for Tc-99 shows there is one concentration of 678 pCi/g from biased equipment sample 9207E1B002 in Building 9207 that exceeds the CA WAC limit of 172 pCi/g. The distribution for 9767-7 plots slightly higher than the other buildings, while 9207 plots higher in the right third of its distribution. The distributions for 9210 and 9401-1 cross each other in the center of their distributions. Buildings 9207 and 9401-1 are PERT Beta distributed due to significant curvature in the left tails of their distributions, while Buildings 9210 and 9767-7 are normally distributed as confirmed in Tables G.2 through G.5.

The bottom of Fig. G.12 shows box plots for Tc-99 by building on a $\log_{10}$ scale. The box plots for Tc-99 show Building 9207 has one concentration of 678 pCi/g from biased equipment sample 9207E1B002 that

exceeds the CA WAC limit of 172 pCi/g. Building 9207 is skewed to the right since the mean concentration exceeds the 75th percentile concentration. Building 9207 has the highest mean (9.98 pCi/g) concentration, while Building 9210 has the lowest mean (5.29 pCi/g) concentration. However, Building 9767-7 has the highest median (6.64 pCi/g) concentration, while Building 9210 has the lowest median (5.14 pCi/g) concentration. Buildings 9207 and 9401-1 are PERT Beta distributed, while Buildings 9210 and 9767-7 are normally distributed as confirmed in Tables G.2 through G.5. The nonparametric Kruskal-Wallis (KW) test was used to statistically test the null hypothesis of equal medians for the four buildings. The two-sided KW *p*-value was 0.0003, which indicates the median concentrations are significantly different at the 0.05 significance level. When Building 9767-7 was excluded since it has the highest median concentration (6.64 pCi/g), the two-sided KW *p*-value increased to 0.0006, which indicates the median concentrations for Buildings 9207, 9210 and 9401-1 are significantly different at the 0.05 significance level. When Building 9207 was excluded since it has the highest median concentration (5.92 pCi/g) among the three remaining buildings, the two-sided KW *p*-value increased to 0.3038, which indicates the median concentrations for Buildings 9210 (5.14 pCi/g) and 9401-1 (5.24 pCi/g) are not significantly different at the 0.05 significance level. Therefore, the median Tc-99 concentration in 9767-7 is significantly higher than the other buildings and the median Tc-99 concentration in 9207 is significantly higher than the median concentrations in Buildings 9210 and 9401-1.Tables G.2 through G.5 confirm these conclusions.

The top graph of Fig. G.13 shows a lognormal probability plot for C-14 by building on a $\log_{10}$ scale. The plot for C-14 shows there is one concentration of 416 pCi/g from random hood sample 9210H1S005 in Building 9210 that exceeds the CA WAC limit of 165 pCi/g. The distribution for 9207 plots slightly higher than the other buildings in the center of their distribution, while 9401-1 plots lower in the center of its distribution. The distributions for all buildings cross each other. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed due to significant breaks and curvature in their distributions as confirmed in Tables G.2 through G.4.

The bottom of Fig. G.13 shows box plots for C-14 by building on a $\log_{10}$ scale. The box plots for C-14 show Building 9210 has one concentration of 416 pCi/g from random hood sample 9210H1S005 that exceeds the CA WAC limit of 165 pCi/g. Buildings 9210 and 9401-1 are skewed to the right since their mean concentrations exceed their 75th percentile concentrations. Building 9210 has the highest mean (5.07 pCi/g) concentration, while Building 9401-1 has the lowest mean (0.97 pCi/g) concentration. However, Building 9207 has the highest median (1.88 pCi/g) concentration, while Building 9401-1 has the lowest median (0.648 pCi/g) concentration. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed as confirmed in Tables G.2 through G.4. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the three buildings. The two-sided KW *p*-value was <0.0001, which indicates the median concentrations are significantly different at the 0.05 significance level. When Building 9207 was excluded since it has the highest median concentration (1.88 pCi/g), the two-sided KW *p*-value increased to 0.2524, which indicates the median concentrations for Buildings 9210 (0.742 pCi/g) and 9401-1 (0.648 pCi/g) are not significantly different at the 0.05 significance level. Therefore, the median C-14 concentration in 9207 is significantly higher than the median concentrations in Buildings 9210 and 9401-1.Tables G.2 through G.4 confirm these conclusions.

The top graph of Fig. G.14 shows a lognormal probability plot for U-233/234 by building on a $\log_{10}$ scale. The plot for U-233/234 shows all detected concentrations are below the CA WAC limit of 1700 pCi/g. The distribution for 9767-7 plots higher than the other buildings in the center of its distribution, while 9207 plots generally higher in the right third of its distribution except for the two highest concentrations from 9401-1. The distributions for 9207, 9210 and 9401-1 cross each other in the center of their distributions. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed due to significant curvature and breaks in their distributions, while Building 9767-7 is normally distributed as confirmed in Tables G.2 through G.5.

The bottom of Fig. G.14 shows box plots for U-233/234 by building on a $\log_{10}$ scale. The box plots for U-233/234 show all detected concentrations are below the CA WAC limit of 1700 pCi/g. Buildings 9207,

9210 and 9401-1 are skewed to the right since their mean concentrations exceed their 75th percentile concentrations. Building 9401-1 has the highest mean (11.0 pCi/g) concentration, while Building 9210 has the lowest mean (1.63 pCi/g) concentration. However, Building 9767-7 has the highest median (4.37 pCi/g) concentration, while Building 9210 has the lowest median (0.623 pCi/g) concentration. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed, while Building 9767-7 is normally distributed as confirmed in Tables G.2 through G.5. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the four buildings. The two-sided KW *p*-value was 0.2804, which indicates the median concentrations are not significantly different at the 0.05 significance level. The higher median in 9767-7 was not significantly higher than the other three buildings because of its associated small number of samples (6) compared to the number of samples collected in the other buildings. Therefore, the median concentrations for Buildings 9210 (0.623 pCi/g), 9207 (0.641 pCi/g), 9401-1 (0.694 pCi/g) and 9767-7 (4.37 pCi/g) are not significantly different at the 0.05 significance level. Tables G.2 through G.5 confirm these conclusions.

The top graph of Fig. G.15 shows a lognormal probability plot for U-238 by building on a $\log_{10}$ scale. The plot for U-238 shows there is one concentration of 5660 pCi/g from biased interior wall sample 9401W1B013 in Building 9401-1 that exceeds the CA WAC limit of 1200 pCi/g. The distribution for 9767-7 plots higher than the other buildings in the center of its distribution, while 9207 plots generally higher in the right third of its distribution except for the two highest concentrations from 9401-1. The distributions for 9207, 9210 and 9401-1 cross each other in the center of their distributions. Buildings 9207, 9210, 9767-7 and 9401-1 are PERT Beta distributed due to significant curvature and breaks in their distributions as confirmed in Tables G.2 through G.5.

The bottom of Fig. G.15 shows box plots for U-238 by building on a $\log_{10}$ scale. The box plots for U-238 show there is one concentration of 5660 pCi/g from biased interior wall sample 9401W1B013 in Building 9401-1 that exceeds the CA WAC limit of 1200 pCi/g. Buildings 9207, 9210 and 9401-1 are skewed to the right since their mean concentrations exceed their 75th percentile concentrations. Building 9401-1 has the highest mean (85.5 pCi/g) concentration, while Building 9210 has the lowest mean (1.23 pCi/g) concentration. However, Building 9767-7 has the highest median (1.82 pCi/g) concentration, while Building 9210 has the lowest median (0.534 pCi/g) concentration. Buildings 9207, 9210, 9767-7 and 9401-1 are PERT Beta distributed as confirmed in Tables G.2 through G.5. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the four buildings. The two-sided KW *p*-value was 0.2083, which indicates the median concentrations are not significantly different at the 0.05 significance level. The higher median in 9767-7 was not significantly higher than the other three buildings because of its associated small number of samples (6) compared to the number of samples collected in the other buildings. Therefore, the median concentrations for Buildings 9210 (0.534 pCi/g), 9207 (0.543 pCi/g), 9401-1 (0.679 pCi/g) and 9767-7 (1.82 pCi/g) are not significantly different at the 0.05 significance level. Tables G.2 through G.5 confirm these conclusions.

The top graph of Fig. G.16 shows a lognormal probability plot for lead by building on a $\log_{10}$ scale. The plot for lead shows there is one concentration of 2210 mg/kg from random ceiling sample 9207C1S001 in Building 9207 that exceeds the HI WAC limit of 1500 mg/kg. The distribution for 9401-1 plots lower than the other buildings in the center of its distribution. The distributions for 9207 and 9210 cross each other in the center of their distributions. Buildings 9207, 9210 and 9401-1 are lognormally distributed since the data plot approximately linearly along their regression lines as confirmed in Tables G.2 through G.4.

The bottom of Fig. G.16 shows box plots for lead by building on a $\log_{10}$ scale. The box plots for lead show there is one concentration of 2210 mg/kg from random ceiling sample 9207C1S001 in Building 9207 that exceeds the HI WAC limit of 1500 mg/kg. Buildings 9207 and 9401-1 are skewed to the right since their mean concentrations exceed their 75th percentile concentrations. Building 9207 has the highest mean (253 mg/kg) concentration, while Building 9401-1 has the lowest mean (46.8 mg/kg) concentration. However, Building 9210 has the highest median (16.96 mg/kg) concentration, while Building 9401-1 has the lowest median (4.66 mg/kg) concentration. Buildings 9207, 9210 and 9401-1 are lognormally

distributed as confirmed in Tables G.2 through G.4. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the three buildings. The two-sided KW *p*-value was 0.6369, which indicates the median concentrations are not significantly different at the 0.05 significance level. Tables G.2 through G.4 confirm these conclusions.

The top graph of Fig. G.17 shows a lognormal probability plot for antimony by building on a $\log_{10}$ scale. The plot for antimony shows all concentrations are below the HI WAC limit of 160 mg/kg. The distributions for 9207, 9210 and 9401-1 cross each other in the center of their distributions. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed since the data have significant curvature compared to their regression lines as confirmed in Tables G.2 through G.4.

The bottom of Fig. G.17 shows box plots for antimony by building on a $\log_{10}$ scale. The box plots for antimony show all concentrations are below the HI WAC limit of 160 mg/kg. Buildings 9207 and 9210 are skewed to the right since their mean concentrations exceed their 75th percentile concentrations. Building 9210 has the highest mean (7.75 mg/kg) concentration, while Building 9207 has the lowest mean (2.24 mg/kg) concentration. However, Building 9401-1 has the highest median (0.647 mg/kg) concentration, while Building 9210 has the lowest median (0.514 mg/kg) concentration. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed as confirmed in Tables G.2 through G.4. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the three buildings. The two-sided KW *p*-value was 0.8755, which indicates the median concentrations are not significantly different at the 0.05 significance level. Tables G.2 through G.4 confirm these conclusions.

The top graph of Fig. G.18 shows a lognormal probability plot for alpha activity by building on a $\log_{10}$ scale. There is no CA, HI or ASA WAC limit for alpha activity. The distribution for 9401-1 plots higher than 9207, 9210 and 9767-7 in the left half of their distributions. Buildings 9207, 9210, 9401-1 and 9767-7 are PERT Beta distributed since the data have significant curvature and inflection points as confirmed in Tables G.2 through G.5.

The bottom of Fig. G.18 shows box plots for alpha activity by building on a $\log_{10}$ scale. There is no CA, HI or ASA WAC limit for alpha activity. Buildings 9207, 9210 and 9401-1 are skewed to the right since their mean concentrations meet or exceed their 75th percentile concentrations and the right whiskers are longer than the left whiskers. Building 9401-1 has the highest mean (17.8 pCi/g) concentration, while Building 9210 has the lowest mean (10.3 pCi/g) concentration. Similarly, Building 9401-1 also has the highest median (10.4 pCi/g) concentration, while Building 9210 has the lowest median (7.25 pCi/g) concentration. Buildings 9207, 9210, 9401-1 and 9767-7 are PERT Beta distributed as confirmed in Tables G.2 through G.5. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the four buildings. The two-sided KW *p*-value was <0.0001, which indicates the median concentrations are significantly different at the 0.05 significance level. When Building 9401-1 is removed since its mean and median concentrations are higher than the other buildings, the KW two-sided *p*-value increases to 0.1079, which indicates the median concentrations for 9207 (8.56 pCi/g), 9210 (7.25 pCi/g) and 9767-7 (5.17 pCi/g) are not significantly different at the 0.05 significance level. Therefore, the median alpha activity concentration in 9401-1 (10.44 pCi/g) is significantly higher than the median concentrations in Buildings 9210, 9207 and 9767-7. Tables G.2 through G.5 confirm these conclusions.

The top graph of Fig. G.19 shows a lognormal probability plot for beta activity by building on a $\log_{10}$ scale. There is no CA, HI or ASA WAC limit for beta activity. The distribution for 9401-1 plots higher than 9207, 9210 and 9767-7 in the center and right half of their distributions. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed since the data have significant curvature and inflection points as confirmed in Tables G.2 through G.4. Building 9767-7 is lognormally distributed as confirmed in Table G.5.

The bottom of Fig. G.19 shows box plots for beta activity by building on a $\log_{10}$ scale. There is no CA, HI or ASA WAC limit for beta activity. Buildings 9207 and 9210 are skewed to the right since their mean concentrations meet or exceed their 75th percentile concentrations and the right whiskers are longer than

the left whiskers. Building 9401-1 has the highest mean (28.7 pCi/g) concentration, while Building 9767-7 has the lowest mean (10.5 pCi/g) concentration. Similarly, Building 9401-1 also has the highest median (16.6 pCi/g) concentration, while Building 9767-7 has the lowest median (3.3 pCi/g) concentration. Buildings 9207, 9210 and 9401-1 are PERT Beta distributed, while Building 9767-7 is lognormally distributed as confirmed in Tables G.2 through G.5. The nonparametric KW test was used to statistically test the null hypothesis of equal medians for the four buildings. The two-sided KW *p*-value was 0.0006, which indicates the median concentrations are significantly different at the 0.05 significance level. When Building 9401-1 is removed since its mean and median concentrations are higher than the other buildings, the KW two-sided *p*-value increases to 0.3283, which indicates the median concentrations for 9207 (5.3 pCi/g), 9210 (4.89 pCi/g) and 9767-7 (3.3 pCi/g) are not significantly different at the 0.05 significance level. Therefore, the median beta activity concentration in 9401-1 (16.6 pCi/g) is significantly higher than the median concentrations in Buildings 9210, 9207 and 9767-7. Tables G.2 through G.5 confirm these conclusions.

Bar Charts of Proposed Waste Profiles

Fig. G.20 shows vertical bar charts of the CA and HI SOFs for the proposed waste profiles 9210 and 9207 and 9401-1 with all random and biased data combined. The number of U-238 samples (*n*) is shown under the horizontal axis for each profile. The top figure shows vertical bar charts for CA SOFs.

- Building 9210 random and biased data have a CA SOF of 0.004 from *n* = 109 U-238 samples. This excludes random hood sample 9210H1S005 and biased wall sample 9210W2B006.

- Buildings 9207 and 9401-1 random and biased data have a CA SOF of 1.65 from *n* = 245 U-238 samples. This includes random hood sample 9210H1S005 and biased wall sample 9210W2B006.

Fig. G.20 shows U-238 contributes most of the CA SOFs for Buildings 9207 and 9401-1 followed by Tc-99. However, U-233/234 and U-238 contribute most of the CA SOF for 9210. Other constituents that contribute towards the CA SOFs include U-235/236, U-235, U-236, carbazole and lindane.

The bottom graph of Fig. G.20 shows vertical bar charts for HI SOFs.

- Building 9210 random and biased data have a HI SOF of 0.18 from *n* = 109 U-238 samples. This excludes random hood sample 9210H1S005 and biased wall sample 9210W2B006.

- Buildings 9207 and 9401-1 random and biased data have a HI SOF of 0.961 from *n* = 245 U-238 samples. This includes random hood sample 9210H1S005 and biased wall sample 9210W2B006.

Fig. G.20 shows U-238 contributes most of the HI SOFs for Buildings 9207 and 9401-1 followed by lead. However, antimony and lead contribute most of the HI SOF for 9210. Other constituents that contribute towards the HI SOFs include boron, di-n-butyl phthalate, barium, tin and U-235/236.

Conclusions

The random and biased data from various building media in Y-12 Biology complex buildings 9207, 9210, 9401-1 and 9767-7 were statistically analyzed, summarized and SOFs were calculated. These samples were analyzed for metals, TCLP metals, herbicides, TCLP herbicides, pesticides, TCLP pesticides, PCBs, semivolatile organics, TCLP semivolatile organics, TCLP volatile organics and radionuclides. Sampling was performed in accordance with the *Sampling and Analysis Plan for the Biology Complex Located at the Y-12 National Security Complex, Oak Ridge, Tennessee* (UCOR-4894/R2) December 2016.

The CA SOF for all buildings and media combined is 0.966, while the HI SOF is 0.979. U-238 is the largest contributor for both the CA and HI SOFs for all buildings and media combined and 9401-1. Tc-99

is the largest contributor for the CA SOF for 9207, while lead is the largest contributor for the HI SOF for 9207. Antimony is the largest contributor to the HI SOF for 9210.

Five detected concentrations exceed their respective CA or HI WAC limits.

- One lead concentration collected from random ceiling sample 9207C1S001 in Building 9207 with a concentration of 2210 mg/kg exceeds the HI WAC limit of 1500 mg/kg.

- One Tc-99 concentration collected from biased equipment sample 9207E1B002 in Building 9207 with a concentration of 678 pCi/g exceeds the CA WAC limit of 172 pCi/g.

- One C-14 concentration collected from random hood sample 9210H1S005 in Building 9210 with a concentration of 416 pCi/g exceeds the CA WAC limit of 165 pCi/g.

- One U-238 concentration collected from biased interior wall sample 9401W1B013 in Building 9401-1 with a concentration of 5660 pCi/g exceeds both the CA WAC limit of 1200 pCi/g and the HI WAC limit of 1500 pCi/g.

- One benzidine concentration collected from random interior wall sample 9207W4S030 in Building 9207 with a concentration of 1.17 mg/kg exceeds the CA WAC limit of 0.161 mg/kg.

All other detected concentrations are below their respective CA, HI and ASA WAC limits. One TCLP lead concentration of 5.97 mg/L exceeds its RCRA limit of 5 mg/L in random hood sample 9207H5S009 in Building 9207. However, its UCL90 concentration is below the RCRA limit. All other individual and UCL90 TCLP metal concentrations are below their RCRA limits.

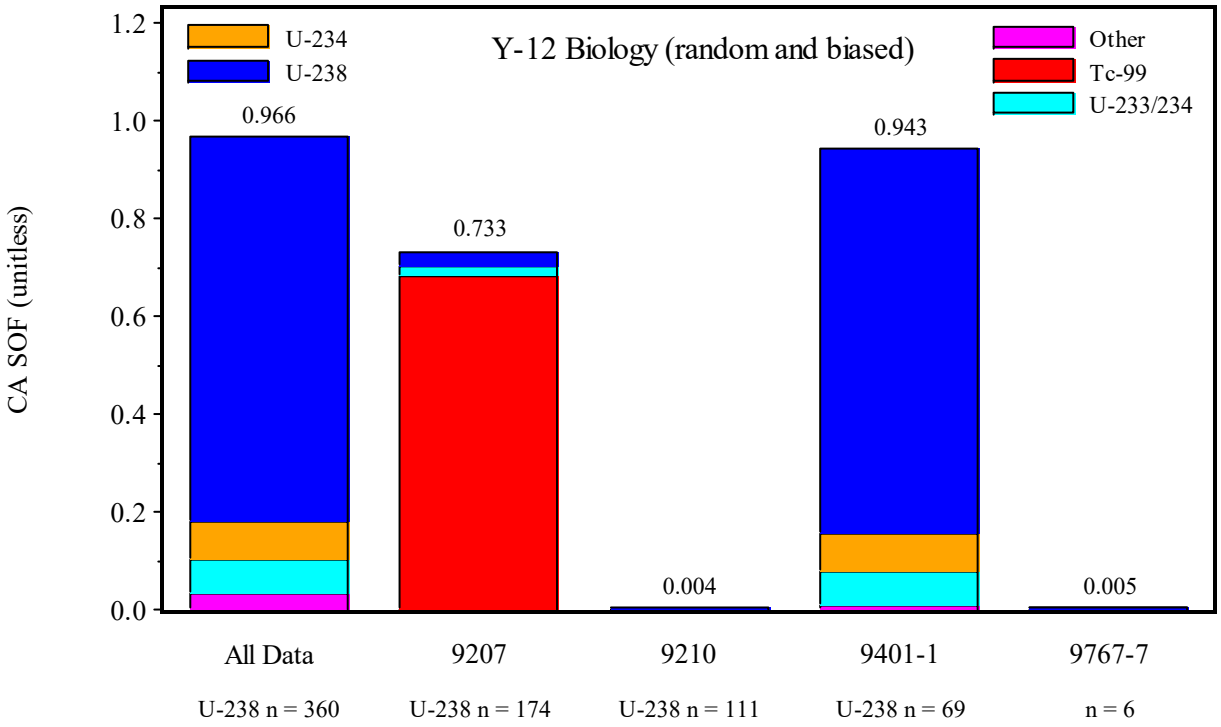
Building 9401-1 is the largest contributor to both the CA and HI SOFs for all buildings combined using both random and biased data. However, Building 9207 is the largest contributor to both the CA and HI SOFs for all buildings combined when just the random data are used. When Buildings 9207 and 9210 are combined together (random and biased), the CA SOF is 0.053 and the HI SOF is 0.533. The CA SOF for Building 9401-1 alone is 0.943, while the HI SOF is 0.703. When the two samples 9210H1S005 and 9210W2B006 are excluded from Building 9210, its CA SOF is 0.004 and its HI SOF is 0.18. It has been shown that 9210 excluding these samples passes the Oak Ridge Reservation Landfill WAC. However, all other data combined for 9207, 9401-1, 9767-7 and these two samples from 9210 have a CA SOF of 1.65 and a HI SOF of 0.961.

Lognormal probability plots show the distributions of selected detected radionuclides, metals and TCLP metals for all random and biased data combined. Most of the detected radionuclides, metals and TCLP metals are PERT Beta distributed. The five concentrations exceeding WAC limits are identified.

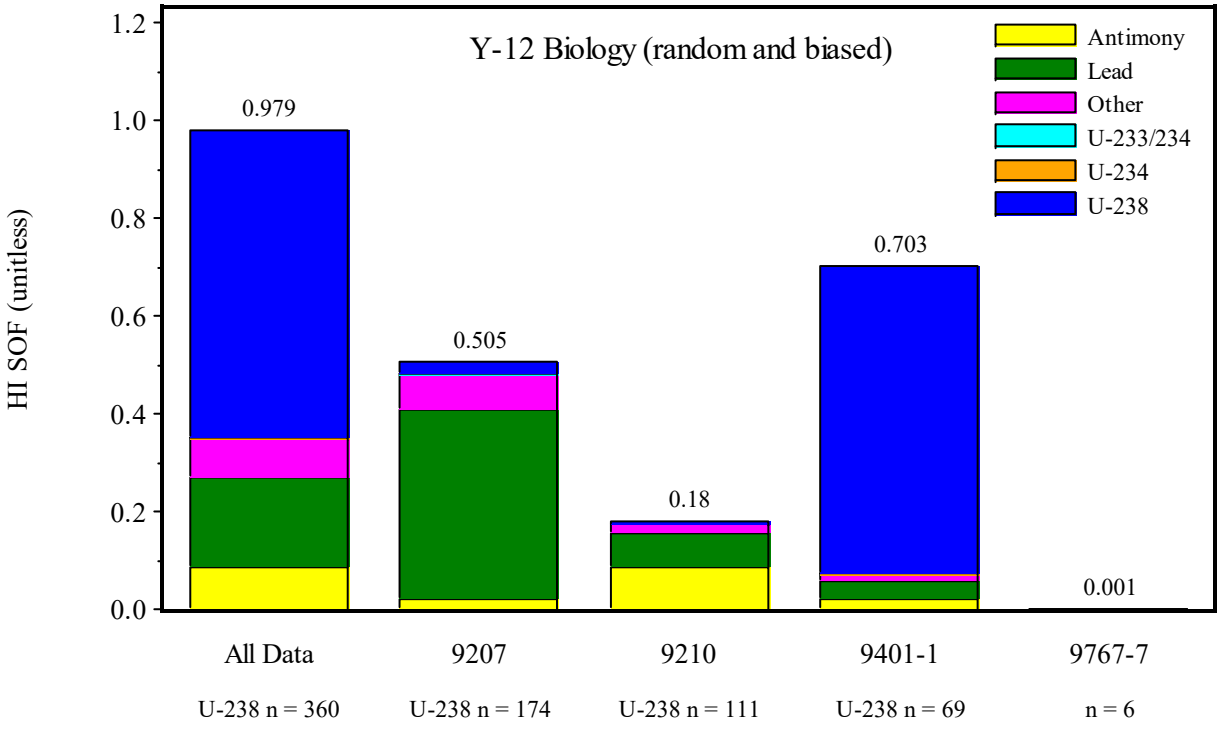
Lognormal probability plots and box plots of Tc-99, C-14, U-233/234, U-238, lead, antimony, alpha activity and beta activity by building show 9401-1 has significantly higher alpha activity and beta activity concentrations than the other buildings. However, Tc-99 and C-14 has significantly higher concentrations in 9207 than 9210 and 9401-1. There are no significant differences in median concentrations of U-233/234, U-238, lead and antimony.

The estimated volume for Building 9207 is approximately 35,940 yd^3, while the estimated volume for Building 9401-1 is approximately 1,354 yd^3. The estimated volume for Building 9210 is approximately 9,842 yd^3, while the estimated volume for Building 9767-7 is approximately 550 yd^3. From an EMWMF WAC perspective, Y-12 Biology buildings 9207, 9210, 9401-1 and 9767-7 could be combined into a single waste lot since both the CA and HI SOFs are below 1. However, it may be more efficient to combine Buildings 9207 and 9401-1 into a single high volume, high CA SOF waste lot since Buildings

9210 and 9767-7 qualify for disposal at the sanitary ORRLF. The combined data for Buildings 9207 and 9401-1 in WL 304.3 meets the EMWMF WAC requirements for disposal at EMWMF.

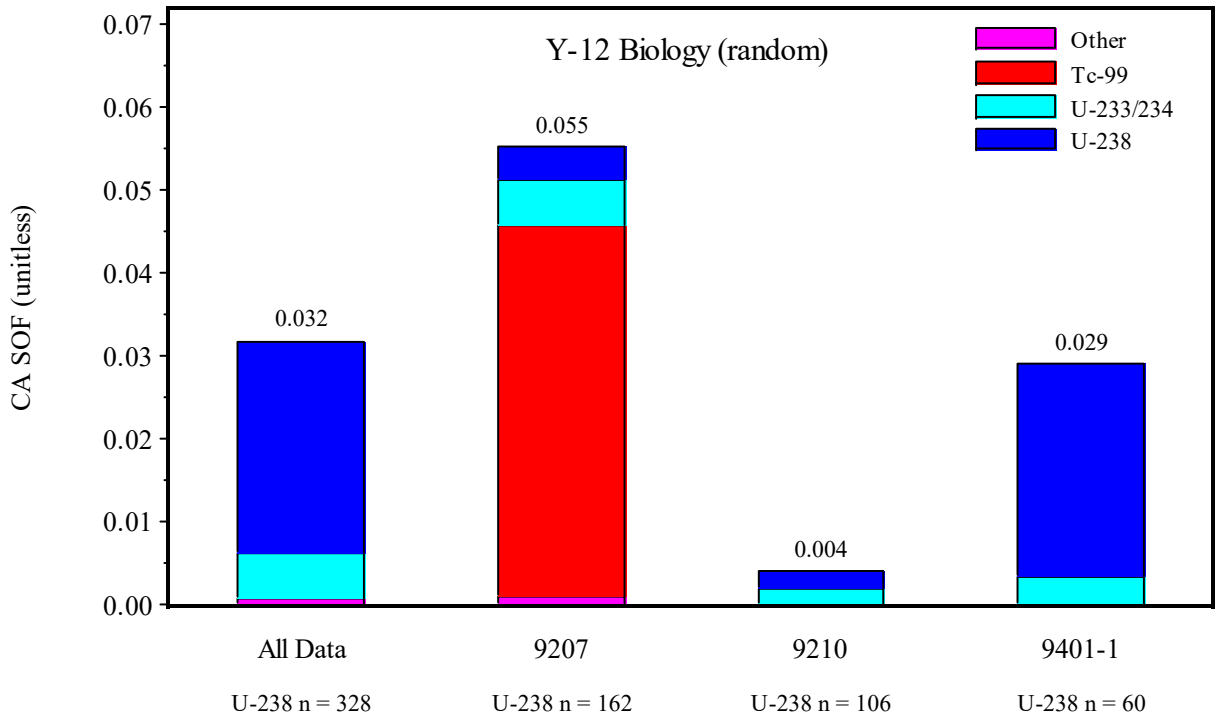


Other includes U-235/236, U-235, U-236, isophorone, carbazole and lindane.

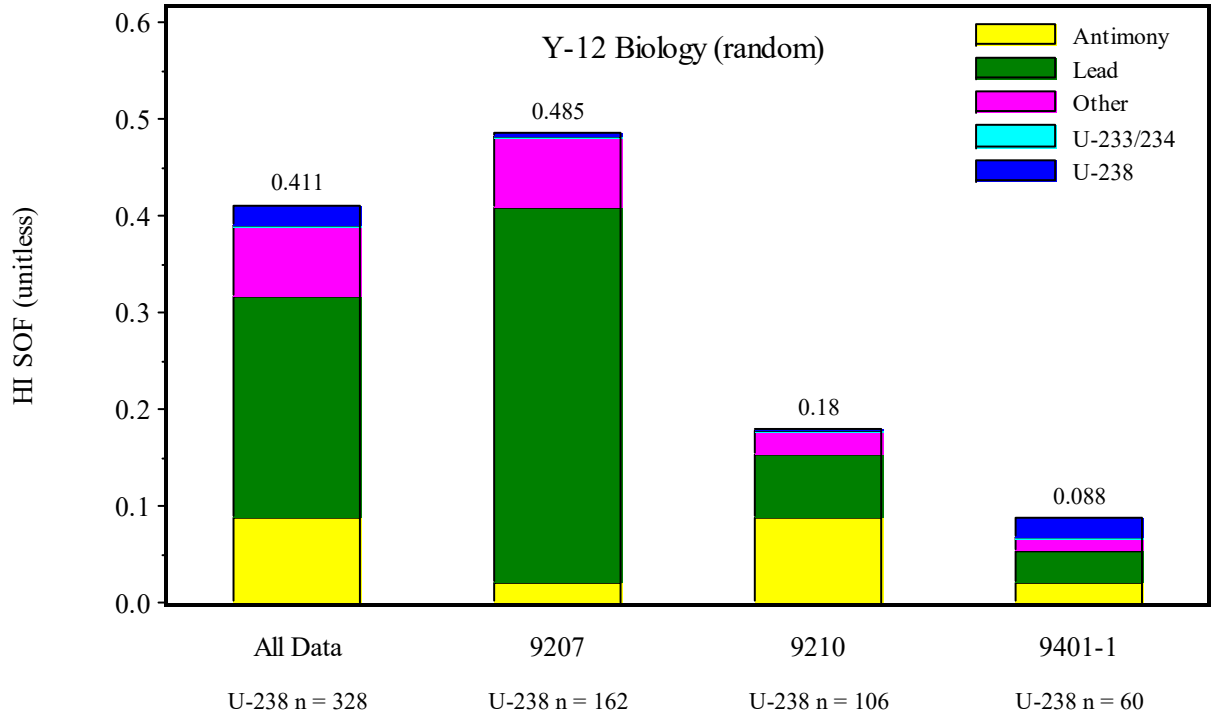


Other includes boron, di-n-butyl phthalate, tin, barium and U-235/236.

Fig. G.1. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex random and biased data by building

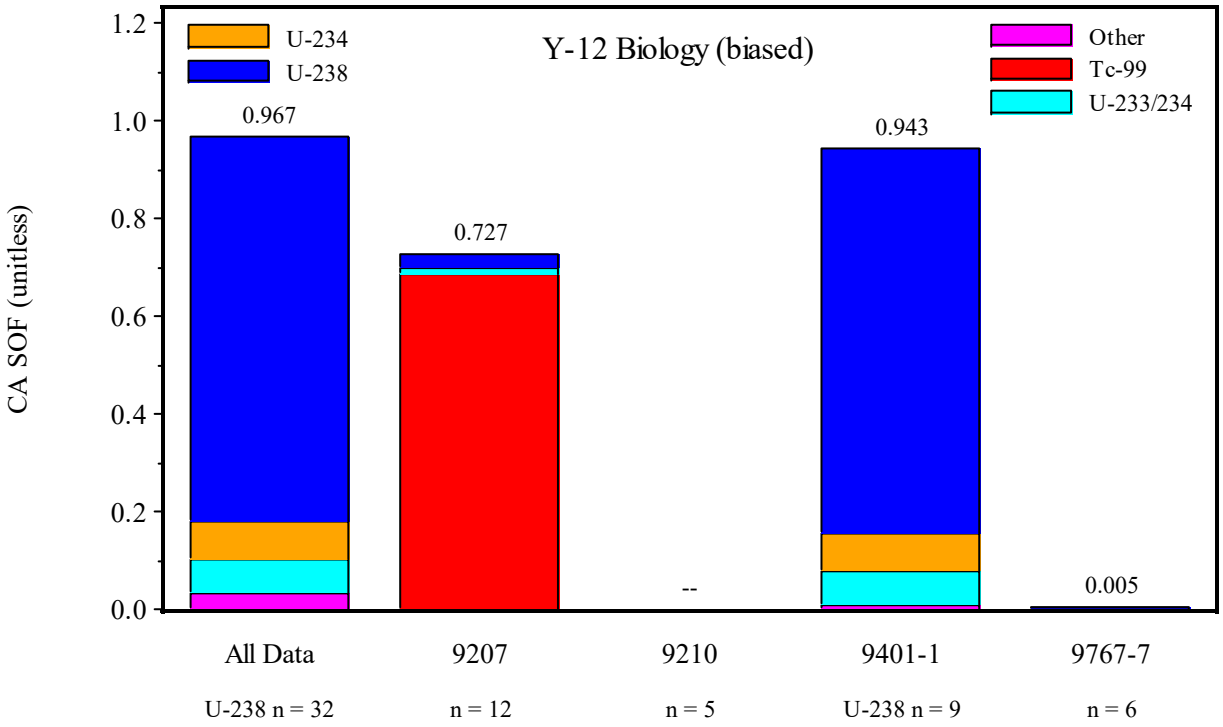


Other includes U-235/236, isophorone, carbazole, lindane and heptachlor epoxide.

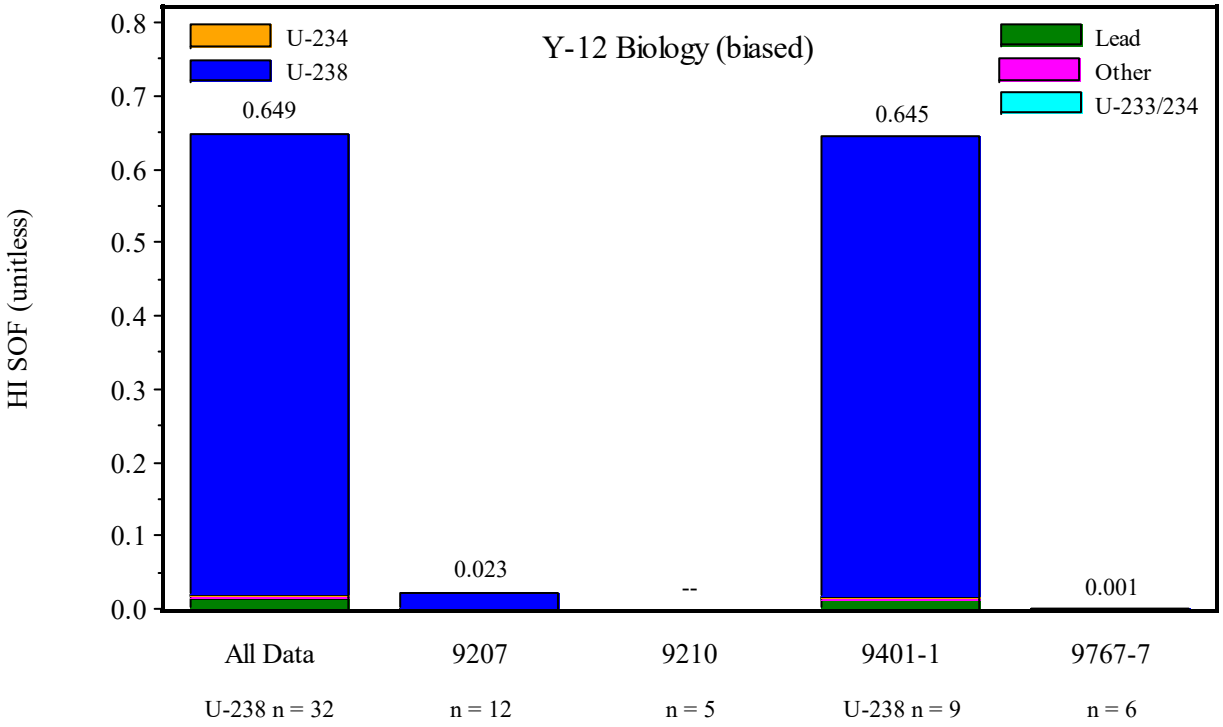


Other includes boron, di-n-butyl phthalate, tin, barium and molybdenum.

Fig. G.2. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex random data by building

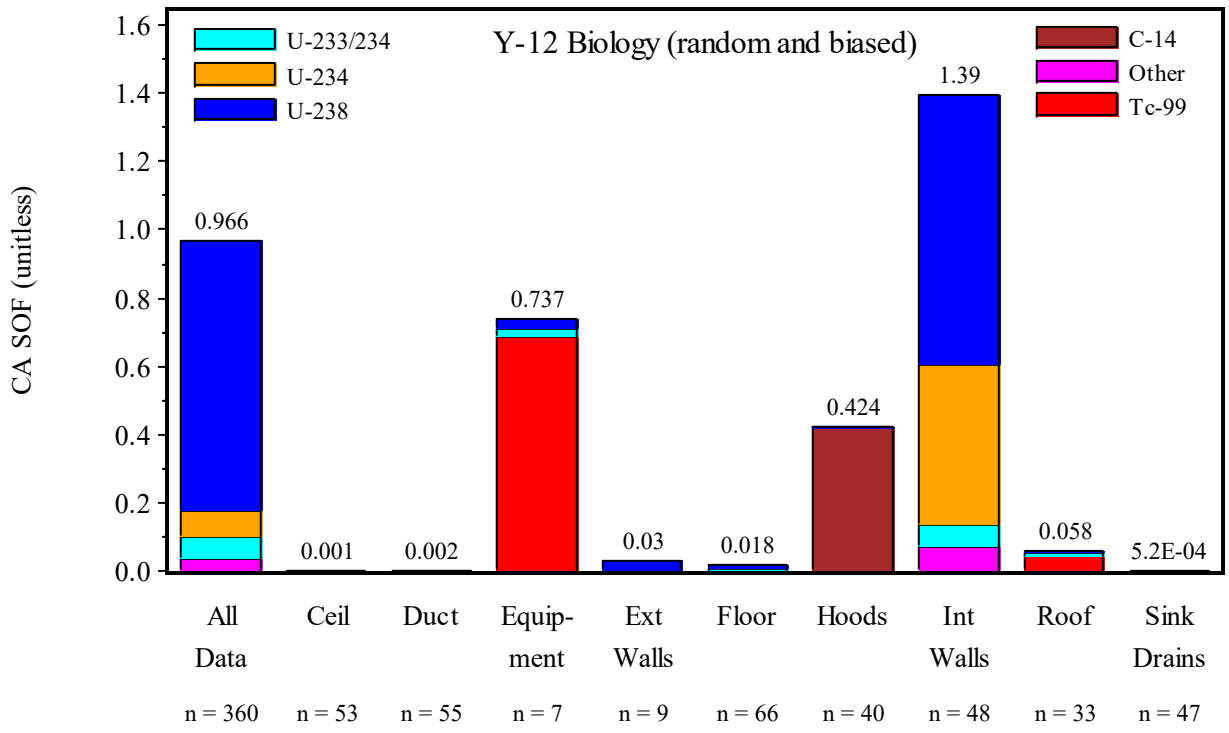


Other includes U-235/236, U-235 and U-236.

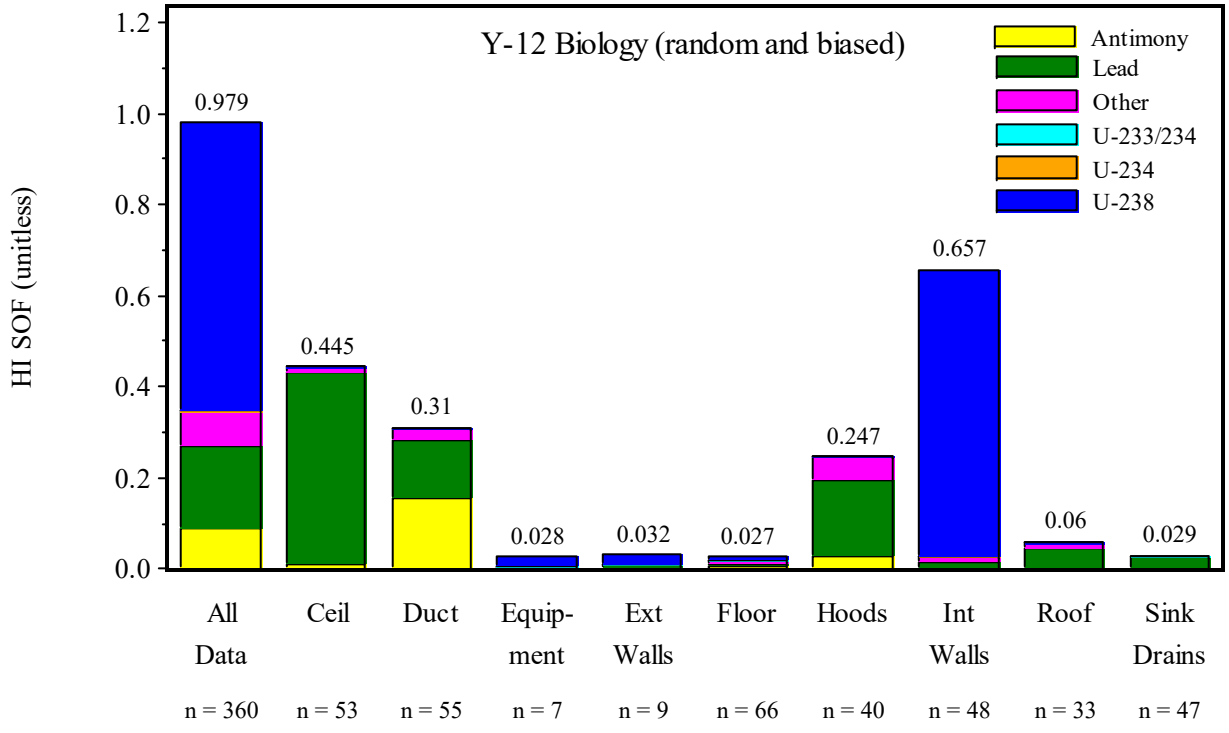


Other includes U-235/236, U-235, selenium, chromium and barium .

Fig. G.3. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex biased data by building

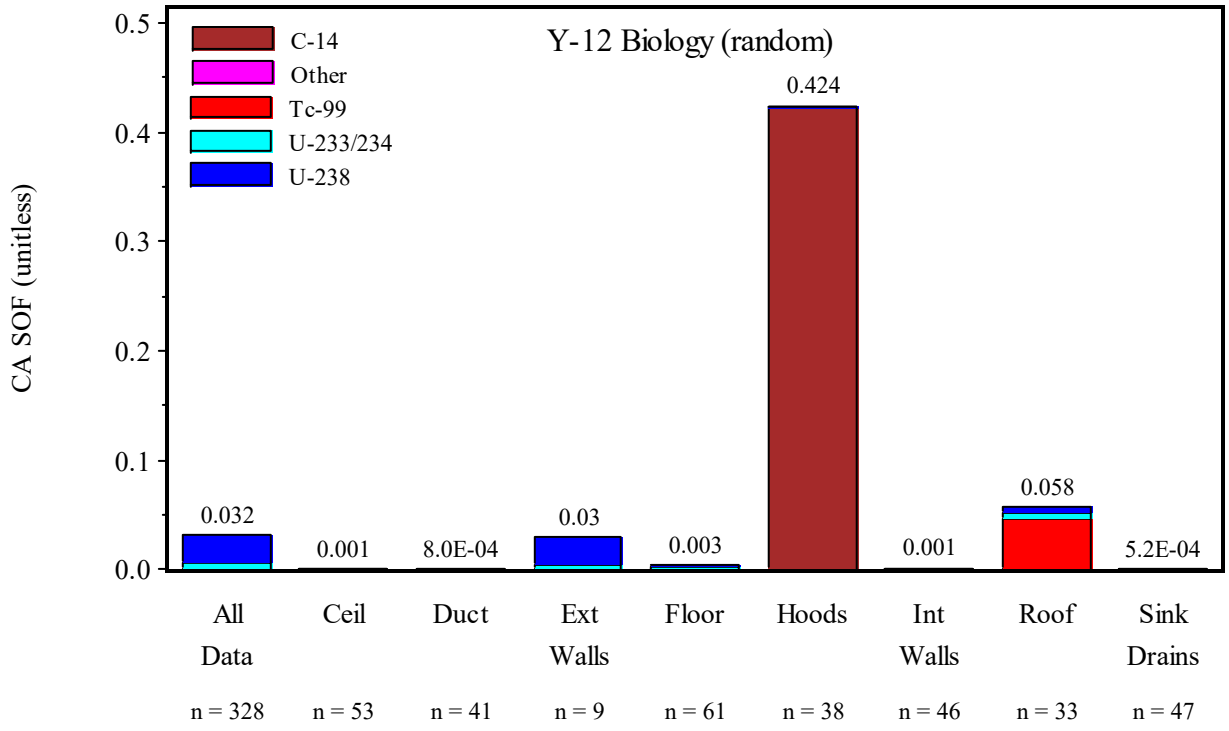


Other includes U-235, U-235/236 and U-236.

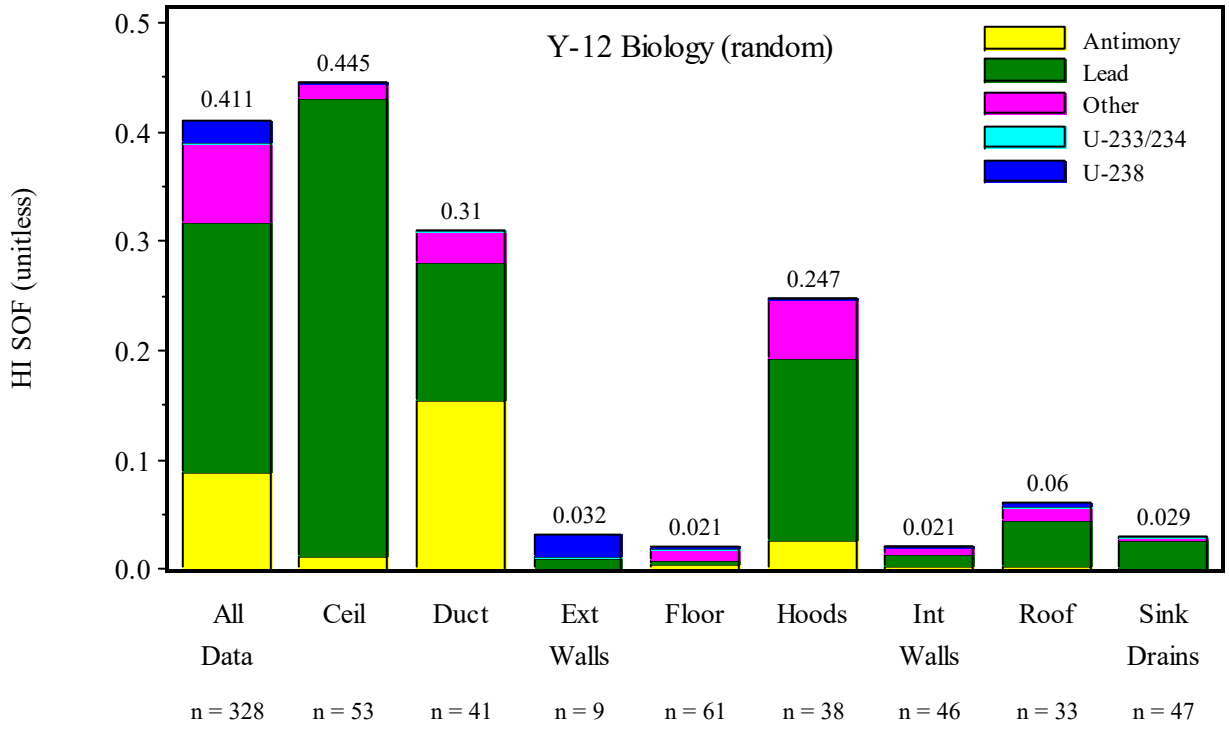


Other includes boron, di-n-butyl phthalate, molybdenum, tin, barium and U-235.

Fig. G.4. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex random and biased data by media

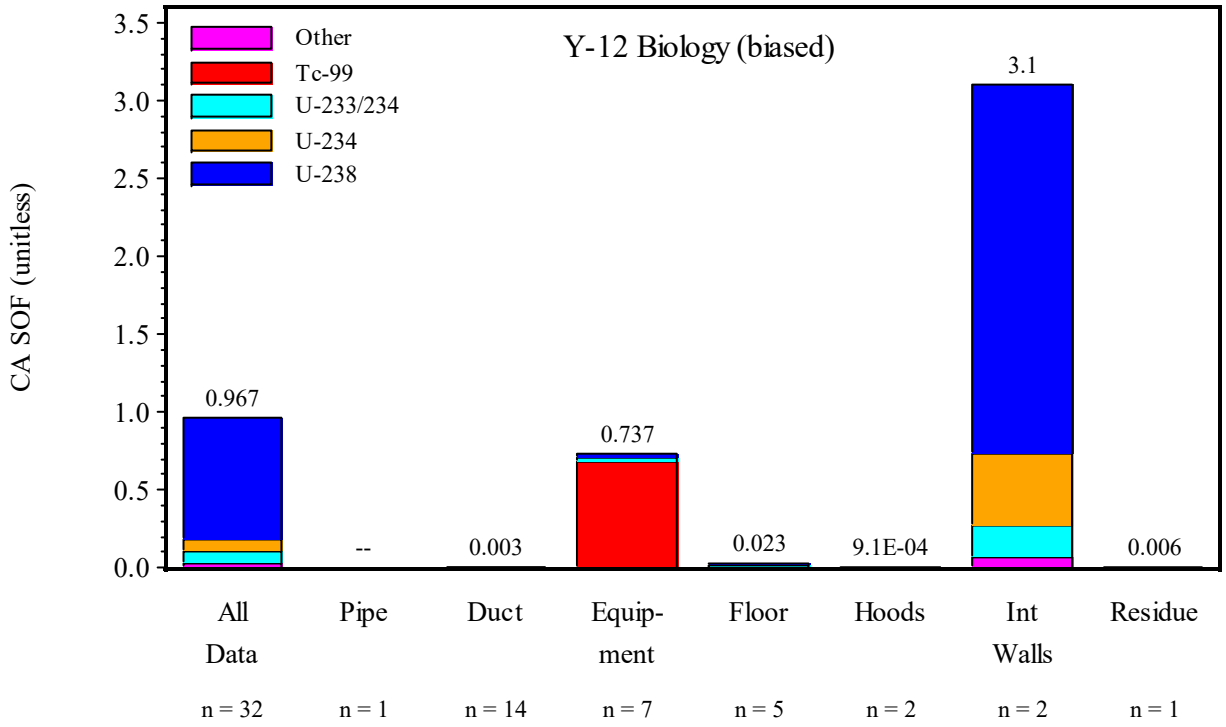


Other includes U-235/236, isophorone, carbazole, lindane and heptachlor epoxide.

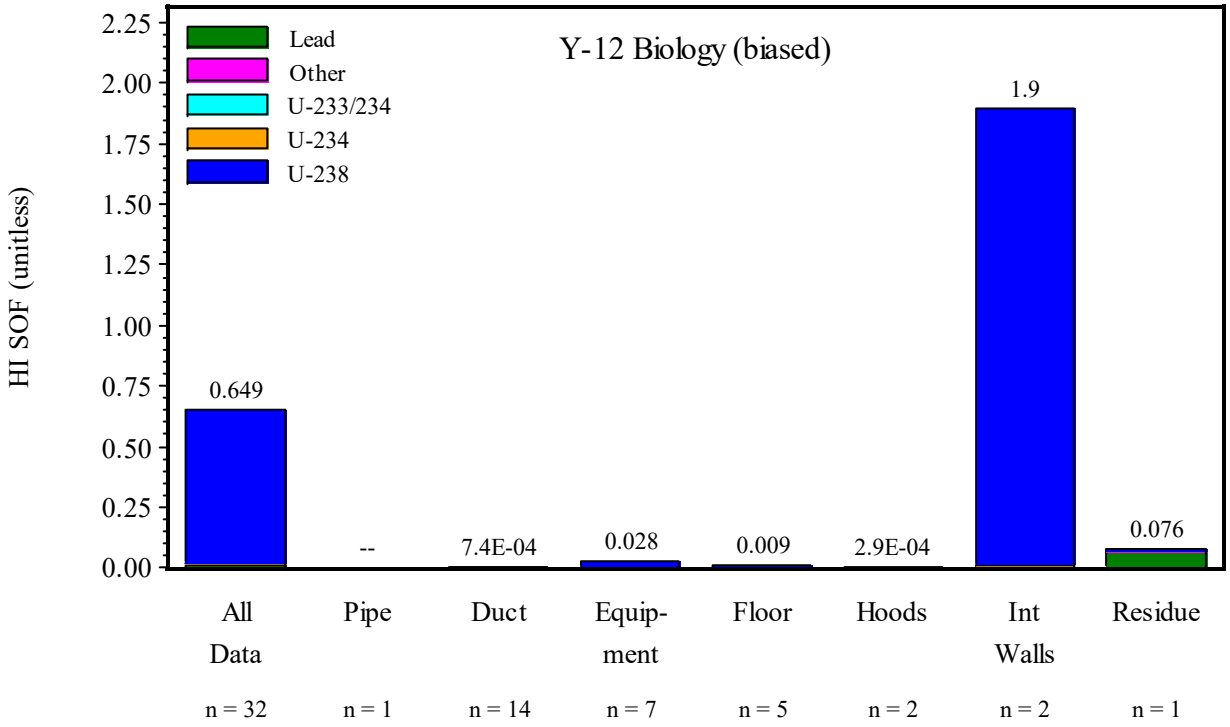


Other includes boron, di-n-butyl phthalate, molybdenum, tin, barium and acetophenone.

Fig. G.5. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex random data by media



Other includes U-235, U-235/236 and U-236.



Other includes U-235, U-235/236, chromium, selenium and barium.

Fig. G.6. Vertical bar charts of the CA and HI SOFs for Y-12 Biology Complex biased data by media

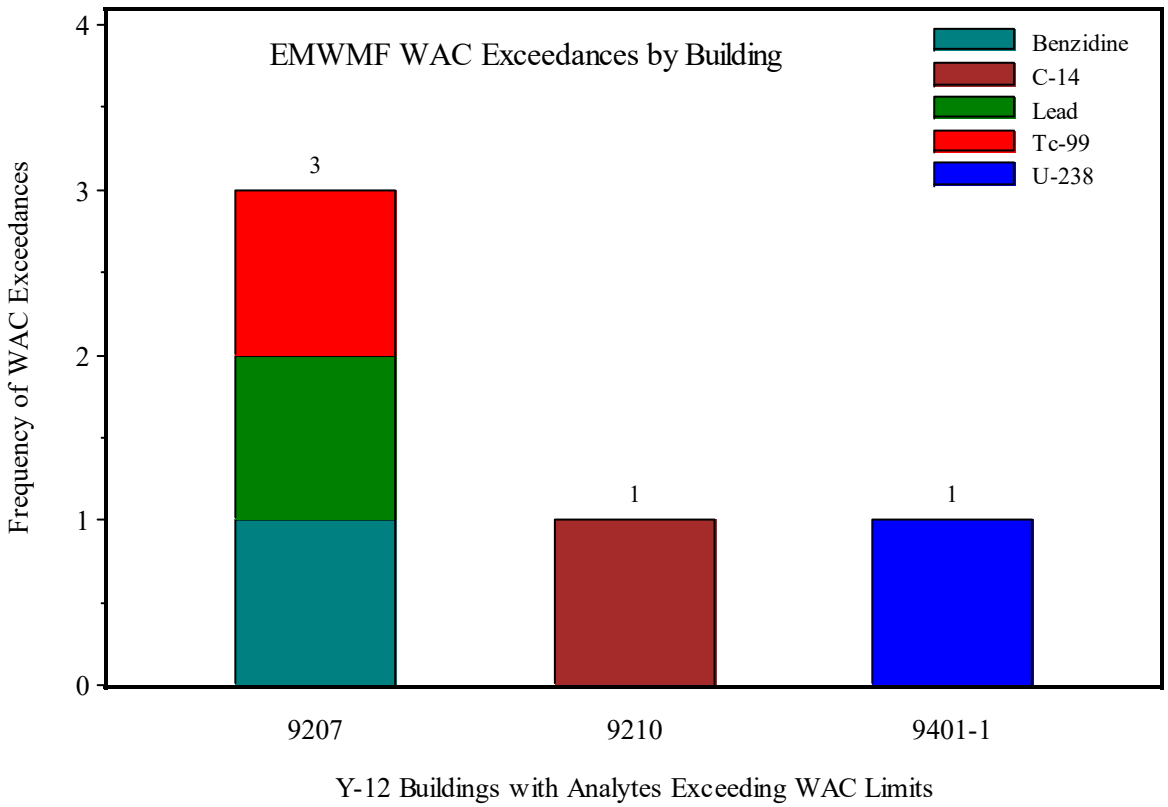
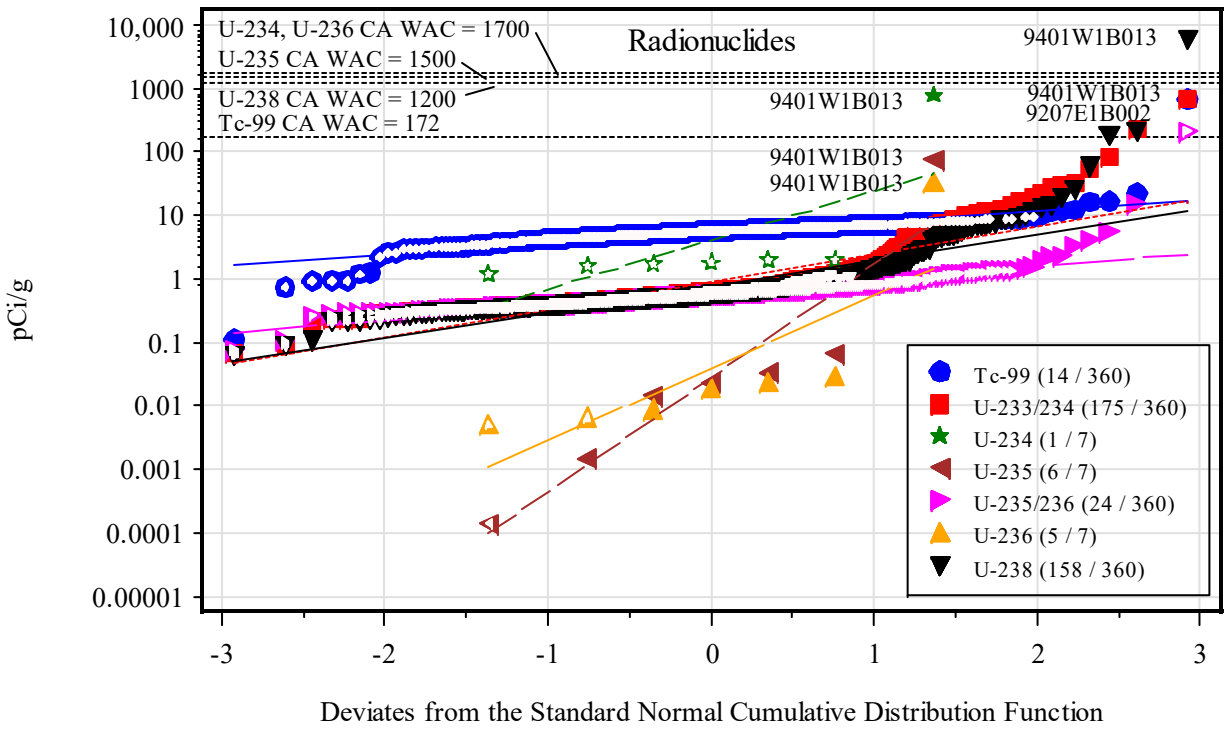
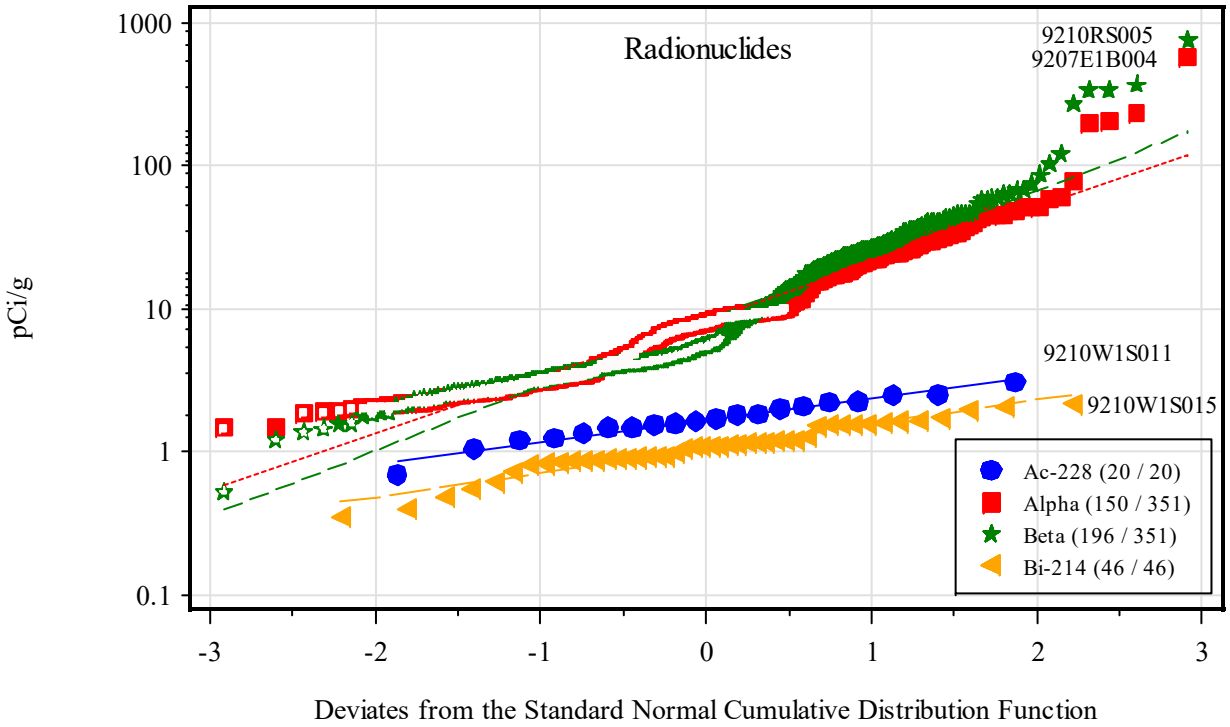


Fig. G.7. Vertical bar chart of the frequency of analytes exceeding EMWMF WAC by building

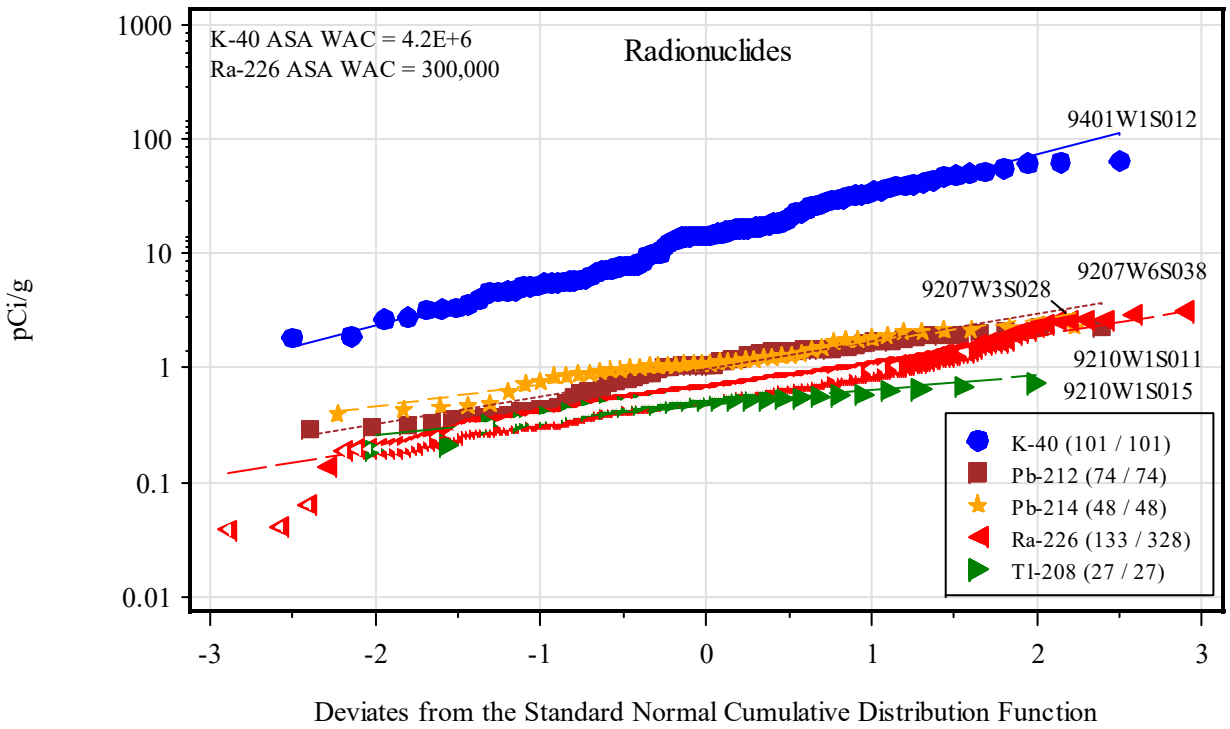


Hollow symbols denote the detection limit was used for non-detects.

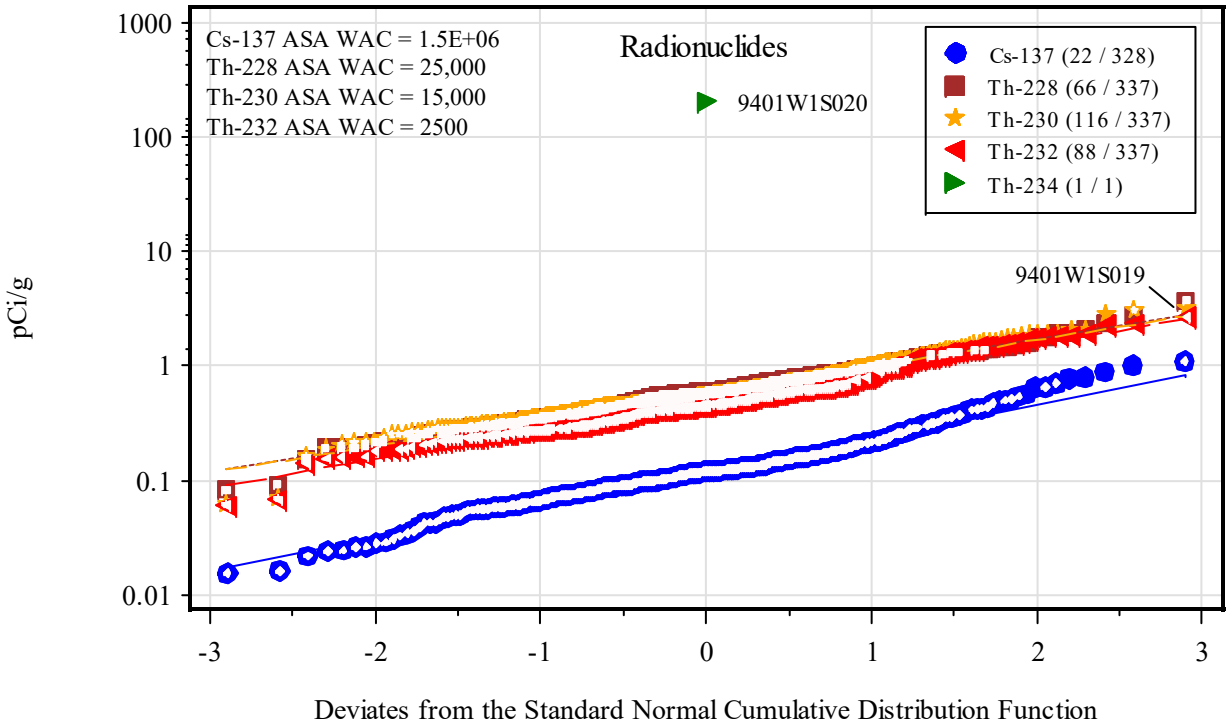


Hollow symbols denote the detection limit was used for non-detects.

Fig. G.8. Lognormal probability plots of selected radionuclides for all buildings and media combined (random and biased)

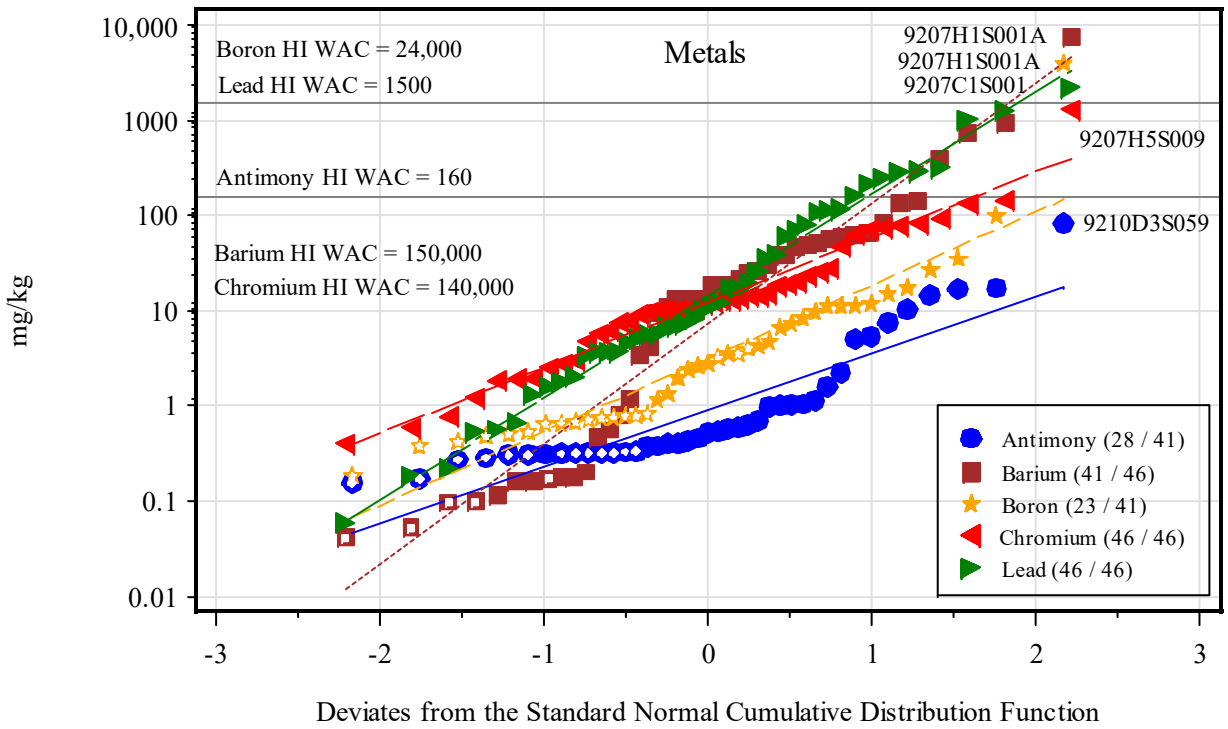


Hollow symbols denote the detection limit was used for non-detects.

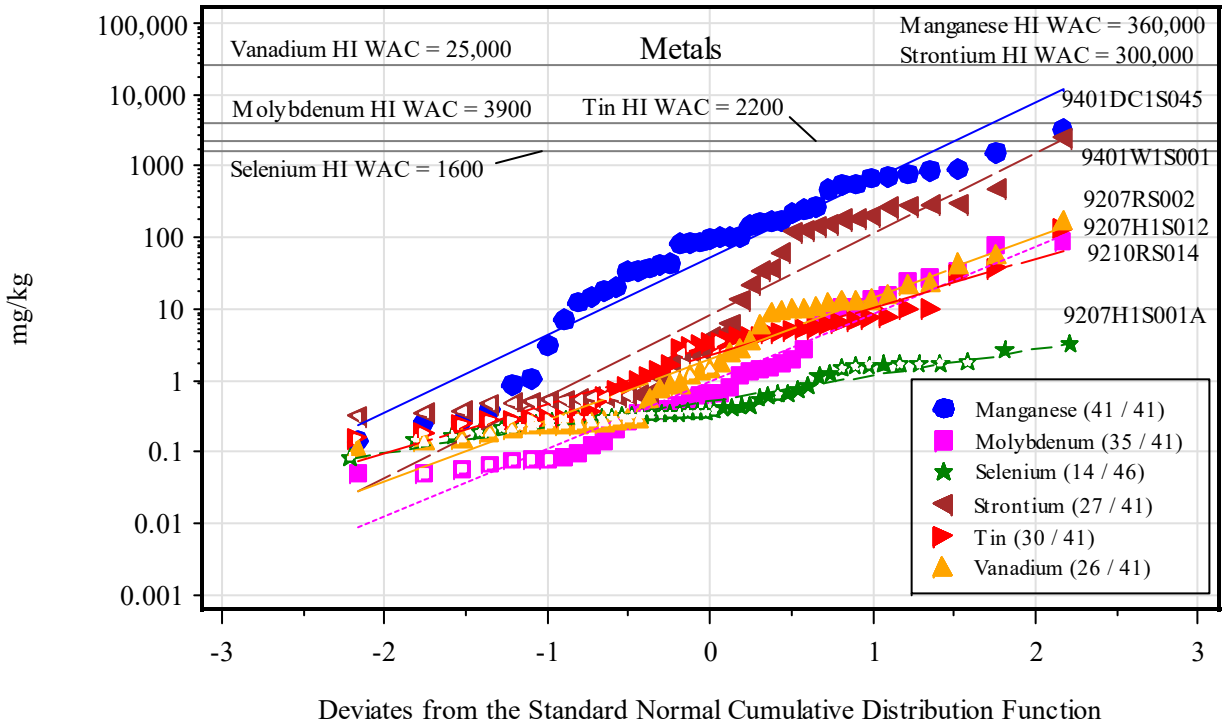


Hollow symbols denote the detection limit was used for non-detects.

Fig. G.9. Lognormal probability plots of selected radionuclides for all buildings and media combined (random and biased)

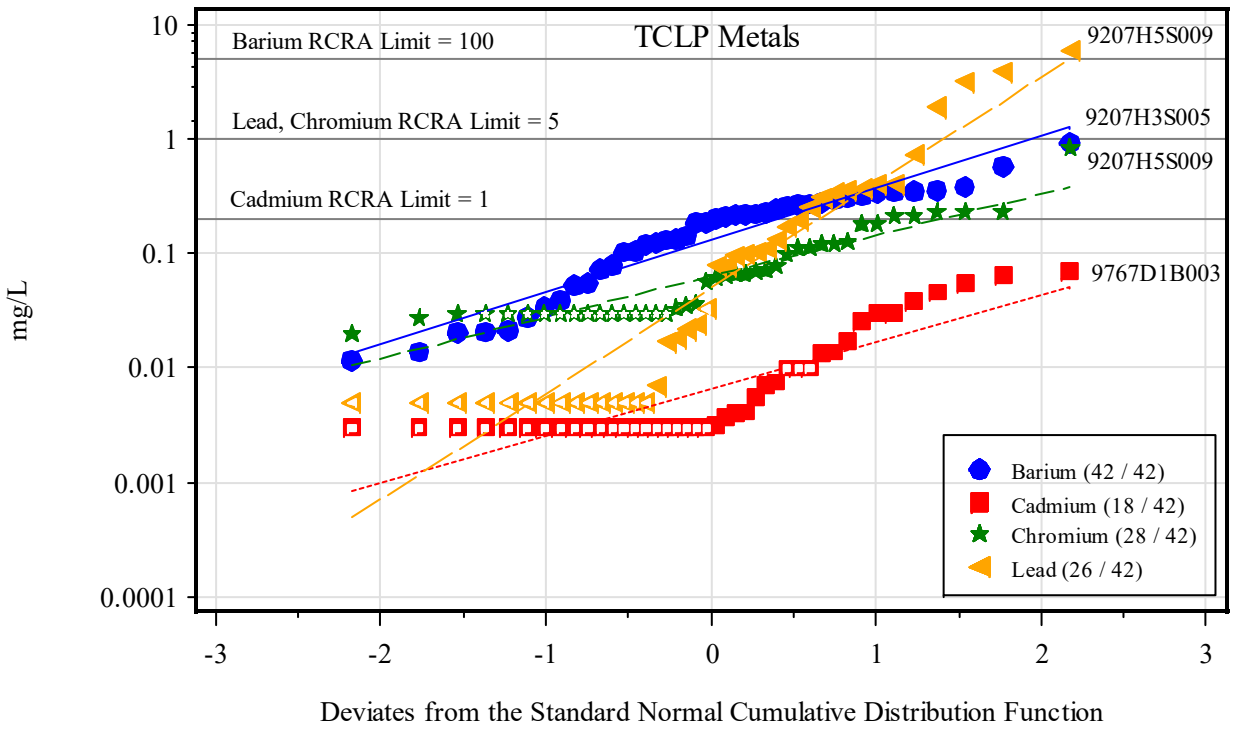


Hollow symbols denote the detection limit was used for non-detects.



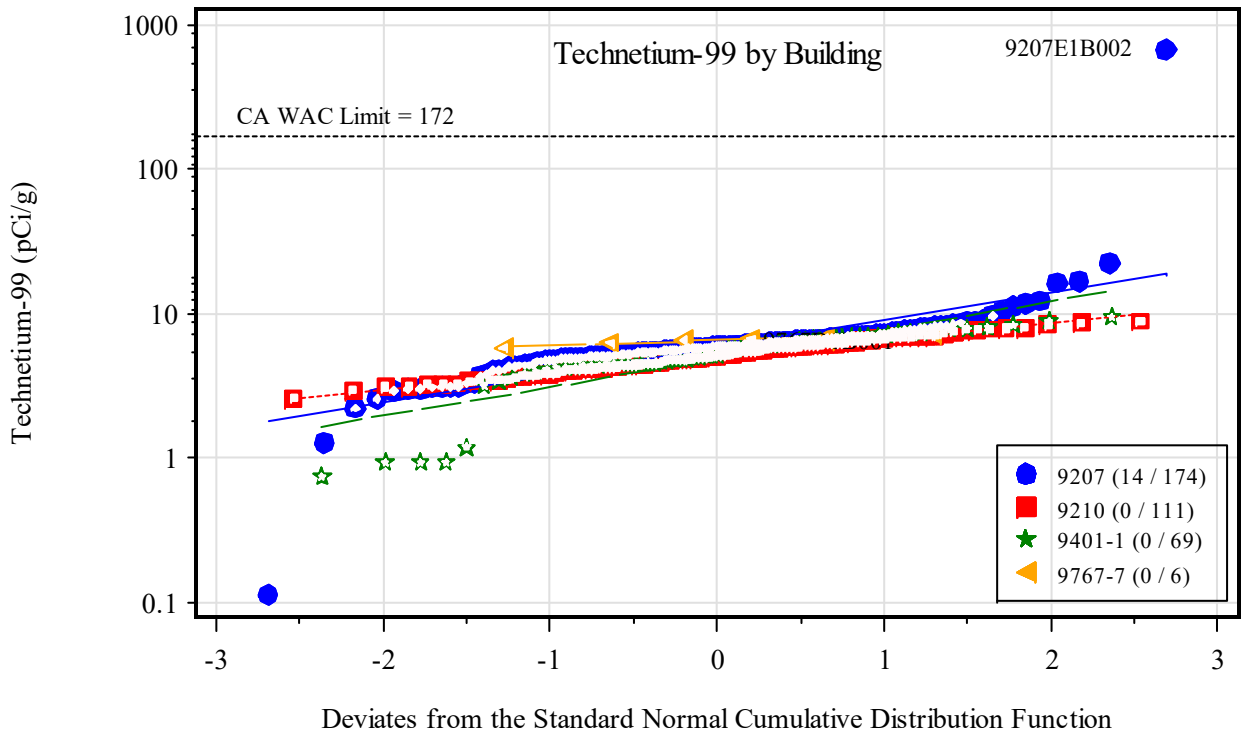
Hollow symbols denote the detection limit was used for non-detects.

Fig. G.10. Lognormal probability plots of selected metals for all buildings and media combined (random and biased)

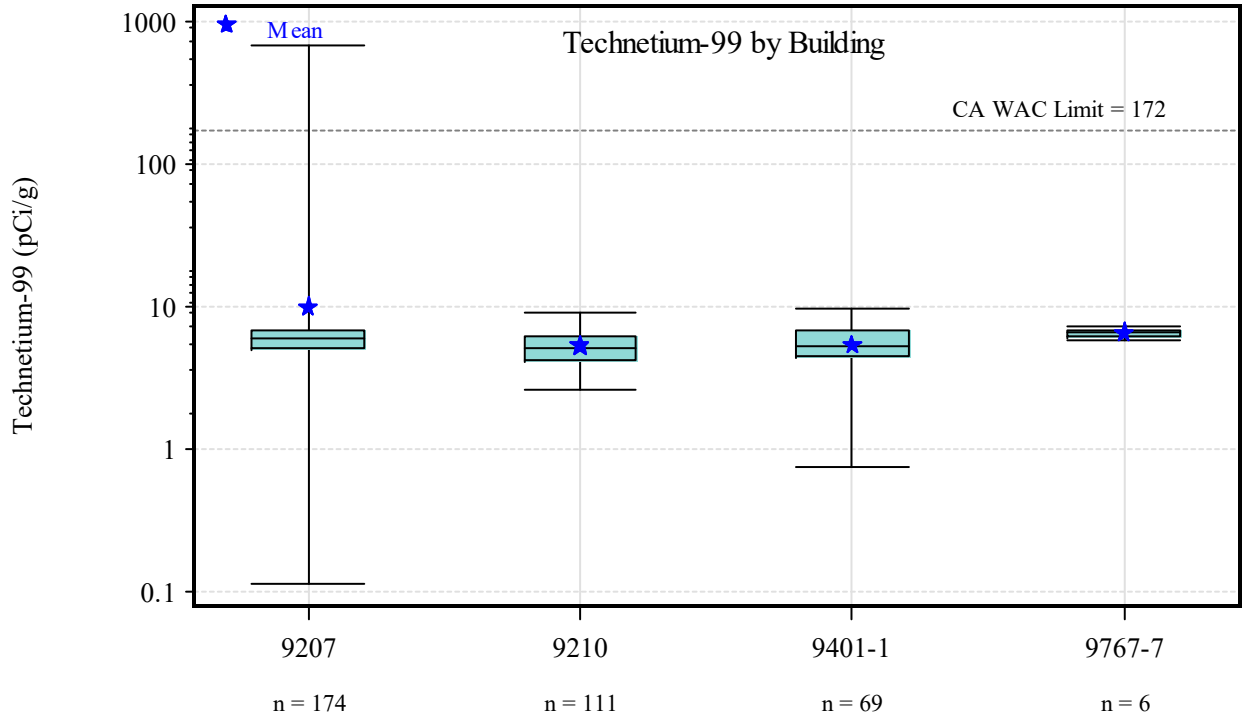


Hollow symbols denote the detection limit was used for non-detects.

Fig. G.11. Lognormal probability plots of selected TCLP metals for all buildings and media combined (random and biased)

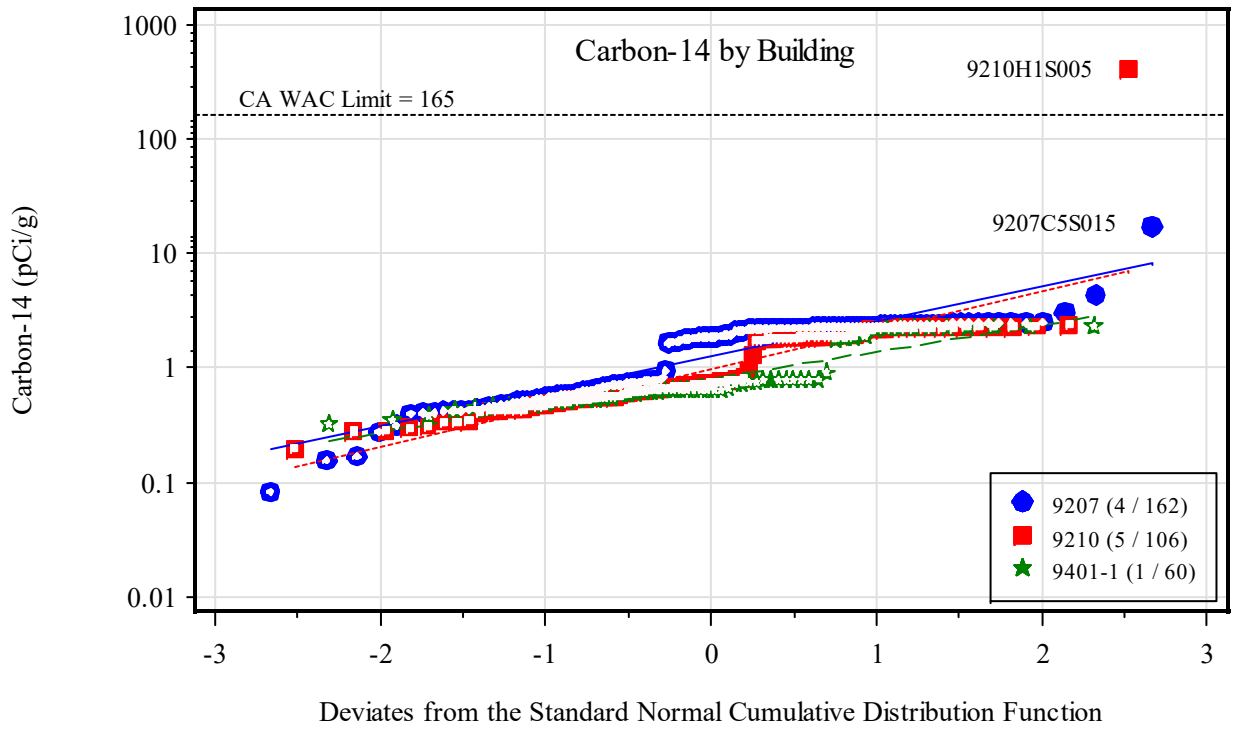


Hollow symbols denote the detection limit was used for non-detects.

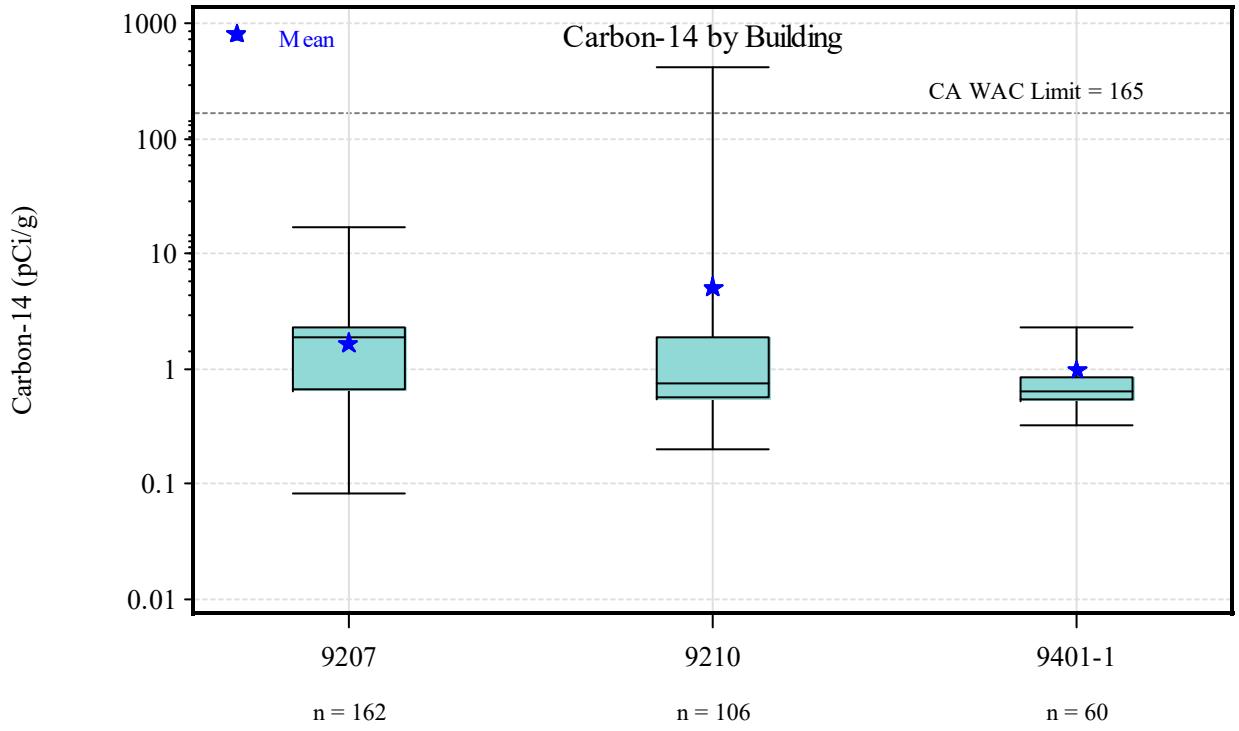


Detection limits were plotted for non-detects.

Fig. G.12. Lognormal probability and box plots of Tc-99 (random and biased) by building

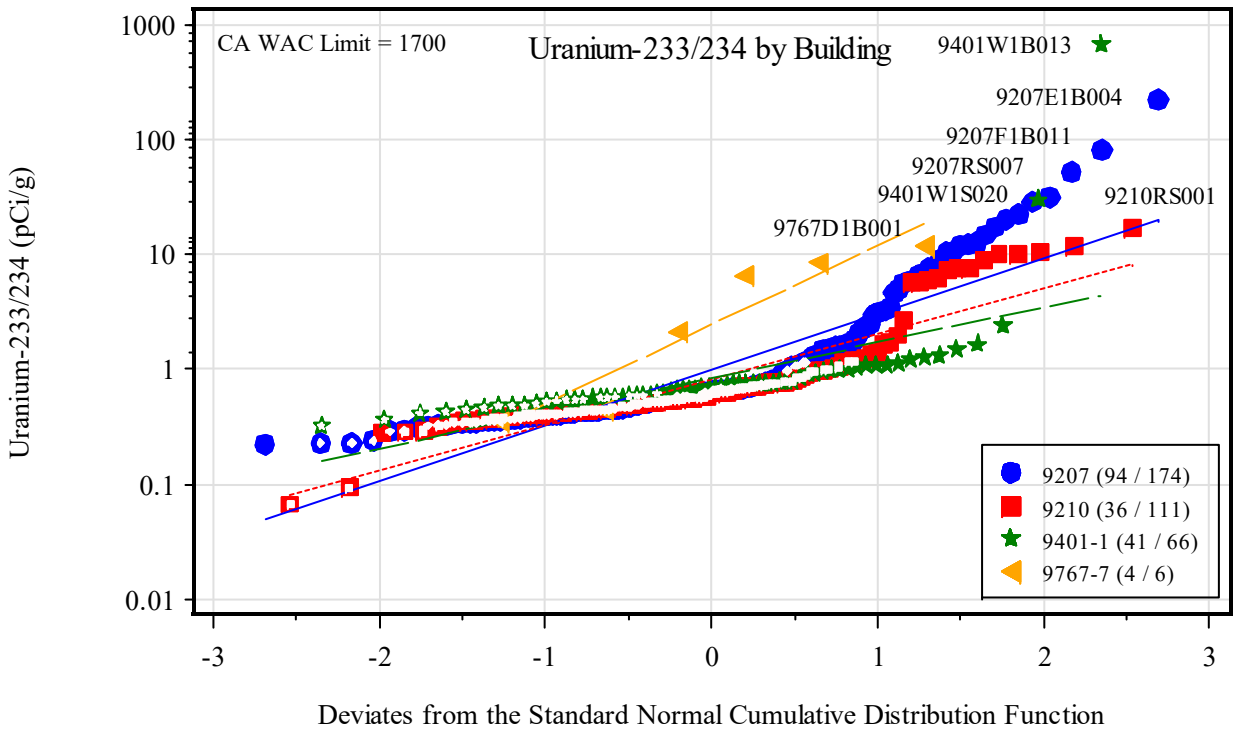


Hollow symbols denote the detection limit was used for non-detects.

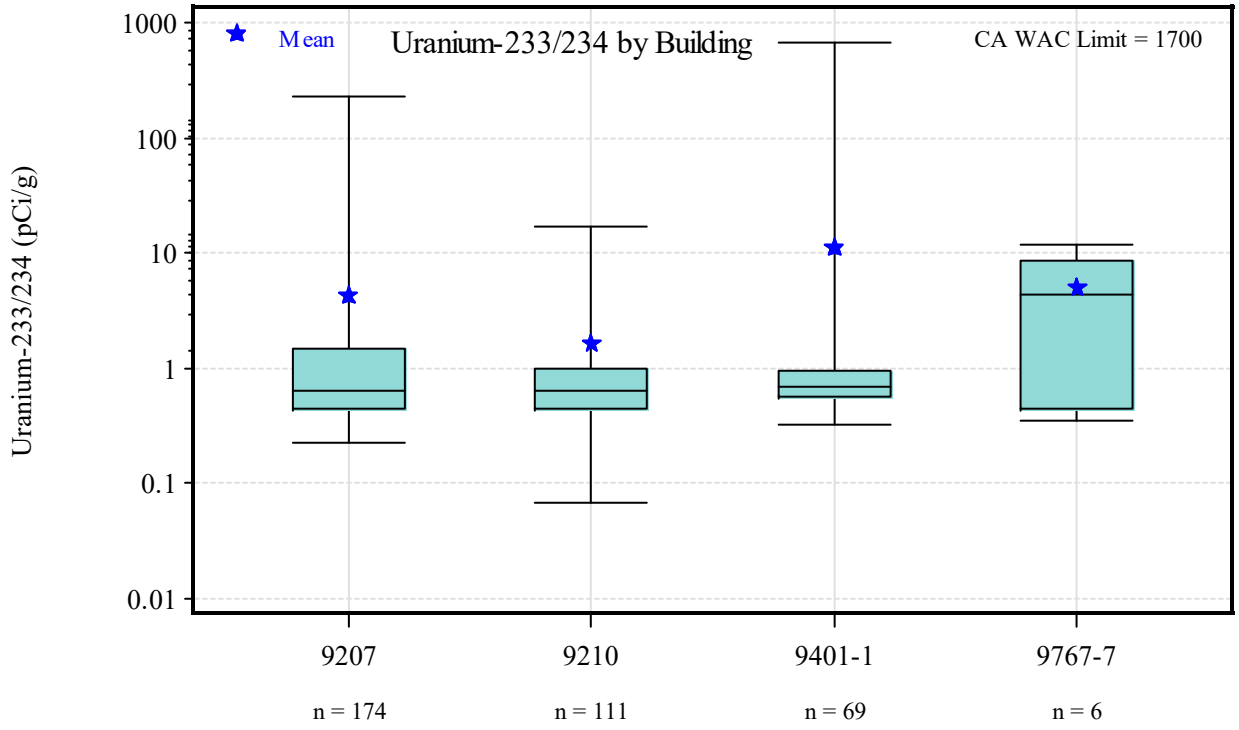


Detection limits were plotted for non-detects.

Fig. G.13. Lognormal probability and box plots of C-14 (random and biased) by building

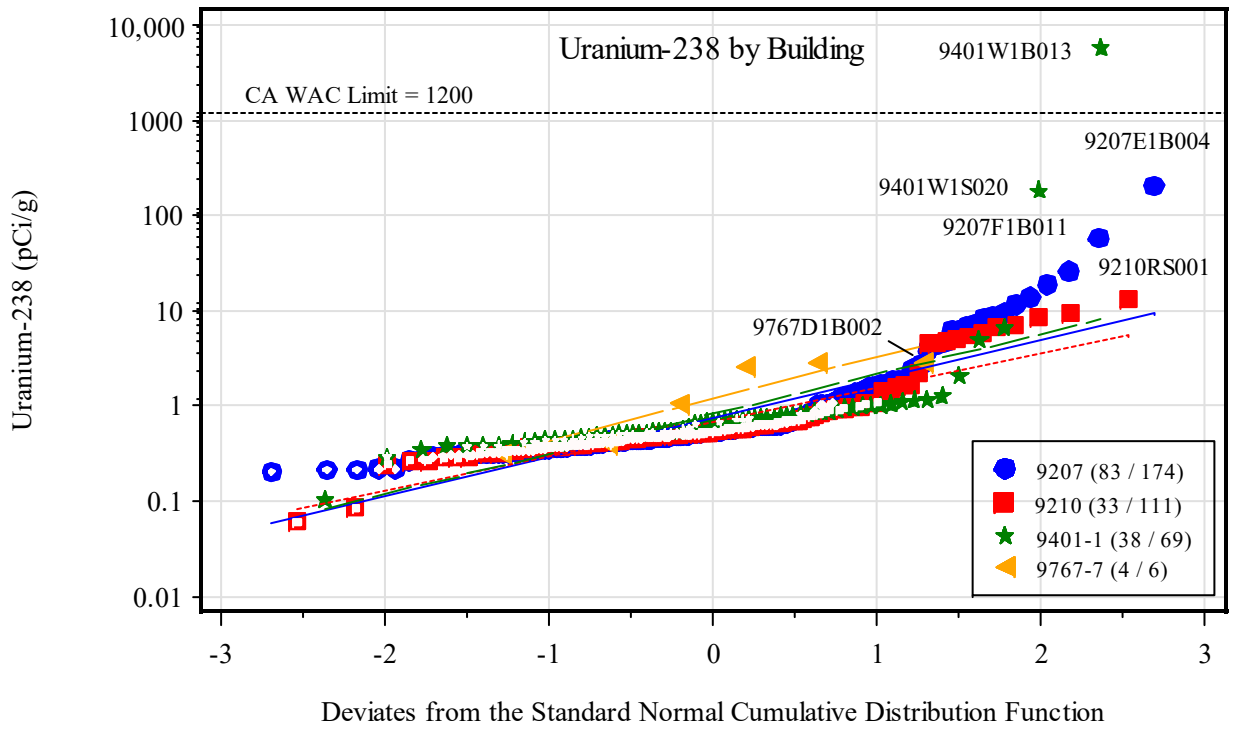


Hollow symbols denote the detection limit was used for non-detects.

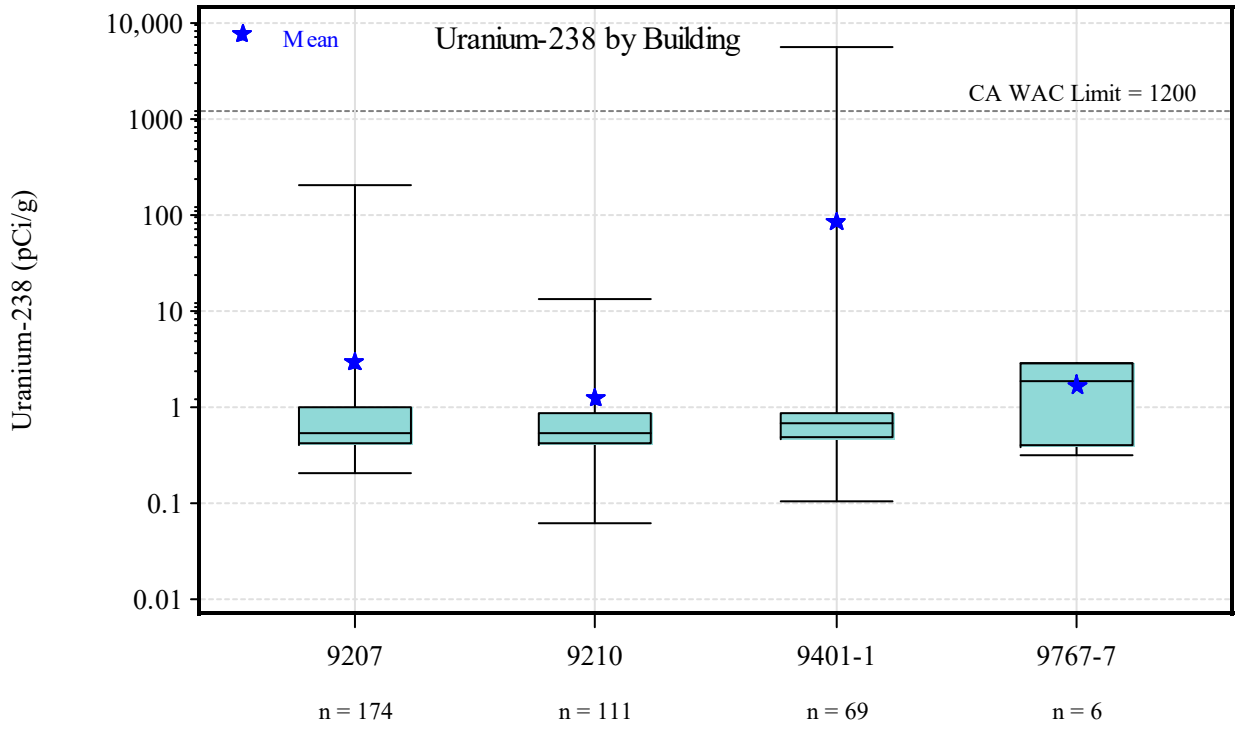


Detection limits were plotted for non-detects.

Fig. G.14. Lognormal probability and box plots of U-233/234 (random and biased) by building

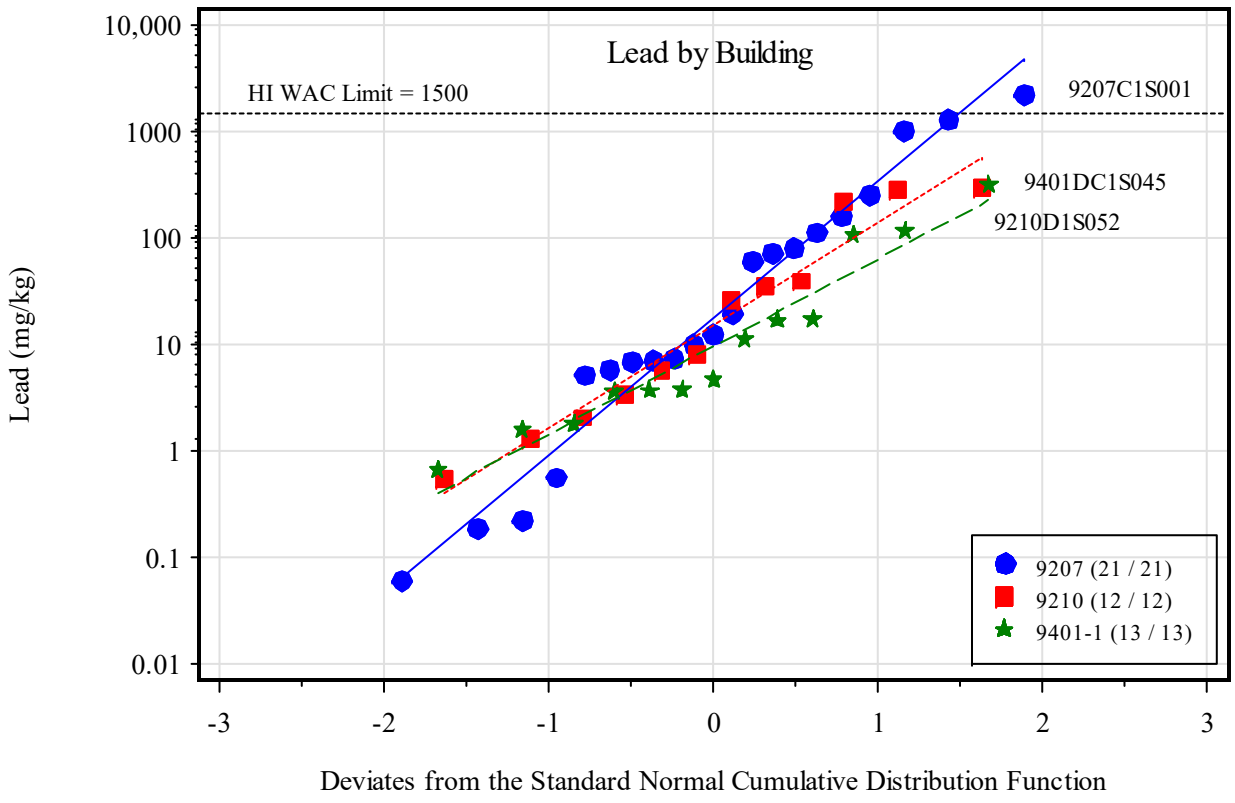


Hollow symbols denote the detection limit was used for non-detects.



Detection limits were plotted for non-detects.

Fig. G.15. Lognormal probability and box plots of U-238 (random and biased) by building



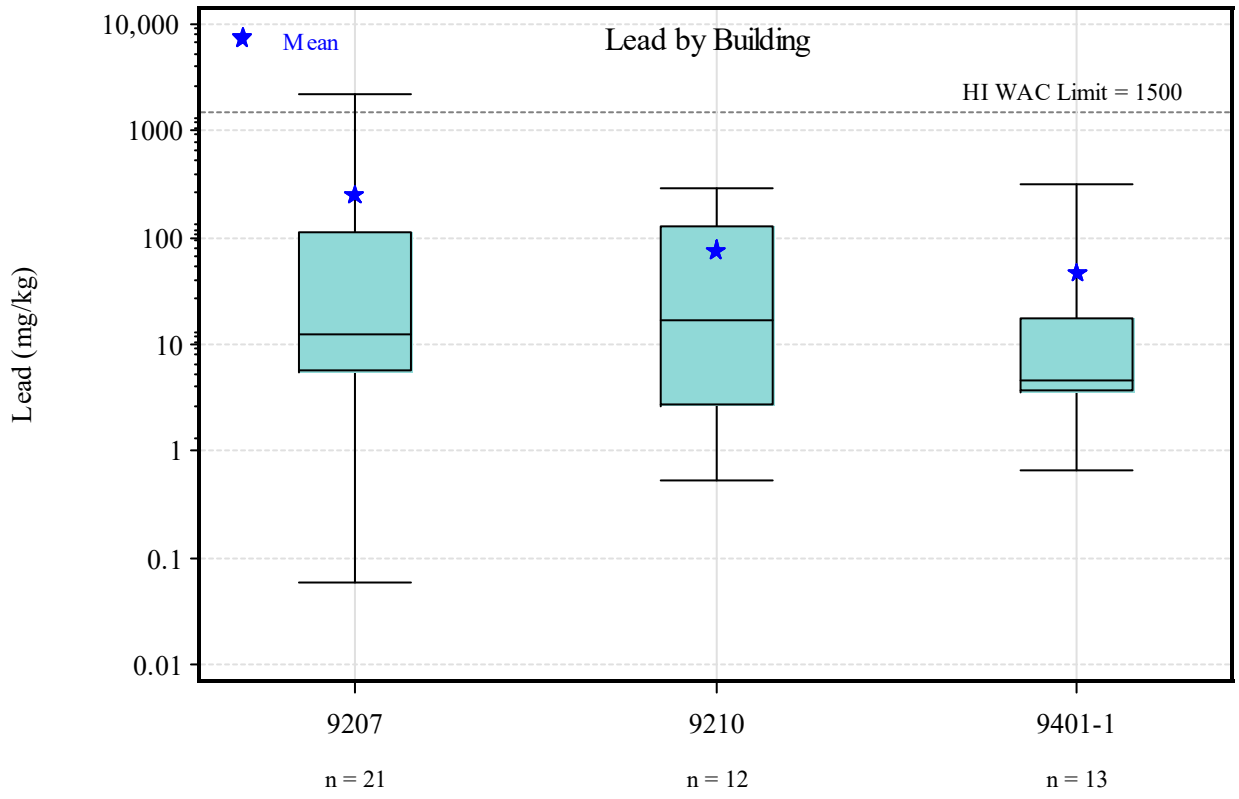
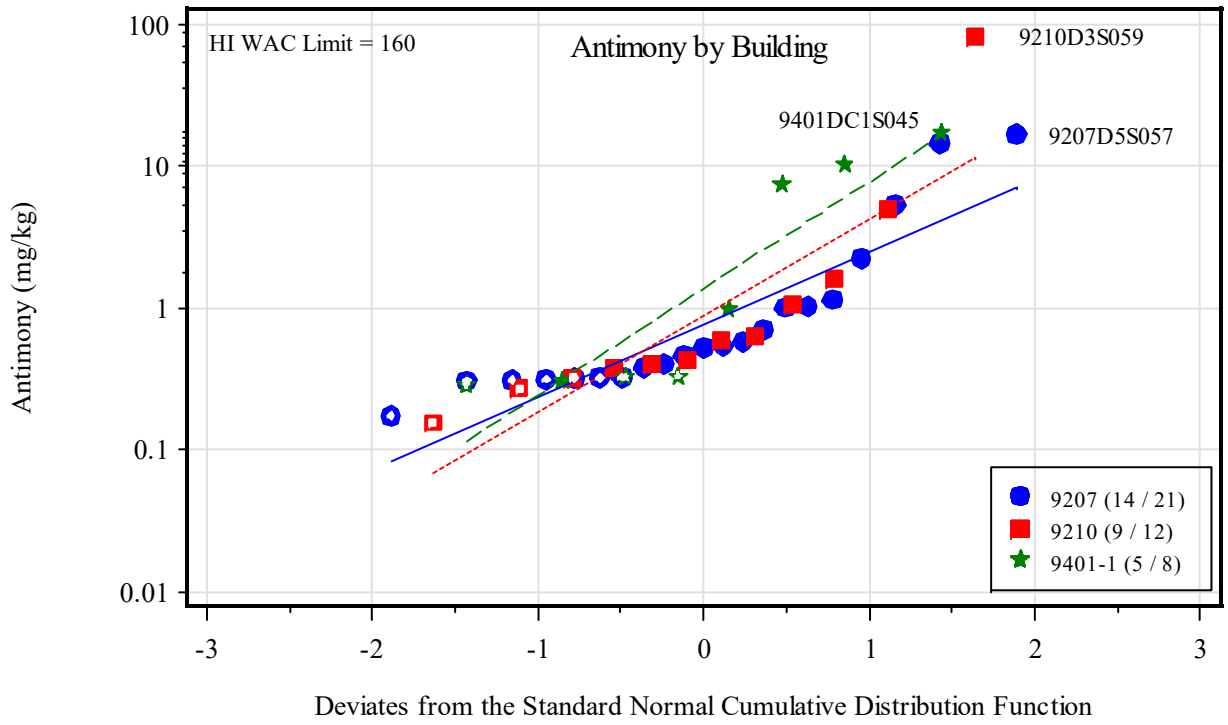
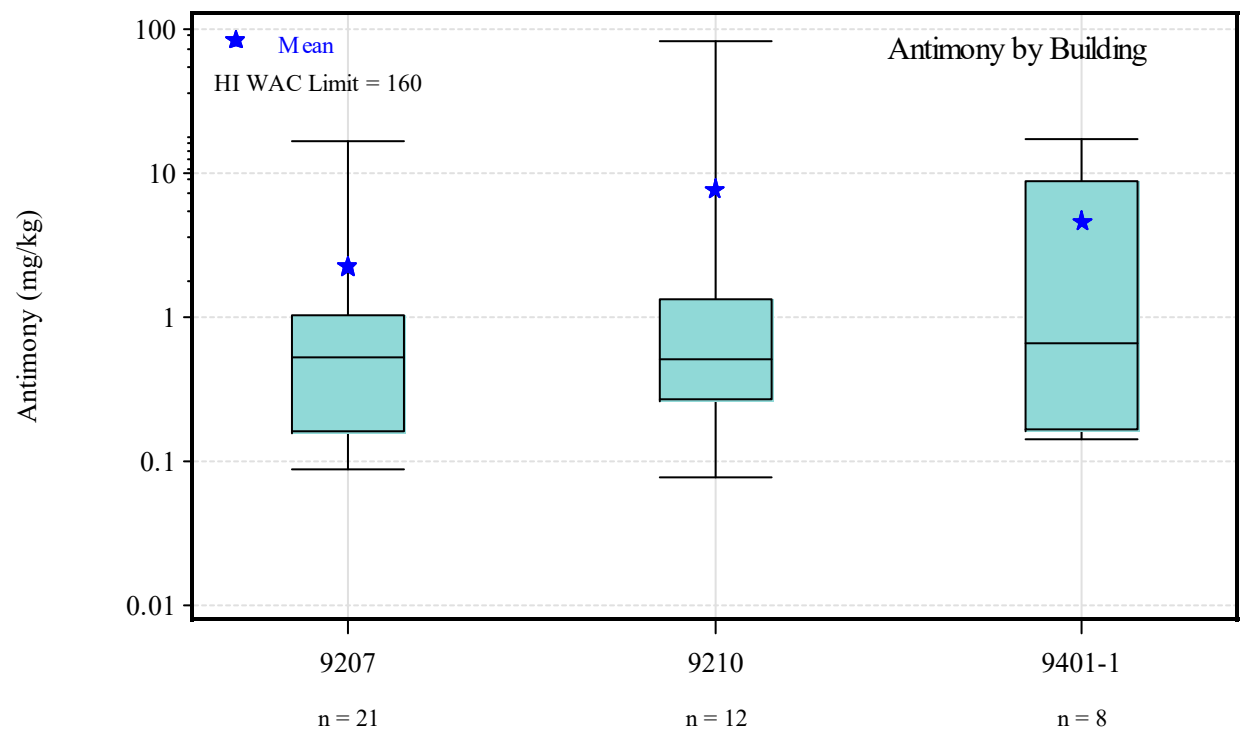


Fig. G.16. Lognormal probability and box plots of lead (random and biased) by building

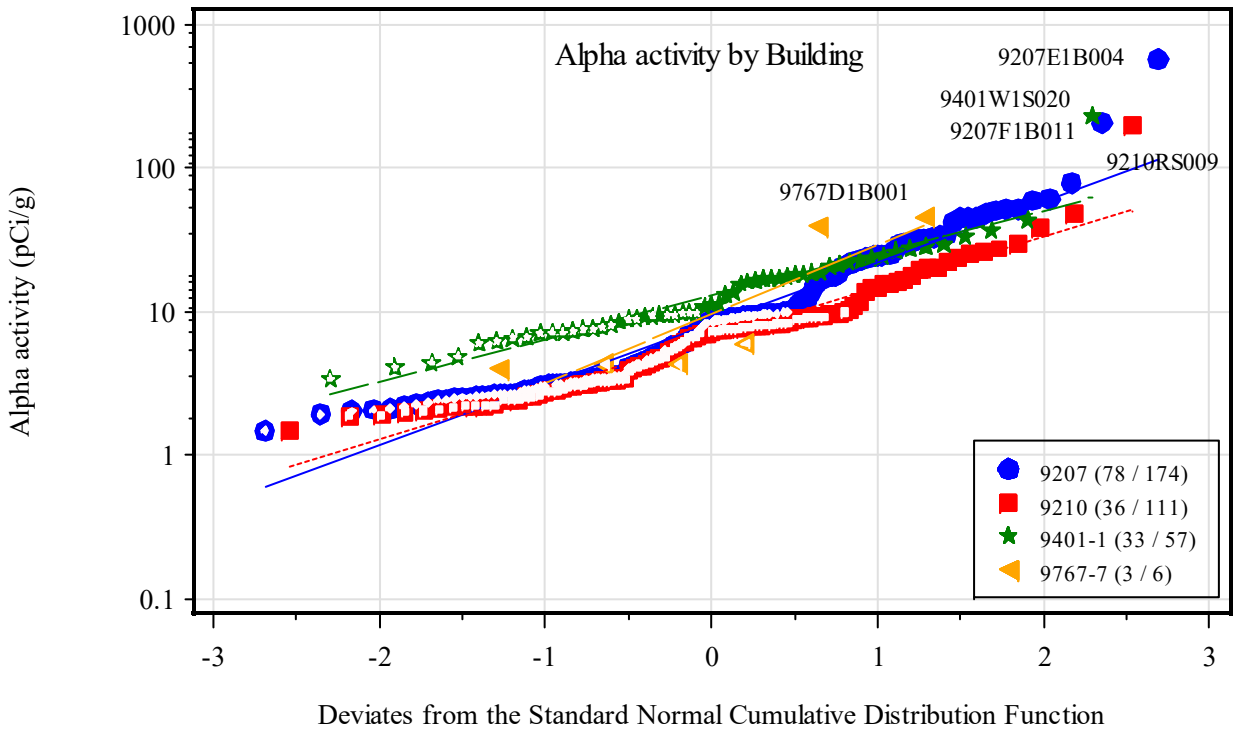


Hollow symbols denote the detection limit was used for non-detects.

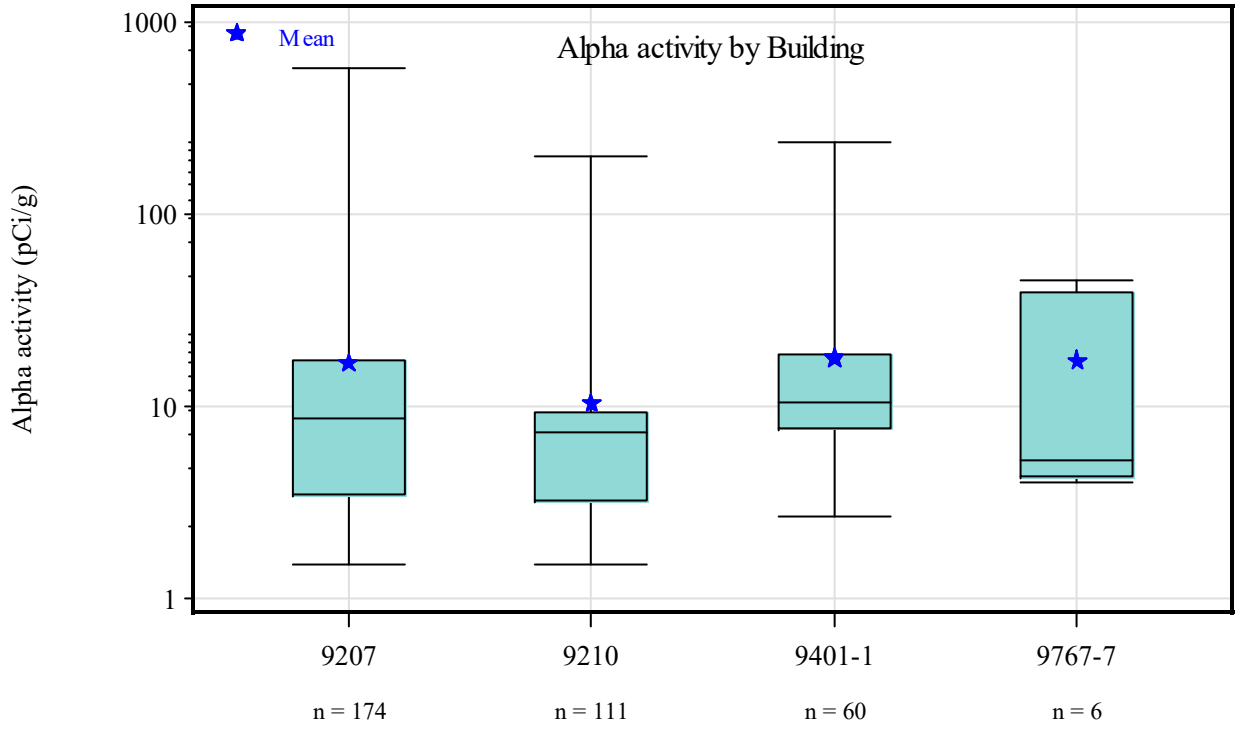


Half the detection limits were plotted for non-detects.

Fig. G.17. Lognormal probability and box plots of antimony (random and biased) by building

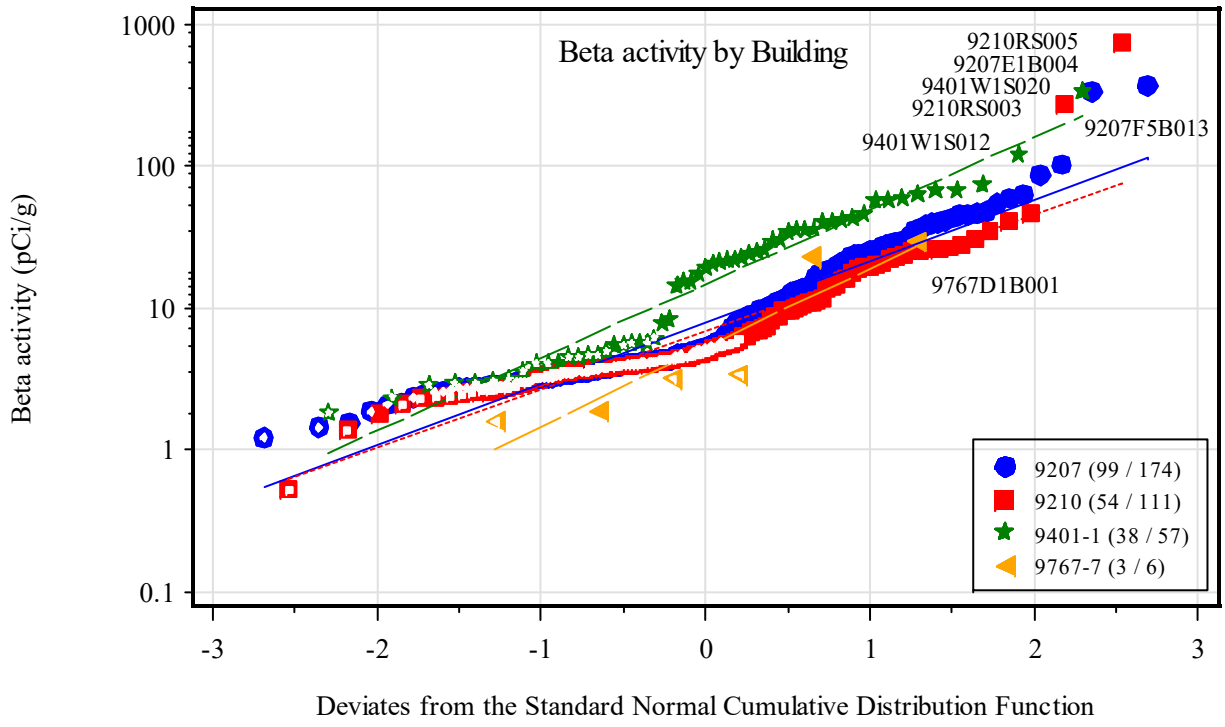


Hollow symbols denote the detection limit was used for non-detects.

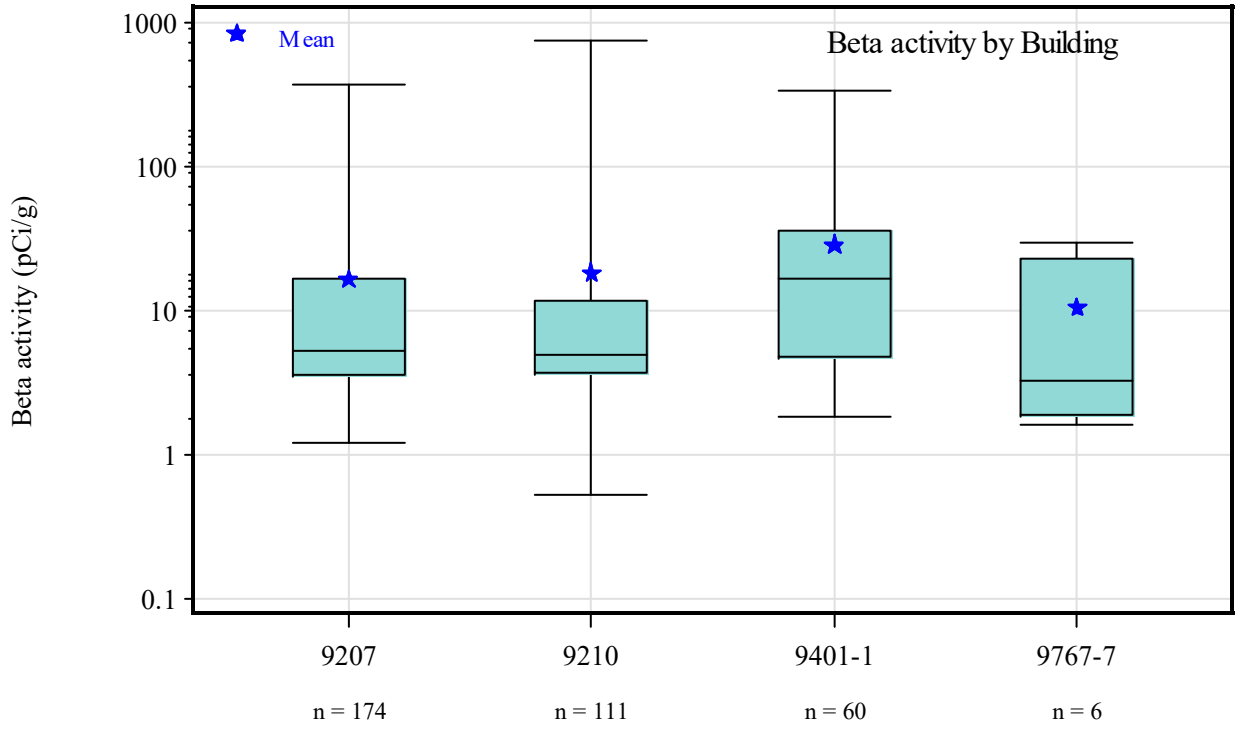


Detection limits were plotted for non-detects.

Fig. G.18. Lognormal probability and box plots of alpha activity (random and biased) by building

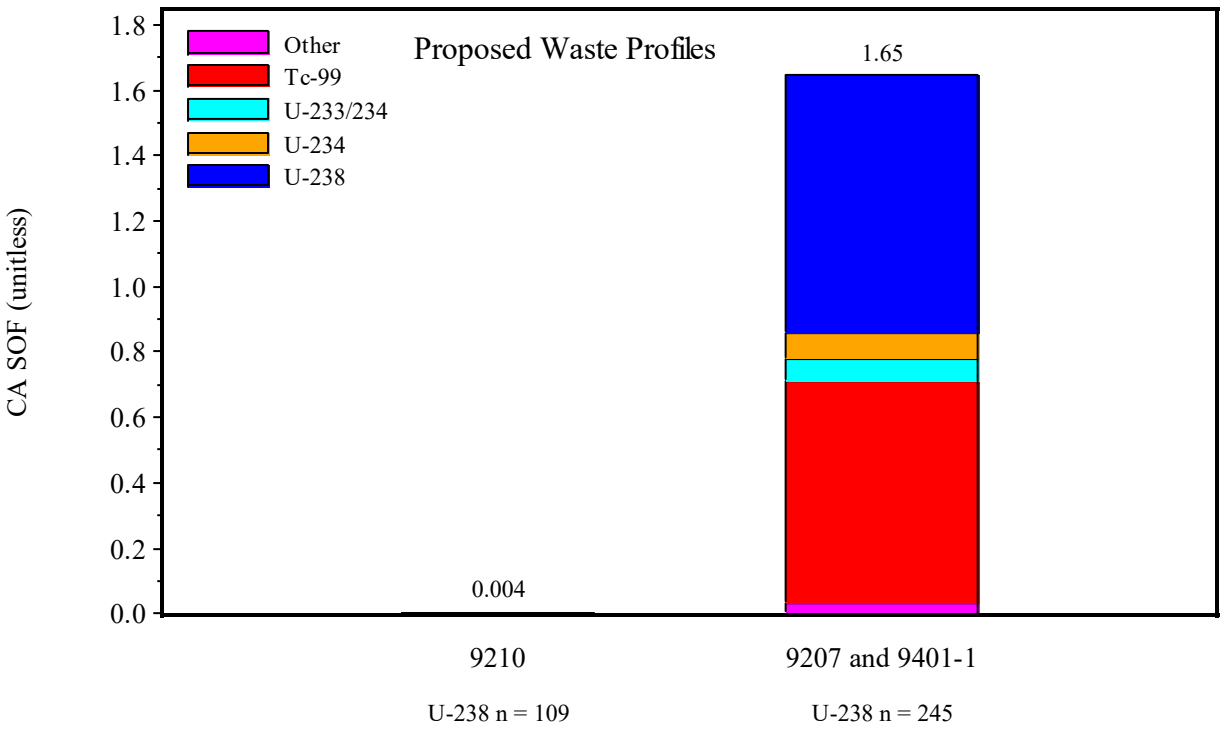


Hollow symbols denote the detection limit was used for non-detects.

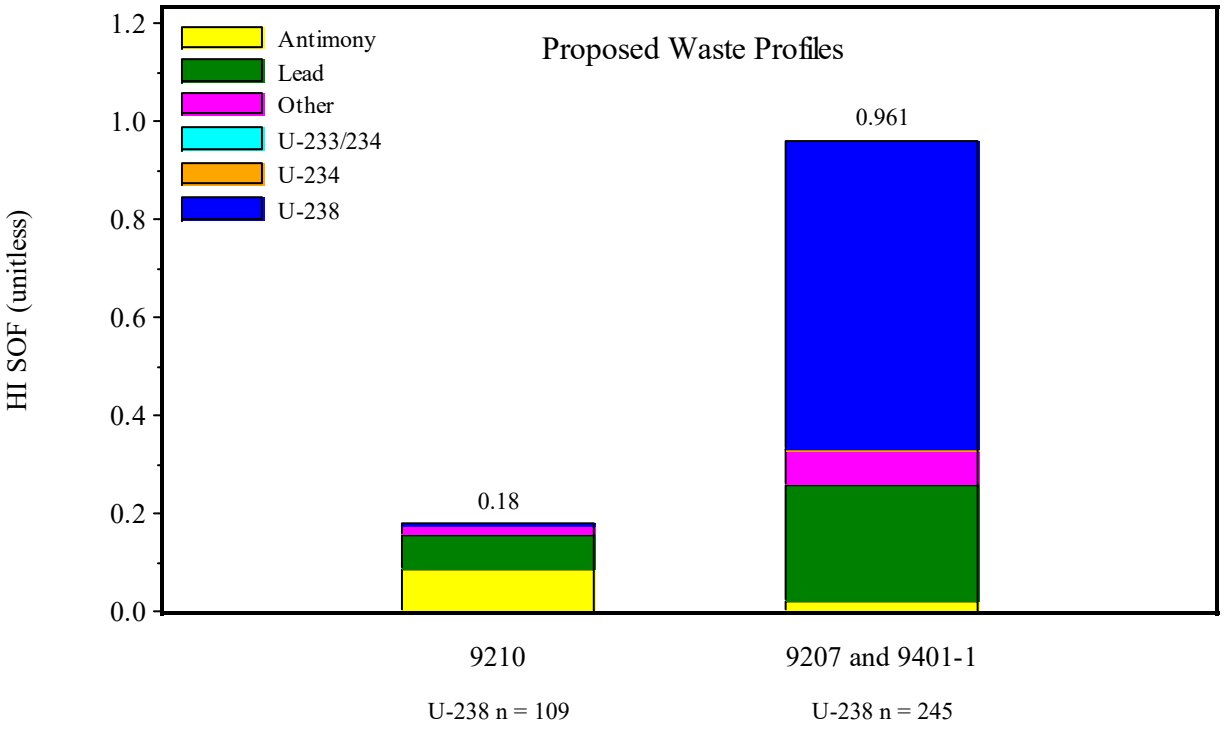


Detection limits were plotted for non-detects.

Fig. G.19. Lognormal probability and box plots of beta activity (random and biased) by building



Other includes U-235/236, U-235, U-236, carbazole and lindane.



Other includes boron, di-n-butyl phthalate, barium, tin and U-235/236.

Fig. G.20. Vertical bar charts of the CA and HI SOFs for proposed waste profiles (random and biased)

Table G.1. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	2 / 295	mg/kg	0.006	29.4	0.003	0.473	0.149	14.7	1.08	0.104	0.16	0.215	0.078	-1.78	1.41	-1.9	0.514	B	2.55	5.57	6.77	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	3 / 295	mg/kg	0.006	29.4	0.003	0.475	0.149	14.7	1.08	0.031	0.344	0.569	0.28	-1.77	1.41	-1.63	1.62	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	8 / 295	mg/kg	0.006	29.4	0.003	0.5	0.149	14.7	1.1	0.35	1.33	3.54	0.984	-1.74	1.44	0.079	0.678	B	2.55	5.57	6.77	0.35	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 295	mg/kg	0.014	29.4	0.007	0.508	0.149	14.7	1.17	0.013	1.8	6.21	2.97	-1.75	1.4	-1.72	2.51	B	2.55	5.57	6.77	0.013	--	--	--	NSRC	NSRC
Phenol	4 / 295	mg/kg	0.006	29.4	0.003	0.488	0.149	14.7	1.09	0.349	1.28	2.61	1.12	-1.76	1.43	-0.137	1.06	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	20 / 20	pCi/g	--	--	0.688	1.76	1.67	3.08	0.566	0.688	1.76	3.08	0.566	0.514	0.343	0.514	0.343	N	1.76	1.93	1.98	3.12	--	--	--	--	--
Alpha activity	150 / 351	pCi/g	1.48	9.99	1.48	14.9	8.09	575	37.2	1.49	27.6	575	54.3	2.11	0.931	2.84	0.854	B	101	220	266	48.3	--	--	--	--	--
Americium-241	0 / 81	pCi/g	0.142	0.611	0.142	0.261	0.227	0.611	0.108	--	--	--	--	-1.41	0.345	--	--	B	0.277	0.391	0.427	0.127	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	196 / 351	pCi/g	0.528	6.16	0.528	19.0	5.51	757	54.5	1.56	31.2	757	70.7	2.11	1.08	2.78	0.998	B	130	285	346	68.5	--	--	--	--	--
Bismuth-214	46 / 46	pCi/g	--	--	0.353	1.14	1.1	2.16	0.416	0.353	1.14	2.16	0.416	0.058	0.395	0.058	0.395	N	1.14	1.22	1.24	2.01	--	--	--	--	--
Carbon-14	10 / 328	pCi/g	0.082	2.52	0.082	2.63	0.79	416	22.9	0.549	44.6	416	131	0.075	0.799	1.0	2.07	B	69.9	154	188	2.47	165	--	1.0E+07	NSRC	NSRC
Cesium-137	22 / 328	pCi/g	0.015	1.09	0.015	0.156	0.119	1.09	0.142	0.093	0.394	1.01	0.273	-2.11	0.675	-1.17	0.723	B	0.264	0.509	0.595	0.544	--	--	1.5E+06	--	--
Cobalt-60	0 / 328	pCi/g	0.011	1.07	0.011	0.149	0.125	1.07	0.113	--	--	--	--	-2.11	0.637	--	--	B	0.263	0.507	0.591	0.402	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 328	pCi/g	0.078	1.37	0.078	0.639	0.593	1.37	0.282	--	--	--	--	-0.562	0.513	--	--	B	0.637	0.968	1.05	1.21	13	--	1500	NSRC	NSRC
Lead-212	74 / 74	pCi/g	--	--	0.294	1.11	1.08	2.32	0.534	0.294	1.11	2.32	0.534	-0.035	0.57	-0.035	0.57	N	1.11	1.19	1.22	2.17	--	--	--	--	--
Lead-214	48 / 48	pCi/g	--	--	0.394	1.21	1.09	2.29	0.507	0.394	1.21	2.29	0.507	0.103	0.445	0.103	0.445	B	1.17	1.66	1.78	--	--	--	--	--	--
Neptunium-237	0 / 81	pCi/g	0.131	0.935	0.131	0.356	0.312	0.935	0.161	--	--	--	--	-1.13	0.423	--	--	L	0.355	0.379	0.387	0.745	320	--	10,000	NSRC	NSRC

Table G.1. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nickel-63	1 / 328	pCi/g	0.323	22.2	0.323	1.07	0.865	22.2	1.42	0.834	0.834	0.834	--	-0.105	0.458	-0.182	--	B	4.33	8.93	10.7	2.46	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 81	pCi/g	0.125	0.966	0.125	0.282	0.225	0.966	0.163	--	--	--	--	-1.38	0.446	--	--	B	0.332	0.528	0.594	0.092	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 81	pCi/g	0.149	1.15	0.149	0.334	0.268	1.15	0.198	--	--	--	--	-1.22	0.468	--	--	B	0.395	0.628	0.707	0.087	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 81	pCi/g	7.61	23.5	7.61	12.1	11.9	23.5	3.18	--	--	--	--	2.46	0.252	--	--	N	12.1	12.6	12.7	18.3	--	--	790,000	NSRC	NSRC
Potassium-40	101 / 101	pCi/g	--	--	1.83	18.6	14.3	64.5	15.2	1.83	18.6	64.5	15.2	2.58	0.861	2.58	0.861	B	20.6	36.0	40.7	63	--	--	4.2E+06	--	--
Radium-226	133 / 328	pCi/g	0.039	1.39	0.039	0.717	0.611	3.15	0.455	0.137	0.96	3.15	0.59	-0.493	0.576	-0.203	0.572	B	0.939	1.7	1.93	2.08	--	--	300,000	--	--
Strontium-89	8 / 328	pCi/g	0.448	2	0.448	1.65	1.71	4.23	0.382	1.57	2.76	4.23	1.04	0.473	0.25	0.954	0.377	B	1.92	2.89	3.15	1.99	--	--	--	NSRC	NSRC
Strontium-90	17 / 328	pCi/g	0.38	2.24	0.38	1.69	1.66	14.4	0.907	1.03	3.78	14.4	3.09	0.457	0.338	1.13	0.604	B	3.57	6.75	7.87	2.38	--	--	400,000	--	--
Technetium-99	14 / 360	pCi/g	0.738	9.69	0.113	7.6	5.68	678	35.5	0.113	58.2	678	178	1.69	0.488	2.26	1.83	B	117	256	311	9.02	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thallium-208	27 / 27	pCi/g	--	--	0.192	0.495	0.528	0.737	0.129	0.192	0.495	0.737	0.129	-0.745	0.315	-0.745	0.315	N	0.495	0.527	0.537	0.786	--	--	--	--	--
Thorium-228	66 / 337	pCi/g	0.082	3.76	0.082	0.687	0.6	3.76	0.408	0.223	1.07	2.82	0.534	-0.517	0.534	-0.079	0.6	B	1.04	1.91	2.2	1.53	--	--	25,000	--	--
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	116 / 337	pCi/g	0.063	3.09	0.063	0.676	0.551	3.2	0.43	0.267	0.954	3.2	0.54	-0.543	0.538	-0.194	0.545	B	0.911	1.66	1.91	1.77	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	88 / 337	pCi/g	0.06	2.68	0.06	0.576	0.456	2.68	0.393	0.162	0.935	2.36	0.533	-0.73	0.579	-0.269	0.691	B	0.761	1.39	1.59	1.59	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	172 / 328	pCi/g	0.12	2.13	0.12	3.81	1.24	215	13.6	0.471	6.36	215	18.5	0.47	0.975	0.954	1.09	B	36.7	80.5	98.1	19.4	--	--	--	--	--
Tritium	0 / 328	pCi/g	1.42	32.1	1.42	10.5	11	32.1	3.18	--	--	--	--	2.29	0.371	--	--	B	12.9	20.7	22.9	14.5	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	175 / 360	pCi/g	0.067	1.19	0.067	4.74	0.655	679	38.0	0.221	9.18	679	54.3	-0.093	1.14	0.528	1.33	B	114	251	307	17.2	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	24 / 360	pCi/g	0.078	211	0.078	1.28	0.566	211	11.1	0.376	2.06	15.2	3.08	-0.514	0.563	0.22	0.896	B	35.6	78.4	95.6	1.4	1500	9500	100,000	0.024	0.004
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	158 / 360	pCi/g	0.061	1.09	0.061	18.2	0.564	5660	299	0.106	40.8	5660	450	-0.283	1.09	0.341	1.35	B	944	2089	2552	9.41	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.966	0.979

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

Table G.1. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in*Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.2. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media (random and biased)																											
Metals																											
Antimony	14 / 21	mg/kg	0.174	0.326	0.087	2.24	0.528	16.9	4.65	0.381	3.28	16.9	5.46	-0.481	1.48	0.242	1.28	B	3.18	6.72	8.09	--	--	160	--	--	0.02
Arsenic	13 / 21	mg/kg	0.178	0.351	0.089	3.99	1.86	31.2	6.88	1.68	6.36	31.2	7.93	0.133	1.83	1.44	0.854	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	18 / 21	mg/kg	0.053	0.099	0.026	393	13.5	7410	1610	0.117	459	7410	1737	1.97	3.31	2.83	2.71	B	1244	2748	3353	--	--	150,000	--	--	0.008
Beryllium	11 / 21	mg/kg	0.005	0.082	0.002	0.126	0.024	0.545	0.177	0.019	0.23	0.545	0.194	-3.33	1.75	-1.99	1.23	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	10 / 21	mg/kg	0.187	3.26	0.094	194	1.18	3990	870	1.18	408	3990	1259	0.623	2.43	2.5	2.27	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	15 / 21	mg/kg	0.011	0.02	0.005	1.44	0.24	10.9	3.15	0.05	2.02	10.9	3.59	-1.74	2.43	-0.514	1.66	L	2.19	6.53	8.5	55.2	--	--	--	--	--
Chromium	21 / 21	mg/kg	--	--	0.405	83.2	10	1290	279	0.405	83.2	1290	279	2.25	1.97	2.25	1.97	L	65.9	243	397	1010	--	140,000	--	--	4.7E-04
Copper	21 / 21	mg/kg	--	--	0.306	25.8	15	184	43.9	0.306	25.8	184	43.9	2.02	1.84	2.02	1.84	L	40.5	128	198	584	--	--	--	--	--
Hafnium	4 / 21	mg/kg	0.14	2.93	0.07	0.482	0.292	1.47	0.431	0.568	0.927	1.43	0.418	-1.04	0.774	-0.154	0.457	B	0.451	0.785	0.893	--	--	--	--	--	--
Lead	21 / 21	mg/kg	--	--	0.06	253	12.3	2210	562	0.06	253	2210	562	2.87	2.91	2.87	2.91	L	584	1931	2541	17,385	--	1500	--	--	0.389
Manganese	21 / 21	mg/kg	--	--	0.144	220	42.7	1530	384	0.144	220	1530	384	3.29	2.91	3.29	2.91	B	283	606	731	--	--	360,000	--	--	7.9E-04
Mercury	19 / 21	mg/kg	0.002	0.004	0.001	0.778	0.031	13	2.84	0.005	0.86	13	2.98	-3.32	2.22	-2.98	2.05	L	0.423	2.14	3.97	6.95	--	--	--	--	--
Molybdenum	16 / 21	mg/kg	0.05	0.079	0.025	4.1	0.558	27.9	8.11	0.05	5.37	27.9	8.96	-0.626	2.26	0.248	1.84	L	6.87	36.9	69.8	114	--	3900	--	--	0.002
Nickel	21 / 21	mg/kg	--	--	0.217	30.6	5.91	284	65.7	0.217	30.6	284	65.7	1.68	2.03	1.68	2.03	L	42.3	168	284	664	--	--	--	--	--
Selenium	5 / 21	mg/kg	0.084	1.75	0.042	0.571	0.178	3.25	0.724	0.552	1.4	3.25	1.07	-1.15	1.11	0.149	0.657	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	10 / 21	mg/kg	0.053	1.17	0.026	2.75	0.338	15	4.52	0.147	5.58	15	5.32	-0.81	2.19	0.946	1.61	B	2.73	5.86	7.08	--	--	--	--	--	--
Strontium	14 / 21	mg/kg	0.317	2.45	0.159	64.7	2.69	288	104	0.631	96.8	288	115	1.63	2.79	3.03	2.32	B	49.8	109	132	--	--	300,000	--	--	1.7E-04
Thallium	1 / 21	mg/kg	0.033	0.684	0.016	0.106	0.068	0.342	0.102	0.257	0.257	0.257	--	-2.56	0.759	-1.36	--	B	0.105	0.183	0.208	--	--	--	--	NSRC	NSRC
Tin	11 / 21	mg/kg	0.158	3.5	0.079	8.47	1.36	132	28.4	0.582	15.8	132	38.7	0.025	1.98	1.46	1.42	B	22.9	50.0	60.8	--	--	2200	--	--	0.01
Vanadium	14 / 21	mg/kg	0.158	1.22	0.079	16.9	1.36	173	38.9	0.113	25.3	173	45.9	0.583	2.47	1.84	2.01	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	21 / 21	mg/kg	--	--	1.33	477	32.6	5600	1233	1.33	477	5600	1233	4.05	2.23	4.05	2.23	L	692	3588	6704	11,415	--	--	--	--	--
Zirconium	10 / 21	mg/kg	0.094	1.63	0.047	8.05	0.618	45.5	13.8	0.618	16.7	45.5	16.3	0.025	2.28	2.0	1.64	B	8.0	17.4	21.1	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 15	mg/L	0.017	0.017	0.009	0.019	0.017	0.041	0.006	0.024	0.033	0.041	0.012	-4.59	0.471	-3.46	0.387	X*	0.019	0.026	0.029	--	--	--	--	--	--
Barium	15 / 15	mg/L	--	--	0.021	0.251	0.261	0.929	0.223	0.021	0.251	0.929	0.223	-1.8	1.08	-1.8	1.08	G	0.251	0.371	0.421	1.19	--	--	--	--	--
Cadmium	5 / 15	mg/L	0.003	0.003	0.002	0.008	0.003	0.039	0.011	0.004	0.019	0.039	0.015	-5.77	1.19	-4.3	0.95	X*	0.008	0.017	0.022	--	--	--	--	--	--
Chromium	10 / 15	mg/L	0.03	0.03	0.015	0.125	0.062	0.85	0.201	0.033	0.173	0.85	0.244	-2.91	1.21	-2.26	0.951	G*	0.125	0.209	0.251	0.775	--	--	--	--	--
Lead	10 / 15	mg/L	0.005	0.005	0.003	0.798	0.101	5.97	1.68	0.007	1.19	5.97	2.04	-2.9	2.83	-1.35	2.11	G*	0.798	1.89	2.52	8.82	--	--	--	--	--
Mercury	0 / 5	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 15	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 15	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.007	5.0E-04	0.05	0.015	0.001	0.004	0.011	0.004	-6.77	1.74	-6.05	1.03	B	0.009	0.019	0.023	--	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.006	4.9E-04	0.05	0.015	0.001	0.002	0.002	1.7E-04	-7.16	1.6	-6.51	0.113	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.015	0.003	0.004	0.005	0.002	-7.31	1.91	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.2. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.9E-05	7.9E-05	7.9E-05	--	-8.16	1.74	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	4.3E-06	2.9E-06
Lindane	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.1E-04	7.1E-04	7.1E-04	--	-8.04	1.72	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 19	mg/kg	0.002	1.65	7.5E-04	0.093	0.008	0.825	0.258	--	--	--	--	-4.72	1.81	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	9 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.27	0.015	31.1	2.6	0.032	3.73	31.1	10.3	-4.02	1.55	-1.61	2.36	B	5.19	11.5	14.0	0.91	--	4000	--	--	0.001
2-Methylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	850	--	NSRC	NSRC
Acenaphthene	5 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.084	0.015	5.39	0.462	0.048	1.37	5.39	2.29	-4.07	1.46	-1.09	1.97	B	0.908	2.0	2.44	0.166	--	390,000	--	NSRC	NSRC
Acenaphthylene	1 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.037	0.015	0.565	0.07	0.08	0.08	0.08	--	-4.17	1.31	-2.53	--	B	0.104	0.223	0.269	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	3 / 143	mg/kg	0.006	11.3	0.003	0.369	0.149	5.65	0.696	0.23	0.331	0.405	0.091	-1.86	1.31	-1.13	0.298	B	1.04	2.23	2.69	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 143	mg/kg	0.006	11.3	0.003	0.389	0.148	5.65	0.707	0.41	1.01	1.54	0.478	-1.83	1.34	-0.099	0.573	B	1.04	2.23	2.69	0.894	--	1200	--	NSRC	NSRC
Benzidine	1 / 143	mg/kg	0.006	11.3	0.003	0.372	0.148	5.65	0.7	1.17	1.17	1.17	--	-1.86	1.31	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	5 / 143	mg/kg	0.03	18.9	0.015	0.641	0.247	9.45	1.18	0.036	1.09	2.73	1.11	-1.3	1.28	-0.794	1.84	B	1.74	3.72	4.49	1.09	--	9810	--	NSRC	NSRC
Carbazole	6 / 143	mg/kg	0.002	1.13	8.9E-04	0.051	0.015	1.79	0.163	0.002	0.359	1.79	0.706	-4.09	1.36	-2.81	2.32	B	0.308	0.675	0.821	0.053	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	17 / 143	mg/kg	0.006	11.3	0.003	0.582	0.149	22.4	1.98	0.028	1.99	22.4	5.32	-1.67	1.38	-0.762	1.66	B	3.83	8.41	10.2	1.25	--	190	--	--	0.02
Diethyl phthalate	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 143	mg/kg	0.006	11.3	0.003	0.37	0.149	5.65	0.697	0.432	0.501	0.569	0.097	-1.86	1.31	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 143	mg/kg	0.006	11.3	0.003	0.421	0.149	5.65	0.756	0.35	1.33	3.54	0.984	-1.78	1.37	0.079	0.678	B	1.04	2.23	2.69	1.21	6100	15,000	--	1.7E-04	6.9E-05
N-Nitroso-di-n-propylamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 143	mg/kg	0.019	11.3	0.01	0.438	0.148	6.21	0.967	0.013	1.8	6.21	2.97	-1.8	1.29	-1.72	2.51	B	1.14	2.43	2.94	0.129	--	--	--	NSRC	NSRC
Phenol	3 / 143	mg/kg	0.006	11.3	0.003	0.395	0.149	5.65	0.731	0.351	1.59	2.61	1.15	-1.83	1.34	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	11 / 11	pCi/g	--	--	0.688	1.75	1.83	2.49	0.525	0.688	1.75	2.49	0.525	0.509	0.364	0.509	0.364	N	1.75	1.97	2.04	3.23	--	--	--	--	--
Alpha activity	78 / 174	pCi/g	1.48	9.99	1.48	16.8	8.56	575	47.0	3.09	31.1	575	67.7	2.12	1.0	2.86	0.938	B	102	220	267	61	--	--	--	--	--
Americium-241	0 / 40	pCi/g	0.142	0.374	0.142	0.221	0.226	0.374	0.048	--	--	--	--	-1.53	0.215	--	--	N	0.221	0.231	0.234	0.323	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	99 / 174	pCi/g	1.22	5.82	1.22	16.5	5.3	370	39.6	1.56	26.2	370	50.5	2.06	1.03	2.68	0.971	B	65.4	141	171	86.8	--	--	--	--	--
Bismuth-214	21 / 21	pCi/g	--	--	0.484	1.18	1.13	1.96	0.393	0.484	1.18	1.96	0.393	0.111	0.363	0.111	0.363	N	1.18	1.3	1.33	2.12	--	--	--	--	--
Carbon-14	4 / 162	pCi/g	0.082	2.52	0.082	1.65	1.88	17.2	1.49	0.549	6.28	17.2	7.45	0.242	0.761	1.21	1.42	B	4.13	8.07	9.43	2.52	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 162	pCi/g	0.015	0.648	0.015	0.123	0.113	0.648	0.075	0.093	0.167	0.218	0.055	-2.24	0.558	-1.84	0.371	B	0.186	0.337	0.386	0.352	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 162	pCi/g	0.011	0.606	0.011	0.132	0.123	0.606	0.074	--	--	--	--	-2.17	0.564	--	--	B	0.185	0.33	0.375	0.321	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 162	pCi/g	0.078	1.37	0.078	0.683	0.641	1.37	0.29	--	--	--	--	-0.49	0.507	--	--	B	0.669	0.999	1.08	1.27	13	--	1500	NSRC	NSRC
Lead-212	32 / 32	pCi/g	--	--	0.332	1.15	1.26	2.25	0.591	0.332	1.15	2.25	0.591	-0.02	0.623	-0.02	0.623	B	1.27	1.76	1.87	--	--	--	--	--	--

Table G.2. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	21 / 21	pCi/g	--	--	0.43	1.34	1.15	2.29	0.56	0.43	1.34	2.29	0.56	0.194	0.489	0.194	0.489	N	1.34	1.5	1.55	2.67	--	--	--	--	--
Neptunium-237	0 / 40	pCi/g	0.131	0.586	0.131	0.304	0.3	0.586	0.117	--	--	--	--	-1.26	0.382	--	--	L	0.305	0.332	0.341	0.638	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 162	pCi/g	0.533	8.99	0.533	0.988	0.894	8.99	0.716	0.834	0.834	0.834	--	-0.096	0.34	-0.182	--	B	2.18	4.0	4.69	1.73	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 40	pCi/g	0.159	0.503	0.159	0.264	0.228	0.503	0.104	--	--	--	--	-1.4	0.348	--	--	B	0.262	0.347	0.373	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 40	pCi/g	0.149	0.568	0.149	0.279	0.224	0.568	0.128	--	--	--	--	-1.37	0.407	--	--	B	0.269	0.37	0.402	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 40	pCi/g	7.95	23.5	7.95	13.0	13.5	23.5	2.91	--	--	--	--	2.54	0.224	--	--	B	14.2	18.2	19.3	--	--	--	790,000	NSRC	NSRC
Potassium-40	43 / 43	pCi/g	--	--	2.75	15.9	11.4	47.3	12.4	2.75	15.9	47.3	12.4	2.48	0.774	2.48	0.774	B	15.9	26.8	30.2	--	--	--	4.2E+06	--	--
Radium-226	49 / 162	pCi/g	0.197	1.05	0.197	0.786	0.675	3.15	0.482	0.372	1.19	3.15	0.682	-0.369	0.482	0.034	0.52	B	1.01	1.72	1.95	2.62	--	--	300,000	--	--
Strontium-89	1 / 162	pCi/g	0.448	2	0.448	1.62	1.76	2.92	0.376	2.92	2.92	2.92	--	0.444	0.296	1.07	--	B	1.73	2.36	2.49	1.99	--	--	--	NSRC	NSRC
Strontium-90	16 / 162	pCi/g	0.38	2	0.38	1.73	1.64	14.4	1.26	1.03	3.9	14.4	3.15	0.431	0.442	1.16	0.606	B	3.56	6.74	7.86	4.29	--	--	400,000	--	--
Technetium-99	14 / 174	pCi/g	2.22	9.69	0.113	9.98	5.92	678	51.0	0.113	58.2	678	178	1.77	0.572	2.26	1.83	B	117	256	311	16.4	172	--	4.2E+07	0.68	--
Thallium-208	15 / 15	pCi/g	--	--	0.212	0.511	0.53	0.692	0.117	0.212	0.511	0.692	0.117	-0.703	0.28	-0.703	0.28	N	0.511	0.551	0.564	0.81	--	--	--	--	--
Thorium-228	25 / 162	pCi/g	0.203	1.38	0.203	0.684	0.592	2.4	0.375	0.256	1.18	2.4	0.579	-0.504	0.487	0.015	0.619	L	0.68	0.762	0.799	1.5	--	--	25,000	--	--
Thorium-230	47 / 162	pCi/g	0.217	1.13	0.217	0.661	0.543	2.08	0.354	0.387	0.92	2.08	0.498	-0.523	0.447	-0.216	0.513	B	0.745	1.2	1.34	1.77	--	--	15,000	--	--
Thorium-232	37 / 162	pCi/g	0.162	0.98	0.162	0.561	0.448	2.36	0.374	0.231	0.928	2.36	0.593	-0.73	0.519	-0.296	0.697	B	0.719	1.23	1.41	1.83	--	--	2500	--	--
Total Uranium	94 / 162	pCi/g	0.421	2.03	0.421	3.82	1.22	82.4	8.93	0.471	5.91	82.4	11.3	0.502	1.03	0.967	1.11	B	14.6	31.5	38.2	32.8	--	--	--	--	--
Tritium	0 / 162	pCi/g	1.42	14.7	1.42	10.8	11.7	14.7	3.06	--	--	--	--	2.33	0.38	--	--	B	10.5	13.3	13.8	14.7	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	94 / 174	pCi/g	0.228	1.16	0.221	4.22	0.641	223	18.7	0.221	7.38	223	25.1	-0.015	1.24	0.604	1.39	B	37.6	82.9	101	31.7	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	17 / 174	pCi/g	0.266	1.38	0.266	0.727	0.53	15.2	1.24	0.376	2.39	15.2	3.59	-0.568	0.523	0.29	0.997	B	2.93	6.04	7.25	2.35	1500	9500	100,000	0.002	3.1E-04
Uranium-238	83 / 174	pCi/g	0.204	1.06	0.204	2.92	0.543	204	16.2	0.323	5.61	204	23.2	-0.276	1.07	0.33	1.24	B	34.4	75.8	92.4	18.9	1200	1500	100,000	0.029	0.023
																									SOF =	0.733	0.505

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.3. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media (random and biased)																											
Metals																											
Antimony	9 / 12	mg/kg	0.156	0.325	0.078	7.75	0.514	82.5	23.6	0.375	10.3	82.5	27.1	-0.291	1.86	0.319	1.74	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	8 / 12	mg/kg	0.16	1.6	0.08	3.61	2.54	14.7	4.3	0.582	5.27	14.7	4.42	0.313	1.75	1.31	0.989	L	4.94	13.1	16.8	165	--	--	--	--	--
Barium	12 / 12	mg/kg	--	--	0.16	164	23.6	947	319	0.16	164	947	319	2.44	3.15	2.44	3.15	L	421	1507	1999	62,657	--	150,000	--	--	0.003
Beryllium	6 / 12	mg/kg	0.009	0.018	0.005	0.086	0.035	0.32	0.102	0.06	0.165	0.32	0.091	-3.43	1.62	-1.93	0.574	B	0.077	0.149	0.174	--	--	--	--	--	--
Boron	8 / 12	mg/kg	0.379	0.659	0.19	5.21	3.59	17.5	5.83	2.45	7.67	17.5	5.7	0.761	1.66	1.81	0.719	B	5.34	9.58	10.9	--	--	24,000	--	--	2.2E-04
Cadmium	9 / 12	mg/kg	0.012	0.019	0.006	1.56	0.371	8.09	2.6	0.054	2.07	8.09	2.85	-1.51	2.55	-0.39	1.82	L	2.75	9.0	11.8	238	--	--	--	--	--
Chromium	12 / 12	mg/kg	--	--	4.72	20.3	14.2	77.7	19.6	4.72	20.3	77.7	19.6	2.72	0.761	2.72	0.761	L	20.2	30.6	35.9	121	--	140,000	--	--	1.4E-04
Copper	12 / 12	mg/kg	--	--	0.67	24.1	9.09	74.2	27.6	0.67	24.1	74.2	27.6	2.4	1.44	2.4	1.44	L	31.0	97.9	159	565	--	--	--	--	--
Hafnium	1 / 12	mg/kg	0.284	0.595	0.142	0.356	0.274	1.54	0.376	1.54	1.54	1.54	--	-1.26	0.575	0.432	--	B	0.463	0.781	0.893	--	--	--	--	--	--
Lead	12 / 12	mg/kg	--	--	0.543	76.7	17.0	294	117	0.543	76.7	294	117	2.72	2.15	2.72	2.15	L	98.6	296	385	5529	--	1500	--	--	0.066
Manganese	12 / 12	mg/kg	--	--	1.05	213	98.1	774	280	1.05	213	774	280	4.16	2.01	4.16	2.01	L	331	955	1237	15,526	--	360,000	--	--	9.2E-04
Mercury	8 / 12	mg/kg	0.002	0.004	0.001	0.068	0.014	0.59	0.166	0.006	0.101	0.59	0.198	-4.36	1.9	-3.34	1.43	L	0.077	0.506	1.15	2.27	--	--	--	--	--
Molybdenum	12 / 12	mg/kg	--	--	0.086	11.2	0.986	91.1	25.7	0.086	11.2	91.1	25.7	0.352	2.31	0.352	2.31	L	11.8	36.7	47.9	787	--	3900	--	--	0.003
Nickel	12 / 12	mg/kg	--	--	0.587	17.7	5.58	101	29.0	0.587	17.7	101	29.0	1.98	1.37	1.98	1.37	L	18.5	52.9	82.3	306	--	--	--	--	--
Selenium	4 / 12	mg/kg	0.17	1.7	0.085	0.421	0.164	1.65	0.464	0.409	0.81	1.65	0.578	-1.31	0.946	-0.377	0.639	L	0.421	0.746	0.94	3.58	--	1600	--	--	2.6E-04
Silver	5 / 12	mg/kg	0.047	0.984	0.024	3.58	0.471	25.4	7.26	0.09	8.2	25.4	9.95	-0.631	2.26	1.12	2.12	L	4.09	12.6	16.4	259	--	--	--	--	--
Strontium	8 / 12	mg/kg	0.357	0.55	0.179	104	23.8	478	153	1.1	156	478	166	2.23	3.16	4.07	2.0	B	95.6	199	238	--	--	300,000	--	--	3.2E-04
Thallium	2 / 12	mg/kg	0.066	0.139	0.033	0.09	0.064	0.263	0.078	0.249	0.256	0.263	0.01	-2.63	0.628	-1.36	0.039	B	0.092	0.146	0.164	--	--	--	--	--	--
Tin	11 / 12	mg/kg	0.247	0.247	0.124	4.4	4.98	10.2	3.17	0.361	4.78	10.2	3.01	0.951	1.39	1.23	1.05	N	4.4	5.64	6.04	--	--	2200	--	--	0.002
Vanadium	7 / 12	mg/kg	0.142	0.275	0.071	5.62	2.28	22.5	7.18	0.914	9.55	22.5	7.16	0.199	2.25	1.91	1.05	B	5.28	10.4	12.2	--	--	25,000	--	--	2.1E-04
Zinc	12 / 12	mg/kg	--	--	5.9	4656	45.1	42,700	12,299	5.9	4656	42,700	12,299	4.87	2.96	4.87	2.96	B	7148	15,801	19,288	--	--	--	--	--	--
Zirconium	9 / 12	mg/kg	0.238	0.367	0.119	7.24	1.09	54.7	15.6	0.379	9.6	54.7	17.6	0.312	1.93	1.04	1.65	L	8.85	62.7	146	271	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 9	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	9 / 9	mg/L	--	--	0.021	0.216	0.133	0.579	0.191	0.021	0.216	0.579	0.191	-2.04	1.22	-2.04	1.22	N	0.216	0.305	0.334	0.794	--	--	--	--	--
Cadmium	2 / 9	mg/L	0.003	0.003	0.002	0.006	0.003	0.03	0.008	0.004	0.017	0.03	0.018	-6.07	1.0	-4.56	1.47	X*	0.006	0.018	0.023	--	--	--	--	--	--
Chromium	6 / 9	mg/L	0.03	0.03	0.015	0.101	0.078	0.235	0.073	0.065	0.136	0.235	0.071	-2.8	1.12	-2.11	0.518	N*	0.101	0.138	0.15	0.302	--	--	--	--	--
Lead	4 / 9	mg/L	0.005	0.005	0.003	0.071	0.005	0.41	0.125	0.024	0.154	0.41	0.174	-4.38	2.04	-2.36	1.16	G*	0.071	0.236	0.365	1.08	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 9	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 9	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 10	mg/kg	0.002	0.066	8.3E-04	0.007	0.004	0.033	0.01	0.009	0.009	0.009	--	-5.57	1.06	-4.73	--	L	0.007	0.015	0.021	0.082	--	119	--	--	5.6E-05
Silvex	0 / 10	mg/kg	0.002	0.066	8.3E-04	0.006	0.003	0.033	0.01	--	--	--	--	-5.81	1.11	--	--	B	0.007	0.014	0.017	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.005	4.9E-04	0.014	0.006	0.014	0.014	0.014	--	-6.59	1.76	-4.27	--	B	0.003	0.006	0.007	--	77,000	--	--	3.5E-08	--
4,4'-DDE	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.01	0.003	0.049	0.015	0.002	0.022	0.049	0.024	-6.01	1.98	-4.58	1.76	L	0.012	0.034	0.044	0.785	130,000	--	--	8.9E-08	--
4,4'-DDT	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.038	0.003	0.326	0.101	0.002	0.116	0.326	0.182	-5.73	2.33	-3.82	2.66	L	0.026	0.082	0.107	2.83	--	--	--	--	--
Aldrin	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	7.3E-04	0.012	0.005	0.001	0.001	0.001	--	-6.73	1.49	-6.88	--	B	0.003	0.005	0.006	--	--	30,000	--	--	8.5E-08
Endrin ketone	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	2400	69,000	--	NSRC	NSRC

Table G.3. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	0.002	0.002	0.002	--	-7.4	1.63	-6.08	--	B	0.001	0.002	0.003	--	180	940	--	6.7E-06	1.3E-06
Methoxychlor	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 10	mg/kg	0.007	0.408	0.003	0.054	0.008	0.204	0.082	--	--	--	--	-4.05	1.56	--	--	B	0.04	0.082	0.099	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 92	mg/kg	0.014	29.4	0.007	0.441	0.145	14.7	1.58	0.406	0.406	0.406	--	-2.14	1.43	-0.901	--	B	2.55	5.57	6.76	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 92	mg/kg	0.001	2.94	7.0E-04	0.334	0.014	14.1	1.83	0.066	4.48	14.1	6.18	-4.23	1.84	-0.253	2.47	B	2.36	5.22	6.37	14.1	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	850	--	NSRC	NSRC
Acenaphthene	6 / 92	mg/kg	0.001	2.94	7.0E-04	0.434	0.014	23.7	2.71	0.034	6.02	23.7	9.64	-4.25	1.84	-0.458	2.81	B	3.96	8.76	10.7	23.7	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 92	mg/kg	0.001	2.94	7.0E-04	0.05	0.014	1.47	0.165	0.309	0.382	0.455	0.103	-4.42	1.49	-0.981	0.274	B	0.254	0.556	0.676	0.455	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.14	14.7	1.58	0.305	0.305	0.305	--	-2.16	1.43	-1.19	--	B	2.54	5.56	6.76	0.305	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 92	mg/kg	0.014	29.4	0.007	0.442	0.14	14.7	1.58	0.623	0.623	0.623	--	-2.15	1.43	-0.473	--	B	2.54	5.56	6.76	0.623	--	1200	--	NSRC	NSRC
Benzidine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 92	mg/kg	0.023	49	0.012	0.729	0.234	24.5	2.63	0.092	0.092	0.092	--	-1.63	1.4	-2.38	--	B	4.24	9.27	11.3	0.092	--	9810	--	NSRC	NSRC
Carbazole	11 / 92	mg/kg	0.002	2.94	7.6E-04	0.197	0.015	8.86	1.05	0.004	1.31	8.86	2.88	-4.2	1.73	-2.17	2.33	B	1.49	3.28	4.01	8.86	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	14 / 92	mg/kg	0.015	29.4	0.008	0.589	0.149	14.7	1.74	0.109	1.08	7.67	1.94	-1.82	1.49	-0.612	1.06	B	2.55	5.57	6.77	7.67	--	190	--	--	0.013
Diethyl phthalate	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.145	14.7	1.58	0.215	0.215	0.215	--	-2.14	1.42	-1.54	--	B	2.55	5.57	6.76	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	0.031	0.031	0.031	--	-2.15	1.4	-3.49	--	B	2.54	5.56	6.76	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	2800	500	--	NSRC	NSRC
Isophorone	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Phenol	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.14	14.7	1.58	0.349	0.349	0.349	--	-2.15	1.43	-1.05	--	B	2.54	5.56	6.76	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	4 / 4	pCi/g	--	--	1.35	2.15	2.08	3.08	0.795	1.35	2.15	3.08	0.795	0.71	0.379	0.71	0.379	B	2.12	2.57	2.67	--	--	--	--	--	--
Alpha activity	36 / 111	pCi/g	1.87	9.97	1.49	10.3	7.25	201	19.8	1.49	21.0	201	32.4	1.88	0.826	2.63	0.821	B	38.6	80.8	97.0	48.3	--	--	--	--	--
Americium-241	0 / 27	pCi/g	0.152	0.611	0.152	0.32	0.261	0.611	0.154	--	--	--	--	-1.25	0.461	--	--	B	0.301	0.416	0.45	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	54 / 111	pCi/g	0.528	5.99	0.528	18.3	4.89	757	75.6	1.78	33.6	757	107	1.93	1.0	2.62	0.982	B	130	284	346	274	--	--	--	--	--
Bismuth-214	9 / 9	pCi/g	--	--	0.353	1.15	1.11	2.16	0.671	0.353	1.15	2.16	0.671	-0.036	0.664	-0.036	0.664	N	1.15	1.46	1.57	3.19	--	--	--	--	--
Carbon-14	5 / 106	pCi/g	0.198	2.4	0.198	5.07	0.742	416	40.3	0.661	83.9	416	186	-0.015	0.901	1.09	2.78	B	69.9	154	188	2.4	165	--	1.0E+07	NSRC	NSRC
Cesium-137	15 / 106	pCi/g	0.025	0.544	0.025	0.184	0.119	1.01	0.186	0.098	0.5	1.01	0.27	-2.04	0.798	-0.852	0.624	B	0.251	0.476	0.555	0.886	--	--	1.5E+06	--	--
Cobalt-60	0 / 106	pCi/g	0.014	0.514	0.014	0.138	0.116	0.514	0.095	--	--	--	--	-2.19	0.668	--	--	L	0.139	0.153	0.158	0.401	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 106	pCi/g	0.083	1.26	0.083	0.584	0.545	1.26	0.274	--	--	--	--	-0.666	0.542	--	--	N	0.584	0.618	0.628	1.11	13	--	1500	NSRC	NSRC
Lead-212	14 / 14	pCi/g	--	--	0.294	1.01	0.826	2.32	0.725	0.294	1.01	2.32	0.725	-0.267	0.802	-0.267	0.802	B	0.986	1.5	1.64	--	--	--	--	--	--

Table G.3. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	9 / 9	pCi/g	--	--	0.394	1.23	1.06	2.17	0.696	0.394	1.23	2.17	0.696	0.037	0.646	0.037	0.646	N	1.23	1.55	1.66	3.34	--	--	--	--	--
Neptunium-237	0 / 27	pCi/g	0.189	0.935	0.189	0.466	0.433	0.935	0.191	--	--	--	--	-0.849	0.425	--	--	N	0.466	0.514	0.528	0.897	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 106	pCi/g	0.41	22.2	0.41	1.19	0.832	22.2	2.27	--	--	--	--	-0.107	0.507	--	--	B	4.32	8.87	10.6	10.3	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 27	pCi/g	0.147	0.966	0.147	0.322	0.221	0.966	0.24	--	--	--	--	-1.33	0.579	--	--	B	0.333	0.519	0.584	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 27	pCi/g	0.207	1.15	0.207	0.399	0.286	1.15	0.274	--	--	--	--	-1.08	0.52	--	--	B	0.417	0.629	0.705	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 27	pCi/g	7.61	23.4	7.61	11.1	9.36	23.4	3.81	--	--	--	--	2.36	0.296	--	--	B	11.4	15.1	16.3	--	--	--	790,000	NSRC	NSRC
Potassium-40	26 / 26	pCi/g	--	--	1.83	8.89	6.38	32.5	7.02	1.83	8.89	32.5	7.02	1.92	0.741	1.92	0.741	L	8.99	11.5	12.4	36.9	--	--	4.2E+06	--	--
Radium-226	49 / 106	pCi/g	0.039	0.995	0.039	0.585	0.509	2.92	0.415	0.137	0.723	2.92	0.541	-0.718	0.637	-0.507	0.578	B	0.832	1.52	1.75	2.45	--	--	300,000	--	--
Strontium-89	4 / 106	pCi/g	0.973	1.99	0.973	1.67	1.64	4.2	0.379	1.57	2.81	4.2	1.11	0.49	0.196	0.97	0.414	B	1.96	2.75	2.99	3.04	--	--	--	NSRC	NSRC
Strontium-90	1 / 106	pCi/g	0.823	2	0.823	1.61	1.64	2	0.289	1.79	1.79	1.79	--	0.461	0.194	0.582	--	B	1.56	1.83	1.88	1.99	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 111	pCi/g	2.58	8.91	2.58	5.29	5.14	8.91	1.38	--	--	--	--	1.63	0.265	--	--	N	5.29	5.46	5.51	7.94	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.192	0.482	0.519	0.737	0.208	0.192	0.482	0.737	0.208	-0.824	0.521	-0.824	0.521	B	0.501	0.634	0.661	--	--	--	--	--	--
Thorium-228	14 / 106	pCi/g	0.082	1.33	0.082	0.608	0.541	2.82	0.397	0.223	1.0	2.82	0.797	-0.67	0.596	-0.354	0.923	L	0.611	0.665	0.682	1.61	--	--	25,000	--	--
Thorium-230	32 / 106	pCi/g	0.063	1.03	0.063	0.591	0.498	2.91	0.421	0.267	0.858	2.91	0.631	-0.707	0.597	-0.375	0.656	B	0.827	1.51	1.73	1.94	--	--	15,000	--	--
Thorium-232	18 / 106	pCi/g	0.06	0.969	0.06	0.479	0.413	2.28	0.343	0.162	0.773	2.28	0.673	-0.918	0.595	-0.657	0.939	L	0.476	0.565	0.605	1.25	--	--	2500	--	--
Total Uranium	43 / 106	pCi/g	0.12	2.13	0.12	3.04	1.17	31.8	5.18	0.7	5.89	31.8	7.26	0.436	0.989	1.08	1.18	B	6.1	12.8	15.4	22	--	--	--	--	--
Tritium	0 / 106	pCi/g	1.66	15.3	1.66	9.92	9.77	15.3	3.11	--	--	--	--	2.23	0.405	--	--	B	9.34	12.7	13.4	14.5	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	36 / 111	pCi/g	0.067	1.19	0.067	1.63	0.623	17.2	2.87	0.283	3.83	17.2	4.29	-0.214	0.995	0.656	1.23	B	3.29	6.93	8.33	11.7	1700	2.8E+07	100,000	0.002	1.2E-07
Uranium-235/236	4 / 111	pCi/g	0.078	1.38	0.078	0.67	0.609	1.4	0.278	0.585	0.823	1.4	0.387	-0.489	0.449	-0.264	0.405	B	0.652	0.991	1.08	1.38	1500	9500	100,000	NSRC	NSRC
Uranium-238	33 / 111	pCi/g	0.061	1.09	0.061	1.23	0.534	13.2	2.07	0.361	2.91	13.2	3.24	-0.373	0.903	0.475	1.11	B	2.57	5.37	6.44	9.56	1200	1500	100,000	0.002	0.002
																									SOF =	0.004	0.18

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.4. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9401-1 all media (random and biased)																											
Metals																											
Antimony	5 / 8	mg/kg	0.286	0.332	0.143	4.61	0.647	17.3	6.47	0.313	7.28	17.3	7.03	0.059	2.04	1.2	1.71	B	3.34	6.97	8.36	--	--	160	--	--	0.021
Arsenic	11 / 13	mg/kg	0.332	1.49	0.166	8.58	3.1	38.4	12.4	0.753	10.1	38.4	13.0	1.1	1.61	1.49	1.38	L	11.0	40.7	70.4	221	--	--	--	--	--
Barium	11 / 13	mg/kg	0.042	0.174	0.021	25.0	13	136	37.8	0.469	29.6	136	39.6	1.44	2.71	2.27	1.93	L	72.5	243	320	5868	--	150,000	--	--	4.8E-04
Beryllium	4 / 8	mg/kg	0.018	0.1	0.009	0.112	0.047	0.462	0.156	0.025	0.197	0.462	0.193	-2.99	1.39	-2.11	1.26	L	0.132	0.627	1.35	4.2	--	--	--	--	--
Boron	5 / 8	mg/kg	0.717	4	0.359	19.3	2.31	99.2	34.3	1.95	30.1	99.2	40.9	1.56	1.84	2.45	1.68	L	17.3	50.3	65.2	1650	--	24,000	--	--	7.2E-04
Cadmium	12 / 13	mg/kg	0.035	0.035	0.011	1.48	0.118	6.12	2.12	0.011	1.6	6.12	2.17	-1.44	2.38	-1.23	2.35	B	1.1	2.37	2.87	--	--	--	--	--	--
Chromium	13 / 13	mg/kg	--	--	1.92	34.5	13	134	42.5	1.92	34.5	134	42.5	2.71	1.44	2.71	1.44	L	42.7	126	197	710	--	140,000	--	--	3.0E-04
Copper	8 / 8	mg/kg	--	--	0.768	163	17.6	657	276	0.768	163	657	276	3.2	2.31	3.2	2.31	L	170	555	729	38,843	--	--	--	--	--
Hafnium	1 / 8	mg/kg	0.538	3	0.269	2.96	0.301	19.4	6.66	19.4	19.4	19.4	--	-0.313	1.5	2.97	--	B	3.48	7.36	8.92	--	--	--	--	--	--
Lead	13 / 13	mg/kg	--	--	0.67	46.8	4.66	319	90.9	0.67	46.8	319	90.9	2.27	1.86	2.27	1.86	L	54.0	295	604	1370	--	1500	--	--	0.036
Manganese	8 / 8	mg/kg	--	--	20.2	674	233	3250	1082	20.2	674	3250	1082	5.47	1.66	5.47	1.66	L	698	1923	2477	47,351	--	360,000	--	--	0.002
Mercury	8 / 13	mg/kg	0.002	0.016	8.4E-04	0.077	0.054	0.412	0.119	0.005	0.123	0.412	0.135	-3.91	2.01	-2.65	1.29	L	0.106	0.303	0.392	4.27	--	--	--	--	--
Molybdenum	7 / 8	mg/kg	0.079	0.079	0.039	14.9	1.04	79.7	28.7	0.261	17.0	79.7	30.3	0.416	2.53	0.937	2.22	L	14.4	48.8	64.4	4772	--	3900	--	--	0.004
Nickel	8 / 8	mg/kg	--	--	1.49	64.7	9.72	302	112	1.49	64.7	302	112	2.49	2.03	2.49	2.03	L	56.6	173	226	7800	--	--	--	--	--
Selenium	5 / 13	mg/kg	0.15	1.8	0.075	0.581	0.417	2.71	0.693	0.417	0.963	2.71	0.982	-1.0	0.97	-0.33	0.769	L	0.587	1.03	1.29	4.9	--	1600	--	--	3.7E-04
Silver	9 / 13	mg/kg	0.101	1	0.051	3.84	0.846	21.1	5.88	0.372	5.38	21.1	6.57	0.299	1.64	1.02	1.3	L	5.2	20.3	35.8	108	--	--	--	--	--
Strontium	5 / 8	mg/kg	0.53	0.6	0.265	347	4.05	2470	860	1.8	556	2470	1073	2.05	3.51	4.05	2.87	L	366	1377	1835	561,216	--	300,000	--	--	0.001
Thallium	0 / 8	mg/kg	0.124	0.7	0.062	0.133	0.07	0.35	0.122	--	--	--	--	-2.3	0.738	--	--	B	0.115	0.176	0.199	--	--	--	--	NSRC	NSRC
Tin	8 / 8	mg/kg	--	--	0.823	10.9	3.94	37.9	14.5	0.823	10.9	37.9	14.5	1.58	1.39	1.58	1.39	L	10.6	26.3	33.5	407	--	2200	--	--	0.005
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
Vanadium	5 / 8	mg/kg	0.265	1.5	0.133	5.48	1.65	23.2	8.41	0.881	8.56	23.2	9.6	0.402	1.91	1.51	1.34	L	5.96	17.6	22.9	649	--	25,000	--	--	2.4E-04
Zinc	8 / 8	mg/kg	--	--	9.07	23,297	85.0	108,000	43,762	9.07	23,297	108,000	43,762	5.69	3.65	5.69	3.65	B	18,058	39,938	48,758	--	--	--	--	--	--
Zirconium	7 / 8	mg/kg	2	2	0.404	5.11	1.4	15.8	6.21	0.404	5.7	15.8	6.47	0.809	1.43	0.924	1.5	L	5.1	12.9	16.4	213	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 12	mg/L	0.017	0.017	0.009	0.01	0.009	0.026	0.005	0.026	0.026	0.026	--	-4.67	0.323	-3.65	--	X	0.01	0.014	0.016	--	--	--	--	--	--
Barium	12 / 12	mg/L	--	--	0.012	0.131	0.115	0.324	0.107	0.012	0.131	0.324	0.107	-2.48	1.13	-2.48	1.13	N	0.131	0.173	0.187	0.425	--	--	--	--	--
Cadmium	8 / 12	mg/L	0.003	0.003	0.002	0.015	0.006	0.055	0.018	0.003	0.021	0.055	0.02	-5.09	1.37	-4.38	1.11	G*	0.015	0.027	0.031	0.119	--	--	--	--	--
Chromium	6 / 12	mg/L	0.03	0.03	0.015	0.074	0.035	0.233	0.07	0.035	0.119	0.233	0.085	-3.28	1.09	-2.36	0.749	G*	0.074	0.119	0.146	0.447	--	--	--	--	--
Lead	7 / 12	mg/L	0.005	0.005	0.003	0.088	0.022	0.362	0.12	0.019	0.148	0.362	0.137	-3.89	2.04	-2.39	1.17	G*	0.088	0.178	0.224	1.03	--	--	--	--	--
Mercury	0 / 10	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 12	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 12	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 9	mg/kg	0.003	0.025	0.002	0.006	0.004	0.012	0.003	--	--	--	--	-5.26	0.62	--	--	B	0.005	0.008	0.009	--	--	119	--	NSRC	NSRC
Silvex	0 / 9	mg/kg	0.003	0.025	0.002	0.006	0.004	0.012	0.003	--	--	--	--	-5.26	0.62	--	--	B	0.005	0.008	0.009	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	1 / 9	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.017	0.042	0.042	0.042	--	-4.76	1.06	-3.17	--	L	0.015	0.036	0.053	0.213	--	--	--	--	--
Aldrin	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 9	mg/kg	0.02	0.465	0.01	0.056	0.027	0.233	0.068	--	--	--	--	-3.31	0.885	--	--	B	0.058	0.108	0.126	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	330,000	--	NSRC	NSRC

Table G.4. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 9	mg/kg	0.02	0.465	0.01	0.056	0.027	0.233	0.068	--	--	--	--	-3.31	0.885	--	--	B	0.058	0.108	0.126	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 9	mg/kg	0.067	1.55	0.033	0.185	0.09	0.775	0.228	--	--	--	--	-2.1	0.885	--	--	B	0.194	0.36	0.42	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	16 / 60	mg/kg	0.003	0.641	0.002	0.39	0.036	5.37	0.931	0.011	1.29	5.37	1.49	-2.8	1.91	-0.837	1.95	B	0.919	2.02	2.46	5.37	--	4000	--	--	2.3E-04
2-Methylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 60	mg/kg	0.099	6.41	0.034	0.856	0.156	5.9	1.05	0.034	1.99	5.9	3.39	-0.938	1.34	-1.65	2.97	B	1.09	2.32	2.8	5.9	--	850	--	--	0.001
Acenaphthene	14 / 60	mg/kg	0.003	0.641	0.002	0.972	0.018	9.23	2.23	0.262	3.98	9.23	3.15	-2.59	2.32	0.955	1.11	B	1.55	3.42	4.18	9.23	--	390,000	--	--	4.0E-06
Acenaphthylene	2 / 60	mg/kg	0.003	0.641	0.002	0.105	0.016	1.54	0.208	0.359	0.95	1.54	0.835	-3.23	1.44	-0.296	1.03	B	0.267	0.583	0.709	1.54	--	93,200	--	NSRC	NSRC
Acetophenone	2 / 60	mg/kg	0.033	6.41	0.017	0.912	0.156	6.62	1.19	4.18	5.4	6.62	1.73	-0.943	1.41	1.66	0.325	B	1.21	2.59	3.13	6.62	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1200	--	NSRC	NSRC
Benzidine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 60	mg/kg	0.056	10.7	0.028	1.33	0.306	5.35	1.36	1.55	1.55	1.55	--	-0.442	1.35	0.438	--	B	1.1	2.26	2.69	1.55	--	9810	--	NSRC	NSRC
Carbazole	18 / 60	mg/kg	0.01	0.641	0.005	1.83	0.053	16.7	4.16	0.01	5.94	16.7	5.86	-2.21	2.51	0.847	2.1	B	2.82	6.21	7.58	16.7	110,000	--	--	2.6E-05	--
Di-n-butyl phthalate	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	190	--	NSRC	NSRC

Table G.4. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	1 / 60	mg/kg	0.033	6.41	0.017	0.783	0.156	3.21	0.822	0.104	0.104	0.104	--	-0.973	1.34	-2.26	--	B	0.641	1.33	1.59	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	2800	500	--	NSRC	NSRC
Isophorone	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
Phenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	3200	--	NSRC	NSRC
Pyridine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	5 / 5	pCi/g	--	--	1.05	1.47	1.58	1.82	0.328	1.05	1.47	1.82	0.328	0.365	0.235	0.365	0.235	B	1.53	1.71	1.74	--	--	--	--	--	--
Alpha activity	33 / 60	pCi/g	2.65	9.87	2.65	17.8	10.4	234	29.7	8.51	26.4	234	38.1	2.52	0.723	2.99	0.595	B	46.4	95.6	114	234	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.188	0.482	0.188	0.26	0.227	0.482	0.078	--	--	--	--	-1.38	0.258	--	--	B	0.263	0.332	0.355	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	40 / 60	pCi/g	1.82	6.16	1.82	28.7	16.6	338	47.2	4.13	41.0	338	53.9	2.63	1.21	3.28	0.92	B	67.7	140	167	338	--	--	--	--	--
Bismuth-214	16 / 16	pCi/g	--	--	0.731	1.07	0.996	1.66	0.253	0.731	1.07	1.66	0.253	0.041	0.221	0.041	0.221	L	1.07	1.15	1.18	1.82	--	--	--	--	--
Carbon-14	1 / 60	pCi/g	0.327	2.32	0.327	0.97	0.648	2.32	0.666	0.782	0.782	0.782	--	-0.216	0.579	-0.246	--	B	0.873	1.35	1.51	1.37	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 60	pCi/g	0.029	1.09	0.029	0.195	0.148	1.09	0.17	--	--	--	--	-1.87	0.654	--	--	B	0.285	0.531	0.615	0.294	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 60	pCi/g	0.025	1.07	0.025	0.213	0.164	1.07	0.186	--	--	--	--	-1.79	0.675	--	--	L	0.21	0.27	0.297	0.657	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 60	pCi/g	0.191	1.32	0.191	0.62	0.576	1.32	0.26	--	--	--	--	-0.57	0.449	--	--	L	0.626	0.679	0.696	1.4	13	--	1500	NSRC	NSRC
Lead-212	28 / 28	pCi/g	--	--	0.636	1.11	1.06	1.72	0.332	0.636	1.11	1.72	0.332	0.064	0.293	0.064	0.293	L	1.11	1.2	1.23	2.06	--	--	--	--	--
Lead-214	18 / 18	pCi/g	--	--	0.721	1.06	0.991	1.78	0.261	0.721	1.06	1.78	0.261	0.03	0.228	0.03	0.228	L	1.06	1.14	1.17	1.8	--	--	--	--	--
Neptunium-237	0 / 14	pCi/g	0.216	0.56	0.216	0.29	0.276	0.56	0.089	--	--	--	--	-1.27	0.255	--	--	B	0.313	0.397	0.423	--	320	--	10,000	NSRC	NSRC

Table G.4. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nickel-63	0 / 60	pCi/g	0.323	2.87	0.323	1.08	0.816	2.87	0.743	--	--	--	--	-0.127	0.622	--	--	L	1.07	1.21	1.25	3.1	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.125	0.424	0.125	0.26	0.236	0.424	0.107	--	--	--	--	-1.43	0.428	--	--	L	0.262	0.313	0.333	0.732	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.176	0.596	0.176	0.365	0.331	0.596	0.151	--	--	--	--	-1.09	0.428	--	--	L	0.368	0.439	0.467	1.03	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.71	14.2	8.71	11.5	11.7	14.2	1.63	--	--	--	--	2.43	0.145	--	--	N	11.5	12.1	12.3	15.8	--	--	790,000	NSRC	NSRC
Potassium-40	32 / 32	pCi/g	--	--	13.3	30.0	24.5	64.5	16.4	13.3	30.0	64.5	16.4	3.26	0.525	3.26	0.525	B	29.3	42.0	45.8	--	--	--	4.2E+06	--	--
Radium-226	35 / 60	pCi/g	0.189	1.39	0.189	0.76	0.715	1.71	0.404	0.26	0.973	1.71	0.357	-0.431	0.591	-0.109	0.44	B	0.793	1.18	1.29	1.71	--	--	300,000	--	--
Strontium-89	3 / 60	pCi/g	1.23	1.98	1.23	1.72	1.74	4.23	0.399	1.81	2.65	4.23	1.37	0.524	0.185	0.892	0.477	B	2.07	2.79	3.03	4.23	--	--	--	--	--
Strontium-90	0 / 60	pCi/g	1.14	2.24	1.14	1.7	1.74	2.24	0.257	--	--	--	--	0.521	0.159	--	--	B	1.72	2.0	2.06	1.39	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 69	pCi/g	0.738	9.58	0.738	5.39	5.24	9.58	1.86	--	--	--	--	1.59	0.525	--	--	B	5.21	7.45	7.95	5.34	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thallium-208	7 / 7	pCi/g	--	--	0.32	0.47	0.528	0.564	0.101	0.32	0.47	0.564	0.101	-0.778	0.237	-0.778	0.237	B	0.499	0.547	0.554	--	--	--	--	--	--
Thorium-228	27 / 69	pCi/g	0.27	3.76	0.27	0.818	0.748	3.76	0.47	0.542	1.01	1.76	0.259	-0.314	0.466	-0.023	0.262	L	0.813	0.956	1.02	1.85	--	--	25,000	--	--
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	37 / 69	pCi/g	0.205	3.09	0.205	0.841	0.72	3.2	0.552	0.331	1.08	3.2	0.496	-0.339	0.567	-0.011	0.425	L	0.837	0.925	0.954	2.21	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	33 / 69	pCi/g	0.196	2.68	0.196	0.757	0.632	2.68	0.452	0.286	1.03	1.8	0.334	-0.438	0.573	-0.027	0.371	L	0.76	0.841	0.867	2.02	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	35 / 60	pCi/g	0.739	1.59	0.739	5.16	1.48	215	27.6	1.04	8.13	215	36.0	0.443	0.782	0.767	0.877	B	36.9	80.5	98.0	215	--	--	--	--	--
Tritium	0 / 60	pCi/g	6.26	32.1	6.26	10.3	10.1	32.1	3.52	--	--	--	--	2.3	0.261	--	--	B	13.1	19.3	21.3	4.86	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	41 / 69	pCi/g	0.321	0.889	0.321	11.0	0.694	679	81.7	0.561	18.2	679	106	-0.181	1.0	0.118	1.2	B	114	251	307	679	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	1 / 69	pCi/g	0.312	211	0.312	3.69	0.597	211	25.3	3.38	3.38	3.38	--	-0.442	0.785	1.22	--	B	35.6	78.3	95.6	94.4	1500	9500	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	38 / 69	pCi/g	0.292	0.813	0.106	85.5	0.679	5660	681	0.106	155	5660	918	-0.192	1.39	0.204	1.78	B	944	2089	2552	5660	1200	1500	100,000	0.787	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.943	0.703

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

Table G.4. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media (random and biased)

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected							Analytic WAC			E(X) divided by Analytic WAC	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Carc.	HI	ASA WAC	Carc.	HI

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in*Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.5. Y-12 Biology Complex summary statistics for Y-12 Building 9767-7 all media (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9767-7 all media (all biased samples)																											
TCLP Metals																											
Arsenic	2 / 6	mg/L	0.05	0.05	0.025	0.055	0.05	0.07	0.008	0.059	0.064	0.07	0.008	-3.37	0.49	-2.75	0.13	G*	0.055	0.06	0.062	0.165	--	--	--	--	--
Barium	6 / 6	mg/L	--	--	0.131	0.206	0.219	0.243	0.039	0.131	0.206	0.243	0.039	-1.6	0.221	-1.6	0.221	G	0.206	0.25	0.268	0.418	--	--	--	--	--
Cadmium	3 / 6	mg/L	0.01	0.01	0.005	0.03	0.014	0.071	0.027	0.014	0.049	0.071	0.031	-4.26	1.27	-3.23	0.92	X*	0.03	0.07	0.088	--	--	--	--	--	--
Chromium	6 / 6	mg/L	--	--	0.02	0.083	0.046	0.235	0.084	0.02	0.083	0.235	0.084	-2.88	0.965	-2.88	0.965	L	0.089	0.271	0.503	2.0	--	--	--	--	--
Lead	5 / 6	mg/L	0.033	0.033	0.017	0.961	0.339	3.18	1.19	0.097	1.15	3.18	1.36	-1.22	1.94	-0.649	1.5	L*	1.18	2.38	3.08	398	--	--	--	--	--
Mercury	1 / 6	mg/L	6.7E-04	6.7E-04	3.4E-04	5.9E-04	3.4E-04	0.002	6.3E-04	0.002	0.002	0.002	--	-7.71	0.706	-6.27	--	X	5.9E-04	0.001	0.002	--	--	--	--	--	--
Selenium	3 / 6	mg/L	0.06	0.06	0.03	0.073	0.063	0.099	0.017	0.063	0.086	0.099	0.019	-2.99	0.585	-2.48	0.246	X*	0.073	0.098	0.11	--	--	--	--	--	--
Silver	0 / 6	mg/L	0.01	0.01	0.005	0.005	0.005	0.005	0	--	--	--	--	-5.3	0	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 6	pCi/g	4.31	6	4.01	17.3	5.17	45.7	19.7	4.01	29.7	45.7	22.5	2.27	1.16	2.96	1.36	B	11.7	20.5	23.9	--	--	--	--	--	--
Beta activity	3 / 6	pCi/g	1.59	3.39	1.59	10.5	3.3	29.7	12.5	1.87	18.2	29.7	14.5	1.67	1.27	2.38	1.53	L	9.86	24.7	31.4	596	--	--	--	--	--
Technetium-99	0 / 6	pCi/g	5.83	7.25	5.83	6.57	6.64	7.25	0.483	--	--	--	--	1.88	0.074	--	--	N	6.57	6.86	6.96	8.36	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	4 / 6	pCi/g	0.351	0.442	0.351	5.0	4.37	11.9	4.76	2.14	7.3	11.9	4.08	0.901	1.53	1.82	0.745	N	5.0	7.87	8.91	22.6	1700	2.8E+07	100,000	0.003	1.8E-07
Uranium-235/236	2 / 6	pCi/g	0.385	0.997	0.385	0.832	0.952	1.22	0.325	0.985	1.1	1.22	0.166	-0.263	0.461	0.092	0.151	N	0.832	1.03	1.1	2.04	1500	9500	100,000	5.5E-04	8.8E-05
Uranium-238	4 / 6	pCi/g	0.32	0.403	0.32	1.68	1.82	2.86	1.22	1.05	2.34	2.86	0.866	0.174	1.0	0.774	0.486	B	1.74	2.36	2.49	--	1200	1500	100,000	0.001	0.001
																									SOF =	0.005	0.001

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.6. Y-12 Biology Complex summary statistics for Ceilings from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ceilings from all buildings combined (all random samples)																											
Metals																											
Antimony	5 / 6	mg/kg	0.33	0.33	0.165	2.25	0.78	10.3	3.96	0.404	2.66	10.3	4.28	-0.149	1.39	0.182	1.26	L	1.79	4.69	6.01	150	--	160	--	--	0.011
Arsenic	6 / 6	mg/kg	--	--	1.68	10.3	3.69	31.2	12.0	1.68	10.3	31.2	12.0	1.77	1.14	1.77	1.14	L	9.77	23.1	29.2	409	--	--	--	--	--
Barium	6 / 6	mg/kg	--	--	0.561	198	50.8	947	370	0.561	198	947	370	3.38	2.66	3.38	2.66	L	276	974	1289	555,703	--	150,000	--	--	0.002
Beryllium	3 / 6	mg/kg	0.005	0.088	0.002	0.153	0.118	0.462	0.177	0.192	0.288	0.462	0.151	-3.03	2.11	-1.33	0.482	N	0.153	0.26	0.298	--	--	--	--	--	--
Boron	3 / 6	mg/kg	0.187	3.53	0.094	9.37	4.59	35.2	13.4	7.41	18.0	35.2	15.0	0.816	2.29	2.67	0.803	L	13.2	43.9	57.8	11,192	--	24,000	--	--	5.5E-04
Cadmium	6 / 6	mg/kg	--	--	0.037	1.48	0.154	8.09	3.24	0.037	1.48	8.09	3.24	-1.56	2.04	-1.56	2.04	L	1.48	5.45	7.25	398	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	7.78	43.8	17.7	143	52.5	7.78	43.8	143	52.5	3.25	1.09	3.25	1.09	L	46.6	183	398	1449	--	140,000	--	--	3.3E-04
Copper	6 / 6	mg/kg	--	--	11.6	127	38.7	559	215	11.6	127	559	215	3.8	1.53	3.8	1.53	L	107	294	378	12,946	--	--	--	--	--
Hafnium	1 / 6	mg/kg	0.14	0.599	0.07	3.42	0.284	19.4	7.83	19.4	19.4	19.4	--	-0.836	1.94	2.97	--	B	3.43	7.42	8.99	--	--	--	--	--	--
Lead	6 / 6	mg/kg	--	--	3.73	591	25.4	2210	941	3.73	591	2210	941	3.93	2.85	3.93	2.85	L	628	2264	3005	2.0E+06	--	1500	--	--	0.419
Manganese	6 / 6	mg/kg	--	--	161	494	408	905	329	161	494	905	329	5.99	0.733	5.99	0.733	N	494	692	764	1713	--	360,000	--	--	0.001
Mercury	5 / 6	mg/kg	0.014	0.014	0.007	0.065	0.027	0.238	0.09	0.007	0.076	0.238	0.095	-3.53	1.4	-3.25	1.36	L	0.061	0.161	0.206	5.2	--	--	--	--	--
Molybdenum	6 / 6	mg/kg	--	--	0.386	8.71	1.44	34.2	13.6	0.386	8.71	34.2	13.6	0.927	1.77	0.927	1.77	L	7.79	23.1	30.1	1785	--	3900	--	--	0.002
Nickel	6 / 6	mg/kg	--	--	6.93	74.6	14.0	302	117	6.93	74.6	302	117	3.32	1.49	3.32	1.49	L	63.2	172	221	6863	--	--	--	--	--
Selenium	2 / 6	mg/kg	0.084	0.327	0.042	0.253	0.161	0.614	0.217	0.417	0.516	0.614	0.139	-1.71	0.949	-0.681	0.274	N	0.253	0.384	0.432	--	--	1600	--	--	1.6E-04
Silver	2 / 6	mg/kg	0.674	1.17	0.337	5.76	0.543	25.4	10.0	7.25	16.3	25.4	12.8	0.356	1.8	2.61	0.887	B	4.65	9.79	11.8	--	--	--	--	--	--
Strontium	5 / 6	mg/kg	0.53	0.53	0.265	80.4	72.8	181	88.3	0.631	96.5	181	88.4	2.17	3.19	2.87	3.01	B	78.8	125	137	--	--	300,000	--	--	2.6E-04
Thallium	0 / 6	mg/kg	0.033	0.14	0.016	0.055	0.063	0.07	0.02	--	--	--	--	-3.01	0.561	--	--	B	0.056	0.067	0.068	--	--	--	--	NSRC	NSRC
Tin	5 / 6	mg/kg	3.5	3.5	1.75	9.72	4.68	37.9	13.9	3.37	11.3	37.9	14.9	1.71	1.04	1.94	0.971	L	9.46	33.3	67.6	258	--	2200	--	--	0.004
Vanadium	5 / 6	mg/kg	0.265	0.265	0.113	8.0	5.53	23.2	9.46	0.113	9.57	23.2	9.65	0.551	2.43	1.07	2.32	N	8.0	13.7	15.8	--	--	25,000	--	--	3.2E-04
Zinc	6 / 6	mg/kg	--	--	25.5	590	130	2930	1148	25.5	590	2930	1148	5.16	1.56	5.16	1.56	L	430	1198	1545	56,982	--	--	--	--	--
Zirconium	4 / 6	mg/kg	0.094	0.27	0.047	7.6	6.87	15.9	8.09	0.638	11.4	15.9	7.26	0.431	2.62	1.91	1.58	L	7.6	17.5	22.0	25,629	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.034	0.225	0.262	0.344	0.136	0.034	0.225	0.344	0.136	-1.79	1.08	-1.79	1.08	X	0.225	0.43	0.522	--	--	--	--	--	--
Cadmium	3 / 4	mg/L	0.003	0.003	0.002	0.007	0.006	0.017	0.006	0.004	0.009	0.017	0.007	-5.34	1.01	-4.95	0.801	X*	0.007	0.018	0.023	--	--	--	--	--	--
Chromium	0 / 4	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	0	--	--	--	--	-4.2	0	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	1 / 4	mg/L	0.005	0.005	0.003	0.007	0.003	0.019	0.008	0.019	0.019	0.019	--	-5.49	1.0	-3.98	--	X	0.007	0.019	0.024	--	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 7	mg/kg	7.0E-04	0.016	3.5E-04	0.003	0.004	0.008	0.003	--	--	--	--	-6.15	1.13	--	--	B	0.004	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 7	mg/kg	7.0E-04	0.016	3.5E-04	0.003	0.004	0.008	0.003	--	--	--	--	-6.15	1.13	--	--	B	0.004	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.012	0.005	0.046	0.017	0.015	0.015	0.015	--	-5.32	1.63	-4.22	--	L	0.013	0.037	0.047	2.02	130,000	--	--	9.9E-08	--
4,4'-DDT	1 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.013	0.005	0.046	0.018	0.02	0.02	0.02	--	-5.27	1.67	-3.91	--	L	0.014	0.041	0.053	2.54	--	--	--	--	--
Aldrin	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 6	mg/kg	0.004	0.465	0.002	0.049	0.017	0.233	0.09	--	--	--	--	-4.27	1.75	--	--	B	0.051	0.102	0.12	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 6	mg/kg	8.2E-04	0.093	4.1E-04	0.01	0.003	0.046	0.018	--	--	--	--	-5.88	1.75	--	--	B	0.01	0.02	0.024	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	2400	69,000	--	NSRC	NSRC

Table G.6. Y-12 Biology Complex summary statistics for Ceilings from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 6	mg/kg	0.004	0.465	0.002	0.049	0.017	0.233	0.09	--	--	--	--	-4.27	1.75	--	--	B	0.051	0.102	0.12	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 6	mg/kg	0.014	1.55	0.007	0.165	0.057	0.775	0.301	--	--	--	--	-3.07	1.75	--	--	B	0.169	0.339	0.4	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 6	mg/kg	4.1E-04	0.047	2.1E-04	0.005	0.002	0.023	0.009	--	--	--	--	-6.58	1.75	--	--	B	0.005	0.01	0.012	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	18 / 53	mg/kg	0.002	0.558	8.9E-04	0.462	0.033	5.37	1.01	0.032	1.27	5.37	1.44	-2.88	2.2	-0.743	1.75	B	0.917	2.01	2.45	--	--	4000	--	--	2.3E-04
2-Methylphenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	1 / 53	mg/kg	0.018	5.94	0.009	0.751	0.15	5.9	1.04	5.9	5.9	5.9	--	-1.24	1.54	1.77	--	B	1.08	2.32	2.8	--	--	850	--	NSRC	NSRC
Acenaphthene	18 / 53	mg/kg	0.002	0.558	8.9E-04	1.11	0.015	9.23	2.35	0.034	3.18	9.23	3.17	-2.62	2.59	0.287	1.75	B	1.55	3.42	4.17	--	--	390,000	--	--	4.0E-06
Acenaphthylene	2 / 53	mg/kg	0.002	0.594	8.9E-04	0.097	0.015	1.54	0.219	0.359	0.95	1.54	0.835	-3.51	1.6	-0.296	1.03	B	0.267	0.583	0.708	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 53	mg/kg	0.018	5.94	0.009	0.673	0.15	2.97	0.753	0.41	0.41	0.41	--	-1.24	1.5	-0.892	--	B	0.596	1.24	1.48	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 53	mg/kg	0.03	9.9	0.015	1.11	0.25	4.95	1.26	--	--	--	--	-0.753	1.5	--	--	B	0.994	2.06	2.46	--	--	9810	--	NSRC	NSRC
Carbazole	21 / 53	mg/kg	0.002	0.558	8.9E-04	2.05	0.056	16.7	4.38	0.044	5.12	16.7	5.79	-2.25	2.83	0.571	1.92	B	2.82	6.22	7.58	--	110,000	--	--	2.6E-05	--
Di-n-butyl phthalate	6 / 53	mg/kg	0.028	5.94	0.014	0.709	0.15	2.97	0.751	0.028	0.424	1.25	0.567	-1.09	1.35	-1.92	1.67	B	0.597	1.24	1.48	--	--	190	--	--	0.003
Diethyl phthalate	1 / 53	mg/kg	0.018	5.94	0.009	0.669	0.15	2.97	0.755	0.104	0.104	0.104	--	-1.25	1.49	-2.26	--	B	0.596	1.24	1.48	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	3 / 53	mg/kg	0.028	5.94	0.014	0.67	0.15	2.97	0.754	0.039	0.047	0.051	0.006	-1.19	1.37	-3.07	0.141	B	0.597	1.24	1.48	--	--	--	--	--	--
Phenol	2 / 53	mg/kg	0.018	5.94	0.009	0.676	0.15	2.97	0.751	0.349	0.35	0.351	0.001	-1.23	1.49	-1.05	0.004	B	0.596	1.24	1.48	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 53	mg/kg	0.018	5.94	0.009	0.668	0.15	2.97	0.756	--	--	--	--	-1.26	1.5	--	--	B	0.596	1.24	1.48	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	1.05	1.32	1.21	1.7	0.339	1.05	1.32	1.7	0.339	0.257	0.248	0.257	0.248	B	1.27	1.43	1.48	--	--	--	--	--	--
Alpha activity	26 / 53	pCi/g	2.51	9.66	2.51	12.2	9.28	44.9	8.48	3.15	17.4	44.9	9.47	2.31	0.628	2.72	0.557	B	14.1	24.3	27.5	--	--	--	--	--	--
Americium-241	0 / 1	pCi/g	0.269	0.269	0.269	0.269	0.269	0.269	--	--	--	--	--	-1.31	--	--	--	B	0.269	0.269	0.269	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	42 / 53	pCi/g	1.45	6.16	1.45	15.3	10.9	43.9	11.9	4.75	18.3	43.9	11.5	2.39	0.872	2.7	0.684	B	14.8	25.3	28.5	--	--	--	--	--	--
Bismuth-214	10 / 10	pCi/g	--	--	0.731	1.0	0.907	1.54	0.234	0.731	1.0	1.54	0.234	-0.017	0.214	-0.017	0.214	L	1.01	1.11	1.15	1.83	--	--	--	--	--
Carbon-14	2 / 53	pCi/g	0.082	2.35	0.082	1.82	1.9	17.2	2.3	0.782	8.99	17.2	11.6	0.215	0.926	1.3	2.19	B	4.15	8.09	9.45	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 53	pCi/g	0.015	0.7	0.015	0.131	0.099	0.7	0.111	--	--	--	--	-2.27	0.69	--	--	L	0.132	0.152	0.159	0.427	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 53	pCi/g	0.017	0.596	0.017	0.146	0.118	0.596	0.104	--	--	--	--	-2.13	0.668	--	--	L	0.148	0.171	0.178	0.466	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 53	pCi/g	0.078	1.21	0.078	0.571	0.532	1.21	0.262	--	--	--	--	-0.692	0.572	--	--	N	0.571	0.618	0.631	1.11	13	--	1500	NSRC	NSRC
Lead-212	27 / 27	pCi/g	--	--	0.306	0.696	0.727	1.22	0.282	0.306	0.696	1.22	0.282	-0.452	0.444	-0.452	0.444	B	0.739	0.972	1.03	--	--	--	--	--	--

Table G.6. Y-12 Biology Complex summary statistics for Ceilings from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	11 / 11	pCi/g	--	--	0.458	0.904	0.941	1.2	0.195	0.458	0.904	1.2	0.195	-0.127	0.256	-0.127	0.256	N	0.904	0.985	1.01	1.45	--	--	--	--	--
Neptunium-237	0 / 1	pCi/g	0.216	0.216	0.216	0.216	0.216	0.216	--	--	--	--	--	-1.53	--	--	--	B	0.216	0.216	0.216	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 53	pCi/g	0.403	2.81	0.403	0.876	0.821	2.81	0.398	--	--	--	--	-0.206	0.368	--	--	L	0.87	1.01	1.07	1.73	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 1	pCi/g	0.149	0.149	0.149	0.149	0.149	0.149	--	--	--	--	--	-1.9	--	--	--	B	0.149	0.149	0.149	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 1	pCi/g	0.21	0.21	0.21	0.21	0.21	0.21	--	--	--	--	--	-1.56	--	--	--	B	0.21	0.21	0.21	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 1	pCi/g	8.71	8.71	8.71	8.71	8.71	8.71	--	--	--	--	--	2.16	--	--	--	B	8.71	8.71	8.71	--	--	--	790,000	NSRC	NSRC
Potassium-40	33 / 33	pCi/g	--	--	2.75	14.9	14.3	39	10.2	2.75	14.9	39	10.2	2.45	0.741	2.45	0.741	B	16.5	25.7	28.3	--	--	--	4.2E+06	--	--
Radium-226	34 / 53	pCi/g	0.189	1.39	0.189	0.798	0.788	1.6	0.354	0.372	0.928	1.6	0.31	-0.339	0.512	-0.133	0.358	N	0.798	0.861	0.88	1.52	--	--	300,000	--	--
Strontium-89	2 / 53	pCi/g	0.696	1.98	0.696	1.59	1.59	1.98	0.264	1.81	1.86	1.9	0.064	0.449	0.189	0.618	0.034	L	1.6	1.65	1.67	2.31	--	--	--	NSRC	NSRC
Strontium-90	1 / 53	pCi/g	0.984	2.24	0.984	1.59	1.6	2.24	0.287	1.03	1.03	1.03	--	0.448	0.19	0.03	--	N	1.59	1.64	1.66	2.18	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 53	pCi/g	0.738	8.42	0.738	5.62	5.85	8.42	1.35	--	--	--	--	1.68	0.347	--	--	B	5.43	7.24	7.57	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.32	0.328	0.328	0.335	0.011	0.32	0.328	0.335	0.011	-1.12	0.032	-1.12	0.032	B	0.328	0.331	0.332	--	--	--	--	--	--
Thorium-228	19 / 53	pCi/g	0.253	1.1	0.253	0.643	0.591	1.36	0.297	0.298	0.831	1.36	0.266	-0.551	0.477	-0.242	0.365	B	0.663	0.944	1.02	--	--	--	25,000	--	--
Thorium-230	28 / 53	pCi/g	0.255	0.826	0.255	0.7	0.561	1.62	0.346	0.331	0.886	1.62	0.367	-0.471	0.479	-0.216	0.461	L	0.7	0.77	0.793	1.67	--	--	15,000	--	--
Thorium-232	24 / 53	pCi/g	0.22	0.794	0.22	0.578	0.461	1.38	0.307	0.258	0.805	1.38	0.303	-0.683	0.524	-0.309	0.477	B	0.574	0.86	0.947	--	--	--	2500	--	--
Total Uranium	37 / 53	pCi/g	0.612	1.24	0.612	1.41	1.15	7.88	1.05	0.721	1.64	7.88	1.19	0.208	0.473	0.36	0.472	L	1.37	1.65	1.78	3.25	--	--	--	--	--
Tritium	0 / 53	pCi/g	1.42	14.4	1.42	10.8	12	14.4	3.4	--	--	--	--	2.29	0.502	--	--	B	10.6	13.3	13.7	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	27 / 53	pCi/g	0.327	0.697	0.327	0.653	0.587	1.52	0.252	0.453	0.809	1.52	0.259	-0.489	0.346	-0.257	0.3	L	0.65	0.745	0.788	1.25	1700	2.8E+07	100,000	3.8E-04	2.3E-08
Uranium-235/236	0 / 53	pCi/g	0.325	0.848	0.325	0.509	0.454	0.848	0.143	--	--	--	--	-0.711	0.265	--	--	B	0.498	0.629	0.668	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	25 / 53	pCi/g	0.306	0.638	0.306	0.717	0.537	6.63	0.855	0.44	1.01	6.63	1.19	-0.516	0.475	-0.205	0.508	L	0.717	1.07	1.23	1.58	1200	1500	100,000	6.0E-04	4.8E-04
																									SOF =	0.001	0.445

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.7. Y-12 Biology Complex summary statistics for Countertop/Pipe in Y-12 Building 9210 (biased sample)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Countertop/Pipe in Y-12 Building 9210 (biased sample)																											
Radionuclides																											
Alpha activity	1 / 1	pCi/g	--	--	4.01	4.01	4.01	4.01	--	4.01	4.01	4.01	--	1.39	--	1.39	--	B	4.01	4.01	4.01	--	--	--	--	--	--
Beta activity	1 / 1	pCi/g	--	--	41.1	41.1	41.1	41.1	--	41.1	41.1	41.1	--	3.72	--	3.72	--	B	41.1	41.1	41.1	--	--	--	--	--	--
Technetium-99	0 / 1	pCi/g	6.19	6.19	6.19	6.19	6.19	6.19	--	--	--	--	--	1.82	--	--	--	B	6.19	6.19	6.19	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	0 / 1	pCi/g	0.447	0.447	0.447	0.447	0.447	0.447	--	--	--	--	--	-0.805	--	--	--	B	0.447	0.447	0.447	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 1	pCi/g	0.491	0.491	0.491	0.491	0.491	0.491	--	--	--	--	--	-0.711	--	--	--	B	0.491	0.491	0.491	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 1	pCi/g	0.408	0.408	0.408	0.408	0.408	0.408	--	--	--	--	--	-0.896	--	--	--	B	0.408	0.408	0.408	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	--

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.8. Y-12 Biology Complex summary statistics for Ducts from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts from all buildings combined (random and biased)																											
Metals																											
Antimony	6 / 6	mg/kg	--	--	0.528	21.6	12.2	82.5	30.5	0.528	21.6	82.5	30.5	2.18	1.68	2.18	1.68	L	24.8	71.7	93.0	4520	--	160	--	--	0.155
Arsenic	4 / 6	mg/kg	0.212	0.284	0.106	10.6	5.05	38.4	14.7	2.2	15.8	38.4	15.9	0.832	2.45	2.3	1.2	L	16.5	56.5	74.6	20,575	--	--	--	--	--
Barium	6 / 6	mg/kg	--	--	0.117	121	0.324	723	295	0.117	121	723	295	0.047	3.31	0.047	3.31	B	121	267	326	--	--	150,000	--	--	8.0E-04
Beryllium	0 / 6	mg/kg	0.013	0.1	0.006	0.015	0.009	0.05	0.017	--	--	--	--	-4.51	0.754	--	--	B	0.015	0.025	0.028	--	--	--	--	NSRC	NSRC
Boron	1 / 6	mg/kg	0.503	4	0.252	1.67	0.347	6.75	2.58	6.75	6.75	6.75	--	-0.336	1.33	1.91	--	B	1.4	2.74	3.27	--	--	24,000	--	--	5.8E-05
Cadmium	5 / 6	mg/kg	0.013	0.013	0.006	2.18	1.22	5.61	2.43	0.295	2.61	5.61	2.44	-0.52	2.53	0.39	1.34	N	2.18	3.64	4.18	--	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	1.23	35.1	20.9	134	49.5	1.23	35.1	134	49.5	2.71	1.59	2.71	1.59	L	38.0	107	138	5372	--	140,000	--	--	2.7E-04
Copper	6 / 6	mg/kg	--	--	0.762	134	32.4	657	258	0.762	134	657	258	3.23	2.27	3.23	2.27	L	143	475	626	115,547	--	--	--	--	--
Hafnium	0 / 6	mg/kg	0.377	3	0.189	0.455	0.261	1.5	0.513	--	--	--	--	-1.11	0.754	--	--	B	0.455	0.742	0.848	--	--	--	--	NSRC	NSRC
Lead	6 / 6	mg/kg	--	--	0.188	171	203	319	148	0.188	171	319	148	3.66	3.03	3.66	3.03	B	188	265	280	--	--	1500	--	--	0.125
Manganese	6 / 6	mg/kg	--	--	0.387	876	615	3250	1210	0.387	876	3250	1210	4.63	3.63	4.63	3.63	L	876	2358	3029	7.1E+07	--	360,000	--	--	0.002
Mercury	6 / 6	mg/kg	--	--	0.005	0.036	0.034	0.075	0.031	0.005	0.036	0.075	0.031	-3.8	1.17	-3.8	1.17	N	0.036	0.055	0.061	0.15	--	--	--	--	--
Molybdenum	4 / 6	mg/kg	0.05	0.067	0.025	18.2	6.66	79.7	30.8	2.71	27.3	79.7	35.4	0.573	3.36	2.63	1.39	L	46.2	174	232	462,270	--	3900	--	--	0.012
Nickel	6 / 6	mg/kg	--	--	0.499	56.5	31.1	174	68.8	0.499	56.5	174	68.8	2.67	2.38	2.67	2.38	N	56.5	97.9	113	311	--	--	--	--	--
Selenium	0 / 6	mg/kg	0.226	1.8	0.113	0.273	0.157	0.9	0.308	--	--	--	--	-1.62	0.754	--	--	B	0.273	0.445	0.509	--	--	1600	--	NSRC	NSRC
Silver	4 / 6	mg/kg	0.063	0.084	0.031	5.67	3.1	21.1	7.95	3.03	8.48	21.1	8.58	0.095	2.74	1.8	0.906	L	11.6	41.1	54.5	27,889	--	--	--	--	--
Strontium	1 / 6	mg/kg	0.377	0.6	0.189	2.43	0.272	13.3	5.32	13.3	13.3	13.3	--	-0.711	1.62	2.59	--	B	2.43	5.11	6.18	--	--	300,000	--	--	8.1E-06
Thallium	0 / 6	mg/kg	0.088	0.7	0.044	0.106	0.061	0.35	0.12	--	--	--	--	-2.57	0.754	--	--	B	0.106	0.173	0.198	--	--	--	--	NSRC	NSRC
Tin	5 / 6	mg/kg	0.188	0.188	0.094	9.02	5.32	30	10.8	3.18	10.8	30	11.1	1.29	1.97	2.03	0.901	L	14.1	44.0	57.6	5324	--	2200	--	--	0.006
Total Uranium	3 / 3	mg/kg	--	--	0.322	0.544	0.606	0.704	0.198	0.322	0.544	0.704	0.198	-0.662	0.415	-0.662	0.415	B	0.575	0.66	0.674	--	--	--	--	--	--
Vanadium	0 / 6	mg/kg	0.188	1.5	0.094	0.227	0.13	0.75	0.257	--	--	--	--	-1.8	0.755	--	--	B	0.228	0.371	0.424	--	--	25,000	--	NSRC	NSRC
Zinc	6 / 6	mg/kg	--	--	3.67	39,798	26,145	108,000	45,078	3.67	39,798	108,000	45,078	8.37	3.98	8.37	3.98	N	39,798	66,959	76,881	206,932	--	--	--	--	--
Zirconium	2 / 6	mg/kg	0.251	2	0.126	0.392	0.294	1	0.329	0.404	0.439	0.473	0.049	-1.2	0.785	-0.828	0.111	L	0.409	0.897	1.37	5.53	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 10	mg/L	0.017	0.05	0.009	0.026	0.017	0.07	0.019	0.059	0.064	0.07	0.008	-3.93	0.807	-2.75	0.13	G*	0.026	0.038	0.044	0.138	--	--	--	--	--
Barium	10 / 10	mg/L	--	--	0.039	0.164	0.211	0.261	0.087	0.039	0.164	0.261	0.087	-2.0	0.738	-2.0	0.738	G	0.164	0.238	0.269	0.724	--	--	--	--	--
Cadmium	5 / 10	mg/L	0.003	0.01	0.002	0.018	0.004	0.071	0.025	0.004	0.032	0.071	0.033	-4.9	1.34	-4.02	1.28	L*	0.016	0.04	0.061	0.364	--	--	--	--	--
Chromium	10 / 10	mg/L	--	--	0.02	0.107	0.092	0.235	0.081	0.02	0.107	0.235	0.081	-2.55	0.904	-2.55	0.904	N	0.107	0.143	0.154	0.342	--	--	--	--	--
Lead	9 / 10	mg/L	0.033	0.033	0.007	0.667	0.312	3.18	0.99	0.007	0.741	3.18	1.08	-1.59	1.87	-1.31	1.75	L*	1.17	2.33	3.01	47.9	--	--	--	--	--
Mercury	1 / 10	mg/L	6.7E-04	6.7E-04	3.4E-04	4.9E-04	3.4E-04	0.002	4.9E-04	0.002	0.002	0.002	--	-7.83	0.547	-6.27	--	X	4.9E-04	9.6E-04	0.001	--	--	--	--	--	--
Selenium	3 / 10	mg/L	0.02	0.06	0.01	0.04	0.02	0.099	0.031	0.063	0.086	0.099	0.019	-3.64	0.94	-2.48	0.246	G*	0.04	0.06	0.069	0.24	--	--	--	--	--
Silver	0 / 10	mg/L	0.004	0.01	0.002	0.004	0.005	0.005	0.002	--	--	--	--	-5.66	0.473	--	--	O	0.004	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 6	mg/kg	0.003	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.69	0.5	--	--	B	0.004	0.005	0.005	--	--	119	--	NSRC	NSRC
Silvex	0 / 6	mg/kg	0.003	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.69	0.5	--	--	B	0.004	0.005	0.005	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.004	0.003	0.014	0.005	0.014	0.014	0.014	--	-6.25	1.51	-4.27	--	L	0.005	0.012	0.016	0.529	77,000	--	--	5.9E-08	--
4,4'-DDE	2 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.01	0.003	0.049	0.019	0.001	0.025	0.049	0.033	-5.85	1.74	-4.77	2.47	L	0.009	0.025	0.033	1.8	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 6	mg/kg	9.5E-04	0.011	4.8E-04	0.056	0.003	0.326	0.132	0.002	0.164	0.326	0.229	-5.43	2.29	-3.78	3.76	L	0.056	0.218	0.291	21.2	--	--	--	--	--
Aldrin	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 6	mg/kg	0.003	0.054	0.001	0.01	0.005	0.027	0.011	--	--	--	--	-5.09	1.17	--	--	B	0.008	0.014	0.016	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.002	0.005	0.002	0.003	0.003	0.003	--	-6.41	1.1	-5.93	--	N	0.002	0.004	0.004	--	--	330,000	--	--	7.5E-09
Endrin	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 6	mg/kg	9.5E-04	0.011	4.8E-04	0.002	0.001	0.005	0.002	0.001	0.001	0.001	--	-6.48	0.941	-6.88	--	L	0.002	0.007	0.013	0.05	--	30,000	--	--	8.0E-08
Endrin ketone	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	30,000	--	NSRC	NSRC

Table G.8. Y-12 Biology Complex summary statistics for Ducts from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	0.001	0.003	0.001	0.002	0.002	0.002	--	-7.13	1.27	-6.08	--	N	0.001	0.002	0.002	--	180	940	--	7.5E-06	1.4E-06
Methoxychlor	0 / 6	mg/kg	0.003	0.054	0.001	0.01	0.005	0.027	0.011	--	--	--	--	-5.09	1.17	--	--	B	0.008	0.014	0.016	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 6	mg/kg	0.009	0.179	0.005	0.035	0.018	0.09	0.036	--	--	--	--	-3.88	1.17	--	--	B	0.028	0.048	0.055	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 41	mg/kg	0.03	11.3	0.015	0.529	0.136	5.65	1.01	0.406	0.406	0.406	--	-1.63	1.32	-0.901	--	B	1.03	2.21	2.67	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 41	mg/kg	0.05	18.9	0.025	0.9	0.226	9.45	1.7	1.55	1.55	1.55	--	-1.12	1.35	0.438	--	B	1.73	3.7	4.47	--	--	9810	--	NSRC	NSRC
Carbazole	4 / 41	mg/kg	0.003	1.13	0.001	0.056	0.014	0.565	0.102	0.015	0.06	0.148	0.062	-3.86	1.34	-3.26	1.1	B	0.104	0.222	0.268	--	110,000	--	--	9.4E-07	--
Di-n-butyl phthalate	7 / 41	mg/kg	0.03	11.3	0.015	0.749	0.161	7.67	1.49	0.196	1.41	7.67	2.76	-1.32	1.34	-0.614	1.23	B	1.39	2.98	3.61	--	--	190	--	--	0.007
Diethyl phthalate	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 41	mg/kg	0.03	11.3	0.015	0.627	0.136	6.21	1.34	6.21	6.21	6.21	--	-1.64	1.39	1.83	--	B	1.13	2.42	2.92	--	--	--	--	NSRC	NSRC
Phenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	4 / 52	pCi/g	2.43	9.87	2.43	7.93	6.76	45.7	7.42	4.01	23.5	45.7	22.2	1.87	0.559	2.61	1.32	B	12.5	22.4	25.9	--	--	--	--	--	--
Americium-241	0 / 41	pCi/g	0.153	0.581	0.153	0.27	0.226	0.581	0.109	--	--	--	--	-1.37	0.334	--	--	B	0.273	0.376	0.409	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	4 / 52	pCi/g	1.38	5.82	1.38	4.68	3.87	29.7	4.54	1.87	14.7	29.7	13.8	1.37	0.485	2.14	1.34	B	7.76	14.2	16.4	--	--	--	--	--	--
Carbon-14	0 / 41	pCi/g	0.347	1.68	0.347	0.636	0.585	1.68	0.208	--	--	--	--	-0.49	0.263	--	--	B	0.728	1.05	1.15	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	2 / 41	pCi/g	0.058	0.648	0.058	0.215	0.169	0.648	0.132	0.093	0.096	0.1	0.005	-1.7	0.585	-2.34	0.052	L	0.216	0.248	0.259	0.627	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 41	pCi/g	0.066	0.966	0.066	0.23	0.182	0.966	0.164	--	--	--	--	-1.65	0.584	--	--	L	0.227	0.293	0.323	0.663	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 41	pCi/g	0.232	1.32	0.232	0.586	0.549	1.32	0.224	--	--	--	--	-0.598	0.359	--	--	L	0.586	0.634	0.649	1.18	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 41	pCi/g	0.131	0.935	0.131	0.375	0.321	0.935	0.166	--	--	--	--	-1.07	0.422	--	--	L	0.376	0.413	0.425	0.84	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 41	pCi/g	0.66	10.3	0.66	1.71	1.3	10.3	1.5	--	--	--	--	0.377	0.495	--	--	B	2.69	4.83	5.61	--	--	--	1.3E+08	NSRC	NSRC

Table G.8. Y-12 Biology Complex summary statistics for Ducts from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 41	pCi/g	0.125	0.693	0.125	0.289	0.235	0.693	0.133	--	--	--	--	-1.34	0.435	--	--	B	0.293	0.432	0.475	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 41	pCi/g	0.161	0.825	0.161	0.362	0.296	0.825	0.158	--	--	--	--	-1.1	0.425	--	--	L	0.363	0.399	0.411	0.816	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 41	pCi/g	8.04	23.5	8.04	12.5	11.9	23.5	3.37	--	--	--	--	2.5	0.244	--	--	L	12.5	13.9	14.6	20.3	--	--	790,000	NSRC	NSRC
Radium-226	5 / 41	pCi/g	0.203	0.928	0.203	0.491	0.469	0.928	0.181	0.26	0.411	0.597	0.135	-0.781	0.39	-0.932	0.327	N	0.491	0.528	0.539	0.874	--	--	300,000	--	--
Strontium-89	1 / 41	pCi/g	0.721	2	0.721	1.7	1.86	2.92	0.415	2.92	2.92	2.92	--	0.494	0.289	1.07	--	B	1.85	2.4	2.52	--	--	--	--	NSRC	NSRC
Strontium-90	7 / 41	pCi/g	0.96	1.99	0.96	2.07	1.91	6.38	1.02	1.79	3.54	6.38	1.88	0.655	0.345	1.15	0.507	B	2.5	3.81	4.23	--	--	--	400,000	--	--
Technetium-99	0 / 55	pCi/g	0.931	8.35	0.931	5.58	5.83	8.35	1.7	--	--	--	--	1.64	0.469	--	--	B	5.43	7.19	7.52	--	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thorium-228	0 / 44	pCi/g	0.25	1.37	0.25	0.6	0.601	1.37	0.263	--	--	--	--	-0.611	0.459	--	--	B	0.67	0.956	1.03	--	--	--	25,000	NSRC	NSRC
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	2 / 44	pCi/g	0.189	1.13	0.189	0.502	0.475	1.13	0.216	0.267	0.375	0.482	0.152	-0.782	0.446	-1.03	0.418	L	0.505	0.557	0.573	1.17	--	--	15,000	NSRC	NSRC
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	0 / 44	pCi/g	0.181	0.979	0.181	0.439	0.433	0.979	0.187	--	--	--	--	-0.917	0.446	--	--	B	0.482	0.685	0.741	--	--	--	2500	NSRC	NSRC
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Total Uranium	6 / 41	pCi/g	0.629	1.42	0.629	1.1	0.863	6.97	1.06	0.7	2.44	6.97	2.5	-0.065	0.44	0.499	0.941	B	1.84	3.2	3.71	--	--	--	--	--	--
Tritium	0 / 41	pCi/g	5.98	13	5.98	9.28	9.42	13	2.0	--	--	--	--	2.2	0.222	--	--	N	9.28	9.69	9.81	13.5	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 3	pCi/g	2.86	3.22	2.86	3.01	2.96	3.22	0.186	--	--	--	--	1.1	0.061	--	--	B	2.99	3.08	3.1	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	15 / 55	pCi/g	0.286	0.795	0.283	1.17	0.514	11.9	2.14	0.283	3.04	11.9	3.54	-0.431	0.838	0.504	1.13	B	2.37	4.8	5.74	--	1700	2.8E+07	100,000	0.001	8.5E-08
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	0 / 3	pCi/g	1.75	1.97	1.75	1.84	1.81	1.97	0.114	--	--	--	--	0.61	0.061	--	--	B	1.83	1.88	1.9	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235	3 / 3	pCi/g	--	--	0.014	0.024	0.024	0.034	0.01	0.014	0.024	0.034	0.01	-3.79	0.43	-3.79	0.43	B	0.024	0.029	0.03	--	1500	9500	100,000	1.6E-05	2.5E-06
Uranium-235/236	2 / 55	pCi/g	0.331	0.997	0.331	0.583	0.543	1.22	0.184	0.985	1.1	1.22	0.166	-0.583	0.292	0.092	0.151	L	0.582	0.652	0.684	1.01	1500	9500	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	3 / 3	pCi/g	--	--	0.009	0.017	0.019	0.023	0.007	0.009	0.017	0.023	0.007	-4.14	0.504	-4.14	0.504	B	0.018	0.021	0.022	--	1700	280,000	100,000	1.1E-05	6.5E-08
Uranium-238	9 / 55	pCi/g	0.242	0.734	0.106	0.587	0.437	2.86	0.558	0.106	1.34	2.86	1.13	-0.738	0.555	-0.155	1.13	B	0.786	1.43	1.65	--	1200	1500	100,000	6.5E-04	5.2E-04
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.002	0.31

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

Table G.8. Y-12 Biology Complex summary statistics for Ducts from all buildings combined (random and biased)

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected										E(X) divided by	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	Analytic WAC Carc.	Analytic WAC HI

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.9. Y-12 Biology Complex summary statistics for Equipment from all buildings combined (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Equipment from all buildings combined (all biased samples)																											
Metals																											
Arsenic	3 / 3	mg/kg	--	--	0.753	10.6	1.3	29.7	16.6	0.753	10.6	29.7	16.6	1.12	1.98	1.12	1.98	B	5.94	12.0	14.3	--	--	--	--	--	--
Barium	1 / 3	mg/kg	0.042	0.174	0.021	13.0	0.087	38.9	22.4	38.9	38.9	38.9	--	-0.883	4.0	3.66	--	B	6.54	14.4	17.6	--	--	150,000	--	--	4.4E-05
Cadmium	2 / 3	mg/kg	0.035	0.035	0.011	0.67	0.017	1.98	1.13	0.011	0.996	1.98	1.39	-2.62	2.87	-1.9	3.66	B	0.343	0.744	0.905	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	10.3	38.6	13	92.4	46.6	10.3	38.6	92.4	46.6	3.14	1.21	3.14	1.21	B	25.8	43.2	49.9	--	--	140,000	--	--	1.8E-04
Lead	3 / 3	mg/kg	--	--	3.69	8.55	4.66	17.3	7.59	3.69	8.55	17.3	7.59	1.9	0.833	1.9	0.833	B	6.61	9.63	10.7	--	--	1500	--	--	0.004
Mercury	2 / 3	mg/kg	0.002	0.002	8.4E-04	0.024	0.005	0.065	0.036	0.005	0.035	0.065	0.042	-5.03	2.19	-4.01	1.81	B	0.014	0.029	0.034	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.15	0.627	0.075	1.03	0.314	2.71	1.46	2.71	2.71	2.71	--	-0.918	1.81	0.997	--	B	0.673	1.27	1.48	--	--	1600	--	--	4.2E-04
Silver	3 / 3	mg/kg	--	--	0.372	3.31	0.766	8.78	4.74	0.372	3.31	8.78	4.74	0.306	1.66	0.306	1.66	B	2.04	3.86	4.54	--	--	--	--	--	--
Total Uranium	2 / 3	mg/kg	0.007	0.007	0.003	2.17	0.272	6.23	3.52	0.272	3.25	6.23	4.21	-1.73	3.79	0.264	2.21	B	1.22	2.56	3.07	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 3	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	3 / 3	mg/L	--	--	0.012	0.07	0.014	0.186	0.1	0.012	0.07	0.186	0.1	-3.47	1.55	-3.47	1.55	X	0.07	0.244	0.322	--	--	--	--	--	--
Cadmium	1 / 3	mg/L	0.003	0.003	0.002	0.01	0.002	0.026	0.014	0.026	0.026	0.026	--	-5.55	1.64	-3.66	--	X	0.01	0.034	0.045	--	--	--	--	--	--
Chromium	2 / 3	mg/L	0.03	0.03	0.015	0.099	0.035	0.233	0.094	0.035	0.134	0.233	0.14	-3.0	1.4	-2.4	1.34	X*	0.099	0.331	0.436	--	--	--	--	--	--
Lead	2 / 3	mg/L	0.005	0.005	0.003	0.072	0.078	0.132	0.052	0.078	0.105	0.132	0.038	-3.52	2.16	-2.29	0.368	X*	0.072	0.199	0.257	--	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 3	mg/L	0.017	0.017	0.008	0.012	0.008	0.019	0.006	0.019	0.019	0.019	--	-4.51	0.469	-3.97	--	X	0.012	0.022	0.027	--	--	--	--	--	--
Silvex	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 3	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 3	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1254	3 / 3	mg/kg	--	--	0.012	0.092	0.114	0.149	0.071	0.012	0.092	0.149	0.071	-2.83	1.38	-2.83	1.38	B	0.103	0.133	0.138	--	--	--	--	--	--
PCB-1260	1 / 3	mg/kg	0.002	0.011	0.001	0.03	0.006	0.083	0.046	0.083	0.083	0.083	--	-4.85	2.21	-2.49	--	B	0.018	0.036	0.042	--	--	--	--	--	--
PCB-1262	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	3 / 3	mg/kg	--	--	0.012	0.119	0.114	0.231	0.11	0.012	0.119	0.231	0.11	-2.69	1.54	-2.69	1.54	B	0.117	0.172	0.185	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC

Table G.9. Y-12 Biology Complex summary statistics for Equipment from all buildings combined (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nitrobenzene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 3	mg/L	0.004	0.019	0.002	0.007	0.009	0.009	0.004	--	--	--	--	-5.22	0.929	--	--	O	0.007	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 2	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Carbon tetrachloride	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Trichloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Vinyl chloride	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	2 / 4	pCi/g	3.24	4.08	3.24	150	10.8	575	283	17.5	296	575	394	2.95	2.39	4.61	2.47	B	104	222	268	--	--	--	--	--	--
Beta activity	3 / 4	pCi/g	4.13	4.13	4.13	111	52.2	337	155	17.6	147	337	168	3.64	1.91	4.38	1.48	B	91.7	171	197	--	--	--	--	--	--
Technetium-99	1 / 7	pCi/g	5.11	9.58	5.11	102	5.64	678	254	678	678	678	--	2.48	1.79	6.52	--	B	118	254	309	--	172	--	4.2E+07	0.684	--
Thorium-228	0 / 3	pCi/g	0.311	0.743	0.311	0.478	0.381	0.743	0.232	--	--	--	--	-0.81	0.456	--	--	B	0.43	0.533	0.567	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 3	pCi/g	0.408	0.611	0.408	0.502	0.487	0.611	0.102	0.487	0.487	0.487	--	-0.703	0.202	-0.719	--	B	0.495	0.547	0.56	--	--	--	15,000	--	--
Thorium-232	1 / 3	pCi/g	0.304	0.529	0.304	0.439	0.483	0.529	0.119	0.483	0.483	0.483	--	-0.852	0.297	-0.728	--	B	0.461	0.508	0.515	--	--	--	2500	--	--
Uranium-233	0 / 3	pCi/g	1.9	3.32	1.9	2.63	2.67	3.32	0.711	--	--	--	--	0.941	0.281	--	--	B	2.65	3.01	3.08	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	4 / 7	pCi/g	0.321	0.512	0.321	33.2	0.561	223	83.7	0.561	57.8	223	110	0.524	2.38	1.62	2.76	B	37.6	82.7	101	--	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-234	0 / 3	pCi/g	1.19	2.04	1.19	1.62	1.64	2.04	0.425	--	--	--	--	0.461	0.271	--	--	B	1.63	1.85	1.89	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235	2 / 3	pCi/g	1.4E-04	1.4E-04	1.4E-04	0.023	0.001	0.066	0.038	0.001	0.034	0.066	0.046	-6.03	3.1	-4.61	2.69	B	0.012	0.026	0.031	--	1500	9500	100,000	8.0E-06	1.3E-06
Uranium-235/236	1 / 7	pCi/g	0.353	0.843	0.353	2.64	0.562	15.2	5.54	15.2	15.2	15.2	--	-0.171	1.31	2.72	--	B	2.97	6.04	7.25	--	1500	9500	100,000	0.002	3.1E-04
Uranium-236	1 / 3	pCi/g	0.005	0.007	0.005	0.014	0.007	0.03	0.014	0.03	0.03	0.03	--	-4.6	0.941	-3.52	--	B	0.01	0.016	0.018	--	1700	280,000	100,000	6.0E-06	3.7E-08
Uranium-238	5 / 7	pCi/g	0.292	0.467	0.292	30.0	0.542	204	76.7	0.403	41.9	204	90.6	0.493	2.28	1.09	2.5	B	34.4	75.7	92.4	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.737	0.028

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

Table G.9. Y-12 Biology Complex summary statistics for Equipment from all buildings combined (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in*Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.10. Y-12 Biology Complex summary statistics for Exterior Walls from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Exterior Walls from all buildings combined (all random samples)																											
Metals																											
Antimony	0 / 2	mg/kg	0.308	0.332	0.154	0.16	0.16	0.166	0.008	--	--	--	--	-1.83	0.053	--	--	B	0.16	0.163	0.164	--	--	160	--	NSRC	NSRC
Arsenic	2 / 2	mg/kg	--	--	0.76	1.31	1.31	1.86	0.778	0.76	1.31	1.86	0.778	0.173	0.633	0.173	0.633	B	1.31	1.59	1.65	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	4.22	11.7	11.7	19.1	10.5	4.22	11.7	19.1	10.5	2.19	1.07	2.19	1.07	B	11.7	15.4	16.3	--	--	150,000	--	--	7.8E-05
Beryllium	2 / 2	mg/kg	--	--	0.025	0.029	0.029	0.033	0.006	0.025	0.029	0.033	0.006	-3.57	0.2	-3.57	0.2	B	0.029	0.031	0.031	--	--	--	--	--	--
Boron	2 / 2	mg/kg	--	--	1.18	1.57	1.57	1.95	0.544	1.18	1.57	1.95	0.544	0.417	0.355	0.417	0.355	B	1.57	1.76	1.8	--	--	24,000	--	--	6.5E-05
Cadmium	1 / 2	mg/kg	0.02	0.02	0.01	2.0	2.0	3.99	2.81	3.99	3.99	3.99	--	-1.62	4.25	1.38	--	B	2.0	3.01	3.24	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	2.51	2.67	2.67	2.82	0.219	2.51	2.67	2.82	0.219	0.979	0.082	0.979	0.082	B	2.67	2.74	2.76	--	--	140,000	--	--	1.9E-05
Copper	2 / 2	mg/kg	--	--	2	20.6	20.6	39.1	26.2	2	20.6	39.1	26.2	2.18	2.1	2.18	2.1	B	20.6	29.9	32.1	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.584	0.604	0.292	0.297	0.297	0.302	0.007	--	--	--	--	-1.21	0.024	--	--	B	0.297	0.3	0.3	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	10	13.5	13.5	17	4.95	10	13.5	17	4.95	2.57	0.375	2.57	0.375	B	13.5	15.3	15.7	--	--	1500	--	--	0.009
Manganese	2 / 2	mg/kg	--	--	85.9	166	166	247	114	85.9	166	247	114	4.98	0.747	4.98	0.747	B	166	207	217	--	--	360,000	--	--	4.6E-04
Mercury	1 / 2	mg/kg	0.016	0.016	0.008	1.06	1.06	2.11	1.49	2.11	2.11	2.11	--	-2.03	3.93	0.747	--	B	1.06	1.59	1.71	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.261	0.31	0.31	0.359	0.069	0.261	0.31	0.359	0.069	-1.18	0.225	-1.18	0.225	B	0.31	0.335	0.34	--	--	3900	--	--	8.0E-05
Nickel	2 / 2	mg/kg	--	--	1.92	3.92	3.92	5.91	2.82	1.92	3.92	5.91	2.82	1.21	0.795	1.21	0.795	B	3.92	4.93	5.15	--	--	--	--	--	--
Selenium	2 / 2	mg/kg	--	--	0.425	0.489	0.489	0.552	0.09	0.425	0.489	0.552	0.09	-0.725	0.185	-0.725	0.185	B	0.489	0.521	0.528	--	--	1600	--	--	3.1E-04
Silver	1 / 2	mg/kg	0.101	0.101	0.051	0.099	0.099	0.147	0.068	0.147	0.147	0.147	--	-2.45	0.756	-1.92	--	B	0.099	0.123	0.129	--	--	--	--	--	--
Strontium	2 / 2	mg/kg	--	--	1.8	3.06	3.06	4.32	1.78	1.8	3.06	4.32	1.78	1.03	0.619	1.03	0.619	B	3.06	3.7	3.84	--	--	300,000	--	--	1.0E-05
Thallium	0 / 2	mg/kg	0.136	0.141	0.068	0.069	0.069	0.071	0.002	--	--	--	--	-2.67	0.026	--	--	B	0.069	0.07	0.07	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	0.28	0.28	0.14	0.566	0.566	0.992	0.602	0.992	0.992	0.992	--	-0.987	1.38	-0.008	--	B	0.566	0.782	0.831	--	--	2200	--	--	2.6E-04
Vanadium	2 / 2	mg/kg	--	--	2.8	9.5	9.5	16.2	9.48	2.8	9.5	16.2	9.48	1.91	1.24	1.91	1.24	B	9.5	12.9	13.7	--	--	25,000	--	--	3.8E-04
Zinc	2 / 2	mg/kg	--	--	10.5	30.7	30.7	50.9	28.6	10.5	30.7	50.9	28.6	3.14	1.12	3.14	1.12	B	30.7	40.9	43.3	--	--	--	--	--	--
Zirconium	2 / 2	mg/kg	--	--	0.699	0.816	0.816	0.933	0.165	0.699	0.816	0.933	0.165	-0.214	0.204	-0.214	0.204	B	0.816	0.875	0.889	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 1	mg/L	--	--	0.041	0.041	0.041	0.041	--	0.041	0.041	0.041	--	-3.19	--	-3.19	--	D	0.041	--	--	--	--	--	--	--	--
Barium	1 / 1	mg/L	--	--	0.188	0.188	0.188	0.188	--	0.188	0.188	0.188	--	-1.67	--	-1.67	--	D	0.188	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/L	--	--	0.101	0.101	0.101	0.101	--	0.101	0.101	0.101	--	-2.29	--	-2.29	--	D	0.101	--	--	--	--	--	--	--	--
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.008	0.025	0.004	0.008	0.008	0.012	0.006	--	--	--	--	-4.95	0.784	--	--	B	0.008	0.01	0.011	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.008	0.025	0.004	0.008	0.008	0.012	0.006	--	--	--	--	-4.95	0.784	--	--	B	0.008	0.01	0.011	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.005	0.126	0.002	0.033	0.033	0.063	0.043	--	--	--	--	-4.39	2.3	--	--	B	0.033	0.048	0.052	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.8E-04	0.025	4.9E-04	0.007	0.007	0.013	0.009	--	--	--	--	-6.0	2.3	--	--	B	0.007	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	1000	1500	--	NSRC	NSRC

Table G.10. Y-12 Biology Complex summary statistics for Exterior Walls from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.005	0.126	0.002	0.033	0.033	0.063	0.043	--	--	--	--	-4.39	2.3	--	--	B	0.033	0.048	0.052	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.016	0.419	0.008	0.109	0.109	0.21	0.142	--	--	--	--	-3.19	2.3	--	--	B	0.109	0.16	0.171	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.9E-04	0.013	2.4E-04	0.003	0.003	0.006	0.004	--	--	--	--	-6.69	2.3	--	--	B	0.003	0.005	0.005	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	1 / 9	mg/kg	0.029	0.641	0.014	0.148	0.015	0.91	0.303	0.91	0.91	0.91	--	-3.41	1.61	-0.094	--	B	0.164	0.346	0.419	--	--	4000	--	--	4.1E-05
2-Methylphenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 9	mg/kg	0.029	0.641	0.014	0.178	0.015	1.18	0.389	1.18	1.18	1.18	--	-3.38	1.68	0.166	--	B	0.209	0.445	0.54	--	--	390,000	--	--	5.4E-07
Acenaphthylene	1 / 9	mg/kg	0.029	0.641	0.014	0.056	0.015	0.321	0.101	0.08	0.08	0.08	--	-3.68	1.11	-2.53	--	B	0.066	0.128	0.153	--	--	93,200	--	--	7.1E-07
Acetophenone	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 9	mg/kg	0.476	10.7	0.238	0.908	0.249	5.35	1.69	1.09	1.09	1.09	--	-0.892	1.08	0.086	--	B	1.1	2.14	2.55	--	--	9810	--	--	1.1E-04
Carbazole	1 / 9	mg/kg	0.029	0.641	0.014	0.246	0.015	1.79	0.588	1.79	1.79	1.79	--	-3.34	1.79	0.582	--	B	0.311	0.67	0.815	--	110,000	--	--	2.8E-06	--
Di-n-butyl phthalate	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	--	--	NSRC	NSRC
Phenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 9	mg/kg	0.285	6.41	0.143	0.488	0.15	3.21	1.02	--	--	--	--	-1.57	1.02	--	--	B	0.658	1.28	1.53	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	2 / 2	pCi/g	--	--	1.64	1.86	1.86	2.08	0.311	1.64	1.86	2.08	0.311	0.614	0.168	0.614	0.168	B	1.86	1.97	2.0	--	--	--	--	--	--
Alpha activity	9 / 9	pCi/g	--	--	16.5	46.9	24.2	234	70.3	16.5	46.9	234	70.3	3.39	0.803	3.39	0.803	B	57.9	104	122	--	--	--	--	--	--
Beta activity	9 / 9	pCi/g	--	--	18.9	67.2	28.9	338	102	18.9	67.2	338	102	3.71	0.863	3.71	0.863	B	78.8	146	172	--	--	--	--	--	--
Bismuth-214	6 / 6	pCi/g	--	--	0.895	1.26	1.11	1.73	0.344	0.895	1.26	1.73	0.344	0.205	0.263	0.205	0.263	N	1.26	1.47	1.55	2.54	--	--	--	--	--
Carbon-14	0 / 9	pCi/g	0.544	2.41	0.544	2.0	2.23	2.41	0.584	--	--	--	--	0.622	0.472	--	--	B	1.98	2.32	2.36	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 9	pCi/g	0.081	1.09	0.081	0.241	0.148	1.09	0.319	--	--	--	--	-1.79	0.735	--	--	B	0.294	0.517	0.599	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 9	pCi/g	0.107	1.07	0.107	0.259	0.141	1.07	0.308	--	--	--	--	-1.67	0.714	--	--	B	0.29	0.496	0.574	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 9	pCi/g	0.28	1.27	0.28	0.803	0.866	1.27	0.343	--	--	--	--	-0.318	0.498	--	--	N	0.803	0.962	1.02	1.84	13	--	1500	NSRC	NSRC
Lead-212	8 / 8	pCi/g	--	--	1.07	1.38	1.42	1.72	0.199	1.07	1.38	1.72	0.199	0.312	0.148	0.312	0.148	N	1.38	1.48	1.51	2.01	--	--	--	--	--
Lead-214	7 / 7	pCi/g	--	--	1.06	1.37	1.28	1.78	0.298	1.06	1.37	1.78	0.298	0.292	0.211	0.292	0.211	N	1.37	1.53	1.58	2.38	--	--	--	--	--
Nickel-63	0 / 9	pCi/g	0.618	1.1	0.618	0.839	0.792	1.1	0.158	--	--	--	--	-0.191	0.185	--	--	N	0.839	0.913	0.937	1.32	--	--	1.3E+08	NSRC	NSRC

Table G.10. Y-12 Biology Complex summary statistics for Exterior Walls from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	8 / 8	pCi/g	--	--	12.9	23.5	21.4	43.3	10.3	12.9	23.5	43.3	10.3	3.08	0.411	3.08	0.411	N	23.5	28.6	30.4	56.2	--	--	4.2E+06	--	--
Radium-226	7 / 9	pCi/g	0.312	0.613	0.312	1.37	1.03	2.59	0.788	0.86	1.64	2.59	0.681	0.136	0.688	0.411	0.443	N	1.37	1.74	1.86	3.76	--	--	300,000	--	--
Strontium-89	0 / 9	pCi/g	1.3	1.86	1.3	1.65	1.59	1.86	0.191	--	--	--	--	0.494	0.12	--	--	N	1.65	1.74	1.77	2.23	--	--	--	NSRC	NSRC
Strontium-90	0 / 9	pCi/g	0.769	1.99	0.769	1.43	1.53	1.99	0.488	--	--	--	--	0.301	0.376	--	--	N	1.43	1.66	1.74	2.91	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 9	pCi/g	4.6	8.92	4.6	5.69	5.09	8.92	1.34	--	--	--	--	1.72	0.204	--	--	B	5.65	6.65	6.99	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.44	0.48	0.48	0.519	0.056	0.44	0.48	0.519	0.056	-0.738	0.117	-0.738	0.117	B	0.48	0.5	0.504	--	--	--	--	--	--
Thorium-228	8 / 9	pCi/g	0.782	0.782	0.782	1.29	1.32	1.76	0.272	1.04	1.35	1.76	0.208	0.231	0.228	0.291	0.151	N	1.29	1.41	1.46	2.11	--	--	25,000	--	--
Thorium-230	8 / 9	pCi/g	0.594	0.594	0.594	1.27	1.28	1.9	0.464	0.85	1.35	1.9	0.417	0.171	0.395	0.257	0.318	N	1.27	1.48	1.55	2.67	--	--	15,000	--	--
Thorium-232	8 / 9	pCi/g	0.571	0.571	0.571	1.22	1.33	1.52	0.303	0.882	1.3	1.52	0.194	0.159	0.312	0.249	0.168	B	1.24	1.43	1.46	--	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	9 / 9	pCi/g	--	--	1.73	26.3	3.05	215	70.7	1.73	26.3	215	70.7	1.48	1.47	1.48	1.47	B	38.2	81.7	99.2	--	--	--	--	--	--
Tritium	0 / 9	pCi/g	12.3	32.1	12.3	15.3	12.6	32.1	6.38	--	--	--	--	2.67	0.306	--	--	B	15.8	19.9	21.5	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	9 / 9	pCi/g	--	--	0.979	4.52	1.26	30.3	9.67	0.979	4.52	30.3	9.67	0.596	1.07	0.596	1.07	B	6.05	12.1	14.5	--	1700	2.8E+07	100,000	0.004	2.2E-07
Uranium-235/236	1 / 9	pCi/g	0.31	0.699	0.31	0.88	0.597	3.38	0.944	3.38	3.38	3.38	--	-0.389	0.648	1.22	--	B	1.01	1.71	1.96	--	1500	9500	100,000	6.8E-04	1.1E-04
Uranium-238	9 / 9	pCi/g	--	--	0.57	21.2	1.27	182	60.3	0.57	21.2	182	60.3	0.669	1.73	0.669	1.73	B	31.3	68.2	83.0	--	1200	1500	100,000	0.026	0.021
																									SOF =	0.03	0.032

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.11. Y-12 Biology Complex summary statistics for Floors from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Floors from all buildings combined (random and biased)																											
Metals																											
Antimony	4 / 7	mg/kg	0.31	0.321	0.155	0.628	0.595	1.61	0.545	0.595	0.98	1.61	0.455	-0.846	0.986	-0.096	0.44	N	0.628	0.924	1.03	--	--	160	--	--	0.004
Arsenic	6 / 7	mg/kg	1.6	1.6	0.8	3.81	3.88	8.2	2.36	1.89	4.31	8.2	2.15	1.14	0.745	1.36	0.485	N	3.81	5.09	5.54	--	--	--	--	--	--
Barium	7 / 7	mg/kg	--	--	49.2	124	67	398	125	49.2	124	398	125	4.53	0.727	4.53	0.727	B	119	195	223	--	--	150,000	--	--	7.9E-04
Beryllium	7 / 7	mg/kg	--	--	0.107	0.303	0.32	0.497	0.134	0.107	0.303	0.497	0.134	-1.3	0.528	-1.3	0.528	N	0.303	0.376	0.401	0.759	--	--	--	--	--
Boron	7 / 7	mg/kg	--	--	8.35	14.6	12	26.8	6.17	8.35	14.6	26.8	6.17	2.62	0.382	2.62	0.382	N	14.6	18.0	19.1	35.6	--	24,000	--	--	6.1E-04
Cadmium	6 / 7	mg/kg	0.019	0.019	0.009	1.78	0.218	10.6	3.91	0.05	2.07	10.6	4.19	-1.46	2.29	-0.923	1.97	L	1.47	4.83	6.35	566	--	--	--	--	--
Chromium	7 / 7	mg/kg	--	--	4.72	20.7	11.9	81.9	27.1	4.72	20.7	81.9	27.1	2.6	0.873	2.6	0.873	B	22.4	39.9	46.1	--	--	140,000	--	--	1.6E-04
Copper	7 / 7	mg/kg	--	--	4.76	11.9	15	20.9	6.8	4.76	11.9	20.9	6.8	2.3	0.672	2.3	0.672	B	14.3	18.2	18.9	--	--	--	--	--	--
Hafnium	5 / 7	mg/kg	0.567	0.584	0.284	0.832	0.598	1.54	0.525	0.568	1.05	1.54	0.454	-0.383	0.706	-0.037	0.475	N	0.832	1.12	1.22	--	--	--	--	--	--
Lead	7 / 7	mg/kg	--	--	1.32	6.0	6.87	12.3	3.68	1.32	6.0	12.3	3.68	1.57	0.787	1.57	0.787	N	6.0	8.0	8.7	18.5	--	1500	--	--	0.004
Manganese	7 / 7	mg/kg	--	--	82.9	247	101	716	247	82.9	247	716	247	5.15	0.863	5.15	0.863	B	200	334	386	--	--	360,000	--	--	5.6E-04
Mercury	6 / 7	mg/kg	0.004	0.004	0.002	0.033	0.031	0.107	0.036	0.006	0.039	0.107	0.037	-4.04	1.38	-3.67	1.05	L	0.037	0.094	0.12	1.9	--	--	--	--	--
Molybdenum	7 / 7	mg/kg	--	--	0.097	0.665	0.558	1.72	0.517	0.097	0.665	1.72	0.517	-0.685	0.875	-0.685	0.875	N	0.665	0.946	1.04	2.42	--	3900	--	--	1.7E-04
Nickel	7 / 7	mg/kg	--	--	2.45	8.64	5.45	27.4	8.53	2.45	8.64	27.4	8.53	1.87	0.76	1.87	0.76	L	8.64	16.3	22.3	85.6	--	--	--	--	--
Selenium	3 / 7	mg/kg	1.64	1.75	0.409	0.824	0.84	1.14	0.214	0.409	0.794	1.14	0.367	-0.231	0.314	-0.316	0.525	B	0.818	0.998	1.03	--	--	1600	--	--	5.1E-04
Silver	5 / 7	mg/kg	0.479	0.909	0.24	5.72	5.86	15	5.06	3.71	7.87	15	4.27	1.08	1.56	1.96	0.506	N	5.72	8.48	9.44	--	--	--	--	--	--
Strontium	7 / 7	mg/kg	--	--	127	234	266	293	63.2	127	234	293	63.2	5.42	0.31	5.42	0.31	N	234	269	281	449	--	300,000	--	--	7.8E-04
Thallium	0 / 7	mg/kg	0.128	0.681	0.064	0.105	0.066	0.341	0.104	--	--	--	--	-2.48	0.619	--	--	B	0.111	0.168	0.191	--	--	--	--	NSRC	NSRC
Tin	4 / 7	mg/kg	0.282	2.99	0.141	3.72	4.11	7.85	3.25	4.11	6.06	7.85	1.92	0.507	1.77	1.76	0.329	N	3.72	5.49	6.11	--	--	2200	--	--	0.002
Vanadium	7 / 7	mg/kg	--	--	6.08	15.7	12.7	43.8	12.7	6.08	15.7	43.8	12.7	2.56	0.608	2.56	0.608	L	15.6	24.7	30.5	103	--	25,000	--	--	6.3E-04
Zinc	7 / 7	mg/kg	--	--	15	199	32.6	1120	407	15	199	1120	407	4.09	1.45	4.09	1.45	B	211	440	530	--	--	--	--	--	--
Zirconium	7 / 7	mg/kg	--	--	5.08	29.6	21.6	54.7	17.8	5.08	29.6	54.7	17.8	3.17	0.807	3.17	0.807	N	29.6	39.3	42.7	90.1	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 7	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	7 / 7	mg/L	--	--	0.268	0.355	0.345	0.579	0.104	0.268	0.355	0.579	0.104	-1.07	0.253	-1.07	0.253	G	0.355	0.437	0.47	0.778	--	--	--	--	--
Cadmium	2 / 7	mg/L	0.003	0.003	0.002	0.008	0.003	0.03	0.009	0.014	0.022	0.03	0.011	-5.76	1.29	-3.9	0.542	G*	0.008	0.02	0.027	0.098	--	--	--	--	--
Chromium	5 / 7	mg/L	0.03	0.03	0.015	0.067	0.066	0.128	0.037	0.033	0.082	0.128	0.039	-3.06	0.894	-2.6	0.538	N*	0.067	0.09	0.098	0.193	--	--	--	--	--
Lead	0 / 7	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 7	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 7	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 7	mg/kg	0.002	0.008	8.3E-04	0.004	0.004	0.009	0.003	0.009	0.009	0.009	--	-5.85	0.899	-4.73	--	B	0.004	0.006	0.007	--	--	119	--	--	3.7E-05
Silvex	0 / 7	mg/kg	0.002	0.008	8.3E-04	0.003	0.004	0.004	0.002	--	--	--	--	-6.19	0.852	--	--	B	0.003	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.003	4.9E-04	0.011	0.004	0.001	0.006	0.011	0.007	-6.72	1.3	-5.64	1.58	B	0.002	0.004	0.005	--	130,000	--	--	1.7E-08	--
4,4'-DDT	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Aldrin	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 7	mg/kg	0.005	0.049	0.002	0.006	0.002	0.025	0.008	--	--	--	--	-5.68	0.87	--	--	B	0.006	0.011	0.012	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	1000	1500	--	NSRC	NSRC

Table G.11. Y-12 Biology Complex summary statistics for Floors from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 7	mg/kg	0.005	0.049	0.002	0.006	0.002	0.025	0.008	--	--	--	--	-5.68	0.87	--	--	B	0.006	0.011	0.012	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 7	mg/kg	0.016	0.164	0.008	0.019	0.008	0.082	0.028	--	--	--	--	-4.47	0.87	--	--	B	0.021	0.036	0.042	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 61	mg/kg	0.01	0.75	0.005	0.973	0.015	31.1	4.51	0.137	9.51	31.1	12.1	-3.4	1.85	0.825	2.32	B	5.19	11.5	14.0	31.1	--	4000	--	--	0.001
2-Methylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	850	--	NSRC	NSRC
Acenaphthene	5 / 61	mg/kg	0.01	0.75	0.005	0.696	0.015	23.7	3.37	0.048	8.04	23.7	9.83	-3.51	1.71	0.48	2.73	B	3.96	8.76	10.7	23.7	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 61	mg/kg	0.01	0.75	0.005	0.051	0.015	0.455	0.088	0.309	0.382	0.455	0.103	-3.79	1.13	-0.981	0.274	B	0.087	0.181	0.217	0.455	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 61	mg/kg	0.099	7.5	0.049	0.413	0.149	3.75	0.627	0.405	0.405	0.405	--	-1.54	1.03	-0.904	--	B	0.733	1.51	1.81	0.405	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 61	mg/kg	0.099	7.5	0.049	0.468	0.149	3.75	0.65	0.623	1.06	1.54	0.394	-1.43	1.1	0.005	0.389	B	0.733	1.51	1.81	1.54	--	1200	--	--	6.1E-04
Benzidine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 61	mg/kg	0.164	12.5	0.082	0.68	0.248	6.25	1.05	--	--	--	--	-1.05	1.03	--	--	B	1.22	2.52	3.02	50	--	9810	--	NSRC	NSRC
Carbazole	4 / 61	mg/kg	0.01	0.75	0.005	0.263	0.015	8.86	1.28	0.033	3.43	8.86	4.26	-3.67	1.44	-0.724	3.01	B	1.49	3.28	4.01	8.86	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	10 / 61	mg/kg	0.099	7.5	0.049	0.516	0.15	3.75	0.647	0.223	0.785	1.69	0.414	-1.27	1.08	-0.377	0.572	B	0.733	1.51	1.81	1.69	--	190	--	--	0.004
Diethyl phthalate	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 61	mg/kg	0.099	7.5	0.049	0.415	0.149	3.75	0.628	0.569	0.569	0.569	--	-1.54	1.04	-0.564	--	B	0.733	1.51	1.81	0.569	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	2800	500	--	NSRC	NSRC
Isophorone	8 / 61	mg/kg	0.099	7.5	0.049	0.541	0.149	3.75	0.758	0.35	1.33	3.54	0.984	-1.34	1.16	0.079	0.678	B	0.733	1.51	1.81	3.54	6100	15,000	--	1.2E-04	4.9E-05
N-Nitroso-di-n-propylamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
Phenol	2 / 61	mg/kg	0.099	7.5	0.049	0.476	0.149	3.75	0.708	1.81	2.21	2.61	0.566	-1.47	1.11	0.776	0.259	B	0.733	1.51	1.81	2.61	--	3200	--	NSRC	NSRC
Pyridine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	0.688	0.688	0.688	0.688	--	0.688	0.688	0.688	--	-0.374	--	-0.374	--	B	0.688	0.688	0.688	--	--	--	--	--	--
Alpha activity	34 / 66	pCi/g	2.27	9.99	2.27	13.4	8.21	208	26.1	3.09	19.2	208	35.5	2.17	0.719	2.41	0.869	B	40.5	84.0	101	208	--	--	--	--	--
Beta activity	58 / 66	pCi/g	3.1	4.38	1.56	16.1	8.26	370	46.2	1.56	17.8	370	49.1	2.11	0.854	2.21	0.859	B	67.4	144	174	370	--	--	--	--	--
Bismuth-214	3 / 3	pCi/g	--	--	0.353	0.484	0.484	0.616	0.132	0.353	0.484	0.616	0.132	-0.75	0.279	-0.75	0.279	B	0.484	0.551	0.566	--	--	--	--	--	--
Carbon-14	3 / 61	pCi/g	0.512	2.52	0.512	1.86	2.21	2.52	0.66	0.661	0.762	0.959	0.17	0.52	0.501	-0.287	0.212	B	1.98	2.38	2.43	1.2	165	--	1.0E+07	NSRC	NSRC
Cesium-137	1 / 61	pCi/g	0.049	0.19	0.049	0.105	0.1	0.211	0.03	0.211	0.211	0.211	--	-2.29	0.271	-1.56	--	L	0.105	0.11	0.111	0.175	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 61	pCi/g	0.035	0.237	0.035	0.122	0.12	0.237	0.04	--	--	--	--	-2.16	0.365	--	--	N	0.122	0.129	0.131	0.202	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 61	pCi/g	0.258	1.27	0.258	0.749	0.749	1.27	0.249	--	--	--	--	-0.349	0.361	--	--	N	0.749	0.79	0.802	1.25	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.294	0.682	0.564	1.53	0.489	0.294	0.682	1.53	0.489	-0.548	0.611	-0.548	0.611	B	0.68	0.986	1.08	--	--	--	--	--	--
Lead-214	5 / 5	pCi/g	--	--	0.394	0.481	0.464	0.624	0.088	0.394	0.481	0.624	0.088	-0.745	0.174	-0.745	0.174	B	0.479	0.537	0.554	--	--	--	--	--	--
Nickel-63	0 / 61	pCi/g	0.41	1.51	0.41	0.809	0.769	1.51	0.219	--	--	--	--	-0.248	0.269	--	--	N	0.809	0.845	0.856	1.25	--	--	1.3E+08	NSRC	NSRC

Table G.11. Y-12 Biology Complex summary statistics for Floors from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	21 / 21	pCi/g	--	--	1.88	7.3	7.22	18.9	3.44	1.88	7.3	18.9	3.44	1.89	0.458	1.89	0.458	L	7.36	8.55	8.99	19.6	--	--	4.2E+06	--	--
Radium-226	32 / 61	pCi/g	0.359	1.05	0.359	0.777	0.753	1.62	0.26	0.394	0.878	1.62	0.292	-0.304	0.323	-0.184	0.334	L	0.777	0.823	0.837	1.42	--	--	300,000	--	--
Strontium-89	0 / 61	pCi/g	0.795	1.98	0.795	1.69	1.79	1.98	0.238	--	--	--	--	0.513	0.163	--	--	B	1.66	1.89	1.92	1.44	--	--	--	NSRC	NSRC
Strontium-90	0 / 61	pCi/g	0.637	2	0.637	1.56	1.69	2	0.378	--	--	--	--	0.407	0.296	--	--	B	1.57	1.86	1.91	1.24	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 66	pCi/g	2.96	8.91	2.96	5.69	5.68	8.91	0.988	--	--	--	--	1.72	0.179	--	--	N	5.69	5.84	5.89	7.66	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.58	0.58	0.58	0.58	--	0.58	0.58	0.58	--	-0.545	--	-0.545	--	B	0.58	0.58	0.58	--	--	--	--	--	--
Thorium-228	9 / 61	pCi/g	0.192	1.31	0.192	0.566	0.56	1.41	0.25	0.225	0.487	1.41	0.373	-0.667	0.455	-0.901	0.59	N	0.566	0.608	0.62	1.07	--	--	25,000	--	--
Thorium-230	37 / 61	pCi/g	0.31	1.05	0.291	0.688	0.598	1.94	0.321	0.291	0.705	1.94	0.377	-0.462	0.41	-0.458	0.448	L	0.684	0.796	0.846	1.44	--	--	15,000	--	--
Thorium-232	19 / 61	pCi/g	0.139	0.956	0.139	0.466	0.441	1.61	0.23	0.184	0.451	1.61	0.325	-0.867	0.456	-0.957	0.539	B	0.586	0.947	1.06	1.61	--	--	2500	--	--
Total Uranium	45 / 61	pCi/g	0.556	2.02	0.556	2.22	1.29	23.9	3.7	0.802	2.58	23.9	4.26	0.422	0.648	0.513	0.715	B	4.94	9.89	11.8	23.9	--	--	--	--	--
Tritium	0 / 61	pCi/g	4.61	14.7	4.61	12.2	13	14.7	2.69	--	--	--	--	2.47	0.288	--	--	B	11.9	13.9	14.2	12.1	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	46 / 66	pCi/g	0.296	1.08	0.296	3.06	0.644	81.5	10.8	0.403	4.1	81.5	12.8	-0.113	1.07	0.043	1.23	B	14.1	30.6	37.2	81.5	1700	2.8E+07	100,000	0.008	5.0E-07
Uranium-235/236	4 / 66	pCi/g	0.296	1.38	0.296	0.677	0.557	5.64	0.689	0.633	2.33	5.64	2.35	-0.554	0.466	0.439	1.05	B	1.36	2.52	2.95	5.64	1500	9500	100,000	9.1E-04	1.4E-04
Uranium-238	43 / 66	pCi/g	0.277	1.01	0.277	1.98	0.559	57.9	7.43	0.374	2.74	57.9	9.15	-0.331	0.89	-0.191	1.06	B	10.1	21.8	26.5	57.9	1200	1500	100,000	0.008	0.007
																									SOF =	0.018	0.027

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.12. Y-12 Biology Complex summary statistics for Hoods from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Hoods from all buildings combined (random and biased)																											
Metals																											
Antimony	5 / 6	mg/kg	0.174	0.174	0.087	3.9	1.44	14.6	5.59	0.464	4.66	14.6	5.89	0.253	1.85	0.792	1.44	L	4.33	13.1	17.1	1206	--	160	--	--	0.027
Arsenic	2 / 6	mg/kg	0.178	0.351	0.089	2.19	0.155	9.95	3.94	2.67	6.31	9.95	5.15	-0.833	1.97	1.64	0.93	B	1.78	3.79	4.6	--	--	--	--	--	--
Barium	5 / 6	mg/kg	0.053	0.053	0.026	1239	5.05	7410	3023	0.203	1487	7410	3311	1.38	4.37	2.39	4.04	L	1239	4942	6619	4.3E+07	--	150,000	--	--	0.008
Beryllium	1 / 6	mg/kg	0.011	0.082	0.005	0.03	0.009	0.108	0.041	0.108	0.108	0.108	--	-4.17	1.19	-2.23	--	L	0.027	0.065	0.082	1.27	--	--	--	--	--
Boron	3 / 6	mg/kg	0.422	3.26	0.211	666	1.49	3990	1628	1.34	1332	3990	2302	1.36	3.56	3.38	4.3	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	5 / 6	mg/kg	0.011	0.011	0.005	2.54	1.04	10.9	4.16	0.194	3.04	10.9	4.44	-0.625	2.61	0.298	1.46	L	4.75	16.6	22.0	8601	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	0.596	233	17.3	1290	519	0.596	233	1290	519	2.69	2.9	2.69	2.9	L	194	701	931	679,295	--	140,000	--	--	0.001
Copper	6 / 6	mg/kg	--	--	0.306	48.8	20.3	184	70.9	0.306	48.8	184	70.9	2.16	2.69	2.16	2.69	L	86.0	304	403	188,969	--	--	--	--	--
Hafnium	0 / 6	mg/kg	0.317	2.93	0.159	0.602	0.275	1.47	0.582	--	--	--	--	-0.899	0.949	--	--	B	0.454	0.75	0.854	--	--	--	--	NSRC	NSRC
Lead	6 / 6	mg/kg	--	--	0.06	249	110	1010	385	0.06	249	1010	385	3.49	3.48	3.49	3.48	L	249	721	934	1.3E+07	--	1500	--	--	0.166
Manganese	6 / 6	mg/kg	--	--	0.144	266	15.2	1530	619	0.144	266	1530	619	2.36	3.2	2.36	3.2	L	215	799	1064	1.5E+06	--	360,000	--	--	6.0E-04
Mercury	5 / 6	mg/kg	0.002	0.002	0.001	0.088	0.015	0.448	0.177	0.009	0.105	0.448	0.192	-4.02	1.99	-3.45	1.6	L	0.072	0.225	0.295	29.0	--	--	--	--	--
Molybdenum	5 / 6	mg/kg	0.058	0.058	0.029	5.94	0.678	23.9	9.66	0.05	7.12	23.9	10.3	-0.415	2.78	0.212	2.59	L	7.38	26.4	35.0	19,718	--	3900	--	--	0.002
Nickel	6 / 6	mg/kg	--	--	0.217	69.2	10.7	284	113	0.217	69.2	284	113	1.76	3.09	1.76	3.09	L	101	373	497	550,302	--	--	--	--	--
Selenium	1 / 6	mg/kg	0.19	1.47	0.095	0.757	0.165	3.25	1.24	3.25	3.25	3.25	--	-1.19	1.36	1.18	--	L	0.614	1.59	2.04	47.5	--	1600	--	--	3.8E-04
Silver	3 / 6	mg/kg	0.053	0.079	0.026	2.51	0.471	13	5.16	0.903	4.99	13	6.94	-1.28	2.51	0.84	1.5	L	2.15	7.43	9.82	3061	--	--	--	--	--
Strontium	2 / 6	mg/kg	0.317	2.45	0.159	6.89	0.769	36.9	14.7	2.52	19.7	36.9	24.3	0.049	2.04	2.27	1.9	L	6.89	24.9	33.1	1989	--	300,000	--	--	2.3E-05
Thallium	0 / 6	mg/kg	0.074	0.684	0.037	0.141	0.064	0.342	0.136	--	--	--	--	-2.35	0.949	--	--	B	0.106	0.175	0.2	--	--	--	--	NSRC	NSRC
Tin	5 / 6	mg/kg	0.158	0.158	0.079	24.5	2.01	132	52.8	0.745	29.4	132	57.5	0.926	2.52	1.62	2.08	L	19.7	68.0	89.8	28,402	--	2200	--	--	0.009
Vanadium	2 / 6	mg/kg	0.158	1.22	0.079	10.3	0.365	59.6	24.2	1.36	30.5	59.6	41.2	-0.499	2.51	2.2	2.67	L	10.3	39.9	53.3	6669	--	25,000	--	--	4.1E-04
Zinc	6 / 6	mg/kg	--	--	1.33	1169	22.5	5600	2235	1.33	1169	5600	2235	4.2	3.1	4.2	3.1	L	1187	4378	5823	6.6E+06	--	--	--	--	--
Zirconium	3 / 6	mg/kg	0.211	1.63	0.106	1.24	0.689	4.94	1.84	0.618	2.11	4.94	2.46	-0.531	1.32	0.28	1.15	L	1.14	2.92	3.73	79.1	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.028	0.478	0.478	0.929	0.637	0.028	0.478	0.929	0.637	-1.83	2.48	-1.83	2.48	X	0.478	1.83	2.44	--	--	--	--	--	--
Cadmium	2 / 2	mg/L	--	--	0.03	0.034	0.034	0.039	0.006	0.03	0.034	0.039	0.006	-3.39	0.185	-3.39	0.185	X	0.034	0.048	0.054	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.183	0.517	0.517	0.85	0.472	0.183	0.517	0.85	0.472	-0.93	1.09	-0.93	1.09	X	0.517	1.52	1.97	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	3.91	4.94	4.94	5.97	1.46	3.91	4.94	5.97	1.46	1.58	0.299	1.58	0.299	X	4.94	8.03	9.43	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 5	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	5.2E-04	--	--	--	--	-5.83	0.194	--	--	B	0.003	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 5	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	5.2E-04	--	--	--	--	-5.83	0.194	--	--	B	0.003	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 5	mg/kg	3.7E-04	7.1E-04	1.8E-04	0.002	3.5E-04	0.007	0.003	0.001	0.004	0.007	0.004	-7.29	1.51	-5.8	1.21	B	0.001	0.003	0.003	--	130,000	--	--	1.1E-08	--
4,4'-DDT	1 / 5	mg/kg	3.7E-04	8.7E-04	1.8E-04	5.7E-04	3.5E-04	0.002	6.0E-04	0.002	0.002	0.002	--	-7.81	0.84	-6.43	--	B	5.4E-04	8.7E-04	9.8E-04	--	--	--	--	--	--
Aldrin	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 5	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	7.5E-04	--	--	--	--	-6.91	0.893	--	--	B	0.001	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 5	mg/kg	9.1E-05	7.1E-04	4.5E-05	0.001	2.5E-04	0.005	0.002	0.005	0.005	0.005	--	-8.04	1.71	-5.31	--	B	9.9E-04	0.002	0.002	--	--	330,000	--	--	3.0E-09
Endrin	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	2400	69,000	--	NSRC	NSRC

Table G.12. Y-12 Biology Complex summary statistics for Hoods from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 5	mg/kg	1.8E-04	4.3E-04	7.9E-05	1.4E-04	1.2E-04	2.2E-04	5.8E-05	7.9E-05	7.9E-05	7.9E-05	--	-8.96	0.427	-9.44	--	B	1.3E-04	1.7E-04	1.8E-04	--	1000	1500	--	1.3E-07	8.8E-08
Lindane	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	7.5E-04	--	--	--	--	-6.91	0.893	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/kg	0.002	0.014	7.6E-04	0.004	0.004	0.007	0.003	--	--	--	--	-5.71	0.891	--	--	B	0.004	0.006	0.006	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 38	mg/kg	0.024	29.4	0.012	0.891	0.199	14.7	2.4	0.23	0.23	0.23	--	-1.4	1.54	-1.47	--	L	0.806	1.43	1.73	6.64	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 38	mg/kg	0.041	49	0.02	1.48	0.262	24.5	4.0	--	--	--	--	-0.903	1.54	--	--	B	4.26	9.29	11.3	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	2 / 38	mg/kg	0.024	29.4	0.012	0.92	0.209	14.7	2.39	0.483	0.787	1.09	0.429	-1.32	1.54	-0.321	0.576	L	0.876	1.56	1.89	7.24	--	190	--	--	0.005
Diethyl phthalate	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 38	mg/kg	0.024	29.4	0.012	0.89	0.157	14.7	2.4	0.129	0.129	0.129	--	-1.39	1.53	-2.05	--	L	0.795	1.4	1.69	6.51	--	--	--	NSRC	NSRC
Phenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 40	pCi/g	2.08	9.25	2.08	5.2	3.35	48.3	7.28	3.11	18.6	48.3	25.8	1.38	0.57	2.16	1.5	B	10.6	20.4	24.1	--	--	--	--	--	--
Americium-241	0 / 37	pCi/g	0.142	0.611	0.142	0.253	0.229	0.611	0.112	--	--	--	--	-1.45	0.366	--	--	B	0.278	0.392	0.428	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	2 / 40	pCi/g	2.54	5.74	2.54	5.23	4.08	34.8	5.36	18.5	26.7	34.8	11.5	1.48	0.454	3.23	0.447	B	8.94	15.9	18.5	--	--	--	--	--	--
Carbon-14	5 / 38	pCi/g	0.312	2.4	0.312	11.8	0.667	416	67.3	0.549	85.1	416	185	-0.175	1.15	1.66	2.57	B	69.8	154	188	--	165	--	1.0E+07	0.423	--
Cesium-137	1 / 38	pCi/g	0.049	0.544	0.049	0.183	0.134	0.544	0.123	0.21	0.21	0.21	--	-1.89	0.618	-1.56	--	L	0.183	0.213	0.224	0.567	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 38	pCi/g	0.03	0.514	0.03	0.187	0.138	0.514	0.119	--	--	--	--	-1.86	0.634	--	--	L	0.19	0.222	0.234	0.603	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 38	pCi/g	0.207	1.37	0.207	0.674	0.603	1.37	0.28	--	--	--	--	-0.478	0.419	--	--	L	0.677	0.746	0.769	1.52	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 37	pCi/g	0.163	0.744	0.163	0.346	0.319	0.744	0.157	--	--	--	--	-1.15	0.422	--	--	L	0.346	0.382	0.394	0.783	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 38	pCi/g	0.655	3.51	0.655	1.13	1.03	3.51	0.521	--	--	--	--	0.054	0.345	--	--	B	1.38	2.05	2.28	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 37	pCi/g	0.147	0.966	0.147	0.282	0.225	0.966	0.196	--	--	--	--	-1.4	0.47	--	--	B	0.336	0.522	0.588	--	--	--	15,000	NSRC	NSRC

Table G.12. Y-12 Biology Complex summary statistics for Hoods from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 37	pCi/g	0.149	1.15	0.149	0.309	0.223	1.15	0.238	--	--	--	--	-1.34	0.502	--	--	B	0.365	0.589	0.669	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 37	pCi/g	7.61	18.3	7.61	11.8	12.2	18.3	2.97	--	--	--	--	2.43	0.259	--	--	B	12.5	15.2	15.9	--	--	--	790,000	NSRC	NSRC
Radium-226	5 / 38	pCi/g	0.196	0.977	0.137	0.53	0.528	0.977	0.182	0.137	0.452	0.664	0.226	-0.701	0.394	-0.937	0.657	N	0.53	0.569	0.58	0.92	--	--	300,000	--	--
Strontium-89	0 / 38	pCi/g	0.983	1.95	0.983	1.61	1.7	1.95	0.255	--	--	--	--	0.465	0.172	--	--	B	1.62	1.84	1.87	--	--	--	--	NSRC	NSRC
Strontium-90	9 / 38	pCi/g	1.22	1.99	1.22	2.28	1.85	14.4	2.15	1.98	4.27	14.4	3.9	0.67	0.449	1.24	0.61	B	3.84	6.69	7.76	--	--	--	400,000	--	--
Technetium-99	1 / 40	pCi/g	4	8.47	4	6.26	5.92	16.8	2.03	16.8	16.8	16.8	--	1.8	0.247	2.82	--	B	7.41	10.5	11.5	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 38	pCi/g	0.314	1.38	0.314	0.66	0.558	1.38	0.301	--	--	--	--	-0.505	0.416	--	--	B	0.654	0.919	0.998	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 38	pCi/g	0.237	1.13	0.237	0.547	0.474	1.13	0.247	0.562	0.562	0.562	--	-0.697	0.436	-0.576	--	L	0.548	0.607	0.626	1.27	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 38	pCi/g	0.228	0.98	0.228	0.479	0.41	0.98	0.211	--	--	--	--	-0.82	0.404	--	--	B	0.474	0.662	0.718	--	--	--	2500	NSRC	NSRC
Total Uranium	5 / 38	pCi/g	0.421	2.03	0.421	1.03	0.82	3.04	0.562	0.792	1.73	3.04	0.894	-0.089	0.47	0.44	0.532	L	1.02	1.26	1.37	2.5	--	--	--	--	--
Tritium	0 / 38	pCi/g	3.97	15.3	3.97	9.38	9.09	15.3	2.53	--	--	--	--	2.2	0.287	--	--	N	9.38	9.92	10.1	14.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	5 / 40	pCi/g	0.228	1.16	0.228	0.63	0.47	2.27	0.428	0.725	1.45	2.27	0.583	-0.625	0.543	0.303	0.433	B	0.73	1.2	1.37	--	1700	2.8E+07	100,000	4.3E-04	2.6E-08
Uranium-235/236	0 / 40	pCi/g	0.266	1.28	0.266	0.565	0.504	1.28	0.249	--	--	--	--	-0.65	0.39	--	--	L	0.562	0.669	0.718	1.2	1500	9500	100,000	NSRC	NSRC
Uranium-238	3 / 40	pCi/g	0.213	1.06	0.213	0.473	0.429	1.06	0.203	0.361	0.483	0.594	0.117	-0.827	0.39	-0.748	0.252	L	0.472	0.515	0.529	1.0	1200	1500	100,000	3.9E-04	3.1E-04
																									SOF =	0.424	0.247

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.13. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Walls from all buildings combined (random and biased)																											
Metals																											
Antimony	4 / 5	mg/kg	0.286	0.286	0.143	0.492	0.433	1.03	0.335	0.313	0.579	1.03	0.315	-0.906	0.726	-0.646	0.503	B	0.484	0.711	0.772	--	--	160	--	--	0.003
Arsenic	3 / 6	mg/kg	0.323	1.49	0.162	2.01	1.14	7.68	2.86	1.54	3.66	7.68	3.49	-0.147	1.49	1.01	0.893	L	1.98	5.4	6.95	220	--	--	--	--	--
Barium	6 / 6	mg/kg	--	--	13	23.2	22.4	38	10.1	13	23.2	38	10.1	3.06	0.452	3.06	0.452	N	23.2	29.3	31.5	60.8	--	150,000	--	--	1.5E-04
Beryllium	4 / 5	mg/kg	0.02	0.02	0.01	0.065	0.024	0.185	0.074	0.019	0.079	0.185	0.077	-3.28	1.2	-2.95	1.08	B	0.048	0.088	0.102	--	--	--	--	--	--
Boron	3 / 5	mg/kg	0.758	0.763	0.379	21.1	2.61	99.2	43.7	2.61	34.9	99.2	55.7	0.933	2.27	2.2	2.08	B	18.3	39.0	47.1	--	--	24,000	--	--	7.6E-04
Cadmium	5 / 6	mg/kg	0.019	0.019	0.01	1.06	0.061	6.12	2.48	0.017	1.28	6.12	2.71	-2.44	2.28	-2.0	2.25	L	1.06	4.1	5.47	410	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	1.85	5.82	4.09	12.7	4.76	1.85	5.82	12.7	4.76	1.44	0.9	1.44	0.9	N	5.82	8.69	9.74	23.5	--	140,000	--	--	4.2E-05
Copper	5 / 5	mg/kg	--	--	0.768	2.73	2.71	4.53	1.49	0.768	2.73	4.53	1.49	0.839	0.702	0.839	0.702	B	2.69	3.64	3.85	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.568	2.65	0.284	0.498	0.295	1.33	0.463	--	--	--	--	-0.932	0.679	--	--	B	0.465	0.679	0.764	--	--	--	--	NSRC	NSRC
Lead	6 / 6	mg/kg	--	--	0.67	16.4	2.59	71.6	27.9	0.67	16.4	71.6	27.9	1.52	1.76	1.52	1.76	L	13.9	41.0	53.2	3063	--	1500	--	--	0.009
Manganese	5 / 5	mg/kg	--	--	20.2	57.4	41.7	148	51.5	20.2	57.4	148	51.5	3.8	0.732	3.8	0.732	B	55.8	86.6	96.5	--	--	360,000	--	--	1.6E-04
Mercury	4 / 6	mg/kg	0.003	0.003	0.002	0.118	0.028	0.59	0.232	0.024	0.176	0.59	0.277	-3.88	2.23	-2.64	1.45	L	0.11	0.362	0.476	78.9	--	--	--	--	--
Molybdenum	3 / 5	mg/kg	0.076	0.079	0.038	0.451	0.127	1.4	0.589	0.127	0.726	1.4	0.64	-1.73	1.64	-0.718	1.23	B	0.324	0.625	0.735	--	--	3900	--	--	8.3E-05
Nickel	5 / 5	mg/kg	--	--	1.03	1.95	1.49	3.81	1.1	1.03	1.95	3.81	1.1	0.558	0.499	0.558	0.499	B	1.8	2.47	2.68	--	--	--	--	--	--
Selenium	1 / 6	mg/kg	0.297	1.59	0.149	0.319	0.175	0.795	0.259	0.448	0.448	0.448	--	-1.37	0.686	-0.803	--	B	0.274	0.412	0.465	--	--	1600	--	--	1.7E-04
Silver	3 / 6	mg/kg	0.097	0.919	0.049	2.33	1.57	6.85	2.61	2.69	4.34	6.85	2.21	-0.08	1.82	1.39	0.483	N	2.33	3.9	4.48	--	--	--	--	--	--
Strontium	5 / 5	mg/kg	--	--	2.69	592	6.3	2470	1070	2.69	592	2470	1070	3.64	3.13	3.64	3.13	B	416	917	1118	--	--	300,000	--	--	0.001
Thallium	0 / 5	mg/kg	0.133	0.618	0.067	0.116	0.069	0.309	0.108	--	--	--	--	-2.39	0.677	--	--	B	0.109	0.158	0.178	--	--	--	--	NSRC	NSRC
Tin	4 / 5	mg/kg	0.292	0.292	0.146	2.54	0.823	6.36	2.83	0.582	3.13	6.36	2.88	0.15	1.56	0.669	1.21	B	1.63	3.07	3.56	--	--	2200	--	--	7.4E-04
Total Uranium	1 / 1	mg/kg	--	--	16,900	16,900	16,900	16,900	--	16,900	16,900	16,900	--	9.74	--	9.74	--	B	16,900	16,900	16,900	--	--	--	--	--	--
Vanadium	5 / 5	mg/kg	--	--	0.786	3.08	1.83	9.5	3.65	0.786	3.08	9.5	3.65	0.674	1.0	0.674	1.0	B	2.93	4.96	5.65	--	--	25,000	--	--	1.2E-04
Zinc	5 / 5	mg/kg	--	--	9.07	22.6	24.9	35.3	10.5	9.07	22.6	35.3	10.5	3.01	0.55	3.01	0.55	B	24.0	30.4	31.7	--	--	--	--	--	--
Zirconium	3 / 5	mg/kg	0.379	0.382	0.19	2.46	1.79	7.25	2.91	1.79	3.98	7.25	2.89	0.062	1.65	1.21	0.711	B	2.43	4.19	4.71	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 6	mg/L	0.017	0.017	0.009	0.02	0.017	0.026	0.004	0.024	0.025	0.026	0.001	-4.41	0.556	-3.69	0.06	G*	0.02	0.023	0.024	0.07	--	--	--	--	--
Barium	6 / 6	mg/L	--	--	0.079	0.151	0.129	0.324	0.088	0.079	0.151	0.324	0.088	-2.0	0.477	-2.0	0.477	L	0.152	0.221	0.264	0.794	--	--	--	--	--
Cadmium	3 / 6	mg/L	0.003	0.003	0.002	0.01	0.003	0.046	0.016	0.003	0.018	0.046	0.025	-5.64	1.33	-4.77	1.47	X*	0.01	0.034	0.045	--	--	--	--	--	--
Chromium	2 / 6	mg/L	0.03	0.03	0.015	0.042	0.03	0.072	0.018	0.062	0.067	0.072	0.007	-3.7	0.771	-2.71	0.104	G*	0.042	0.057	0.064	0.249	--	--	--	--	--
Lead	3 / 6	mg/L	0.005	0.005	0.003	0.197	0.022	0.739	0.283	0.022	0.389	0.739	0.359	-3.83	2.65	-1.67	1.88	X*	0.197	0.621	0.813	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 6	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 6	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 5	mg/kg	0.008	0.017	0.004	0.006	0.004	0.008	0.002	--	--	--	--	-5.22	0.386	--	--	B	0.005	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 5	mg/kg	0.008	0.017	0.004	0.006	0.004	0.008	0.002	--	--	--	--	-5.22	0.386	--	--	B	0.005	0.006	0.006	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Silvex	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 5	mg/kg	9.9E-04	0.02	5.0E-04	0.004	0.002	0.01	0.005	0.002	0.002	0.002	--	-6.19	1.5	-6.48	--	B	0.003	0.005	0.006	--	130,000	--	--	2.1E-08	--
4,4'-DDT	1 / 5	mg/kg	9.8E-04	0.019	4.9E-04	0.011	5.0E-04	0.042	0.018	0.042	0.042	0.042	--	-6.13	2.09	-3.17	--	B	0.007	0.016	0.019	--	--	--	--	--	--
Aldrin	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 5	mg/kg	0.005	0.1	0.002	0.021	0.002	0.05	0.025	--	--	--	--	-4.81	1.63	--	--	B	0.01	0.02	0.024	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	330,000	--	NSRC	NSRC

Table G.13. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/kg	0.005	0.1	0.002	0.021	0.002	0.05	0.025	--	--	--	--	-4.81	1.63	--	--	B	0.01	0.02	0.024	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/kg	0.016	0.332	0.008	0.07	0.008	0.166	0.084	--	--	--	--	-3.61	1.63	--	--	B	0.035	0.067	0.079	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 1	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	--	--	--	--	--	-7.87	--	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 1	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	--	--	--	--	--	-9.9	--	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	--	--	--	--	--	-7.2	--	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1254	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
PCB-1260	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1262	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 46	mg/kg	0.003	0.3	0.002	0.039	0.015	0.15	0.044	0.011	0.034	0.053	0.013	-3.77	1.01	-3.48	0.526	B	0.035	0.069	0.081	--	--	4000	--	--	8.8E-06
2-Methylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	2 / 46	mg/kg	0.099	3	0.034	0.359	0.149	1.5	0.447	0.034	0.035	0.035	0.001	-1.55	0.955	-3.37	0.035	B	0.355	0.684	0.802	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 46	mg/kg	0.003	0.3	0.002	0.037	0.015	0.15	0.045	0.078	0.078	0.078	--	-3.85	1.04	-2.56	--	B	0.035	0.069	0.081	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 46	mg/kg	0.003	0.3	0.002	0.036	0.015	0.15	0.045	--	--	--	--	-3.89	1.02	--	--	B	0.035	0.069	0.081	--	--	93,200	--	NSRC	NSRC
Acetophenone	4 / 46	mg/kg	0.033	3	0.017	0.536	0.149	6.62	1.14	0.305	2.87	6.62	3.09	-1.5	1.16	0.276	1.61	B	1.21	2.58	3.12	--	--	330	--	--	0.004
Benzenemethanol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1200	--	NSRC	NSRC
Benzidine	1 / 46	mg/kg	0.033	3	0.017	0.38	0.149	1.5	0.462	1.17	1.17	1.17	--	-1.54	1.05	0.157	--	B	0.352	0.688	0.807	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 46	mg/kg	0.056	5	0.028	0.677	0.249	2.73	0.814	1.47	2.1	2.73	0.891	-0.983	1.08	0.695	0.438	B	0.625	1.23	1.45	--	--	9810	--	NSRC	NSRC
Carbazole	3 / 46	mg/kg	0.01	0.3	0.005	0.041	0.015	0.239	0.053	0.01	0.089	0.239	0.13	-3.74	0.945	-3.37	1.7	B	0.051	0.101	0.12	--	110,000	--	--	4.6E-07	--
Di-n-butyl phthalate	1 / 46	mg/kg	0.033	3	0.017	0.829	0.149	22.4	3.28	22.4	22.4	22.4	--	-1.51	1.22	3.11	--	B	3.84	8.41	10.2	--	--	190	--	NSRC	NSRC

Table G.13. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 46	mg/kg	0.033	3	0.017	0.364	0.149	1.5	0.447	0.432	0.432	0.432	--	-1.56	1.03	-0.839	--	B	0.352	0.688	0.807	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 46	mg/kg	0.033	3	0.017	0.487	0.149	6.08	0.954	6.08	6.08	6.08	--	-1.5	1.14	1.81	--	B	1.12	2.38	2.88	--	--	--	--	NSRC	NSRC
Phenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 1	mg/L	0.019	0.019	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.68	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	14 / 14	pCi/g	--	--	1.25	1.92	1.83	3.08	0.531	1.25	1.92	3.08	0.531	0.618	0.268	0.618	0.268	N	1.92	2.11	2.17	3.31	--	--	--	--	--
Alpha activity	36 / 46	pCi/g	2.54	8.17	2.54	19.7	19.5	52	11.8	8.51	23.7	52	10.1	2.75	0.765	3.07	0.446	N	19.7	22.0	22.6	44.3	--	--	--	--	--
Beta activity	42 / 46	pCi/g	1.82	4.94	1.82	32.2	26.9	122	24.9	2.47	35.0	122	24.3	3.07	1.06	3.26	0.873	B	38.5	68.1	77.2	--	--	--	--	--	--
Bismuth-214	25 / 25	pCi/g	--	--	0.817	1.29	1.19	2.16	0.389	0.817	1.29	2.16	0.389	0.215	0.288	0.215	0.288	L	1.29	1.4	1.44	2.4	--	--	--	--	--
Carbon-14	0 / 46	pCi/g	0.327	2.49	0.327	1.56	1.92	2.49	0.792	--	--	--	--	0.27	0.654	--	--	B	1.75	2.23	2.31	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 46	pCi/g	0.029	0.189	0.029	0.117	0.122	0.189	0.041	--	--	--	--	-2.22	0.427	--	--	N	0.117	0.125	0.127	0.202	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 46	pCi/g	0.025	0.262	0.025	0.129	0.136	0.262	0.052	--	--	--	--	-2.14	0.484	--	--	N	0.129	0.14	0.142	0.239	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 46	pCi/g	0.142	1.31	0.142	0.673	0.672	1.31	0.292	--	--	--	--	-0.512	0.529	--	--	N	0.673	0.729	0.746	1.28	13	--	1500	NSRC	NSRC
Lead-212	32 / 32	pCi/g	--	--	0.501	1.51	1.48	2.32	0.41	0.501	1.51	2.32	0.41	0.371	0.306	0.371	0.306	N	1.51	1.6	1.63	2.41	--	--	--	--	--
Lead-214	25 / 25	pCi/g	--	--	0.754	1.45	1.22	2.29	0.492	0.754	1.45	2.29	0.492	0.321	0.333	0.321	0.333	B	1.32	1.71	1.82	--	--	--	--	--	--
Nickel-63	1 / 46	pCi/g	0.323	1.44	0.323	0.755	0.81	1.44	0.233	0.834	0.834	0.834	--	-0.332	0.335	-0.182	--	B	0.834	1.12	1.19	--	--	--	1.3E+08	NSRC	NSRC
Potassium-40	34 / 34	pCi/g	--	--	7.68	30.2	27.3	64.5	17.0	7.68	30.2	64.5	17.0	3.24	0.603	3.24	0.603	L	30.7	36.0	37.9	95.0	--	--	4.2E+06	--	--
Radium-226	34 / 46	pCi/g	0.251	1.02	0.251	1.13	0.903	3.15	0.78	0.351	1.32	3.15	0.824	-0.087	0.654	0.082	0.639	L	1.14	1.32	1.38	3.59	--	--	300,000	--	--
Strontium-89	1 / 46	pCi/g	0.504	1.99	0.504	1.74	1.78	4.23	0.483	4.23	4.23	4.23	--	0.519	0.291	1.44	--	B	1.98	2.93	3.18	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 46	pCi/g	0.515	2	0.515	1.53	1.6	2	0.336	--	--	--	--	0.398	0.268	--	--	B	1.48	1.82	1.87	--	--	--	400,000	NSRC	NSRC
Technetium-99	2 / 48	pCi/g	1.19	7.95	0.113	5.34	5.81	7.95	1.86	0.113	0.692	1.27	0.818	1.55	0.691	-0.971	1.71	B	5.21	6.98	7.28	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	21 / 21	pCi/g	--	--	0.192	0.522	0.531	0.737	0.116	0.192	0.522	0.737	0.116	-0.682	0.276	-0.682	0.276	N	0.522	0.555	0.565	0.798	--	--	--	--	--
Thorium-228	29 / 48	pCi/g	0.155	3.76	0.155	1.1	1.05	3.76	0.706	0.223	1.35	2.82	0.559	-0.103	0.661	0.188	0.543	L	1.12	1.3	1.36	3.56	--	--	25,000	--	--
Thorium-230	34 / 48	pCi/g	0.318	3.09	0.294	1.1	0.964	3.2	0.726	0.294	1.28	3.2	0.657	-0.109	0.642	0.117	0.543	L	1.1	1.27	1.33	3.4	--	--	15,000	--	--
Thorium-232	32 / 48	pCi/g	0.237	2.68	0.199	1.06	1.16	2.68	0.648	0.199	1.31	2.36	0.534	-0.17	0.721	0.136	0.607	B	1.25	1.89	2.05	--	--	--	2500	--	--
Total Uranium	32 / 46	pCi/g	0.713	1.59	0.713	1.99	1.7	5.3	1.09	0.716	2.36	5.3	1.11	0.552	0.528	0.745	0.506	L	2.0	2.24	2.32	5.22	--	--	--	--	--
Tritium	0 / 46	pCi/g	6.26	14.6	6.26	10.8	11.2	14.6	2.14	--	--	--	--	2.36	0.212	--	--	B	10.9	13.0	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 1	pCi/g	37.3	37.3	37.3	37.3	37.3	37.3	--	--	--	--	--	3.62	--	--	--	B	37.3	37.3	37.3	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	31 / 48	pCi/g	0.352	0.889	0.352	15.1	0.804	679	97.9	0.392	23.1	679	122	-0.002	1.08	0.29	1.24	B	114	251	307	--	1700	2.8E+07	100,000	0.067	4.1E-06

Table G.13. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Uranium-234	1 / 1	pCi/g	--	--	796	796	796	796	--	796	796	796	--	6.68	--	6.68	--	B	796	796	796	--	1700	2.8E+07	100,000	0.468	2.8E-05
Uranium-235	1 / 1	pCi/g	--	--	75.3	75.3	75.3	75.3	--	75.3	75.3	75.3	--	4.32	--	4.32	--	B	75.3	75.3	75.3	--	1500	9500	100,000	0.05	0.008
Uranium-235/236	1 / 48	pCi/g	0.299	211	0.299	4.97	0.6	211	30.4	0.414	0.414	0.414	--	-0.446	0.905	-0.882	--	B	35.6	78.4	95.6	--	1500	9500	100,000	NSRC	NSRC
Uranium-236	1 / 1	pCi/g	--	--	34.5	34.5	34.5	34.5	--	34.5	34.5	34.5	--	3.54	--	3.54	--	B	34.5	34.5	34.5	--	1700	280,000	100,000	0.02	1.2E-04
Uranium-238	29 / 48	pCi/g	0.289	0.813	0.289	119	0.776	5660	817	0.511	196	5660	1051	-0.052	1.37	0.333	1.65	B	944	2089	2552	--	1200	1500	100,000	0.787	0.629
																									SOF =	**1.39**	0.657

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.14. Y-12 Biology Complex summary statistics for Roofs from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Roofs from all buildings combined (random and biased)																											
Metals																											
Antimony	3 / 4	mg/kg	0.325	0.325	0.163	0.525	0.393	1.15	0.431	0.381	0.645	1.15	0.437	-0.887	0.801	-0.576	0.621	B	0.481	0.727	0.8	--	--	160	--	--	0.003
Arsenic	4 / 4	mg/kg	--	--	4.34	5.39	4.93	7.36	1.35	4.34	5.39	7.36	1.35	1.66	0.231	1.66	0.231	B	5.24	5.98	6.21	--	--	--	--	--	--
Barium	4 / 4	mg/kg	--	--	10.9	26.4	22.0	50.7	17.3	10.9	26.4	50.7	17.3	3.12	0.643	3.12	0.643	B	24.9	35.0	37.8	--	--	150,000	--	--	1.7E-04
Beryllium	4 / 4	mg/kg	--	--	0.06	0.21	0.117	0.545	0.225	0.06	0.21	0.545	0.225	-1.93	0.935	-1.93	0.935	B	0.179	0.292	0.33	--	--	--	--	--	--
Boron	4 / 4	mg/kg	--	--	2.45	4.98	3.93	9.62	3.19	2.45	4.98	9.62	3.19	1.47	0.579	1.47	0.579	B	4.63	6.4	6.94	--	--	24,000	--	--	1.9E-04
Cadmium	4 / 4	mg/kg	--	--	0.754	1.12	1.19	1.34	0.281	0.754	1.12	1.34	0.281	0.086	0.273	0.086	0.273	B	1.14	1.27	1.29	--	--	--	--	--	--
Chromium	4 / 4	mg/kg	--	--	10.4	36.6	29.1	77.7	32.5	10.4	36.6	77.7	32.5	3.23	1.03	3.23	1.03	B	34.1	51.1	55.9	--	--	140,000	--	--	2.4E-04
Copper	4 / 4	mg/kg	--	--	7.47	15.9	13.0	30.2	10.1	7.47	15.9	30.2	10.1	2.62	0.605	2.62	0.605	B	14.9	20.6	22.3	--	--	--	--	--	--
Hafnium	0 / 4	mg/kg	0.55	0.594	0.275	0.286	0.285	0.297	0.009	--	--	--	--	-1.25	0.033	--	--	B	0.286	0.291	0.292	--	--	--	--	NSRC	NSRC
Lead	4 / 4	mg/kg	--	--	25.7	63.3	57.8	112	40.2	25.7	63.3	112	40.2	3.98	0.688	3.98	0.688	B	61.5	83.6	89.3	--	--	1500	--	--	0.041
Manganese	4 / 4	mg/kg	--	--	37.4	97.7	93.1	167	53.7	37.4	97.7	167	53.7	4.45	0.623	4.45	0.623	B	96.1	129	137	--	--	360,000	--	--	2.7E-04
Mercury	3 / 4	mg/kg	0.004	0.004	0.002	0.111	0.049	0.344	0.157	0.044	0.148	0.344	0.17	-3.33	2.15	-2.37	1.13	B	0.091	0.171	0.198	--	--	--	--	--	--
Molybdenum	4 / 4	mg/kg	--	--	2.04	32.2	17.7	91.1	40.8	2.04	32.2	91.1	40.8	2.64	1.64	2.64	1.64	B	27.3	48.9	55.8	--	--	3900	--	--	0.007
Nickel	4 / 4	mg/kg	--	--	3.26	14.7	6.97	41.7	18.1	3.26	14.7	41.7	18.1	2.19	1.09	2.19	1.09	B	12.1	20.9	24.0	--	--	--	--	--	--
Selenium	3 / 4	mg/kg	0.346	0.346	0.173	0.949	0.987	1.65	0.639	0.733	1.21	1.65	0.459	-0.337	1.0	0.135	0.412	B	0.962	1.33	1.41	--	--	1600	--	--	6.0E-04
Silver	1 / 4	mg/kg	0.916	0.984	0.338	0.442	0.47	0.492	0.071	0.338	0.338	0.338	--	-0.826	0.175	-1.08	--	B	0.452	0.482	0.486	--	--	--	--	--	--
Strontium	4 / 4	mg/kg	--	--	21.6	59.5	47.7	121	44.2	21.6	59.5	121	44.2	3.88	0.745	3.88	0.745	B	55.6	80.6	87.8	--	--	300,000	--	--	1.9E-04
Thallium	3 / 4	mg/kg	0.135	0.135	0.068	0.209	0.253	0.263	0.095	0.249	0.256	0.263	0.007	-1.7	0.667	-1.36	0.027	B	0.224	0.256	0.259	--	--	--	--	--	--
Tin	4 / 4	mg/kg	--	--	1.36	4.08	4.7	5.56	1.92	1.36	4.08	5.56	1.92	1.28	0.659	1.28	0.659	B	4.29	5.17	5.31	--	--	2200	--	--	0.002
Vanadium	4 / 4	mg/kg	--	--	3.65	52.3	16.2	173	80.9	3.65	52.3	173	80.9	2.97	1.64	2.97	1.64	B	40.3	78.1	91.7	--	--	25,000	--	--	0.002
Zinc	4 / 4	mg/kg	--	--	154	319	248	624	209	154	319	624	209	5.62	0.59	5.62	0.59	B	295	410	446	--	--	--	--	--	--
Zirconium	4 / 4	mg/kg	--	--	1.32	4.83	3.1	11.8	4.92	1.32	4.83	11.8	4.92	1.17	1.05	1.17	1.05	B	4.25	6.78	7.59	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.073	0.169	0.166	0.271	0.089	0.073	0.169	0.271	0.089	-1.9	0.588	-1.9	0.588	X	0.169	0.302	0.363	--	--	--	--	--	--
Cadmium	1 / 4	mg/L	0.003	0.003	0.002	0.003	0.002	0.007	0.003	0.007	0.007	0.007	--	-6.11	0.785	-4.93	--	X	0.003	0.007	0.009	--	--	--	--	--	--
Chromium	3 / 4	mg/L	0.03	0.03	0.015	0.098	0.111	0.213	0.074	0.037	0.12	0.213	0.088	-2.81	1.18	-2.35	0.888	X*	0.098	0.233	0.295	--	--	--	--	--	--
Lead	4 / 4	mg/L	--	--	0.078	0.181	0.138	0.371	0.133	0.078	0.181	0.371	0.133	-1.89	0.682	-1.89	0.682	X	0.181	0.38	0.47	--	--	--	--	--	--
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.017	0.824	0.008	0.214	0.219	0.412	0.224	--	--	--	--	-2.5	1.94	--	--	B	0.216	0.318	0.34	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.017	0.824	0.008	0.214	0.219	0.412	0.224	--	--	--	--	-2.5	1.94	--	--	B	0.216	0.318	0.34	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	--	--	NSRC	NSRC
Aldrin	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.121	0.497	0.061	0.155	0.155	0.249	0.108	--	--	--	--	-2.1	0.81	--	--	B	0.155	0.202	0.213	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	1000	1500	--	NSRC	NSRC

Table G.14. Y-12 Biology Complex summary statistics for Roofs from all buildings combined (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	0.121	0.497	0.061	0.155	0.155	0.249	0.108	--	--	--	--	-2.1	0.81	--	--	B	0.155	0.202	0.213	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.403	1.65	0.202	0.514	0.515	0.825	0.359	--	--	--	--	-0.894	0.81	--	--	B	0.514	0.672	0.708	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	140	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	33 / 33	pCi/g	--	--	7.08	30.6	20.5	201	34.9	7.08	30.6	201	34.9	3.11	0.73	3.11	0.73	L	28.8	40.8	46.3	110	--	--	--	--	--
Beta activity	33 / 33	pCi/g	--	--	6.63	49.3	18.6	757	135	6.63	49.3	757	135	3.01	0.968	3.01	0.968	B	140	295	357	--	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	0.401	0.477	0.477	0.552	0.107	0.401	0.477	0.552	0.107	-0.754	0.226	-0.754	0.226	B	0.477	0.515	0.523	--	--	--	--	--	--
Carbon-14	0 / 33	pCi/g	1.66	2.4	1.66	1.95	1.88	2.4	0.211	--	--	--	--	0.662	0.104	--	--	B	1.93	2.12	2.17	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	18 / 33	pCi/g	0.06	0.218	0.06	0.311	0.212	1.01	0.253	0.098	0.448	1.01	0.273	-1.44	0.728	-0.994	0.658	L	0.309	0.38	0.406	1.17	--	--	1.5E+06	--	--
Cobalt-60	0 / 33	pCi/g	0.052	0.257	0.052	0.126	0.114	0.257	0.051	--	--	--	--	-2.16	0.414	--	--	N	0.126	0.137	0.141	0.237	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 33	pCi/g	0.167	1.26	0.167	0.684	0.757	1.26	0.329	--	--	--	--	-0.524	0.584	--	--	B	0.743	1.02	1.08	--	13	--	1500	NSRC	NSRC
Lead-212	2 / 2	pCi/g	--	--	0.361	0.372	0.372	0.383	0.016	0.361	0.372	0.383	0.016	-0.989	0.042	-0.989	0.042	B	0.372	0.378	0.379	--	--	--	--	--	--
Nickel-63	0 / 33	pCi/g	0.533	1.52	0.533	0.864	0.807	1.52	0.274	--	--	--	--	-0.191	0.301	--	--	L	0.864	0.93	0.951	1.59	--	--	1.3E+08	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	1.83	3.0	3.2	3.96	0.798	1.83	3.0	3.96	0.798	1.07	0.294	1.07	0.294	B	3.1	3.61	3.71	--	--	--	4.2E+06	--	--
Radium-226	9 / 33	pCi/g	0.495	0.93	0.321	0.624	0.622	0.93	0.138	0.321	0.526	0.752	0.15	-0.497	0.239	-0.68	0.299	N	0.624	0.656	0.665	0.925	--	--	300,000	--	--
Strontium-89	0 / 33	pCi/g	0.448	1.99	0.448	1.56	1.69	1.99	0.457	--	--	--	--	0.383	0.399	--	--	B	1.53	1.85	1.9	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 33	pCi/g	0.38	1.98	0.38	1.32	1.26	1.98	0.477	--	--	--	--	0.196	0.444	--	--	B	1.23	1.63	1.72	--	--	--	400,000	NSRC	NSRC
Technetium-99	10 / 33	pCi/g	3.45	9.69	3.45	7.86	6.9	22.5	3.85	7.17	11.9	22.5	4.53	1.97	0.419	2.42	0.334	L	7.81	9.58	10.4	17.9	172	--	4.2E+07	0.045	--
Thallium-208	1 / 1	pCi/g	--	--	0.212	0.212	0.212	0.212	--	0.212	0.212	0.212	--	-1.55	--	-1.55	--	B	0.212	0.212	0.212	--	--	--	--	--	--
Thorium-228	1 / 33	pCi/g	0.194	0.96	0.194	0.607	0.613	0.96	0.182	0.748	0.748	0.748	--	-0.556	0.366	-0.29	--	N	0.607	0.648	0.66	1.0	--	--	25,000	NSRC	NSRC
Thorium-230	5 / 33	pCi/g	0.29	0.73	0.29	0.522	0.484	1.38	0.19	0.348	0.705	1.38	0.393	-0.698	0.3	-0.454	0.495	B	0.601	0.865	0.949	--	--	--	15,000	--	--
Thorium-232	4 / 33	pCi/g	0.155	0.701	0.155	0.452	0.457	0.701	0.132	0.162	0.447	0.63	0.203	-0.846	0.351	-0.92	0.614	N	0.452	0.482	0.491	0.74	--	--	2500	--	--
Total Uranium	33 / 33	pCi/g	--	--	2.8	17.4	13	82.4	15.2	2.8	17.4	82.4	15.2	2.58	0.76	2.58	0.76	L	17.5	21.8	23.4	69.2	--	--	--	--	--
Tritium	0 / 33	pCi/g	7.82	14.5	7.82	11.6	11.5	14.5	1.71	--	--	--	--	2.44	0.16	--	--	B	11.4	13.1	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	33 / 33	pCi/g	--	--	1.33	10.6	7.62	52.5	9.75	1.33	10.6	52.5	9.75	2.06	0.795	2.06	0.795	L	10.7	13.5	14.6	44.4	1700	2.8E+07	100,000	0.006	3.8E-07
Uranium-235/236	14 / 33	pCi/g	0.569	1.21	0.569	1.05	0.8	4.13	0.694	0.585	1.33	4.13	0.984	-0.078	0.459	0.09	0.606	B	1.32	2.1	2.39	--	1500	9500	100,000	8.8E-04	1.4E-04
Uranium-238	33 / 33	pCi/g	--	--	1.09	6.02	4.95	25.9	4.99	1.09	6.02	25.9	4.99	1.49	0.815	1.49	0.815	L	6.2	7.87	8.51	26.4	1200	1500	100,000	0.005	0.004
																									SOF =	0.058	0.06

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

Table G.14. Y-12 Biology Complex summary statistics for Roofs from all buildings combined (random and biased)

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected										E(X) divided by Analytic WAC	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	Carc.	HI

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.15. Y-12 Biology Complex summary statistics for Sink Drains from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Sink Drains from all buildings combined (all random samples)																											
Metals																											
Antimony	1 / 5	mg/kg	0.156	0.326	0.078	0.183	0.163	0.375	0.113	0.375	0.375	0.375	--	-1.83	0.563	-0.981	--	B	0.184	0.259	0.28	--	--	160	--	--	0.001
Arsenic	1 / 5	mg/kg	0.16	0.334	0.08	0.227	0.167	0.582	0.202	0.582	0.582	0.582	--	-1.72	0.727	-0.541	--	B	0.221	0.343	0.381	--	--	--	--	--	--
Barium	3 / 5	mg/kg	0.098	0.099	0.049	4.41	0.165	21.6	9.61	0.165	7.31	21.6	12.4	-1.29	2.52	-0.15	2.79	B	3.72	8.12	9.88	--	--	150,000	--	--	2.5E-05
Beryllium	0 / 5	mg/kg	0.009	0.02	0.005	0.008	0.008	0.01	0.002	--	--	--	--	-4.9	0.326	--	--	B	0.008	0.009	0.009	--	--	--	--	NSRC	NSRC
Boron	0 / 5	mg/kg	0.379	0.791	0.19	0.309	0.33	0.396	0.093	--	--	--	--	-1.21	0.325	--	--	B	0.317	0.365	0.374	--	--	24,000	--	NSRC	NSRC
Cadmium	1 / 5	mg/kg	0.012	0.02	0.006	0.018	0.01	0.054	0.021	0.054	0.054	0.054	--	-4.41	0.863	-2.92	--	B	0.017	0.027	0.031	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	0.405	8.88	7.59	18.8	7.73	0.405	8.88	18.8	7.73	1.57	1.55	1.57	1.55	B	8.26	13.0	14.2	--	--	140,000	--	--	5.9E-05
Copper	5 / 5	mg/kg	--	--	0.374	15.4	5.03	62.6	26.6	0.374	15.4	62.6	26.6	1.3	2.06	1.3	2.06	B	13.8	27.8	32.8	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.284	0.593	0.142	0.232	0.247	0.297	0.07	--	--	--	--	-1.5	0.326	--	--	B	0.238	0.274	0.28	--	--	--	--	NSRC	NSRC
Lead	5 / 5	mg/kg	--	--	0.222	44.8	0.561	217	96.3	0.222	44.8	217	96.3	0.885	2.78	0.885	2.78	B	36.6	80.6	98.3	--	--	1500	--	--	0.024
Manganese	5 / 5	mg/kg	--	--	0.26	4.65	1.05	14.6	6.25	0.26	4.65	14.6	6.25	0.404	1.85	0.404	1.85	B	3.18	6.31	7.47	--	--	360,000	--	--	8.8E-06
Mercury	2 / 5	mg/kg	0.002	0.004	0.001	2.61	0.002	13	5.81	0.046	6.52	13	9.16	-3.97	3.94	-0.259	3.99	B	2.17	4.8	5.86	--	--	--	--	--	--
Molybdenum	4 / 5	mg/kg	0.079	0.079	0.04	1.43	0.137	6.54	2.86	0.086	1.78	6.54	3.18	-1.37	1.98	-0.911	1.94	B	1.19	2.53	3.06	--	--	3900	--	--	3.0E-04
Nickel	5 / 5	mg/kg	--	--	0.307	6.75	4.89	21.1	8.4	0.307	6.75	21.1	8.4	1.09	1.63	1.09	1.63	B	6.83	12.0	13.5	--	--	--	--	--	--
Selenium	0 / 5	mg/kg	0.17	0.356	0.085	0.139	0.149	0.178	0.042	--	--	--	--	-2.01	0.327	--	--	B	0.143	0.165	0.168	--	--	1600	--	NSRC	NSRC
Silver	1 / 5	mg/kg	0.047	0.099	0.024	0.051	0.049	0.09	0.025	0.09	0.09	0.09	--	-3.07	0.48	-2.4	--	B	0.052	0.069	0.073	--	--	--	--	--	--
Strontium	1 / 5	mg/kg	0.357	0.593	0.179	0.424	0.296	1.1	0.381	1.1	1.1	1.1	--	-1.09	0.695	0.095	--	B	0.41	0.626	0.699	--	--	300,000	--	--	1.4E-06
Thallium	0 / 5	mg/kg	0.066	0.138	0.033	0.054	0.058	0.069	0.016	--	--	--	--	-2.96	0.325	--	--	B	0.055	0.064	0.065	--	--	--	--	NSRC	NSRC
Tin	2 / 5	mg/kg	0.247	0.296	0.124	0.486	0.148	1.65	0.658	0.361	1.01	1.65	0.911	-1.29	1.08	-0.259	1.07	B	0.394	0.711	0.836	--	--	2200	--	--	1.8E-04
Vanadium	1 / 5	mg/kg	0.142	0.296	0.071	0.281	0.148	0.914	0.355	0.914	0.914	0.914	--	-1.73	0.965	-0.09	--	B	0.263	0.454	0.521	--	--	25,000	--	--	1.1E-05
Zinc	5 / 5	mg/kg	--	--	2.29	16.5	5.9	63.5	26.3	2.29	16.5	63.5	26.3	2.01	1.26	2.01	1.26	B	14.9	28.3	33.3	--	--	--	--	--	--
Zirconium	1 / 5	mg/kg	0.238	0.395	0.119	0.211	0.197	0.379	0.099	0.379	0.379	0.379	--	-1.63	0.423	-0.97	--	B	0.214	0.28	0.299	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.021	0.111	0.021	0.383	0.181	0.021	0.111	0.383	0.181	-3.15	1.46	-3.15	1.46	X	0.111	0.383	0.506	--	--	--	--	--	--
Cadmium	0 / 4	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	3 / 4	mg/L	0.03	0.03	0.015	0.102	0.078	0.235	0.079	0.065	0.126	0.235	0.094	-2.73	1.13	-2.24	0.693	X*	0.102	0.247	0.312	--	--	--	--	--	--
Lead	3 / 4	mg/L	0.005	0.005	0.003	0.114	0.024	0.41	0.171	0.017	0.15	0.41	0.225	-3.67	2.1	-2.9	1.74	X*	0.114	0.428	0.571	--	--	--	--	--	--
Mercury	0 / 4	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 3	mg/kg	7.6E-04	0.003	3.8E-04	0.001	0.002	0.002	7.4E-04	--	--	--	--	-6.89	0.853	--	--	B	0.001	0.002	0.002	--	--	119	--	NSRC	NSRC
Silvex	0 / 3	mg/kg	7.6E-04	0.003	3.8E-04	0.001	0.002	0.002	7.4E-04	--	--	--	--	-6.89	0.853	--	--	B	0.001	0.002	0.002	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 3	mg/kg	1.8E-04	3.9E-04	9.1E-05	4.4E-04	2.0E-04	0.001	5.2E-04	0.001	0.001	0.001	--	-8.24	1.25	-6.87	--	B	3.2E-04	5.4E-04	6.1E-04	--	130,000	--	--	2.5E-09	--
4,4'-DDT	1 / 3	mg/kg	1.8E-04	3.9E-04	9.1E-05	5.6E-04	2.0E-04	0.001	7.2E-04	0.001	0.001	0.001	--	-8.14	1.4	-6.59	--	B	3.8E-04	6.7E-04	7.7E-04	--	--	--	--	--	--
Aldrin	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 3	mg/kg	4.5E-04	0.002	2.3E-04	5.5E-04	4.5E-04	9.8E-04	3.8E-04	--	--	--	--	-7.68	0.733	--	--	B	5.0E-04	6.9E-04	7.5E-04	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 3	mg/kg	9.0E-05	3.9E-04	4.5E-05	1.1E-04	9.1E-05	2.0E-04	7.7E-05	--	--	--	--	-9.28	0.734	--	--	B	1.0E-04	1.4E-04	1.5E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	2400	69,000	--	NSRC	NSRC

Table G.15. Y-12 Biology Complex summary statistics for Sink Drains from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 3	mg/kg	9.1E-05	2.0E-04	4.6E-05	2.9E-04	9.8E-05	7.1E-04	3.7E-04	7.1E-04	7.1E-04	7.1E-04	--	-8.83	1.42	-7.24	--	B	1.9E-04	3.4E-04	4.0E-04	--	180	940	--	1.1E-06	2.0E-07
Methoxychlor	0 / 3	mg/kg	4.5E-04	0.002	2.3E-04	5.5E-04	4.5E-04	9.8E-04	3.8E-04	--	--	--	--	-7.68	0.733	--	--	B	5.0E-04	6.9E-04	7.5E-04	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/kg	0.002	0.007	7.5E-04	0.002	0.002	0.003	0.001	--	--	--	--	-6.47	0.733	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 3	mg/kg	4.5E-05	2.0E-04	2.3E-05	5.5E-05	4.6E-05	9.8E-05	3.8E-05	--	--	--	--	-9.98	0.733	--	--	B	5.0E-05	6.9E-05	7.5E-05	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 47	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.004	0.045	0.008	--	--	--	--	-5.61	1.12	--	--	B	0.01	0.02	0.024	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 47	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.004	0.045	0.008	--	--	--	--	-5.61	1.12	--	--	B	0.01	0.02	0.024	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 47	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.004	0.045	0.008	--	--	--	--	-5.61	1.12	--	--	B	0.01	0.02	0.024	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	3 / 47	mg/kg	0.023	1.5	0.012	0.113	0.085	0.75	0.129	0.036	0.083	0.119	0.042	-2.68	1.03	-2.61	0.625	L	0.116	0.152	0.166	0.581	--	9810	--	--	1.2E-05
Carbazole	2 / 47	mg/kg	0.002	0.09	7.6E-04	0.007	0.004	0.045	0.008	0.002	0.003	0.004	0.001	-5.53	1.03	-5.99	0.576	B	0.01	0.02	0.024	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	5 / 47	mg/kg	0.006	0.461	0.003	0.153	0.056	3.29	0.485	0.109	0.932	3.29	1.35	-3.04	1.32	-0.884	1.39	B	0.586	1.27	1.54	--	--	190	--	--	0.003
Diethyl phthalate	1 / 47	mg/kg	0.006	0.901	0.003	0.069	0.04	0.451	0.081	0.215	0.215	0.215	--	-3.26	1.15	-1.54	--	L	0.074	0.101	0.112	0.415	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 47	mg/kg	0.006	0.901	0.003	0.066	0.037	0.451	0.078	0.031	0.031	0.031	--	-3.27	1.09	-3.49	--	L	0.069	0.092	0.101	0.367	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 47	mg/kg	0.014	0.901	0.007	0.066	0.037	0.451	0.079	0.013	0.013	0.013	--	-3.27	1.06	-4.37	--	B	0.101	0.199	0.235	--	--	--	--	NSRC	NSRC
Phenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 47	mg/kg	0.006	0.901	0.003	0.065	0.037	0.451	0.079	--	--	--	--	-3.3	1.12	--	--	B	0.1	0.2	0.236	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	2 / 47	pCi/g	1.48	9.97	1.48	3.2	2.76	9.97	1.68	1.49	3.48	5.46	2.81	1.07	0.408	1.05	0.918	B	3.75	5.77	6.43	--	--	--	--	NSRC	NSRC
Americium-241	0 / 2	pCi/g	0.184	0.213	0.184	0.199	0.199	0.213	0.021	--	--	--	--	-1.62	0.103	--	--	B	0.199	0.206	0.208	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	2 / 47	pCi/g	0.528	5.99	0.528	3.21	3.23	5.99	0.994	1.78	2.97	4.16	1.68	1.11	0.389	1.0	0.6	N	3.21	3.4	3.45	5.28	--	--	--	NSRC	NSRC
Carbon-14	0 / 47	pCi/g	0.198	0.822	0.198	0.538	0.528	0.822	0.164	--	--	--	--	-0.671	0.334	--	--	N	0.538	0.569	0.578	0.879	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 47	pCi/g	0.022	0.32	0.022	0.09	0.067	0.32	0.07	--	--	--	--	-2.64	0.675	--	--	L	0.089	0.104	0.109	0.29	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 47	pCi/g	0.011	0.333	0.011	0.098	0.069	0.333	0.082	--	--	--	--	-2.61	0.778	--	--	L	0.099	0.119	0.126	0.37	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 47	pCi/g	0.083	1.2	0.083	0.497	0.461	1.2	0.26	--	--	--	--	-0.847	0.583	--	--	L	0.508	0.577	0.6	1.44	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 2	pCi/g	0.189	0.21	0.189	0.2	0.2	0.21	0.015	--	--	--	--	-1.61	0.075	--	--	B	0.2	0.205	0.206	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 47	pCi/g	0.415	22.2	0.415	1.5	0.864	22.2	3.31	--	--	--	--	-0.055	0.652	--	--	B	4.35	8.9	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 2	pCi/g	0.193	0.239	0.193	0.216	0.216	0.239	0.033	--	--	--	--	-1.54	0.151	--	--	B	0.216	0.228	0.23	--	--	--	15,000	NSRC	NSRC

Table G.15. Y-12 Biology Complex summary statistics for Sink Drains from all buildings combined (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 2	pCi/g	0.23	0.284	0.23	0.257	0.257	0.284	0.038	--	--	--	--	-1.36	0.149	--	--	B	0.257	0.271	0.274	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 2	pCi/g	8.71	14.3	8.71	11.5	11.5	14.3	3.95	--	--	--	--	2.41	0.351	--	--	B	11.5	12.9	13.2	--	--	--	790,000	NSRC	NSRC
Radium-226	7 / 47	pCi/g	0.039	0.833	0.039	0.424	0.428	0.833	0.187	0.236	0.401	0.644	0.149	-1.01	0.659	-0.974	0.373	N	0.424	0.459	0.47	0.813	--	--	300,000	--	--
Strontium-89	4 / 47	pCi/g	0.994	1.99	0.994	1.63	1.56	4.2	0.528	1.57	2.81	4.2	1.11	0.453	0.259	0.97	0.414	B	1.91	2.68	2.93	--	--	--	--	--	--
Strontium-90	0 / 47	pCi/g	0.966	1.99	0.966	1.6	1.59	1.99	0.234	--	--	--	--	0.459	0.158	--	--	N	1.6	1.64	1.66	2.09	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 47	pCi/g	2.22	7.5	2.22	4.44	4.19	7.5	1.28	--	--	--	--	1.45	0.285	--	--	L	4.44	4.7	4.78	7.72	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 47	pCi/g	0.082	0.955	0.082	0.531	0.564	0.955	0.205	--	--	--	--	-0.737	0.521	--	--	N	0.531	0.57	0.581	0.958	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 47	pCi/g	0.063	0.758	0.063	0.471	0.508	0.758	0.169	--	--	--	--	-0.852	0.526	--	--	B	0.475	0.642	0.674	--	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 47	pCi/g	0.06	0.698	0.06	0.4	0.434	0.698	0.149	--	--	--	--	-1.02	0.515	--	--	N	0.4	0.429	0.437	0.711	--	--	2500	NSRC	NSRC
Total Uranium	5 / 47	pCi/g	0.12	2.13	0.12	1.15	0.98	3.79	0.616	0.471	1.45	3.79	1.36	-0.007	0.589	0.078	0.812	B	1.31	2.22	2.49	--	--	--	--	--	--
Tritium	0 / 47	pCi/g	1.66	14	1.66	7.58	7.55	14	2.6	--	--	--	--	1.95	0.422	--	--	N	7.58	8.08	8.22	13.0	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	4 / 47	pCi/g	0.067	1.19	0.067	0.659	0.526	3.09	0.461	0.221	1.25	3.09	1.33	-0.598	0.632	-0.301	1.24	B	0.877	1.6	1.83	--	1700	2.8E+07	100,000	5.2E-04	3.1E-08
Uranium-235/236	1 / 47	pCi/g	0.078	1.38	0.078	0.693	0.637	1.38	0.329	0.376	0.376	0.376	--	-0.502	0.582	-0.978	--	N	0.693	0.756	0.774	1.38	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 47	pCi/g	0.061	1.09	0.061	0.533	0.485	1.09	0.248	0.323	0.323	0.323	--	-0.761	0.575	-1.13	--	N	0.533	0.58	0.594	1.05	1200	1500	100,000	NSRC	NSRC
																									SOF =	5.2E-04	0.029

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.16. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 1 (random and biased)																											
Metals																											
Antimony	4 / 5	mg/kg	0.31	0.31	0.155	4.21	0.528	14.6	6.2	0.404	5.23	14.6	6.66	0.191	1.91	0.704	1.76	B	2.81	5.85	7.03	--	--	160	--	--	0.018
Arsenic	4 / 5	mg/kg	0.284	0.284	0.142	3.27	1.89	9.95	3.85	1.68	4.05	9.95	3.96	0.497	1.54	1.11	0.817	B	2.94	5.32	6.07	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	0.117	1573	45.7	7410	3267	0.117	1573	7410	3267	3.76	4.14	3.76	4.14	B	1265	2780	3385	--	--	150,000	--	--	0.008
Beryllium	2 / 5	mg/kg	0.005	0.082	0.002	0.069	0.041	0.185	0.077	0.108	0.147	0.185	0.054	-3.59	1.81	-1.96	0.381	B	0.058	0.103	0.117	--	--	--	--	--	--
Boron	2 / 5	mg/kg	0.187	3.26	0.094	801	1.63	3990	1783	12	2001	3990	2813	1.56	4.18	5.39	4.11	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	5 / 5	mg/kg	--	--	0.067	2.74	0.422	10.9	4.63	0.067	2.74	10.9	4.63	-0.338	1.95	-0.338	1.95	B	2.11	4.41	5.29	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	5.82	23.2	9.83	71.5	27.5	5.82	23.2	71.5	27.5	2.7	0.981	2.7	0.981	B	19.4	33.9	39.2	--	--	140,000	--	--	1.4E-04
Copper	5 / 5	mg/kg	--	--	4.98	48.6	16	184	76.3	4.98	48.6	184	76.3	3.0	1.42	3.0	1.42	B	42.2	81.6	96.0	--	--	--	--	--	--
Hafnium	1 / 5	mg/kg	0.14	2.93	0.07	0.716	0.568	1.47	0.607	0.568	0.568	0.568	--	-0.804	1.25	-0.566	--	B	0.635	0.992	1.09	--	--	--	--	--	--
Lead	5 / 5	mg/kg	--	--	5.78	659	59.9	2210	967	5.78	659	2210	967	4.48	2.76	4.48	2.76	B	409	872	1052	--	--	1500	--	--	0.273
Manganese	5 / 5	mg/kg	--	--	3.1	388	101	1530	647	3.1	388	1530	647	4.44	2.32	4.44	2.32	B	323	660	783	--	--	360,000	--	--	9.0E-04
Mercury	5 / 5	mg/kg	--	--	0.005	0.021	0.009	0.046	0.02	0.005	0.021	0.046	0.02	-4.23	1.01	-4.23	1.01	B	0.015	0.024	0.027	--	--	--	--	--	--
Molybdenum	4 / 5	mg/kg	0.067	0.067	0.034	5.41	1.15	23.9	10.4	0.393	6.75	23.9	11.4	-0.114	2.38	0.706	1.75	B	4.76	9.92	11.9	--	--	3900	--	--	0.001
Nickel	5 / 5	mg/kg	--	--	1.32	30.2	15.4	109	44.8	1.32	30.2	109	44.8	2.43	1.67	2.43	1.67	B	28.7	54.0	62.4	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.084	1.64	0.042	1.0	0.735	3.25	1.3	3.25	3.25	3.25	--	-0.877	1.68	1.18	--	B	1.04	1.83	2.07	--	--	1600	--	--	6.5E-04
Silver	3 / 5	mg/kg	0.084	1.17	0.042	4.45	0.903	13	5.72	0.903	7.2	13	6.06	0.16	2.29	1.5	1.41	B	2.78	5.64	6.69	--	--	--	--	--	--
Strontium	3 / 5	mg/kg	0.504	2.45	0.252	63.0	1.23	276	120	0.677	105	276	150	1.53	2.96	2.95	3.06	B	46.9	103	126	--	--	300,000	--	--	1.6E-04
Thallium	0 / 5	mg/kg	0.033	0.684	0.016	0.153	0.064	0.342	0.149	--	--	--	--	-2.4	1.26	--	--	B	0.102	0.18	0.205	--	--	--	--	NSRC	NSRC
Tin	3 / 5	mg/kg	0.282	3.5	0.141	29.4	3.18	132	57.5	3.18	48.4	132	72.5	1.39	2.5	2.78	1.91	B	24.1	51.8	62.5	--	--	2200	--	--	0.011
Vanadium	3 / 5	mg/kg	0.252	1.22	0.113	13.9	0.61	59.6	25.8	0.113	22.9	59.6	32.1	0.308	2.76	1.37	3.22	B	10.4	22.6	27.4	--	--	25,000	--	--	4.1E-04
Zinc	5 / 5	mg/kg	--	--	22.1	1273	221	5600	2426	22.1	1273	5600	2426	5.32	2.28	5.32	2.28	B	1084	2274	2727	--	--	--	--	--	--
Zirconium	2 / 5	mg/kg	0.094	1.63	0.047	5.11	0.815	19.6	8.34	4.94	12.3	19.6	10.4	-0.096	2.45	2.29	0.975	B	3.82	8.01	9.6	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.039	0.192	0.192	0.345	0.216	0.039	0.192	0.345	0.216	-2.15	1.54	-2.15	1.54	X	0.192	0.651	0.859	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.003	0.003	0.004	0.002	0.004	0.004	0.004	--	-6.01	0.69	-5.53	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.033	0.107	0.107	0.181	0.105	0.033	0.107	0.181	0.105	-2.56	1.2	-2.56	1.2	X	0.107	0.329	0.43	--	--	--	--	--	--
Lead	1 / 2	mg/L	0.005	0.005	0.003	0.128	0.128	0.254	0.178	0.254	0.254	0.254	--	-3.68	3.27	-1.37	--	X	0.128	0.506	0.676	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.001	0.008	6.7E-04	0.002	0.002	0.004	0.002	--	--	--	--	-6.4	0.942	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.001	0.008	6.7E-04	0.002	0.002	0.004	0.002	--	--	--	--	-6.4	0.942	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 4	mg/kg	8.2E-04	9.9E-04	4.1E-04	9.2E-04	8.9E-04	0.001	5.4E-04	0.001	0.001	0.001	1.4E-04	-7.15	0.652	-6.59	0.103	B	9.1E-04	0.001	0.001	--	130,000	--	--	7.0E-09	--
4,4'-DDT	1 / 4	mg/kg	8.2E-04	9.9E-04	4.1E-04	7.5E-04	4.8E-04	0.002	5.8E-04	0.002	0.002	0.002	--	-7.37	0.636	-6.43	--	B	6.6E-04	9.3E-04	0.001	--	--	--	--	--	--
Aldrin	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	4.5E-04	0.005	2.3E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.66	1.16	--	--	B	0.002	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	9.1E-04	4.5E-04	0.003	0.001	0.003	0.003	0.003	--	-7.83	1.67	-5.93	--	B	7.5E-04	0.001	0.002	--	--	330,000	--	--	2.3E-09
Endrin	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	2400	69,000	--	NSRC	NSRC

Table G.16. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Detected Mean[b]	Ln transformed Detected S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 4	mg/kg	4.1E-04	4.9E-04	7.9E-05	1.9E-04	2.2E-04	2.5E-04	7.8E-05	7.9E-05	7.9E-05	7.9E-05	--	-8.65	0.538	-9.44	--	B	2.0E-04	2.4E-04	2.4E-04	--	1000	1500	--	2.0E-07	1.3E-07
Lindane	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	4.5E-04	0.005	2.3E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.66	1.16	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.002	0.016	7.6E-04	0.006	0.007	0.008	0.003	--	--	--	--	-5.45	1.16	--	--	B	0.006	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 26	mg/kg	0.002	1.13	0.001	0.09	0.015	0.91	0.203	0.034	0.327	0.91	0.505	-3.83	1.62	-2.27	1.88	B	0.162	0.35	0.424	--	--	4000	--	--	4.0E-05
2-Methylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 26	mg/kg	0.002	1.13	0.001	0.098	0.015	1.18	0.249	1.18	1.18	1.18	--	-3.88	1.65	0.166	--	B	0.207	0.45	0.546	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	1 / 26	mg/kg	0.002	1.13	0.001	0.056	0.015	0.565	0.115	0.08	0.08	0.08	--	-3.99	1.45	-2.53	--	B	0.104	0.223	0.269	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 26	mg/kg	0.023	11.3	0.011	0.54	0.149	5.65	1.15	0.23	0.23	0.23	--	-1.72	1.42	-1.47	--	B	1.04	2.23	2.69	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 26	mg/kg	0.023	11.3	0.011	0.575	0.149	5.65	1.16	1.19	1.19	1.19	--	-1.67	1.47	0.174	--	B	1.04	2.23	2.69	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 26	mg/kg	0.046	18.9	0.023	0.896	0.248	9.45	1.93	0.119	0.119	0.119	--	-1.17	1.33	-2.13	--	B	1.74	3.72	4.49	--	--	9810	--	NSRC	NSRC
Carbazole	3 / 26	mg/kg	0.002	1.13	0.001	0.123	0.015	1.79	0.359	0.033	0.621	1.79	1.01	-3.8	1.69	-2.02	2.26	B	0.308	0.675	0.821	--	110,000	--	--	2.8E-06	--
Di-n-butyl phthalate	2 / 26	mg/kg	0.023	11.3	0.011	0.569	0.149	5.65	1.16	0.095	0.592	1.09	0.704	-1.63	1.4	-1.14	1.73	B	1.04	2.23	2.69	--	--	190	--	--	0.005
Diethyl phthalate	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	2800	500	--	NSRC	NSRC
Isophorone	3 / 26	mg/kg	0.023	11.3	0.011	0.643	0.149	5.65	1.17	0.672	1.08	1.73	0.569	-1.53	1.54	-0.008	0.494	L	0.706	1.46	1.9	7.15	6100	15,000	--	1.2E-04	4.7E-05
N-Nitroso-di-n-propylamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	2 / 26	mg/kg	0.023	11.3	0.011	0.704	0.149	6.21	1.59	0.039	3.12	6.21	4.36	-1.67	1.48	-0.704	3.58	B	1.14	2.43	2.94	--	--	--	--	--	--
Phenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	1.48	1.48	1.48	1.48	--	1.48	1.48	1.48	--	0.392	--	0.392	--	B	1.48	1.48	1.48	--	--	--	--	--	--
Alpha activity	15 / 33	pCi/g	1.94	9.59	1.94	35.4	6.91	575	104	4.41	71.8	575	148	2.25	1.33	3.2	1.38	B	101	218	265	--	--	--	--	--	--
Americium-241	0 / 9	pCi/g	0.166	0.257	0.166	0.217	0.227	0.257	0.031	--	--	--	--	-1.54	0.146	--	--	N	0.217	0.232	0.236	0.31	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	16 / 33	pCi/g	1.45	5.43	1.45	28.3	4.45	337	61.2	4.16	54.9	337	80.7	2.21	1.4	3.34	1.2	B	59.4	128	156	--	--	--	--	--	--
Bismuth-214	4 / 4	pCi/g	--	--	0.817	1.0	0.983	1.22	0.184	0.817	1.0	1.22	0.184	-0.012	0.183	-0.012	0.183	B	0.995	1.1	1.12	--	--	--	--	--	--
Carbon-14	1 / 26	pCi/g	0.082	2.4	0.082	1.35	0.771	4.35	1.03	4.35	4.35	4.35	--	-0.063	0.979	1.47	--	B	1.25	2.28	2.61	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	2 / 26	pCi/g	0.015	0.648	0.015	0.136	0.114	0.648	0.126	0.093	0.096	0.1	0.005	-2.36	0.934	-2.34	0.052	B	0.186	0.337	0.387	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 26	pCi/g	0.011	0.606	0.011	0.165	0.136	0.606	0.131	--	--	--	--	-2.19	1.01	--	--	B	0.193	0.34	0.385	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 26	pCi/g	0.078	1.27	0.078	0.706	0.749	1.27	0.338	--	--	--	--	-0.516	0.685	--	--	N	0.706	0.794	0.82	1.48	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	1.03	1.3	1.35	1.48	0.186	1.03	1.3	1.48	0.186	0.257	0.149	0.257	0.149	B	1.32	1.42	1.44	--	--	--	--	--	--

Table G.16. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	4 / 4	pCi/g	--	--	1.03	1.11	1.08	1.24	0.093	1.03	1.11	1.24	0.093	0.097	0.081	0.097	0.081	B	1.1	1.15	1.16	--	--	--	--	--	--
Neptunium-237	0 / 9	pCi/g	0.175	0.527	0.175	0.318	0.319	0.527	0.108	--	--	--	--	-1.2	0.352	--	--	N	0.318	0.369	0.386	0.646	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 26	pCi/g	0.548	3.51	0.548	1.04	0.798	3.51	0.645	--	--	--	--	-0.073	0.445	--	--	B	1.21	1.88	2.11	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 9	pCi/g	0.172	0.503	0.172	0.296	0.207	0.503	0.138	--	--	--	--	-1.31	0.446	--	--	B	0.251	0.327	0.353	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 9	pCi/g	0.166	0.552	0.166	0.319	0.246	0.552	0.162	--	--	--	--	-1.26	0.504	--	--	B	0.284	0.379	0.408	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 9	pCi/g	8.48	23.5	8.48	14.6	14.5	23.5	4.33	--	--	--	--	2.64	0.29	--	--	N	14.6	16.6	17.2	27.7	--	--	790,000	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	14.3	35.7	41.5	47.3	13.2	14.3	35.7	47.3	13.2	3.49	0.489	3.49	0.489	B	37.9	44.7	45.6	--	--	--	4.2E+06	--	--
Radium-226	5 / 26	pCi/g	0.197	0.89	0.197	0.62	0.603	1.3	0.247	0.582	0.871	1.3	0.284	-0.563	0.44	-0.179	0.314	N	0.62	0.684	0.703	1.18	--	--	300,000	--	--
Strontium-89	1 / 26	pCi/g	0.983	1.94	0.983	1.67	1.73	2.92	0.373	2.92	2.92	2.92	--	0.488	0.221	1.07	--	B	1.8	2.3	2.43	--	--	--	--	NSRC	NSRC
Strontium-90	4 / 26	pCi/g	0.637	1.98	0.637	1.46	1.53	2.38	0.538	1.03	1.99	2.38	0.643	0.304	0.409	0.633	0.404	N	1.46	1.6	1.64	2.69	--	--	400,000	--	--
Technetium-99	2 / 33	pCi/g	2.22	8.28	2.22	25.9	5.35	678	117	16.8	347	678	468	1.8	0.917	4.67	2.61	B	117	255	310	--	172	--	4.2E+07	0.68	--
Thallium-208	3 / 3	pCi/g	--	--	0.432	0.467	0.44	0.53	0.054	0.432	0.467	0.53	0.054	-0.765	0.113	-0.765	0.113	B	0.454	0.476	0.484	--	--	--	--	--	--
Thorium-228	2 / 26	pCi/g	0.203	0.898	0.203	0.609	0.559	1.28	0.274	1.22	1.25	1.28	0.042	-0.591	0.446	0.223	0.034	L	0.611	0.696	0.725	1.53	--	--	25,000	--	--
Thorium-230	7 / 26	pCi/g	0.217	0.739	0.217	0.58	0.577	1.28	0.224	0.479	0.734	1.28	0.281	-0.616	0.396	-0.363	0.346	N	0.58	0.638	0.656	1.09	--	--	15,000	--	--
Thorium-232	6 / 26	pCi/g	0.162	0.64	0.162	0.502	0.445	1.33	0.278	0.285	0.74	1.33	0.461	-0.805	0.478	-0.467	0.632	L	0.501	0.577	0.603	1.33	--	--	2500	--	--
Total Uranium	10 / 26	pCi/g	0.427	2.03	0.427	2.31	1.2	23.9	4.51	1.04	4.55	23.9	6.87	0.285	0.86	1.03	0.869	B	4.85	9.84	11.7	--	--	--	--	--	--
Tritium	0 / 26	pCi/g	1.42	14.7	1.42	10.2	10.8	14.7	3.78	--	--	--	--	2.21	0.576	--	--	B	9.89	12.9	13.5	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	16 / 33	pCi/g	0.228	1.16	0.228	11.6	0.68	223	40.8	0.432	23.4	223	57.1	0.204	1.66	1.25	1.84	B	37.7	82.9	101	--	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	5 / 33	pCi/g	0.291	1.28	0.291	1.23	0.564	15.2	2.68	0.376	4.85	15.2	6.15	-0.398	0.81	0.791	1.51	B	2.96	6.06	7.28	--	1500	9500	100,000	0.002	3.1E-04
Uranium-238	15 / 33	pCi/g	0.213	1.06	0.213	9.3	0.542	204	36.5	0.323	19.9	204	53.1	-0.134	1.56	0.706	1.99	B	34.4	75.7	92.4	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.733	0.37

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.17. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 2 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 2 (all random samples)																											
Metals																											
Antimony	1 / 3	mg/kg	0.308	0.326	0.154	0.442	0.163	1.01	0.492	1.01	1.01	1.01	--	-1.22	1.07	0.01	--	B	0.303	0.479	0.549	--	--	160	--	--	0.002
Arsenic	2 / 3	mg/kg	0.334	0.334	0.167	1.7	1.86	3.08	1.46	1.86	2.47	3.08	0.863	-0.015	1.56	0.873	0.357	B	1.78	2.5	2.65	--	--	--	--	--	--
Barium	2 / 3	mg/kg	0.099	0.099	0.049	22.8	19.1	49.2	24.8	19.1	34.2	49.2	21.3	1.28	3.74	3.42	0.669	B	20.9	33.6	36.8	--	--	150,000	--	--	1.4E-04
Beryllium	2 / 3	mg/kg	0.02	0.02	0.01	0.094	0.033	0.239	0.126	0.033	0.136	0.239	0.146	-3.16	1.61	-2.43	1.41	B	0.063	0.116	0.134	--	--	--	--	--	--
Boron	2 / 3	mg/kg	0.791	0.791	0.396	4.23	1.18	11.1	5.97	1.18	6.14	11.1	7.01	0.548	1.7	1.29	1.58	B	2.7	5.09	5.95	--	--	24,000	--	--	1.1E-04
Cadmium	1 / 3	mg/kg	0.02	0.02	0.01	0.319	0.01	0.938	0.536	0.938	0.938	0.938	--	-3.1	2.63	-0.064	--	B	0.165	0.352	0.428	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	0.405	4.41	2.82	10	4.99	0.405	4.41	10	4.99	0.812	1.62	0.812	1.62	B	3.61	6.02	6.72	--	--	140,000	--	--	2.6E-05
Copper	3 / 3	mg/kg	--	--	0.374	5.79	2	15	8.02	0.374	5.79	15	8.02	0.806	1.85	0.806	1.85	B	3.9	7.28	8.44	--	--	--	--	--	--
Hafnium	1 / 3	mg/kg	0.584	0.593	0.292	0.566	0.297	1.11	0.471	1.11	1.11	1.11	--	-0.781	0.767	0.104	--	B	0.431	0.598	0.665	--	--	--	--	--	--
Lead	3 / 3	mg/kg	--	--	0.222	7.51	10	12.3	6.41	0.222	7.51	12.3	6.41	1.1	2.26	1.1	2.26	B	8.75	11.3	11.6	--	--	1500	--	--	0.006
Manganese	3 / 3	mg/kg	--	--	0.26	56.4	82.9	85.9	48.6	0.26	56.4	85.9	48.6	2.51	3.34	2.51	3.34	B	69.6	83.3	84.5	--	--	360,000	--	--	1.9E-04
Mercury	2 / 3	mg/kg	0.004	0.004	0.002	0.707	0.01	2.11	1.21	0.01	1.06	2.11	1.49	-3.37	3.65	-1.94	3.81	B	0.358	0.788	0.96	--	--	--	--	--	--
Molybdenum	2 / 3	mg/kg	0.079	0.079	0.04	0.341	0.359	0.624	0.293	0.359	0.492	0.624	0.187	-1.58	1.46	-0.748	0.391	B	0.35	0.496	0.527	--	--	3900	--	--	9.0E-05
Nickel	3 / 3	mg/kg	--	--	0.307	3.89	5.45	5.91	3.11	0.307	3.89	5.91	3.11	0.764	1.68	0.764	1.68	B	4.67	5.66	5.77	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.356	1.68	0.178	0.523	0.552	0.84	0.332	0.552	0.552	0.552	--	-0.832	0.803	-0.594	--	B	0.538	0.702	0.737	--	--	1600	--	--	3.4E-04
Silver	2 / 3	mg/kg	0.099	0.099	0.049	5.07	0.147	15	8.6	0.147	7.57	15	10.5	-0.739	3.03	0.395	3.27	B	2.61	5.66	6.88	--	--	--	--	--	--
Strontium	2 / 3	mg/kg	0.593	0.593	0.297	90.2	4.32	266	152	4.32	135	266	185	1.94	3.42	3.52	2.91	B	47.3	102	124	--	--	300,000	--	--	1.6E-04
Thallium	0 / 3	mg/kg	0.131	0.138	0.066	0.068	0.068	0.069	0.002	--	--	--	--	-2.7	0.027	--	--	B	0.068	0.069	0.069	--	--	--	--	NSRC	NSRC
Tin	1 / 3	mg/kg	0.28	0.296	0.14	1.67	0.148	4.71	2.64	4.71	4.71	4.71	--	-0.776	2.01	1.55	--	B	0.907	1.83	2.21	--	--	2200	--	--	4.1E-04
Vanadium	2 / 3	mg/kg	0.296	0.296	0.148	9.15	11.1	16.2	8.2	11.1	13.7	16.2	3.61	1.09	2.61	2.6	0.267	B	10.1	13.9	14.5	--	--	25,000	--	--	4.1E-04
Zinc	3 / 3	mg/kg	--	--	2.29	40.9	10.5	110	60.0	2.29	40.9	110	60.0	2.63	1.95	2.63	1.95	B	25.7	49.8	58.5	--	--	--	--	--	--
Zirconium	2 / 3	mg/kg	0.395	0.395	0.198	14.2	0.699	41.6	23.8	0.699	21.1	41.6	28.9	0.583	2.8	1.68	2.89	B	7.43	16.0	19.4	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 3	mg/L	0.017	0.017	0.009	0.019	0.009	0.041	0.019	0.041	0.041	0.041	--	-4.24	0.913	-3.19	--	X	0.019	0.052	0.067	--	--	--	--	--	--
Barium	3 / 3	mg/L	--	--	0.021	0.173	0.188	0.311	0.146	0.021	0.173	0.311	0.146	-2.24	1.45	-2.24	1.45	X	0.173	0.426	0.54	--	--	--	--	--	--
Cadmium	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	1 / 3	mg/L	0.03	0.03	0.015	0.053	0.015	0.128	0.065	0.128	0.128	0.128	--	-3.49	1.24	-2.06	--	X	0.053	0.166	0.217	--	--	--	--	--	--
Lead	2 / 3	mg/L	0.005	0.005	0.003	0.041	0.017	0.101	0.043	0.017	0.059	0.101	0.059	-4.12	1.85	-3.18	1.26	X*	0.041	0.146	0.193	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 3	mg/kg	0.003	0.008	0.002	0.003	0.004	0.004	0.001	--	--	--	--	-5.8	0.527	--	--	B	0.004	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 3	mg/kg	0.003	0.008	0.002	0.003	0.004	0.004	0.001	--	--	--	--	-5.8	0.527	--	--	B	0.004	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 3	mg/kg	1.8E-04	9.8E-04	9.1E-05	0.004	4.9E-04	0.011	0.006	0.011	0.011	0.011	--	-7.15	2.43	-4.52	--	B	0.002	0.004	0.005	--	130,000	--	--	1.7E-08	--
4,4'-DDT	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 3	mg/kg	9.1E-04	0.005	4.5E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.57	0.976	--	--	B	0.002	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 3	mg/kg	1.8E-04	1.0E-03	9.1E-05	3.6E-04	4.9E-04	5.0E-04	2.3E-04	--	--	--	--	-8.18	0.975	--	--	B	4.2E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.17. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 2 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/kg	9.1E-04	0.005	4.5E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.57	0.976	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/kg	0.003	0.017	0.002	0.006	0.008	0.008	0.004	--	--	--	--	-5.37	0.975	--	--	B	0.007	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 3	mg/kg	9.1E-05	5.0E-04	4.6E-05	1.8E-04	2.4E-04	2.5E-04	1.2E-04	--	--	--	--	-8.87	0.976	--	--	B	2.1E-04	2.4E-04	2.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	1 / 22	mg/kg	0.002	0.3	9.6E-04	0.025	0.015	0.15	0.034	0.053	0.053	0.053	--	-4.29	1.15	-2.94	--	B	0.035	0.069	0.081	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 22	mg/kg	0.002	0.3	9.6E-04	0.023	0.015	0.15	0.034	--	--	--	--	-4.35	1.11	--	--	B	0.035	0.069	0.081	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 22	mg/kg	0.002	0.3	9.6E-04	0.023	0.015	0.15	0.034	--	--	--	--	-4.35	1.11	--	--	B	0.035	0.069	0.081	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	330	--	NSRC	NSRC
Benzenemethanol	2 / 22	mg/kg	0.019	3	0.01	0.331	0.148	1.54	0.454	0.894	1.22	1.54	0.457	-1.86	1.29	0.16	0.385	B	0.357	0.704	0.827	--	--	1200	--	--	3.0E-04
Benzidine	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 22	mg/kg	0.032	5	0.016	0.39	0.247	2.5	0.563	--	--	--	--	-1.54	1.11	--	--	B	0.584	1.15	1.35	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 22	mg/kg	0.002	0.3	9.6E-04	0.023	0.015	0.15	0.034	--	--	--	--	-4.35	1.11	--	--	B	0.035	0.069	0.081	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	4 / 22	mg/kg	0.019	3	0.01	1.3	0.15	22.4	4.73	0.483	6.15	22.4	10.8	-1.63	1.6	0.508	1.76	B	3.83	8.41	10.2	--	--	190	--	--	0.02
Diethyl phthalate	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 22	mg/kg	0.019	3	0.01	0.247	0.149	1.5	0.34	0.432	0.432	0.432	--	-2.0	1.14	-0.839	--	B	0.351	0.69	0.81	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	2800	500	--	NSRC	NSRC
Isophorone	1 / 22	mg/kg	0.019	3	0.01	0.282	0.148	1.5	0.396	1.21	1.21	1.21	--	-1.95	1.21	0.191	--	B	0.35	0.689	0.808	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 22	mg/kg	0.019	3	0.01	0.238	0.148	1.5	0.337	0.129	0.129	0.129	--	-2.01	1.09	-2.05	--	B	0.35	0.689	0.808	--	--	--	--	NSRC	NSRC
Phenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 22	mg/kg	0.019	3	0.01	0.234	0.148	1.5	0.338	--	--	--	--	-2.05	1.11	--	--	B	0.35	0.689	0.808	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	2 / 2	pCi/g	--	--	1.47	1.78	1.78	2.08	0.431	1.47	1.78	2.08	0.431	0.559	0.245	0.559	0.245	B	1.78	1.93	1.96	--	--	--	--	--	--
Alpha activity	4 / 22	pCi/g	2.61	9.99	2.61	9.48	9.1	24.3	6.35	11.7	20.5	24.3	5.9	2.05	0.664	2.98	0.348	B	10.5	16.1	17.6	--	--	--	--	--	--
Americium-241	0 / 7	pCi/g	0.153	0.262	0.153	0.199	0.189	0.262	0.043	--	--	--	--	-1.63	0.213	--	--	N	0.199	0.223	0.231	0.344	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	11 / 22	pCi/g	2.6	5.29	2.6	11.0	4.43	43.2	12.8	3.51	18.4	43.2	14.8	1.9	0.943	2.56	0.932	B	10.6	19.3	22.6	--	--	--	--	--	--
Bismuth-214	4 / 4	pCi/g	--	--	0.484	0.929	1.02	1.19	0.316	0.484	0.929	1.19	0.316	-0.129	0.411	-0.129	0.411	B	0.96	1.11	1.14	--	--	--	--	--	--
Carbon-14	0 / 22	pCi/g	0.408	2.41	0.408	1.51	1.85	2.41	0.766	--	--	--	--	0.246	0.634	--	--	B	1.7	2.16	2.23	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	1 / 22	pCi/g	0.055	0.208	0.055	0.115	0.104	0.21	0.045	0.21	0.21	0.21	--	-2.24	0.396	-1.56	--	N	0.115	0.128	0.132	0.221	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 22	pCi/g	0.035	0.306	0.035	0.128	0.125	0.306	0.06	--	--	--	--	-2.16	0.49	--	--	N	0.128	0.145	0.15	0.269	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 22	pCi/g	0.204	1.11	0.204	0.574	0.508	1.11	0.245	--	--	--	--	-0.642	0.431	--	--	N	0.574	0.643	0.663	1.15	13	--	1500	NSRC	NSRC
Lead-212	3 / 3	pCi/g	--	--	0.564	1.06	1.18	1.45	0.454	0.564	1.06	1.45	0.454	-0.012	0.496	-0.012	0.496	B	1.12	1.33	1.36	--	--	--	--	--	--

Table G.17. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 2 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	4 / 4	pCi/g	--	--	0.43	0.816	0.742	1.35	0.447	0.43	0.816	1.35	0.447	-0.323	0.57	-0.323	0.57	B	0.791	1.03	1.09	--	--	--	--	--	--
Neptunium-237	0 / 7	pCi/g	0.237	0.586	0.237	0.398	0.388	0.586	0.12	--	--	--	--	-0.96	0.307	--	--	N	0.398	0.464	0.487	0.808	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 22	pCi/g	0.568	1.42	0.568	0.936	0.938	1.42	0.233	--	--	--	--	-0.097	0.259	--	--	N	0.936	1.0	1.02	1.48	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 7	pCi/g	0.16	0.454	0.16	0.286	0.296	0.454	0.096	--	--	--	--	-1.3	0.344	--	--	N	0.286	0.338	0.356	0.613	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 7	pCi/g	0.19	0.541	0.19	0.329	0.303	0.541	0.117	--	--	--	--	-1.16	0.346	--	--	N	0.329	0.393	0.415	0.726	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 7	pCi/g	8.36	15.4	8.36	12.9	13.2	15.4	2.37	--	--	--	--	2.54	0.206	--	--	N	12.9	14.2	14.7	21.0	--	--	790,000	NSRC	NSRC
Potassium-40	6 / 6	pCi/g	--	--	4.57	16.2	11.1	33.1	13.2	4.57	16.2	33.1	13.2	2.47	0.881	2.47	0.881	L	17.5	45.2	76.1	311	--	--	4.2E+06	--	--
Radium-226	8 / 22	pCi/g	0.326	0.977	0.326	0.834	0.663	2.08	0.426	0.664	1.2	2.08	0.502	-0.282	0.443	0.113	0.401	L	0.832	0.958	1.0	2.14	--	--	300,000	--	--
Strontium-89	0 / 22	pCi/g	0.721	1.98	0.721	1.56	1.68	1.98	0.379	--	--	--	--	0.408	0.291	--	--	B	1.57	1.85	1.89	--	--	--	--	NSRC	NSRC
Strontium-90	3 / 22	pCi/g	1.01	1.99	1.01	2.42	1.74	14.4	2.77	3.81	7.43	14.4	6.04	0.651	0.555	1.8	0.749	B	3.73	6.65	7.74	--	--	--	400,000	--	--
Technetium-99	0 / 22	pCi/g	3.08	8.14	3.08	5.93	6.07	8.14	1.58	--	--	--	--	1.74	0.303	--	--	N	5.93	6.38	6.51	9.63	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.472	0.472	0.472	0.472	--	0.472	0.472	0.472	--	-0.751	--	-0.751	--	B	0.472	0.472	0.472	--	--	--	--	--	--
Thorium-228	4 / 22	pCi/g	0.338	1.37	0.256	0.624	0.595	1.47	0.299	0.256	0.764	1.47	0.509	-0.56	0.418	-0.448	0.715	L	0.623	0.711	0.742	1.53	--	--	25,000	--	--
Thorium-230	5 / 22	pCi/g	0.361	1.13	0.361	0.585	0.492	1.35	0.237	0.458	0.724	1.35	0.363	-0.593	0.324	-0.405	0.426	B	0.613	0.846	0.924	--	--	--	15,000	--	--
Thorium-232	5 / 22	pCi/g	0.269	0.979	0.231	0.504	0.425	1.4	0.263	0.231	0.702	1.4	0.435	-0.78	0.422	-0.514	0.654	L	0.499	0.637	0.7	1.23	--	--	2500	--	--
Total Uranium	14 / 22	pCi/g	0.608	1.16	0.608	1.41	1.13	6.97	1.31	0.721	1.67	6.97	1.59	0.168	0.512	0.299	0.586	B	2.02	3.45	3.96	--	--	--	--	--	--
Tritium	0 / 22	pCi/g	5.98	14.7	5.98	11.1	11	14.7	2.89	--	--	--	--	2.37	0.281	--	--	B	10.8	12.9	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	10 / 22	pCi/g	0.288	0.65	0.288	0.855	0.614	5.86	1.14	0.447	1.29	5.86	1.63	-0.446	0.611	-0.095	0.732	B	1.43	2.66	3.11	--	1700	2.8E+07	100,000	8.4E-04	5.1E-08
Uranium-235/236	0 / 22	pCi/g	0.296	0.884	0.296	0.519	0.502	0.884	0.175	--	--	--	--	-0.71	0.338	--	--	L	0.52	0.577	0.597	1.09	1500	9500	100,000	NSRC	NSRC
Uranium-238	9 / 22	pCi/g	0.269	0.734	0.269	0.525	0.527	1.01	0.151	0.44	0.584	1.01	0.17	-0.681	0.274	-0.567	0.244	L	0.525	0.57	0.585	0.964	1200	1500	100,000	4.4E-04	3.5E-04
																									SOF =	0.001	0.03

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.18. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 3 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 3 (all biased samples)																											
Metals																											
Antimony	2 / 3	mg/kg	0.321	0.321	0.161	0.552	0.464	1.03	0.441	0.464	0.747	1.03	0.4	-0.856	0.933	-0.369	0.564	B	0.508	0.73	0.789	--	--	160	--	--	0.003
Arsenic	1 / 3	mg/kg	0.243	0.323	0.122	1.69	0.162	4.79	2.68	4.79	4.79	4.79	--	-0.788	2.04	1.57	--	B	0.926	1.88	2.27	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	13	36.8	13.5	83.8	40.7	13	36.8	83.8	40.7	3.2	1.07	3.2	1.07	B	25.1	39.6	45.4	--	--	150,000	--	--	1.7E-04
Beryllium	2 / 3	mg/kg	0.014	0.014	0.007	0.141	0.024	0.391	0.217	0.024	0.207	0.391	0.26	-3.21	2.05	-2.34	1.98	B	0.082	0.165	0.196	--	--	--	--	--	--
Boron	2 / 3	mg/kg	0.763	0.763	0.382	3.36	1.34	8.35	4.35	1.34	4.85	8.35	4.96	0.484	1.55	1.21	1.29	B	2.35	4.21	4.84	--	--	24,000	--	--	9.8E-05
Cadmium	2 / 3	mg/kg	0.019	0.019	0.01	0.292	0.05	0.817	0.455	0.05	0.433	0.817	0.542	-2.62	2.25	-1.6	1.98	B	0.171	0.346	0.412	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	0.777	8.53	10.3	14.5	7.03	0.777	8.53	14.5	7.03	1.58	1.6	1.58	1.6	B	9.41	12.6	13.2	--	--	140,000	--	--	6.7E-05
Copper	3 / 3	mg/kg	--	--	0.369	7.43	4.53	17.4	8.88	0.369	7.43	17.4	8.88	1.12	1.96	1.12	1.96	B	5.98	10.2	11.5	--	--	--	--	--	--
Hafnium	0 / 3	mg/kg	0.432	0.584	0.216	0.265	0.287	0.292	0.042	--	--	--	--	-1.34	0.169	--	--	B	0.276	0.289	0.29	--	--	--	--	NSRC	NSRC
Lead	3 / 3	mg/kg	--	--	7.31	80.0	71.6	161	77.2	7.31	80.0	161	77.2	3.78	1.6	3.78	1.6	B	75.8	115	125	--	--	1500	--	--	0.051
Manganese	3 / 3	mg/kg	--	--	0.869	253	42.7	716	401	0.869	253	716	401	3.4	3.37	3.4	3.37	B	148	305	363	--	--	360,000	--	--	4.1E-04
Mercury	3 / 3	mg/kg	--	--	0.01	0.047	0.024	0.107	0.053	0.01	0.047	0.107	0.053	-3.53	1.22	-3.53	1.22	B	0.036	0.059	0.067	--	--	--	--	--	--
Molybdenum	1 / 3	mg/kg	0.058	0.076	0.029	0.298	0.038	0.828	0.459	0.828	0.828	0.828	--	-2.33	1.86	-0.189	--	B	0.168	0.333	0.398	--	--	3900	--	--	4.3E-05
Nickel	3 / 3	mg/kg	--	--	0.47	3.14	1.37	7.57	3.87	0.47	3.14	7.57	3.87	0.528	1.4	0.528	1.4	B	2.25	3.92	4.48	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.259	0.344	0.13	0.378	0.172	0.832	0.394	0.832	0.832	0.832	--	-1.33	1.0	-0.184	--	B	0.275	0.429	0.486	--	--	1600	--	--	1.7E-04
Silver	2 / 3	mg/kg	0.072	0.072	0.036	3.53	3.71	6.85	3.41	3.71	5.28	6.85	2.22	-0.03	2.87	1.62	0.434	B	3.62	5.33	5.7	--	--	--	--	--	--
Strontium	3 / 3	mg/kg	--	--	2.52	44.1	2.69	127	71.8	2.52	44.1	127	71.8	2.25	2.24	2.25	2.24	B	23.4	48.6	58.8	--	--	300,000	--	--	7.8E-05
Thallium	0 / 3	mg/kg	0.101	0.136	0.051	0.062	0.067	0.068	0.01	--	--	--	--	-2.79	0.168	--	--	B	0.064	0.067	0.068	--	--	--	--	NSRC	NSRC
Tin	3 / 3	mg/kg	--	--	0.582	3.11	1.17	7.57	3.88	0.582	3.11	7.57	3.88	0.547	1.33	0.547	1.33	B	2.14	3.71	4.28	--	--	2200	--	--	9.7E-04
Vanadium	2 / 3	mg/kg	0.216	0.216	0.108	4.53	0.786	12.7	7.08	0.786	6.74	12.7	8.42	0.025	2.39	1.15	1.97	B	2.66	5.41	6.43	--	--	25,000	--	--	1.1E-04
Zinc	3 / 3	mg/kg	--	--	28.7	470	32.6	1350	762	28.7	470	1350	762	4.68	2.19	4.68	2.19	B	252	520	628	--	--	--	--	--	--
Zirconium	2 / 3	mg/kg	0.382	0.382	0.191	6.6	0.618	19	10.7	0.618	9.81	19	13.0	0.269	2.39	1.23	2.42	B	3.61	7.55	9.08	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 3	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	3 / 3	mg/L	--	--	0.079	0.454	0.354	0.929	0.434	0.079	0.454	0.929	0.434	-1.22	1.24	-1.22	1.24	X	0.454	1.21	1.55	--	--	--	--	--	--
Cadmium	1 / 3	mg/L	0.003	0.003	0.002	0.014	0.002	0.039	0.021	0.039	0.039	0.039	--	-5.42	1.88	-3.25	--	X	0.014	0.051	0.068	--	--	--	--	--	--
Chromium	3 / 3	mg/L	--	--	0.062	0.105	0.071	0.183	0.068	0.062	0.105	0.183	0.068	-2.38	0.592	-2.38	0.592	X	0.105	0.222	0.275	--	--	--	--	--	--
Lead	2 / 3	mg/L	0.005	0.005	0.003	1.55	0.739	3.91	1.69	0.739	2.32	3.91	2.24	-1.64	3.86	0.531	1.18	X*	1.55	5.7	7.58	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 3	mg/kg	0.007	0.008	0.003	0.004	0.004	0.004	3.2E-04	--	--	--	--	-5.58	0.087	--	--	B	0.004	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 3	mg/kg	0.007	0.008	0.003	0.004	0.004	0.004	3.2E-04	--	--	--	--	-5.58	0.087	--	--	B	0.004	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 3	mg/kg	9.8E-04	9.9E-04	4.9E-04	0.003	5.0E-04	0.007	0.004	0.007	0.007	0.007	--	-6.72	1.54	-4.95	--	B	0.002	0.003	0.003	--	130,000	--	--	1.2E-08	--
4,4'-DDT	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 3	mg/kg	0.004	0.005	0.002	0.002	0.002	0.002	1.7E-04	--	--	--	--	-6.05	0.075	--	--	B	0.002	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 3	mg/kg	9.8E-04	9.9E-04	4.9E-04	0.002	5.0E-04	0.005	0.003	0.005	0.005	0.005	--	-6.85	1.33	-5.31	--	B	0.001	0.002	0.002	--	--	330,000	--	--	3.7E-09
Endrin	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 3	mg/kg	8.7E-04	9.9E-04	4.3E-04	4.7E-04	4.9E-04	5.0E-04	3.5E-05	--	--	--	--	-7.66	0.075	--	--	B	4.8E-04	4.9E-04	4.9E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.18. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 3 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/kg	0.004	0.005	0.002	0.002	0.002	0.002	1.7E-04	--	--	--	--	-6.05	0.075	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/kg	0.014	0.017	0.007	0.008	0.008	0.008	5.9E-04	--	--	--	--	-4.84	0.077	--	--	B	0.008	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 3	mg/kg	4.3E-04	5.0E-04	2.2E-04	2.4E-04	2.5E-04	2.5E-04	1.7E-05	--	--	--	--	-8.35	0.075	--	--	B	2.4E-04	2.5E-04	2.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 39	mg/kg	0.002	0.75	0.001	0.05	0.015	0.375	0.078	--	--	--	--	-3.81	1.33	--	--	B	0.073	0.153	0.183	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 39	mg/kg	0.002	0.75	0.001	0.05	0.015	0.375	0.078	--	--	--	--	-3.81	1.33	--	--	B	0.073	0.153	0.183	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 39	mg/kg	0.002	0.75	0.001	0.05	0.015	0.375	0.078	--	--	--	--	-3.81	1.33	--	--	B	0.073	0.153	0.183	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 39	mg/kg	0.041	12.5	0.02	0.926	0.25	6.25	1.32	1.09	1.91	2.73	1.16	-0.895	1.38	0.545	0.649	B	1.21	2.54	3.05	--	--	9810	--	--	1.2E-04
Carbazole	0 / 39	mg/kg	0.002	0.75	0.001	0.05	0.015	0.375	0.078	--	--	--	--	-3.81	1.33	--	--	B	0.073	0.153	0.183	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	1 / 39	mg/kg	0.024	7.5	0.012	0.532	0.15	3.75	0.782	1.25	1.25	1.25	--	-1.45	1.36	0.223	--	B	0.727	1.53	1.83	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 39	mg/kg	0.024	7.5	0.012	0.656	0.15	6.08	1.18	6.08	6.08	6.08	--	-1.41	1.43	1.81	--	B	1.12	2.39	2.88	--	--	--	--	NSRC	NSRC
Phenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 39	mg/kg	0.024	7.5	0.012	0.504	0.15	3.75	0.775	--	--	--	--	-1.51	1.33	--	--	B	0.727	1.53	1.83	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	1.25	1.9	2.22	2.24	0.566	1.25	1.9	2.24	0.566	0.609	0.334	0.609	0.334	B	2.06	2.21	2.23	--	--	--	--	--	--
Alpha activity	13 / 39	pCi/g	2.2	9.25	2.2	8.38	4.57	34.5	8.36	3.09	15.7	34.5	11.1	1.78	0.792	2.45	0.876	B	9.16	16.4	19.0	--	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.142	0.374	0.142	0.228	0.226	0.374	0.067	--	--	--	--	-1.52	0.291	--	--	N	0.228	0.252	0.26	0.403	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	21 / 39	pCi/g	1.88	5.14	1.88	11.0	5.14	47.8	12.4	2.92	17.1	47.8	14.4	1.97	0.854	2.52	0.811	B	11.7	21.9	25.6	--	--	--	--	--	--
Bismuth-214	5 / 5	pCi/g	--	--	0.914	1.34	1.52	1.73	0.365	0.914	1.34	1.73	0.365	0.261	0.289	0.261	0.289	B	1.45	1.64	1.67	--	--	--	--	--	--
Carbon-14	2 / 39	pCi/g	0.312	2.52	0.312	1.56	2.11	3.04	0.879	0.549	1.79	3.04	1.76	0.222	0.727	0.256	1.21	B	1.97	2.61	2.73	--	165	--	1.0E+07	0.012	--
Cesium-137	0 / 39	pCi/g	0.043	0.426	0.043	0.119	0.112	0.426	0.063	--	--	--	--	-2.22	0.41	--	--	L	0.118	0.142	0.153	0.26	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 39	pCi/g	0.036	0.272	0.036	0.13	0.124	0.272	0.052	--	--	--	--	-2.13	0.43	--	--	N	0.13	0.14	0.144	0.241	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 39	pCi/g	0.097	1.37	0.097	0.735	0.71	1.37	0.313	--	--	--	--	-0.42	0.533	--	--	N	0.735	0.801	0.82	1.4	13	--	1500	NSRC	NSRC
Lead-212	9 / 9	pCi/g	--	--	0.332	1.17	1.31	1.96	0.597	0.332	1.17	1.96	0.597	-7.8E-04	0.653	-7.8E-04	0.653	N	1.17	1.45	1.54	2.98	--	--	--	--	--

Table G.18. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 3 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	5 / 5	pCi/g	--	--	1.14	1.69	1.77	2.29	0.529	1.14	1.69	2.29	0.529	0.481	0.329	0.481	0.329	B	1.75	2.04	2.1	--	--	--	--	--	--
Neptunium-237	0 / 14	pCi/g	0.163	0.551	0.163	0.282	0.256	0.551	0.108	--	--	--	--	-1.33	0.351	--	--	L	0.282	0.325	0.341	0.665	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 39	pCi/g	0.566	1.51	0.566	0.931	0.881	1.51	0.224	--	--	--	--	-0.098	0.232	--	--	L	0.931	0.98	0.995	1.49	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.159	0.487	0.159	0.23	0.222	0.487	0.079	--	--	--	--	-1.51	0.267	--	--	B	0.256	0.336	0.361	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.149	0.456	0.149	0.225	0.211	0.456	0.076	--	--	--	--	-1.53	0.28	--	--	B	0.241	0.316	0.34	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	7.95	15.3	7.95	11.7	12.1	15.3	2.3	--	--	--	--	2.44	0.207	--	--	N	11.7	12.6	12.8	17.7	--	--	790,000	NSRC	NSRC
Potassium-40	13 / 13	pCi/g	--	--	2.75	15.3	10.1	40.4	11.8	2.75	15.3	40.4	11.8	2.43	0.839	2.43	0.839	L	16.1	25.3	30.1	107	--	--	4.2E+06	--	--
Radium-226	15 / 39	pCi/g	0.307	1.05	0.307	0.827	0.685	2.66	0.545	0.372	1.2	2.66	0.703	-0.342	0.529	0.039	0.545	B	0.951	1.52	1.7	--	--	--	300,000	--	--
Strontium-89	0 / 39	pCi/g	0.994	1.97	0.994	1.7	1.79	1.97	0.243	--	--	--	--	0.52	0.164	--	--	B	1.69	1.89	1.92	--	--	--	--	NSRC	NSRC
Strontium-90	7 / 39	pCi/g	0.515	1.96	0.515	1.79	1.75	4.29	0.709	1.98	2.85	4.29	0.915	0.512	0.384	1.01	0.299	B	1.97	2.93	3.19	--	--	--	400,000	--	--
Technetium-99	1 / 39	pCi/g	3.12	8.42	1.27	5.74	5.93	8.42	1.27	1.27	1.27	1.27	--	1.71	0.307	0.239	--	B	5.57	7.27	7.59	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.483	0.55	0.535	0.653	0.069	0.483	0.55	0.653	0.069	-0.604	0.122	-0.604	0.122	B	0.546	0.589	0.601	--	--	--	--	--	--
Thorium-228	6 / 39	pCi/g	0.234	1.38	0.234	0.824	0.784	2.14	0.428	1.04	1.52	2.14	0.447	-0.321	0.522	0.379	0.294	L	0.831	0.94	0.977	2.21	--	--	25,000	--	--
Thorium-230	10 / 39	pCi/g	0.25	1.13	0.25	0.841	0.788	2.07	0.459	0.467	1.35	2.07	0.558	-0.311	0.532	0.194	0.527	L	0.844	0.958	0.997	2.28	--	--	15,000	--	--
Thorium-232	7 / 39	pCi/g	0.187	0.98	0.187	0.679	0.606	2.36	0.443	0.33	1.33	2.36	0.653	-0.548	0.559	0.146	0.638	L	0.676	0.773	0.806	1.91	--	--	2500	--	--
Total Uranium	22 / 39	pCi/g	0.421	1.98	0.421	1.49	1.17	6.93	1.19	0.471	1.91	6.93	1.42	0.206	0.583	0.467	0.581	L	1.45	1.88	2.08	4.27	--	--	--	--	--
Tritium	0 / 39	pCi/g	3.97	14.7	3.97	10.9	11.8	14.7	3.19	--	--	--	--	2.34	0.342	--	--	B	11.0	13.4	13.8	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	20 / 39	pCi/g	0.242	1.14	0.221	0.78	0.61	4.69	0.749	0.221	1.02	4.69	0.975	-0.461	0.581	-0.224	0.649	B	1.23	2.24	2.59	--	1700	2.8E+07	100,000	7.2E-04	4.4E-08
Uranium-235/236	0 / 39	pCi/g	0.266	1.25	0.266	0.545	0.528	1.25	0.187	--	--	--	--	-0.656	0.309	--	--	L	0.544	0.626	0.663	1.0	1500	9500	100,000	NSRC	NSRC
Uranium-238	18 / 39	pCi/g	0.204	1.04	0.204	0.65	0.542	1.85	0.401	0.374	0.852	1.85	0.481	-0.571	0.512	-0.287	0.495	L	0.642	0.808	0.883	1.69	1200	1500	100,000	5.4E-04	4.3E-04
																									SOF =	0.013	0.056

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.19. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 4 (random and biased)																											
Metals																											
Antimony	1 / 2	mg/kg	0.325	0.325	0.163	0.434	0.434	0.705	0.384	0.705	0.705	0.705	--	-1.08	1.04	-0.35	--	B	0.434	0.571	0.602	--	--	160	--	--	0.003
Arsenic	1 / 2	mg/kg	0.333	0.333	0.167	2.02	2.02	3.88	2.63	3.88	3.88	3.88	--	-0.218	2.23	1.36	--	B	2.02	2.96	3.18	--	--	--	--	--	--
Barium	1 / 2	mg/kg	0.098	0.098	0.049	31.9	31.9	63.8	45.1	63.8	63.8	63.8	--	0.572	5.07	4.16	--	B	31.9	48.1	51.7	--	--	150,000	--	--	2.1E-04
Beryllium	1 / 2	mg/kg	0.02	0.02	0.01	0.195	0.195	0.381	0.262	0.381	0.381	0.381	--	-2.79	2.58	-0.965	--	B	0.195	0.289	0.311	--	--	--	--	--	--
Boron	1 / 2	mg/kg	0.787	0.787	0.394	5.75	5.75	11.1	7.57	11.1	11.1	11.1	--	0.737	2.36	2.41	--	B	5.75	8.46	9.07	--	--	24,000	--	--	2.4E-04
Cadmium	1 / 2	mg/kg	0.02	0.02	0.01	0.114	0.114	0.218	0.147	0.218	0.218	0.218	--	-3.07	2.19	-1.52	--	B	0.114	0.167	0.179	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	2.99	7.45	7.45	11.9	6.3	2.99	7.45	11.9	6.3	1.79	0.977	1.79	0.977	B	7.45	9.7	10.2	--	--	140,000	--	--	5.3E-05
Copper	2 / 2	mg/kg	--	--	5.03	10.1	10.1	15.1	7.12	5.03	10.1	15.1	7.12	2.17	0.777	2.17	0.777	B	10.1	12.6	13.2	--	--	--	--	--	--
Hafnium	1 / 2	mg/kg	0.591	0.591	0.296	0.447	0.447	0.598	0.214	0.598	0.598	0.598	--	-0.867	0.498	-0.514	--	B	0.447	0.523	0.541	--	--	--	--	--	--
Lead	2 / 2	mg/kg	--	--	0.561	2.84	2.84	5.12	3.22	0.561	2.84	5.12	3.22	0.528	1.56	0.528	1.56	B	2.84	4.0	4.26	--	--	1500	--	--	0.002
Manganese	2 / 2	mg/kg	--	--	0.268	232	232	464	328	0.268	232	464	328	2.41	5.27	2.41	5.27	B	232	350	376	--	--	360,000	--	--	6.4E-04
Mercury	2 / 2	mg/kg	--	--	0.032	6.52	6.52	13	9.17	0.032	6.52	13	9.17	-0.434	4.24	-0.434	4.24	B	6.52	9.8	10.5	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.339	0.449	0.449	0.558	0.155	0.339	0.449	0.558	0.155	-0.833	0.352	-0.833	0.352	B	0.449	0.504	0.517	--	--	3900	--	--	1.2E-04
Nickel	2 / 2	mg/kg	--	--	1.16	4.95	4.95	8.73	5.35	1.16	4.95	8.73	5.35	1.16	1.43	1.16	1.43	B	4.95	6.86	7.3	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.354	1.75	0.177	0.526	0.526	0.875	0.494	--	--	--	--	-0.933	1.13	--	--	B	0.526	0.703	0.743	--	--	1600	--	NSRC	NSRC
Silver	1 / 2	mg/kg	0.098	0.098	0.049	3.57	3.57	7.09	4.98	7.09	7.09	7.09	--	-0.527	3.51	1.96	--	B	3.57	5.35	5.76	--	--	--	--	--	--
Strontium	1 / 2	mg/kg	0.591	0.591	0.296	102	102	204	144	204	204	204	--	2.05	4.62	5.32	--	B	102	154	165	--	--	300,000	--	--	3.4E-04
Thallium	0 / 2	mg/kg	0.138	0.681	0.069	0.205	0.205	0.341	0.192	--	--	--	--	-1.88	1.13	--	--	B	0.205	0.274	0.289	--	--	--	--	NSRC	NSRC
Tin	0 / 2	mg/kg	0.295	2.99	0.148	0.821	0.821	1.5	0.953	--	--	--	--	-0.756	1.64	--	--	B	0.821	1.16	1.24	--	--	2200	--	NSRC	NSRC
Vanadium	1 / 2	mg/kg	0.295	0.295	0.148	6.82	6.82	13.5	9.44	13.5	13.5	13.5	--	0.344	3.19	2.6	--	B	6.82	10.2	11.0	--	--	25,000	--	--	2.7E-04
Zinc	2 / 2	mg/kg	--	--	4.29	33.7	33.7	63.2	41.7	4.29	33.7	63.2	41.7	2.8	1.9	2.8	1.9	B	33.7	48.7	52.1	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.394	0.394	0.197	10.9	10.9	21.6	15.1	21.6	21.6	21.6	--	0.724	3.32	3.07	--	B	10.9	16.3	17.5	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.281	0.281	0.281	0.281	--	0.281	0.281	0.281	--	-1.27	--	-1.27	--	D	0.281	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.6E-04	0.008	3.8E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.68	1.69	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.6E-04	0.008	3.8E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.68	1.69	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 2	mg/kg	--	--	0.001	0.001	0.001	0.001	8.5E-05	0.001	0.001	0.001	8.5E-05	-6.81	0.077	-6.81	0.077	B	0.001	0.001	0.001	--	130,000	--	--	8.5E-09	--
4,4'-DDT	1 / 2	mg/kg	1.0E-03	1.0E-03	5.0E-04	9.4E-04	9.4E-04	0.001	6.2E-04	0.001	0.001	0.001	--	-7.09	0.719	-6.59	--	B	9.4E-04	0.001	0.001	--	--	--	--	--	--
Aldrin	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	4.5E-04	0.005	2.3E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.2	1.7	--	--	B	0.001	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	1000	1500	--	NSRC	NSRC

Table G.19. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	1 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	4.8E-04	4.8E-04	7.1E-04	3.3E-04	7.1E-04	7.1E-04	7.1E-04	--	-7.77	0.743	-7.24	--	B	4.8E-04	6.0E-04	6.3E-04	--	180	940	--	2.7E-06	5.1E-07
Methoxychlor	0 / 2	mg/kg	4.5E-04	0.005	2.3E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.2	1.7	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.002	0.017	7.5E-04	0.005	0.005	0.008	0.005	--	--	--	--	-5.99	1.7	--	--	B	0.005	0.006	0.007	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 21	mg/kg	0.006	2.3	0.003	0.231	0.144	1.15	0.298	0.358	0.358	0.358	--	-2.28	1.48	-1.03	--	L	0.304	0.668	0.895	3.39	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 21	mg/kg	0.006	2.3	0.003	0.233	0.144	1.15	0.3	0.41	0.41	0.41	--	-2.28	1.48	-0.892	--	L	0.308	0.683	0.916	3.46	--	1200	--	NSRC	NSRC
Benzidine	1 / 21	mg/kg	0.006	2.3	0.003	0.269	0.144	1.17	0.362	1.17	1.17	1.17	--	-2.23	1.55	0.157	--	L	0.358	0.841	1.16	4.24	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 21	mg/kg	0.046	3.84	0.023	0.427	0.24	1.92	0.549	0.036	0.753	1.47	1.01	-1.63	1.34	-1.47	2.62	L	0.482	0.945	1.21	4.73	--	9810	--	--	4.9E-05
Carbazole	1 / 21	mg/kg	0.003	0.23	0.001	0.022	0.014	0.115	0.03	0.002	0.002	0.002	--	-4.54	1.28	-6.4	--	B	0.029	0.055	0.064	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	5 / 21	mg/kg	0.006	2.3	0.003	0.316	0.149	1.15	0.348	0.088	0.488	1.06	0.385	-1.91	1.51	-1.05	0.997	B	0.291	0.56	0.65	--	--	190	--	--	0.002
Diethyl phthalate	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 21	mg/kg	0.006	2.3	0.003	0.241	0.147	1.15	0.306	0.569	0.569	0.569	--	-2.26	1.5	-0.564	--	L	0.322	0.724	0.978	3.67	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	2 / 21	mg/kg	0.033	2.3	0.013	0.223	0.144	1.15	0.296	0.013	0.032	0.051	0.027	-2.19	1.23	-3.67	0.989	L	0.238	0.427	0.528	2.07	--	--	--	--	--
Phenol	1 / 21	mg/kg	0.006	2.3	0.003	0.338	0.144	2.61	0.599	2.61	2.61	2.61	--	-2.19	1.62	0.959	--	L	0.416	1.05	1.48	5.21	--	3200	--	NSRC	NSRC
Pyridine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	2.49	2.49	2.49	2.49	--	2.49	2.49	2.49	--	0.912	--	0.912	--	B	2.49	2.49	2.49	--	--	--	--	--	--
Alpha activity	9 / 23	pCi/g	1.48	9.41	1.48	8.45	5.39	52	10.8	4.87	14.4	52	15.6	1.74	0.802	2.32	0.803	L	7.75	12.0	13.9	37.0	--	--	--	--	--
Americium-241	0 / 4	pCi/g	0.19	0.235	0.19	0.213	0.214	0.235	0.021	--	--	--	--	-1.55	0.097	--	--	B	0.213	0.225	0.227	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	11 / 23	pCi/g	1.22	4.29	1.22	7.59	3.7	45.8	9.7	1.56	12.3	45.8	12.6	1.59	0.872	2.06	1.04	B	10.3	20.1	23.7	--	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	1.13	1.55	1.55	1.96	0.587	1.13	1.55	1.96	0.587	0.398	0.389	0.398	0.389	B	1.55	1.76	1.8	--	--	--	--	--	--
Carbon-14	0 / 21	pCi/g	0.397	2.47	0.397	1.47	1.78	2.47	0.85	--	--	--	--	0.177	0.699	--	--	B	1.66	2.15	2.24	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 21	pCi/g	0.028	0.356	0.028	0.115	0.11	0.356	0.072	--	--	--	--	-2.32	0.574	--	--	L	0.116	0.141	0.151	0.383	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 21	pCi/g	0.042	0.28	0.042	0.108	0.101	0.28	0.054	--	--	--	--	-2.33	0.448	--	--	L	0.108	0.125	0.131	0.282	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 21	pCi/g	0.294	1.11	0.294	0.699	0.686	1.11	0.284	--	--	--	--	-0.446	0.443	--	--	B	0.691	0.899	0.947	--	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	0.379	1.02	0.93	1.83	0.726	0.379	1.02	1.83	0.726	-0.213	0.809	-0.213	0.809	B	0.988	1.36	1.46	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	1.12	1.68	1.68	2.23	0.785	1.12	1.68	2.23	0.785	0.458	0.487	0.458	0.487	B	1.68	1.96	2.02	--	--	--	--	--	--

Table G.19. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Neptunium-237	0 / 4	pCi/g	0.204	0.383	0.204	0.303	0.313	0.383	0.078	--	--	--	--	-1.22	0.277	--	--	B	0.306	0.35	0.359	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 21	pCi/g	0.569	1.66	0.569	0.931	0.844	1.66	0.274	--	--	--	--	-0.108	0.268	--	--	L	0.931	1.01	1.04	1.69	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 4	pCi/g	0.174	0.477	0.174	0.299	0.272	0.477	0.14	--	--	--	--	-1.29	0.467	--	--	B	0.29	0.367	0.388	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 4	pCi/g	0.189	0.568	0.189	0.343	0.308	0.568	0.18	--	--	--	--	-1.18	0.531	--	--	B	0.331	0.428	0.454	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 4	pCi/g	13.4	15.4	13.4	14.5	14.6	15.4	0.841	--	--	--	--	2.67	0.059	--	--	B	14.5	15.0	15.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	6 / 6	pCi/g	--	--	5.15	7.96	6.75	15	3.71	5.15	7.96	15	3.71	2.0	0.401	2.0	0.401	L	8.01	10.8	12.4	32.7	--	--	4.2E+06	--	--
Radium-226	7 / 21	pCi/g	0.401	1.02	0.394	0.76	0.588	2.62	0.472	0.394	0.988	2.62	0.77	-0.381	0.423	-0.21	0.642	B	0.894	1.4	1.58	--	--	--	300,000	--	--
Strontium-89	0 / 21	pCi/g	0.504	2	0.504	1.65	1.79	2	0.385	--	--	--	--	0.463	0.33	--	--	B	1.61	1.9	1.94	--	--	--	--	NSRC	NSRC
Strontium-90	2 / 21	pCi/g	0.682	1.95	0.682	1.94	1.59	6.38	1.43	5.87	6.13	6.38	0.361	0.51	0.501	1.81	0.059	B	2.24	3.6	4.05	--	--	--	400,000	--	--
Technetium-99	1 / 23	pCi/g	2.58	7.62	0.113	5.67	6.17	7.62	1.64	0.113	0.113	0.113	--	1.59	0.852	-2.18	--	B	5.4	6.97	7.19	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.542	0.542	0.542	0.542	--	0.542	0.542	0.542	--	-0.612	--	-0.612	--	B	0.542	0.542	0.542	--	--	--	--	--	--
Thorium-228	2 / 21	pCi/g	0.238	0.934	0.238	0.608	0.523	1.56	0.356	1.49	1.53	1.56	0.049	-0.627	0.499	0.422	0.032	L	0.605	0.715	0.755	1.74	--	--	25,000	--	--
Thorium-230	5 / 21	pCi/g	0.254	0.779	0.254	0.587	0.501	1.33	0.291	0.541	0.938	1.33	0.338	-0.636	0.459	-0.122	0.392	L	0.588	0.684	0.719	1.57	--	--	15,000	--	--
Thorium-232	5 / 21	pCi/g	0.189	0.666	0.189	0.519	0.41	1.91	0.428	0.409	0.946	1.91	0.735	-0.848	0.569	-0.306	0.784	B	0.623	1.03	1.16	--	--	--	2500	--	--
Total Uranium	8 / 21	pCi/g	0.654	1.31	0.654	1.27	1.04	3.31	0.799	0.756	1.82	3.31	1.08	0.105	0.484	0.441	0.598	B	1.35	1.98	2.19	--	--	--	--	--	--
Tritium	0 / 21	pCi/g	5.04	14.4	5.04	10.9	11.3	14.4	3.21	--	--	--	--	2.34	0.342	--	--	B	10.8	13.0	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	8 / 23	pCi/g	0.375	0.733	0.316	0.703	0.536	2.27	0.469	0.316	1.04	2.27	0.675	-0.496	0.501	-0.154	0.687	B	0.788	1.24	1.4	--	1700	2.8E+07	100,000	4.6E-04	2.8E-08
Uranium-235/236	0 / 23	pCi/g	0.303	0.85	0.303	0.564	0.53	0.85	0.155	--	--	--	--	-0.609	0.28	--	--	N	0.564	0.607	0.62	0.925	1500	9500	100,000	NSRC	NSRC
Uranium-238	5 / 23	pCi/g	0.221	0.67	0.221	0.582	0.456	1.61	0.338	0.456	1.02	1.61	0.514	-0.657	0.456	-0.11	0.588	B	0.609	0.944	1.05	--	1200	1500	100,000	5.1E-04	4.1E-04
																									SOF =	9.7E-04	0.008

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.20. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 5 (random and biased)																											
Metals																											
Antimony	3 / 4	mg/kg	0.174	0.174	0.087	4.94	1.39	16.9	8.03	0.54	6.56	16.9	8.99	0.144	2.23	1.01	1.73	B	3.76	7.52	8.88	--	--	160	--	--	0.023
Arsenic	1 / 4	mg/kg	0.178	0.351	0.089	0.53	0.141	1.75	0.814	1.75	1.75	1.75	--	-1.46	1.38	0.56	--	B	0.4	0.753	0.888	--	--	--	--	--	--
Barium	3 / 4	mg/kg	0.053	0.053	0.026	3.35	0.191	13	6.43	0.179	4.46	13	7.4	-1.1	2.61	-0.25	2.44	B	2.3	4.98	6.04	--	--	150,000	--	--	1.5E-05
Beryllium	1 / 4	mg/kg	0.011	0.021	0.005	0.01	0.008	0.019	0.006	0.019	0.019	0.019	--	-4.71	0.58	-3.95	--	B	0.01	0.013	0.014	--	--	--	--	--	--
Boron	0 / 4	mg/kg	0.422	0.832	0.211	0.314	0.315	0.416	0.099	--	--	--	--	-1.2	0.325	--	--	B	0.315	0.366	0.378	--	--	24,000	--	NSRC	NSRC
Cadmium	2 / 4	mg/kg	0.011	0.013	0.005	0.334	0.036	1.26	0.618	0.066	0.663	1.26	0.845	-3.2	2.56	-1.25	2.09	B	0.235	0.498	0.601	--	--	--	--	--	--
Chromium	4 / 4	mg/kg	--	--	0.596	323	1.54	1290	644	0.596	323	1290	644	1.87	3.56	1.87	3.56	B	216	477	583	--	--	140,000	--	--	0.002
Copper	4 / 4	mg/kg	--	--	0.306	17.5	1.32	67.2	33.1	0.306	17.5	67.2	33.1	0.846	2.36	0.846	2.36	B	12.1	26.0	31.5	--	--	--	--	--	--
Hafnium	0 / 4	mg/kg	0.317	0.624	0.159	0.236	0.236	0.312	0.074	--	--	--	--	-1.48	0.324	--	--	B	0.236	0.275	0.283	--	--	--	--	NSRC	NSRC
Lead	4 / 4	mg/kg	--	--	0.06	67.9	9.79	252	123	0.06	67.9	252	123	1.0	3.92	1.0	3.92	B	48.5	102	123	--	--	1500	--	--	0.032
Manganese	4 / 4	mg/kg	--	--	0.144	15.1	9.19	41.7	19.6	0.144	15.1	41.7	19.6	0.933	2.8	0.933	2.8	B	13.1	23.4	26.5	--	--	360,000	--	--	3.6E-05
Mercury	3 / 4	mg/kg	0.002	0.002	0.001	0.123	0.022	0.448	0.217	0.013	0.164	0.448	0.246	-3.86	2.49	-2.86	1.84	B	0.09	0.187	0.223	--	--	--	--	--	--
Molybdenum	3 / 4	mg/kg	0.05	0.05	0.025	2.63	0.088	10.3	5.12	0.05	3.49	10.3	5.9	-1.61	2.71	-0.912	2.85	B	1.78	3.88	4.72	--	--	3900	--	--	4.6E-04
Nickel	4 / 4	mg/kg	--	--	0.217	71.4	0.765	284	142	0.217	71.4	284	142	0.864	3.25	0.864	3.25	B	47.9	105	129	--	--	--	--	--	--
Selenium	0 / 4	mg/kg	0.19	0.374	0.095	0.141	0.142	0.187	0.044	--	--	--	--	-1.99	0.324	--	--	B	0.142	0.165	0.17	--	--	1600	--	NSRC	NSRC
Silver	1 / 4	mg/kg	0.053	0.097	0.026	0.292	0.04	1.06	0.512	1.06	1.06	1.06	--	-2.52	1.73	0.058	--	B	0.208	0.421	0.506	--	--	--	--	--	--
Strontium	1 / 4	mg/kg	0.317	0.624	0.159	1.18	0.25	4.07	1.93	4.07	4.07	4.07	--	-0.818	1.51	1.4	--	B	0.872	1.69	2.01	--	--	300,000	--	--	2.9E-06
Thallium	0 / 4	mg/kg	0.074	0.146	0.037	0.055	0.055	0.073	0.017	--	--	--	--	-2.94	0.326	--	--	B	0.055	0.064	0.066	--	--	--	--	NSRC	NSRC
Tin	1 / 4	mg/kg	0.158	0.292	0.079	0.792	0.12	2.85	1.37	2.85	2.85	2.85	--	-1.44	1.68	1.05	--	B	0.568	1.14	1.37	--	--	2200	--	--	2.6E-04
Vanadium	2 / 4	mg/kg	0.158	0.188	0.079	0.841	0.727	1.83	0.892	1.36	1.6	1.83	0.332	-0.998	1.68	0.456	0.21	B	0.803	1.25	1.37	--	--	25,000	--	--	3.2E-05
Zinc	4 / 4	mg/kg	--	--	1.33	11.9	10.7	24.9	11.3	1.33	11.9	24.9	11.3	1.92	1.37	1.92	1.37	B	11.5	17.6	19.1	--	--	--	--	--	--
Zirconium	0 / 4	mg/kg	0.211	0.416	0.106	0.157	0.158	0.208	0.049	--	--	--	--	-1.89	0.325	--	--	B	0.157	0.183	0.189	--	--	--	--	NSRC	NSRC
TCLP Metals																											
Arsenic	1 / 3	mg/L	0.017	0.017	0.009	0.014	0.009	0.024	0.009	0.024	0.024	0.024	--	-4.42	0.597	-3.73	--	X	0.014	0.029	0.036	--	--	--	--	--	--
Barium	3 / 3	mg/L	--	--	0.028	0.131	0.103	0.261	0.119	0.028	0.131	0.261	0.119	-2.4	1.13	-2.4	1.13	X	0.131	0.337	0.43	--	--	--	--	--	--
Cadmium	1 / 3	mg/L	0.003	0.003	0.002	0.011	0.002	0.03	0.016	0.03	0.03	0.03	--	-5.51	1.72	-3.52	--	X	0.011	0.039	0.052	--	--	--	--	--	--
Chromium	2 / 3	mg/L	0.03	0.03	0.015	0.333	0.12	0.85	0.367	0.12	0.485	0.85	0.516	-2.16	2.02	-1.14	1.38	X*	0.333	1.23	1.64	--	--	--	--	--	--
Lead	3 / 3	mg/L	--	--	0.007	2.13	0.407	5.97	3.33	0.007	2.13	5.97	3.33	-1.36	3.4	-1.36	3.4	X	2.13	7.9	10.5	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.004	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.63	0.463	--	--	B	0.004	0.005	0.005	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.004	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.63	0.463	--	--	B	0.004	0.005	0.005	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.002	0.012	9.2E-04	0.003	0.002	0.006	0.002	--	--	--	--	-6.2	0.84	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	2400	69,000	--	NSRC	NSRC

Table G.20. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	0.002	0.012	9.2E-04	0.003	0.002	0.006	0.002	--	--	--	--	-6.2	0.84	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.006	0.04	0.003	0.009	0.006	0.02	0.008	--	--	--	--	-5.0	0.841	--	--	B	0.008	0.012	0.014	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 21	mg/kg	0.003	0.419	0.001	1.57	0.015	31.1	6.77	0.198	10.8	31.1	17.6	-3.69	2.31	0.65	2.57	B	5.19	11.5	14.0	--	--	4000	--	--	0.001
2-Methylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	850	--	NSRC	NSRC
Acenaphthene	3 / 21	mg/kg	0.003	0.419	0.001	0.29	0.015	5.39	1.17	0.048	1.87	5.39	3.05	-3.94	1.86	-1.05	2.45	B	0.908	2.0	2.44	--	--	390,000	--	--	2.3E-06
Acenaphthylene	0 / 21	mg/kg	0.003	0.419	0.001	0.025	0.015	0.21	0.045	--	--	--	--	-4.39	1.18	--	--	B	0.045	0.091	0.108	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 21	mg/kg	0.043	6.98	0.021	0.422	0.245	3.49	0.75	--	--	--	--	-1.58	1.18	--	--	B	0.749	1.51	1.79	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 21	mg/kg	0.003	0.419	0.001	0.025	0.015	0.21	0.045	--	--	--	--	-4.39	1.18	--	--	B	0.045	0.091	0.108	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	3 / 21	mg/kg	0.026	4.19	0.013	0.289	0.148	2.1	0.461	0.034	0.334	0.771	0.388	-1.93	1.19	-1.76	1.57	B	0.45	0.91	1.08	--	--	190	--	--	0.002
Diethyl phthalate	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	2800	500	--	NSRC	NSRC
Isophorone	1 / 21	mg/kg	0.026	4.19	0.013	0.263	0.147	2.1	0.45	0.35	0.35	0.35	--	-2.05	1.2	-1.05	--	B	0.449	0.909	1.08	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
Phenol	1 / 21	mg/kg	0.026	4.19	0.013	0.263	0.148	2.1	0.45	0.351	0.351	0.351	--	-2.04	1.2	-1.05	--	B	0.45	0.91	1.08	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	0.688	1.51	1.83	2	0.713	0.688	1.51	2	0.713	0.308	0.592	0.308	0.592	B	1.67	1.92	1.95	--	--	--	--	--	--
Alpha activity	10 / 23	pCi/g	2.08	9.54	2.08	11.5	5.94	44.9	12.9	3.15	21.2	44.9	14.7	1.94	0.983	2.8	0.817	B	11.8	21.5	24.9	--	--	--	--	--	--
Americium-241	0 / 6	pCi/g	0.2	0.291	0.2	0.242	0.245	0.291	0.032	--	--	--	--	-1.43	0.132	--	--	N	0.242	0.261	0.268	0.36	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	11 / 23	pCi/g	3.19	5.82	3.19	24.0	4.85	370	75.8	4.85	45.8	370	108	2.0	1.1	2.7	1.26	B	65.4	140	170	--	--	--	--	--	--
Bismuth-214	3 / 3	pCi/g	--	--	0.834	1.22	1.19	1.64	0.404	0.834	1.22	1.64	0.404	0.162	0.338	0.162	0.338	B	1.21	1.41	1.46	--	--	--	--	--	--
Carbon-14	1 / 21	pCi/g	0.276	2.49	0.276	2.11	0.733	17.2	3.57	17.2	17.2	17.2	--	0.187	0.951	2.84	--	B	3.4	6.97	8.35	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 21	pCi/g	0.049	0.352	0.049	0.11	0.1	0.352	0.062	--	--	--	--	-2.31	0.42	--	--	B	0.133	0.207	0.23	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 21	pCi/g	0.054	0.337	0.054	0.125	0.119	0.337	0.059	--	--	--	--	-2.17	0.407	--	--	L	0.124	0.142	0.148	0.301	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 21	pCi/g	0.129	1.04	0.129	0.53	0.491	1.04	0.203	--	--	--	--	-0.714	0.436	--	--	N	0.53	0.589	0.606	1.01	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.421	1.18	1.38	2.06	0.674	0.421	1.18	2.06	0.674	0.008	0.67	0.008	0.67	B	1.33	1.74	1.82	--	--	--	--	--	--

Table G.20. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	4 / 4	pCi/g	--	--	0.492	1.23	1.3	1.82	0.575	0.492	1.23	1.82	0.575	0.095	0.578	0.095	0.578	B	1.25	1.57	1.64	--	--	--	--	--	--
Neptunium-237	0 / 6	pCi/g	0.131	0.47	0.131	0.225	0.186	0.47	0.122	--	--	--	--	-1.58	0.433	--	--	B	0.224	0.306	0.332	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 21	pCi/g	0.642	8.99	0.642	1.39	0.987	8.99	1.76	--	--	--	--	0.091	0.533	--	--	B	2.26	4.06	4.73	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 6	pCi/g	0.172	0.413	0.172	0.247	0.221	0.413	0.087	--	--	--	--	-1.44	0.307	--	--	L	0.248	0.307	0.337	0.739	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 6	pCi/g	0.161	0.492	0.161	0.241	0.192	0.492	0.124	--	--	--	--	-1.5	0.402	--	--	B	0.237	0.312	0.339	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 6	pCi/g	8.61	14	8.61	12.8	13.6	14	2.07	--	--	--	--	2.54	0.188	--	--	B	12.8	13.8	13.9	--	--	--	790,000	NSRC	NSRC
Potassium-40	7 / 7	pCi/g	--	--	3.58	13.5	11.4	28.3	9.07	3.58	13.5	28.3	9.07	2.39	0.723	2.39	0.723	N	13.5	18.5	20.2	44.4	--	--	4.2E+06	--	--
Radium-226	3 / 21	pCi/g	0.262	0.894	0.262	0.762	0.637	2.66	0.527	0.529	1.63	2.66	1.07	-0.418	0.513	0.291	0.834	L	0.746	1.01	1.12	2.22	--	--	300,000	--	--
Strontium-89	0 / 21	pCi/g	0.667	1.95	0.667	1.57	1.71	1.95	0.376	--	--	--	--	0.413	0.307	--	--	B	1.58	1.84	1.88	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 21	pCi/g	1.03	1.98	1.03	1.56	1.54	1.98	0.249	--	--	--	--	0.429	0.167	--	--	N	1.56	1.63	1.65	2.15	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 23	pCi/g	3	7.55	3	5.63	5.72	7.55	0.987	--	--	--	--	1.71	0.191	--	--	N	5.63	5.9	5.98	7.93	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.407	0.522	0.522	0.637	0.163	0.407	0.522	0.637	0.163	-0.675	0.317	-0.675	0.317	B	0.522	0.58	0.593	--	--	--	--	--	--
Thorium-228	5 / 21	pCi/g	0.299	1.05	0.299	0.689	0.616	1.53	0.339	0.409	0.995	1.53	0.497	-0.475	0.458	-0.13	0.59	L	0.69	0.803	0.843	1.84	--	--	25,000	--	--
Thorium-230	7 / 21	pCi/g	0.311	0.865	0.311	0.691	0.657	2.08	0.404	0.394	0.961	2.08	0.583	-0.491	0.477	-0.186	0.577	L	0.686	0.804	0.847	1.9	--	--	15,000	--	--
Thorium-232	5 / 21	pCi/g	0.239	0.748	0.239	0.571	0.493	1.5	0.352	0.383	1.0	1.5	0.476	-0.704	0.527	-0.116	0.579	L	0.568	0.679	0.72	1.72	--	--	2500	--	--
Total Uranium	10 / 21	pCi/g	0.563	2.02	0.563	1.47	1.12	5.18	1.12	0.925	2.03	5.18	1.34	0.182	0.612	0.557	0.554	L	1.45	1.79	1.93	5.12	--	--	--	--	--
Tritium	0 / 21	pCi/g	3.46	14.3	3.46	9.97	11.2	14.3	2.98	--	--	--	--	2.24	0.362	--	--	N	9.97	10.8	11.1	17.0	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	11 / 23	pCi/g	0.323	1.08	0.323	1.14	0.547	9.14	1.86	0.453	1.82	9.14	2.57	-0.355	0.817	0.089	0.926	B	1.94	3.8	4.51	--	1700	2.8E+07	100,000	0.001	6.9E-08
Uranium-235/236	0 / 23	pCi/g	0.308	1.38	0.308	0.55	0.454	1.38	0.291	--	--	--	--	-0.689	0.4	--	--	B	0.584	0.837	0.921	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	9 / 23	pCi/g	0.295	1.01	0.295	0.766	0.467	4.25	0.838	0.467	1.24	4.25	1.19	-0.547	0.665	-0.047	0.702	B	1.07	1.92	2.24	--	1200	1500	100,000	8.9E-04	7.1E-04
																									SOF =	0.002	0.063

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.21. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 6 (random and biased)																											
Metals																											
Antimony	1 / 2	mg/kg	0.316	0.316	0.158	0.369	0.369	0.579	0.298	0.579	0.579	0.579	--	-1.2	0.918	-0.546	--	B	0.369	0.475	0.499	--	--	160	--	--	0.002
Arsenic	2 / 2	mg/kg	--	--	8.2	19.7	19.7	31.2	16.3	8.2	19.7	31.2	16.3	2.77	0.945	2.77	0.945	B	19.7	25.5	26.8	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	3.44	35.2	35.2	67	44.9	3.44	35.2	67	44.9	2.72	2.1	2.72	2.1	B	35.2	51.3	55.0	--	--	150,000	--	--	2.3E-04
Beryllium	1 / 2	mg/kg	0.014	0.014	0.007	0.252	0.252	0.497	0.347	0.497	0.497	0.497	--	-2.85	3.04	-0.699	--	B	0.252	0.376	0.404	--	--	--	--	--	--
Boron	1 / 2	mg/kg	0.539	0.539	0.27	13.5	13.5	26.8	18.8	26.8	26.8	26.8	--	0.989	3.25	3.29	--	B	13.5	20.3	21.8	--	--	24,000	--	--	5.6E-04
Cadmium	2 / 2	mg/kg	--	--	0.24	5.42	5.42	10.6	7.33	0.24	5.42	10.6	7.33	0.467	2.68	0.467	2.68	B	5.42	8.04	8.64	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	81.9	112	112	143	43.2	81.9	112	143	43.2	4.68	0.394	4.68	0.394	B	112	128	131	--	--	140,000	--	--	8.0E-04
Copper	2 / 2	mg/kg	--	--	20.9	61.5	61.5	102	57.3	20.9	61.5	102	57.3	3.83	1.12	3.83	1.12	B	61.5	82.0	86.7	--	--	--	--	--	--
Hafnium	1 / 2	mg/kg	0.404	0.404	0.202	0.816	0.816	1.43	0.868	1.43	1.43	1.43	--	-0.621	1.38	0.358	--	B	0.816	1.13	1.2	--	--	--	--	--	--
Lead	2 / 2	mg/kg	--	--	6.99	643	643	1280	900	6.99	643	1280	900	4.55	3.68	4.55	3.68	B	643	966	1039	--	--	1500	--	--	0.429
Manganese	2 / 2	mg/kg	--	--	172	516	516	860	486	172	516	860	486	5.95	1.14	5.95	1.14	B	516	690	730	--	--	360,000	--	--	0.001
Mercury	2 / 2	mg/kg	--	--	0.016	0.023	0.023	0.031	0.01	0.016	0.023	0.031	0.01	-3.8	0.439	-3.8	0.439	B	0.023	0.027	0.028	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	1.72	7.91	7.91	14.1	8.75	1.72	7.91	14.1	8.75	1.59	1.49	1.59	1.49	B	7.91	11.0	11.8	--	--	3900	--	--	0.002
Nickel	2 / 2	mg/kg	--	--	27.4	63.6	63.6	99.7	51.1	27.4	63.6	99.7	51.1	3.96	0.913	3.96	0.913	B	63.6	81.9	86.0	--	--	--	--	--	--
Selenium	1 / 2	mg/kg	0.243	0.243	0.122	0.631	0.631	1.14	0.72	1.14	1.14	1.14	--	-0.988	1.58	0.131	--	B	0.631	0.889	0.947	--	--	1600	--	--	3.9E-04
Silver	0 / 2	mg/kg	0.479	0.674	0.24	0.288	0.288	0.337	0.069	--	--	--	--	-1.26	0.241	--	--	B	0.288	0.313	0.319	--	--	--	--	NSRC	NSRC
Strontium	2 / 2	mg/kg	--	--	0.631	144	144	288	203	0.631	144	288	203	2.6	4.33	2.6	4.33	B	144	217	234	--	--	300,000	--	--	4.8E-04
Thallium	0 / 2	mg/kg	0.094	0.138	0.047	0.058	0.058	0.069	0.015	--	--	--	--	-2.86	0.269	--	--	B	0.058	0.064	0.065	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	0.287	0.287	0.144	3.05	3.05	5.96	4.11	5.96	5.96	5.96	--	-0.078	2.64	1.79	--	B	3.05	4.53	4.86	--	--	2200	--	--	0.001
Vanadium	2 / 2	mg/kg	--	--	0.554	22.2	22.2	43.8	30.6	0.554	22.2	43.8	30.6	1.59	3.09	1.59	3.09	B	22.2	33.1	35.6	--	--	25,000	--	--	8.9E-04
Zinc	2 / 2	mg/kg	--	--	103	612	612	1120	719	103	612	1120	719	5.83	1.69	5.83	1.69	B	612	869	928	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.27	0.27	0.135	22.8	22.8	45.5	32.1	45.5	45.5	45.5	--	0.908	4.12	3.82	--	B	22.8	34.3	36.9	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.348	0.348	0.348	0.348	--	0.348	0.348	0.348	--	-1.06	--	-1.06	--	D	0.348	--	--	--	--	--	--	--	--
Cadmium	1 / 1	mg/L	--	--	0.014	0.014	0.014	0.014	--	0.014	0.014	0.014	--	-4.28	--	-4.28	--	D	0.014	--	--	--	--	--	--	--	--
Chromium	1 / 1	mg/L	--	--	0.066	0.066	0.066	0.066	--	0.066	0.066	0.066	--	-2.72	--	-2.72	--	D	0.066	--	--	--	--	--	--	--	--
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.0E-04	0.008	3.5E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.73	1.75	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.0E-04	0.008	3.5E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.73	1.75	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.0	--	--	--	B	0.002	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	1000	1500	--	NSRC	NSRC

Table G.21. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.0	--	--	--	B	0.002	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.8	--	--	--	B	0.008	0.017	0.017	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	2 / 14	mg/kg	0.002	0.299	8.9E-04	0.028	0.015	0.15	0.037	0.032	0.036	0.04	0.005	-4.1	1.12	-3.34	0.153	B	0.035	0.069	0.08	--	--	4000	--	--	8.7E-06
2-Methylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 14	mg/kg	0.002	0.299	8.9E-04	0.03	0.015	0.15	0.04	0.085	0.085	0.085	--	-4.1	1.17	-2.46	--	B	0.035	0.069	0.08	--	--	390,000	--	--	8.9E-08
Acenaphthylene	0 / 14	mg/kg	0.002	0.299	8.9E-04	0.025	0.015	0.15	0.037	--	--	--	--	-4.22	1.07	--	--	B	0.035	0.069	0.08	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 14	mg/kg	0.018	2.99	0.009	0.269	0.147	1.5	0.371	0.405	0.405	0.405	--	-1.84	1.1	-0.904	--	B	0.348	0.687	0.805	--	--	330	--	--	0.001
Benzenemethanol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 14	mg/kg	0.03	4.98	0.015	0.417	0.243	2.49	0.617	--	--	--	--	-1.41	1.07	--	--	B	0.579	1.14	1.34	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 14	mg/kg	0.002	0.299	8.9E-04	0.044	0.015	0.237	0.067	0.053	0.145	0.237	0.13	-3.93	1.33	-2.19	1.06	B	0.049	0.101	0.12	--	110,000	--	--	4.5E-07	--
Di-n-butyl phthalate	2 / 14	mg/kg	0.164	2.99	0.028	0.454	0.146	3.29	0.894	0.028	1.66	3.29	2.31	-1.69	1.16	-1.2	3.38	B	0.65	1.35	1.61	--	--	190	--	--	0.003
Diethyl phthalate	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	2800	500	--	NSRC	NSRC
Isophorone	3 / 14	mg/kg	0.018	0.901	0.009	0.537	0.147	3.54	0.939	1.06	1.94	3.54	1.39	-1.56	1.42	0.504	0.661	B	0.689	1.45	1.73	--	6100	15,000	--	1.1E-04	4.6E-05
N-Nitroso-di-n-propylamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 14	mg/kg	0.164	2.99	0.05	0.253	0.146	1.5	0.369	0.05	0.05	0.05	--	-1.79	0.782	-3.01	--	B	0.355	0.675	0.791	--	--	--	--	--	--
Phenol	1 / 14	mg/kg	0.018	2.99	0.009	0.369	0.147	1.81	0.555	1.81	1.81	1.81	--	-1.74	1.26	0.593	--	B	0.401	0.804	0.949	--	--	3200	--	--	1.3E-04
Pyridine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	1.54	1.54	1.54	1.54	--	1.54	1.54	1.54	--	0.432	--	0.432	--	B	1.54	1.54	1.54	--	--	--	--	--	--
Alpha activity	8 / 15	pCi/g	2.11	9.66	2.11	14.1	9.61	42.2	12.4	4.73	21.2	42.2	13.3	2.3	0.878	2.84	0.753	L	14.7	22.7	26.7	94.9	--	--	--	--	--
Beta activity	10 / 15	pCi/g	2.73	4.86	2.73	9.07	8.34	23.5	5.91	3.83	11.7	23.5	5.58	2.01	0.654	2.35	0.5	L	9.24	12.3	13.7	39.9	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	1.54	1.58	1.58	1.61	0.049	1.54	1.58	1.61	0.049	0.454	0.031	0.454	0.031	B	1.58	1.59	1.6	--	--	--	--	--	--
Carbon-14	0 / 14	pCi/g	0.417	2.49	0.417	1.91	2.25	2.49	0.788	--	--	--	--	0.492	0.687	--	--	B	1.98	2.37	2.42	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 14	pCi/g	0.034	0.32	0.034	0.112	0.092	0.32	0.069	--	--	--	--	-2.32	0.522	--	--	L	0.113	0.141	0.153	0.385	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 14	pCi/g	0.046	0.321	0.046	0.124	0.1	0.321	0.073	--	--	--	--	-2.22	0.508	--	--	L	0.124	0.154	0.166	0.41	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 14	pCi/g	0.375	1.14	0.375	0.657	0.541	1.14	0.243	--	--	--	--	-0.477	0.342	--	--	L	0.658	0.754	0.79	1.52	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	0.464	1.49	1.62	2.25	0.842	0.464	1.49	2.25	0.842	0.229	0.731	0.229	0.731	B	1.53	1.96	2.04	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	1.7	1.91	1.91	2.11	0.29	1.7	1.91	2.11	0.29	0.639	0.153	0.639	0.153	B	1.91	2.01	2.03	--	--	--	--	--	--
Nickel-63	1 / 14	pCi/g	0.604	1.44	0.604	0.898	0.89	1.44	0.214	0.834	0.834	0.834	--	-0.132	0.228	-0.182	--	N	0.898	0.975	0.999	1.46	--	--	1.3E+08	--	--

Table G.21. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	6 / 6	pCi/g	--	--	5.63	10.9	11.1	16.5	4.84	5.63	10.9	16.5	4.84	2.3	0.476	2.3	0.476	N	10.9	13.9	14.9	28.9	--	--	4.2E+06	--	--
Radium-226	10 / 14	pCi/g	0.201	0.655	0.201	1.12	0.939	3.15	0.784	0.743	1.38	3.15	0.775	-0.099	0.69	0.214	0.467	L	1.15	1.59	1.79	5.5	--	--	300,000	--	--
Strontium-89	0 / 14	pCi/g	0.795	1.98	0.795	1.7	1.87	1.98	0.342	--	--	--	--	0.504	0.25	--	--	B	1.71	1.92	1.95	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 14	pCi/g	1.26	2	1.26	1.62	1.59	2	0.222	--	--	--	--	0.475	0.136	--	--	N	1.62	1.7	1.73	2.2	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 15	pCi/g	3.37	7.72	3.37	6.07	6.2	7.72	1.1	--	--	--	--	1.78	0.207	--	--	N	6.07	6.45	6.57	8.9	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.547	0.62	0.62	0.692	0.103	0.547	0.62	0.692	0.103	-0.486	0.166	-0.486	0.166	B	0.62	0.656	0.665	--	--	--	--	--	--
Thorium-228	5 / 14	pCi/g	0.258	0.753	0.258	0.712	0.391	2.4	0.662	0.304	1.23	2.4	0.908	-0.639	0.748	-0.091	0.935	B	0.704	1.18	1.35	--	--	--	25,000	--	--
Thorium-230	11 / 14	pCi/g	0.532	0.641	0.387	0.728	0.561	1.73	0.432	0.387	0.763	1.73	0.485	-0.438	0.47	-0.416	0.532	B	0.727	1.04	1.15	--	--	--	15,000	--	--
Thorium-232	6 / 14	pCi/g	0.216	0.537	0.216	0.601	0.29	1.86	0.585	0.24	0.946	1.86	0.786	-0.834	0.767	-0.438	1.01	B	0.539	0.894	1.03	--	--	--	2500	--	--
Total Uranium	11 / 14	pCi/g	0.611	0.917	0.611	2.71	1.14	17.8	4.47	0.765	3.25	17.8	4.95	0.429	0.929	0.632	0.949	B	3.83	7.47	8.87	--	--	--	--	--	--
Tritium	0 / 14	pCi/g	2.56	13	2.56	11.0	12.4	13	3.18	--	--	--	--	2.32	0.462	--	--	B	10.9	12.6	12.8	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	10 / 15	pCi/g	0.326	0.526	0.326	1.58	0.615	12.7	3.11	0.403	2.16	12.7	3.74	-0.208	0.939	0.125	0.995	B	2.58	5.18	6.18	--	1700	2.8E+07	100,000	0.002	9.2E-08
Uranium-235/236	2 / 15	pCi/g	0.299	0.578	0.299	0.414	0.404	0.633	0.098	0.414	0.524	0.633	0.155	-0.905	0.219	-0.67	0.3	L	0.414	0.449	0.461	0.71	1500	9500	100,000	2.8E-04	4.4E-05
Uranium-238	8 / 15	pCi/g	0.3	0.48	0.3	0.919	0.48	4.49	1.08	0.438	1.39	4.49	1.34	-0.432	0.753	0.032	0.759	B	1.12	2.02	2.36	--	1200	1500	100,000	9.3E-04	7.5E-04
																									SOF =	0.003	0.445

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.22. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 1 (random and biased)																											
Metals																											
Antimony	4 / 5	mg/kg	0.156	0.156	0.078	1.64	1.05	5.05	1.99	0.433	2.04	5.05	2.07	-0.249	1.56	0.327	1.02	B	1.55	2.77	3.15	--	--	160	--	--	0.01
Arsenic	3 / 5	mg/kg	0.16	1.6	0.08	4.13	1.54	14.7	6.05	1.54	6.59	14.7	7.09	0.327	1.93	1.46	1.14	B	3.49	6.84	8.0	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	21.6	375	144	947	430	21.6	375	947	430	5.02	1.7	5.02	1.7	B	257	475	548	--	--	150,000	--	--	0.002
Beryllium	3 / 5	mg/kg	0.009	0.016	0.005	0.099	0.107	0.192	0.091	0.107	0.161	0.192	0.047	-3.15	1.79	-1.86	0.327	B	0.104	0.151	0.161	--	--	--	--	--	--
Boron	3 / 5	mg/kg	0.379	0.65	0.19	5.65	2.83	17.5	7.24	2.83	9.25	17.5	7.51	0.624	1.96	1.97	0.911	B	4.83	8.97	10.3	--	--	24,000	--	--	2.0E-04
Cadmium	5 / 5	mg/kg	--	--	0.054	2.15	0.548	8.09	3.42	0.054	2.15	8.09	3.42	-0.722	2.2	-0.722	2.2	B	1.72	3.49	4.14	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	4.72	13.4	13.8	23.4	8.01	4.72	13.4	23.4	8.01	2.42	0.698	2.42	0.698	B	13.9	18.6	19.7	--	--	140,000	--	--	9.9E-05
Copper	5 / 5	mg/kg	--	--	0.67	28.8	4.98	74.2	35.9	0.67	28.8	74.2	35.9	2.12	2.04	2.12	2.04	B	15.8	31.9	37.9	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.284	0.595	0.142	0.248	0.272	0.298	0.062	--	--	--	--	-1.43	0.302	--	--	B	0.255	0.286	0.29	--	--	--	--	NSRC	NSRC
Lead	5 / 5	mg/kg	--	--	1.32	111	39.4	294	136	1.32	111	294	136	3.25	2.43	3.25	2.43	B	75.5	144	167	--	--	1500	--	--	0.05
Manganese	5 / 5	mg/kg	--	--	7.05	295	148	673	295	7.05	295	673	295	4.88	1.83	4.88	1.83	B	212	376	427	--	--	360,000	--	--	5.9E-04
Mercury	5 / 5	mg/kg	--	--	0.006	0.148	0.046	0.59	0.248	0.006	0.148	0.59	0.248	-2.96	1.64	-2.96	1.64	B	0.13	0.259	0.306	--	--	--	--	--	--
Molybdenum	5 / 5	mg/kg	--	--	0.097	3.66	0.652	16.1	6.97	0.097	3.66	16.1	6.97	-0.338	2.05	-0.338	2.05	B	3.13	6.54	7.84	--	--	3900	--	--	8.0E-04
Nickel	5 / 5	mg/kg	--	--	2.45	25.0	6.27	101	42.6	2.45	25.0	101	42.6	2.22	1.45	2.22	1.45	B	21.4	42.5	50.5	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.17	1.7	0.085	0.339	0.164	0.85	0.318	0.448	0.448	0.448	--	-1.43	0.93	-0.803	--	B	0.265	0.44	0.501	--	--	1600	--	--	1.7E-04
Silver	3 / 5	mg/kg	0.047	0.919	0.024	7.67	5.86	25.4	10.4	5.86	12.6	25.4	11.1	0.474	2.77	2.3	0.814	B	8.14	14.5	16.3	--	--	--	--	--	--
Strontium	5 / 5	mg/kg	--	--	1.1	172	181	478	193	1.1	172	478	193	3.85	2.49	3.85	2.49	B	201	323	354	--	--	300,000	--	--	6.7E-04
Thallium	0 / 5	mg/kg	0.066	0.139	0.033	0.058	0.064	0.07	0.015	--	--	--	--	-2.88	0.302	--	--	B	0.059	0.067	0.068	--	--	--	--	NSRC	NSRC
Tin	5 / 5	mg/kg	--	--	0.361	5.67	5.19	10.2	3.69	0.361	5.67	10.2	3.69	1.31	1.34	1.31	1.34	B	5.22	7.72	8.29	--	--	2200	--	--	0.002
Vanadium	3 / 5	mg/kg	0.142	0.244	0.071	5.25	6.08	10.5	4.99	6.08	8.69	10.5	2.32	0.332	2.49	2.14	0.291	B	5.82	8.39	8.93	--	--	25,000	--	--	2.3E-04
Zinc	5 / 5	mg/kg	--	--	15	2525	63.5	9590	4144	15	2525	9590	4144	5.46	2.92	5.46	2.92	B	1643	3597	4379	--	--	--	--	--	--
Zirconium	5 / 5	mg/kg	--	--	0.379	4.95	2.9	15.9	6.42	0.379	4.95	15.9	6.42	0.747	1.59	0.747	1.59	B	4.65	8.37	9.58	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.133	0.36	0.364	0.579	0.183	0.133	0.36	0.579	0.183	-1.15	0.622	-1.15	0.622	X	0.36	0.634	0.758	--	--	--	--	--	--
Cadmium	2 / 4	mg/L	0.003	0.003	0.002	0.01	0.004	0.03	0.011	0.004	0.017	0.03	0.018	-5.53	1.41	-4.56	1.47	X*	0.01	0.034	0.045	--	--	--	--	--	--
Chromium	1 / 4	mg/L	0.03	0.03	0.015	0.031	0.015	0.078	0.032	0.078	0.078	0.078	--	-3.79	0.826	-2.55	--	X	0.031	0.078	0.1	--	--	--	--	--	--
Lead	1 / 4	mg/L	0.005	0.005	0.003	0.104	0.003	0.41	0.204	0.41	0.41	0.41	--	-4.72	2.55	-0.892	--	X	0.104	0.41	0.548	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.002	0.008	8.3E-04	0.003	0.003	0.004	0.002	--	--	--	--	-6.13	0.787	--	--	B	0.003	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.002	0.008	8.3E-04	0.003	0.003	0.004	0.002	--	--	--	--	-6.13	0.787	--	--	B	0.003	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 4	mg/kg	9.7E-04	0.001	4.8E-04	0.004	4.9E-04	0.014	0.007	0.014	0.014	0.014	--	-6.78	1.68	-4.27	--	B	0.003	0.005	0.007	--	77,000	--	--	3.6E-08	--
4,4'-DDE	3 / 4	mg/kg	9.7E-04	9.7E-04	4.8E-04	0.016	0.008	0.049	0.022	0.002	0.022	0.049	0.024	-5.34	2.1	-4.58	1.76	B	0.014	0.025	0.029	--	130,000	--	--	1.0E-07	--
4,4'-DDT	2 / 4	mg/kg	9.7E-04	9.8E-04	4.8E-04	0.087	0.01	0.326	0.16	0.02	0.173	0.326	0.216	-5.07	3.16	-2.51	1.97	B	0.061	0.13	0.157	--	--	--	--	--	--
Aldrin	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.005	0.01	0.002	0.003	0.002	0.005	0.001	--	--	--	--	-5.84	0.332	--	--	B	0.003	0.003	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.22. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 4	mg/kg	4.8E-04	5.0E-04	2.4E-04	7.5E-04	2.5E-04	0.002	0.001	0.002	0.002	0.002	--	-7.75	1.11	-6.08	--	B	5.9E-04	1.0E-03	0.001	--	180	940	--	3.3E-06	6.2E-07
Methoxychlor	0 / 4	mg/kg	0.005	0.01	0.002	0.003	0.002	0.005	0.001	--	--	--	--	-5.84	0.332	--	--	B	0.003	0.003	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.016	0.032	0.008	0.01	0.008	0.016	0.004	--	--	--	--	-4.64	0.333	--	--	B	0.009	0.011	0.012	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 43	mg/kg	0.034	29.4	0.017	0.555	0.145	14.7	2.23	0.406	0.406	0.406	--	-1.98	1.2	-0.901	--	B	2.55	5.56	6.76	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	1 / 43	mg/kg	0.003	2.94	0.002	0.104	0.014	2.12	0.386	2.12	2.12	2.12	--	-4.21	1.42	0.751	--	B	0.363	0.795	0.968	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 43	mg/kg	0.003	2.94	0.002	0.086	0.014	1.47	0.294	0.078	0.694	1.31	0.872	-4.19	1.41	-1.14	2.0	B	0.254	0.555	0.675	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 43	mg/kg	0.003	2.94	0.002	0.055	0.014	1.47	0.223	--	--	--	--	-4.33	1.19	--	--	B	0.254	0.555	0.675	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 43	mg/kg	0.034	29.4	0.017	0.551	0.137	14.7	2.23	0.305	0.305	0.305	--	-2.01	1.2	-1.19	--	B	2.54	5.55	6.75	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 43	mg/kg	0.057	49	0.028	0.912	0.228	24.5	3.72	--	--	--	--	-1.52	1.19	--	--	B	4.24	9.26	11.3	--	--	9810	--	NSRC	NSRC
Carbazole	6 / 43	mg/kg	0.003	2.94	0.002	0.066	0.015	1.47	0.225	0.015	0.096	0.239	0.086	-4.11	1.34	-2.8	1.14	B	0.255	0.557	0.676	--	110,000	--	--	2.3E-06	--
Di-n-butyl phthalate	7 / 43	mg/kg	0.034	29.4	0.017	0.605	0.15	14.7	2.23	0.223	0.425	0.864	0.223	-1.73	1.2	-0.956	0.465	B	2.55	5.57	6.77	--	--	190	--	--	0.013
Diethyl phthalate	1 / 43	mg/kg	0.034	29.4	0.017	0.551	0.145	14.7	2.23	0.215	0.215	0.215	--	-1.98	1.18	-1.54	--	B	2.55	5.56	6.76	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	--	--	NSRC	NSRC
Phenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	4 / 4	pCi/g	--	--	1.35	2.15	2.08	3.08	0.795	1.35	2.15	3.08	0.795	0.71	0.379	0.71	0.379	B	2.12	2.57	2.67	--	--	--	--	--	--
Alpha activity	15 / 44	pCi/g	2.23	9.97	2.23	9.41	7.32	38.8	7.46	4.3	16.3	38.8	9.11	2.01	0.674	2.65	0.574	L	9.34	10.9	11.5	30.6	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.19	0.581	0.19	0.303	0.265	0.581	0.128	--	--	--	--	-1.26	0.367	--	--	B	0.305	0.4	0.43	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	24 / 44	pCi/g	1.38	5.99	1.38	10.6	5.43	46.6	10.2	1.78	16.1	46.6	11.2	1.98	0.858	2.51	0.806	B	11.6	21.9	25.5	--	--	--	--	--	--
Bismuth-214	8 / 8	pCi/g	--	--	0.353	1.25	1.15	2.16	0.651	0.353	1.25	2.16	0.651	0.074	0.616	0.074	0.616	N	1.25	1.57	1.68	3.32	--	--	--	--	--
Carbon-14	3 / 43	pCi/g	0.281	2.4	0.281	10.8	0.663	416	63.3	0.661	139	416	240	-0.013	1.18	1.74	3.72	B	69.8	154	188	--	165	--	1.0E+07	0.423	--
Cesium-137	1 / 43	pCi/g	0.025	0.544	0.025	0.161	0.144	0.544	0.104	0.211	0.211	0.211	--	-2.0	0.61	-1.56	--	L	0.162	0.187	0.196	0.487	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 43	pCi/g	0.025	0.514	0.025	0.169	0.149	0.514	0.106	--	--	--	--	-1.97	0.637	--	--	L	0.172	0.199	0.209	0.536	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 43	pCi/g	0.142	1.2	0.142	0.635	0.622	1.2	0.283	--	--	--	--	-0.57	0.52	--	--	N	0.635	0.691	0.708	1.23	13	--	1500	NSRC	NSRC
Lead-212	12 / 12	pCi/g	--	--	0.294	1.12	1.29	2.32	0.735	0.294	1.12	2.32	0.735	-0.157	0.816	-0.157	0.816	B	1.29	1.81	1.92	--	--	--	--	--	--

Table G.22. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	9 / 9	pCi/g	--	--	0.394	1.23	1.06	2.17	0.696	0.394	1.23	2.17	0.696	0.037	0.646	0.037	0.646	N	1.23	1.55	1.66	3.34	--	--	--	--	--
Neptunium-237	0 / 14	pCi/g	0.243	0.935	0.243	0.522	0.564	0.935	0.21	--	--	--	--	-0.733	0.433	--	--	N	0.522	0.597	0.621	1.07	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 43	pCi/g	0.41	22.2	0.41	1.65	0.912	22.2	3.53	--	--	--	--	0.013	0.695	--	--	B	4.38	8.94	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.156	0.483	0.156	0.239	0.216	0.483	0.088	--	--	--	--	-1.48	0.313	--	--	L	0.239	0.27	0.282	0.515	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.219	0.575	0.219	0.303	0.29	0.575	0.086	--	--	--	--	-1.22	0.235	--	--	B	0.325	0.413	0.44	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.04	16.4	8.04	10.0	9.53	16.4	2.1	--	--	--	--	2.29	0.181	--	--	B	10.4	12.4	13.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	15 / 15	pCi/g	--	--	1.88	12.0	10	32.5	7.72	1.88	12.0	32.5	7.72	2.28	0.701	2.28	0.701	N	12.0	14.7	15.5	31.8	--	--	4.2E+06	--	--
Radium-226	22 / 43	pCi/g	0.3	0.938	0.3	0.726	0.56	2.92	0.568	0.32	0.916	2.92	0.728	-0.505	0.558	-0.313	0.645	B	0.91	1.51	1.72	--	--	--	300,000	--	--
Strontium-89	4 / 43	pCi/g	0.973	1.98	0.973	1.79	1.76	4.2	0.492	1.57	2.81	4.2	1.11	0.557	0.224	0.97	0.414	B	2.04	2.84	3.08	--	--	--	--	--	--
Strontium-90	1 / 43	pCi/g	0.823	1.99	0.823	1.64	1.75	1.99	0.317	1.79	1.79	1.79	--	0.474	0.22	0.582	--	B	1.64	1.88	1.92	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 44	pCi/g	2.58	8.47	2.58	5.22	5.13	8.47	1.23	--	--	--	--	1.62	0.248	--	--	N	5.22	5.46	5.53	7.8	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.192	0.482	0.519	0.737	0.208	0.192	0.482	0.737	0.208	-0.824	0.521	-0.824	0.521	B	0.501	0.634	0.661	--	--	--	--	--	--
Thorium-228	10 / 43	pCi/g	0.155	1.33	0.155	0.734	0.594	2.82	0.529	0.223	1.28	2.82	0.782	-0.518	0.643	1.1E-04	0.841	L	0.733	0.852	0.893	2.31	--	--	25,000	--	--
Thorium-230	20 / 43	pCi/g	0.189	1.03	0.189	0.748	0.567	2.91	0.578	0.267	1.07	2.91	0.689	-0.522	0.669	-0.134	0.668	L	0.742	0.869	0.914	2.42	--	--	15,000	--	--
Thorium-232	12 / 43	pCi/g	0.181	0.969	0.181	0.594	0.436	2.28	0.474	0.199	1.01	2.28	0.701	-0.752	0.653	-0.299	0.9	B	0.701	1.19	1.36	--	--	--	2500	--	--
Total Uranium	20 / 43	pCi/g	0.636	1.5	0.636	1.55	1.15	7.52	1.35	0.712	2.22	7.52	1.75	0.229	0.591	0.561	0.686	B	2.13	3.66	4.22	--	--	--	--	--	--
Tritium	0 / 43	pCi/g	2.63	15.3	2.63	11.2	12.3	15.3	2.77	--	--	--	--	2.37	0.326	--	--	B	11.2	14.0	14.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	16 / 44	pCi/g	0.286	0.841	0.286	0.838	0.558	6.13	0.942	0.392	1.4	6.13	1.41	-0.425	0.6	0.046	0.717	B	1.44	2.71	3.18	--	1700	2.8E+07	100,000	8.5E-04	5.1E-08
Uranium-235/236	0 / 44	pCi/g	0.366	0.974	0.366	0.579	0.569	0.974	0.15	--	--	--	--	-0.578	0.249	--	--	L	0.579	0.609	0.618	0.946	1500	9500	100,000	NSRC	NSRC
Uranium-238	15 / 44	pCi/g	0.268	0.77	0.268	0.639	0.518	2.27	0.406	0.361	0.957	2.27	0.553	-0.58	0.481	-0.185	0.54	B	0.768	1.24	1.39	--	1200	1500	100,000	6.4E-04	5.1E-04
																									SOF =	0.425	0.081

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.23. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 2 (random and biased)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.375	0.509	0.509	0.643	0.19	0.375	0.509	0.643	0.19	-0.711	0.381	-0.711	0.381	B	0.509	0.577	0.592	--	--	160	--	--	0.003
Arsenic	1 / 2	mg/kg	0.268	0.268	0.134	0.358	0.358	0.582	0.317	0.582	0.582	0.582	--	-1.28	1.04	-0.541	--	B	0.358	0.472	0.497	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	0.179	0.493	0.493	0.807	0.444	0.179	0.493	0.807	0.444	-0.967	1.06	-0.967	1.06	B	0.493	0.652	0.688	--	--	150,000	--	--	3.3E-06
Beryllium	0 / 2	mg/kg	0.012	0.016	0.006	0.007	0.007	0.008	0.001	--	--	--	--	-4.98	0.2	--	--	B	0.007	0.007	0.008	--	--	--	--	NSRC	NSRC
Boron	1 / 2	mg/kg	0.476	0.476	0.238	2.47	2.47	4.71	3.16	4.71	4.71	4.71	--	0.057	2.11	1.55	--	B	2.47	3.61	3.86	--	--	24,000	--	--	1.0E-04
Cadmium	1 / 2	mg/kg	0.012	0.012	0.006	0.1	0.1	0.194	0.133	0.194	0.194	0.194	--	-3.38	2.46	-1.64	--	B	0.1	0.148	0.158	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	14.6	20.1	20.1	25.6	7.78	14.6	20.1	25.6	7.78	2.96	0.397	2.96	0.397	B	20.1	22.9	23.5	--	--	140,000	--	--	1.4E-04
Copper	2 / 2	mg/kg	--	--	9.77	36.2	36.2	62.6	37.4	9.77	36.2	62.6	37.4	3.21	1.31	3.21	1.31	B	36.2	49.6	52.6	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.357	0.475	0.179	0.208	0.208	0.238	0.042	--	--	--	--	-1.58	0.202	--	--	B	0.208	0.223	0.226	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	5.68	6.95	6.95	8.22	1.8	5.68	6.95	8.22	1.8	1.92	0.261	1.92	0.261	B	6.95	7.59	7.74	--	--	1500	--	--	0.005
Manganese	2 / 2	mg/kg	--	--	12.4	13.5	13.5	14.6	1.56	12.4	13.5	14.6	1.56	2.6	0.115	2.6	0.115	B	13.5	14.1	14.2	--	--	360,000	--	--	3.8E-05
Mercury	1 / 2	mg/kg	0.002	0.002	0.001	0.011	0.011	0.021	0.014	0.021	0.021	0.021	--	-5.31	2.01	-3.88	--	B	0.011	0.016	0.017	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.206	3.37	3.37	6.54	4.48	0.206	3.37	6.54	4.48	0.149	2.45	0.149	2.45	B	3.37	4.98	5.34	--	--	3900	--	--	8.6E-04
Nickel	2 / 2	mg/kg	--	--	0.587	10.8	10.8	21.1	14.5	0.587	10.8	21.1	14.5	1.26	2.53	1.26	2.53	B	10.8	16.0	17.2	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.214	0.285	0.107	0.125	0.125	0.143	0.025	--	--	--	--	-2.09	0.203	--	--	B	0.125	0.134	0.136	--	--	1600	--	NSRC	NSRC
Silver	1 / 2	mg/kg	0.079	0.079	0.04	0.065	0.065	0.09	0.036	0.09	0.09	0.09	--	-2.82	0.584	-2.4	--	B	0.065	0.078	0.081	--	--	--	--	--	--
Strontium	0 / 2	mg/kg	0.357	0.475	0.179	0.208	0.208	0.238	0.042	--	--	--	--	-1.58	0.202	--	--	B	0.208	0.223	0.226	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 2	mg/kg	0.083	0.111	0.042	0.049	0.049	0.056	0.01	--	--	--	--	-3.03	0.203	--	--	B	0.049	0.052	0.053	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	0.745	1.2	1.2	1.65	0.64	0.745	1.2	1.65	0.64	0.103	0.562	0.103	0.562	B	1.2	1.43	1.48	--	--	2200	--	--	5.4E-04
Vanadium	1 / 2	mg/kg	0.238	0.238	0.119	0.517	0.517	0.914	0.562	0.914	0.914	0.914	--	-1.11	1.44	-0.09	--	B	0.517	0.718	0.764	--	--	25,000	--	--	2.1E-05
Zinc	2 / 2	mg/kg	--	--	6.35	14.6	14.6	22.8	11.6	6.35	14.6	22.8	11.6	2.49	0.904	2.49	0.904	B	14.6	18.7	19.7	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.238	0.238	0.119	0.439	0.439	0.759	0.453	0.759	0.759	0.759	--	-1.2	1.31	-0.276	--	B	0.439	0.601	0.638	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.021	0.021	0.021	0.021	--	0.021	0.021	0.021	--	-3.88	--	-3.88	--	D	0.021	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	1 / 1	mg/L	--	--	0.235	0.235	0.235	0.235	--	0.235	0.235	0.235	--	-1.45	--	-1.45	--	D	0.235	--	--	--	--	--	--	--	--
Lead	1 / 1	mg/L	--	--	0.024	0.024	0.024	0.024	--	0.024	0.024	0.024	--	-3.72	--	-3.72	--	D	0.024	--	--	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.23. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.13	--	--	--	B	0.006	0.012	0.012	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	2 / 27	mg/kg	0.001	0.299	7.0E-04	0.922	0.011	14.1	3.31	10.4	12.3	14.1	2.62	-4.53	2.44	2.49	0.215	B	2.36	5.21	6.37	--	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 27	mg/kg	0.001	0.299	7.0E-04	1.3	0.011	23.7	4.94	10.9	17.3	23.7	9.05	-4.51	2.5	2.78	0.549	B	3.96	8.76	10.7	--	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 27	mg/kg	0.001	0.299	7.0E-04	0.043	0.011	0.455	0.104	0.309	0.382	0.455	0.103	-4.79	1.75	-0.981	0.274	B	0.083	0.179	0.216	--	--	93,200	--	--	8.9E-07
Acetophenone	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 27	mg/kg	0.023	4.99	0.012	0.35	0.185	2.5	0.644	0.092	0.092	0.092	--	-2.07	1.45	-2.38	--	L	0.362	0.69	0.868	3.35	--	9810	--	NSRC	NSRC
Carbazole	3 / 27	mg/kg	0.002	0.299	7.6E-04	0.52	0.011	8.86	1.9	0.004	4.55	8.86	4.43	-4.51	2.25	-0.613	4.32	B	1.48	3.28	4.0	--	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	5 / 27	mg/kg	0.015	2.99	0.008	0.294	0.122	1.5	0.432	0.109	0.558	1.02	0.397	-2.24	1.55	-0.886	0.962	L	0.354	0.727	0.941	3.53	--	190	--	--	0.002
Diethyl phthalate	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 27	mg/kg	0.014	2.99	0.007	0.209	0.111	1.5	0.386	0.031	0.031	0.031	--	-2.59	1.44	-3.49	--	L	0.212	0.401	0.503	1.95	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
Phenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 28	pCi/g	1.87	9.15	1.49	4.28	3.05	9.15	2.63	1.49	5.57	8.15	3.58	1.28	0.591	1.48	0.943	B	3.8	5.69	6.27	--	--	--	--	--	--
Americium-241	0 / 4	pCi/g	0.169	0.213	0.169	0.186	0.181	0.213	0.019	--	--	--	--	-1.69	0.101	--	--	B	0.184	0.195	0.198	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	6 / 28	pCi/g	0.528	4.72	0.528	3.82	3.56	9.57	1.76	3.67	6.15	9.57	2.1	1.23	0.514	1.77	0.339	B	4.05	6.36	6.99	--	--	--	--	--	--
Carbon-14	1 / 27	pCi/g	0.198	2.27	0.198	1.03	0.685	2.27	0.696	1.32	1.32	1.32	--	-0.208	0.721	0.278	--	B	0.868	1.38	1.54	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 27	pCi/g	0.026	0.501	0.026	0.103	0.075	0.501	0.091	--	--	--	--	-2.48	0.596	--	--	L	0.1	0.136	0.152	0.323	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 27	pCi/g	0.024	0.47	0.024	0.118	0.097	0.47	0.086	--	--	--	--	-2.32	0.611	--	--	L	0.118	0.142	0.151	0.391	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 27	pCi/g	0.083	1.2	0.083	0.581	0.558	1.2	0.275	--	--	--	--	-0.684	0.6	--	--	N	0.581	0.65	0.671	1.2	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	0.43	0.43	0.43	0.43	--	0.43	0.43	0.43	--	-0.844	--	-0.844	--	B	0.43	0.43	0.43	--	--	--	--	--	--
Neptunium-237	0 / 4	pCi/g	0.21	0.654	0.21	0.516	0.6	0.654	0.209	--	--	--	--	-0.754	0.543	--	--	B	0.544	0.628	0.638	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 27	pCi/g	0.415	1.88	0.415	0.841	0.772	1.88	0.282	--	--	--	--	-0.22	0.306	--	--	L	0.841	0.913	0.937	1.6	--	--	1.3E+08	NSRC	NSRC

Table G.23. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Ln transformed Detected Min	Ln transformed Detected Mean	Ln transformed Detected Max	Ln transformed Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 4	pCi/g	0.157	0.239	0.157	0.186	0.175	0.239	0.038	--	--	--	--	-1.7	0.197	--	--	B	0.182	0.203	0.209	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 4	pCi/g	0.22	0.284	0.22	0.249	0.246	0.284	0.032	--	--	--	--	-1.4	0.127	--	--	B	0.248	0.264	0.268	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 4	pCi/g	8.29	14.3	8.29	9.92	8.54	14.3	2.92	--	--	--	--	2.27	0.263	--	--	B	9.46	10.8	11.2	--	--	--	790,000	NSRC	NSRC
Potassium-40	2 / 2	pCi/g	--	--	3.27	5.02	5.02	6.77	2.47	3.27	5.02	6.77	2.47	1.55	0.515	1.55	0.515	B	5.02	5.91	6.11	--	--	--	4.2E+06	--	--
Radium-226	11 / 27	pCi/g	0.064	0.546	0.064	0.446	0.475	0.874	0.186	0.254	0.552	0.874	0.193	-0.916	0.531	-0.653	0.372	N	0.446	0.493	0.507	0.867	--	--	300,000	--	--
Strontium-89	0 / 27	pCi/g	1.06	1.99	1.06	1.56	1.57	1.99	0.265	--	--	--	--	0.428	0.175	--	--	N	1.56	1.62	1.64	2.15	--	--	--	NSRC	NSRC
Strontium-90	0 / 27	pCi/g	1.21	2	1.21	1.59	1.58	2	0.235	--	--	--	--	0.454	0.148	--	--	N	1.59	1.65	1.67	2.12	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 28	pCi/g	2.96	8.91	2.96	4.7	4.4	8.91	1.45	--	--	--	--	1.51	0.278	--	--	L	4.69	5.05	5.17	8.44	172	--	4.2E+07	NSRC	NSRC
Thorium-228	3 / 27	pCi/g	0.192	0.955	0.192	0.502	0.497	0.955	0.206	0.225	0.304	0.455	0.131	-0.781	0.458	-1.25	0.398	N	0.502	0.555	0.57	0.969	--	--	25,000	--	--
Thorium-230	5 / 27	pCi/g	0.165	0.726	0.165	0.466	0.458	0.726	0.143	0.291	0.382	0.458	0.068	-0.817	0.348	-0.974	0.183	N	0.466	0.502	0.512	0.789	--	--	15,000	--	--
Thorium-232	3 / 27	pCi/g	0.139	0.698	0.139	0.39	0.412	0.698	0.143	0.184	0.211	0.262	0.044	-1.02	0.416	-1.57	0.201	N	0.39	0.426	0.436	0.712	--	--	2500	--	--
Total Uranium	5 / 27	pCi/g	0.722	2.13	0.722	1.28	1.15	2.13	0.42	1.06	1.18	1.48	0.173	0.194	0.322	0.159	0.137	L	1.28	1.4	1.43	2.51	--	--	--	--	--
Tritium	0 / 27	pCi/g	1.66	14.4	1.66	7.54	7.22	14.4	3.46	--	--	--	--	1.9	0.528	--	--	N	7.54	8.42	8.68	15.4	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	5 / 28	pCi/g	0.429	1.19	0.427	0.706	0.606	1.39	0.266	0.427	0.676	1.39	0.402	-0.411	0.35	-0.497	0.473	B	0.707	0.941	1.01	--	1700	2.8E+07	100,000	4.2E-04	2.5E-08
Uranium-235/236	0 / 28	pCi/g	0.364	1.38	0.364	0.754	0.672	1.38	0.338	--	--	--	--	-0.376	0.439	--	--	B	0.739	0.997	1.07	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	4 / 28	pCi/g	0.288	1.09	0.288	0.618	0.526	1.09	0.222	0.43	0.467	0.502	0.032	-0.54	0.344	-0.763	0.069	L	0.618	0.678	0.698	1.26	1200	1500	100,000	5.2E-04	4.1E-04
																									SOF =	9.4E-04	0.012

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.24. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 3 (random and biased)																											
Metals																											
Antimony	2 / 3	mg/kg	0.272	0.272	0.136	27.7	0.595	82.5	47.4	0.595	41.5	82.5	57.9	0.633	3.36	1.95	3.49	B	14.2	31.0	37.7	--	--	160	--	--	0.089
Arsenic	2 / 3	mg/kg	0.278	0.278	0.139	4.01	4	7.9	3.88	4	5.95	7.9	2.76	0.493	2.16	1.73	0.481	B	4.01	5.97	6.42	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	0.16	19.9	0.165	59.5	34.3	0.16	19.9	59.5	34.3	0.151	3.41	0.151	3.41	B	10.1	22.1	26.9	--	--	150,000	--	--	6.7E-05
Beryllium	1 / 3	mg/kg	0.017	0.018	0.008	0.112	0.009	0.32	0.18	0.32	0.32	0.32	--	-3.54	2.08	-1.14	--	B	0.061	0.124	0.15	--	--	--	--	--	--
Boron	2 / 3	mg/kg	0.659	0.659	0.33	7.49	6.75	15.4	7.56	6.75	11.1	15.4	6.12	1.18	2.02	2.32	0.583	B	7.12	11.0	11.9	--	--	24,000	--	--	3.0E-04
Cadmium	1 / 3	mg/kg	0.017	0.019	0.008	1.88	0.009	5.61	3.23	5.61	5.61	5.61	--	-2.58	3.73	1.72	--	B	0.943	2.08	2.53	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	7.59	15.9	12.3	27.9	10.6	7.59	15.9	27.9	10.6	2.62	0.658	2.62	0.658	B	14.1	19.2	20.7	--	--	140,000	--	--	1.0E-04
Copper	3 / 3	mg/kg	--	--	4.76	18.4	8.4	41.9	20.5	4.76	18.4	41.9	20.5	2.47	1.13	2.47	1.13	B	13.4	21.9	24.8	--	--	--	--	--	--
Hafnium	1 / 3	mg/kg	0.494	0.55	0.247	0.687	0.275	1.54	0.739	1.54	1.54	1.54	--	-0.753	1.03	0.432	--	B	0.481	0.752	0.857	--	--	--	--	--	--
Lead	3 / 3	mg/kg	--	--	0.543	96.9	2.06	288	166	0.543	96.9	288	166	1.93	3.31	1.93	3.31	B	49.5	108	132	--	--	1500	--	--	0.033
Manganese	3 / 3	mg/kg	--	--	1.05	290	95.1	774	422	1.05	290	774	422	3.75	3.37	3.75	3.37	B	193	373	434	--	--	360,000	--	--	5.3E-04
Mercury	1 / 3	mg/kg	0.003	0.004	0.002	0.004	0.002	0.007	0.003	0.007	0.007	0.007	--	-5.86	0.831	-4.9	--	B	0.003	0.004	0.004	--	--	--	--	--	--
Molybdenum	3 / 3	mg/kg	--	--	0.086	3.71	0.437	10.6	5.97	0.086	3.71	10.6	5.97	-0.306	2.45	-0.306	2.45	B	2.07	4.31	5.16	--	--	3900	--	--	5.3E-04
Nickel	3 / 3	mg/kg	--	--	4.7	18.2	4.89	45.1	23.3	4.7	18.2	45.1	23.3	2.31	1.29	2.31	1.29	B	11.6	19.8	23.1	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.297	0.33	0.149	0.241	0.165	0.409	0.146	0.409	0.409	0.409	--	-1.53	0.557	-0.894	--	B	0.203	0.26	0.281	--	--	1600	--	--	1.3E-04
Silver	1 / 3	mg/kg	0.082	0.909	0.041	1.18	0.455	3.03	1.62	3.03	3.03	3.03	--	-0.956	2.15	1.11	--	B	0.815	1.52	1.76	--	--	--	--	--	--
Strontium	1 / 3	mg/kg	0.494	0.55	0.247	97.8	0.275	293	169	293	293	293	--	0.997	4.06	5.68	--	B	49.1	108	132	--	--	300,000	--	--	1.6E-04
Thallium	0 / 3	mg/kg	0.115	0.13	0.058	0.062	0.064	0.065	0.004	--	--	--	--	-2.78	0.067	--	--	B	0.063	0.065	0.065	--	--	--	--	NSRC	NSRC
Tin	2 / 3	mg/kg	0.247	0.247	0.124	3.71	4.11	6.91	3.41	4.11	5.51	6.91	1.98	0.418	2.19	1.67	0.367	B	3.91	5.58	5.92	--	--	2200	--	--	0.002
Vanadium	1 / 3	mg/kg	0.247	0.275	0.124	4.65	0.138	13.7	7.83	13.7	13.7	13.7	--	-0.486	2.69	2.62	--	B	2.4	5.15	6.26	--	--	25,000	--	--	9.6E-05
Zinc	3 / 3	mg/kg	--	--	5.9	14,240	15	42,700	24,647	5.9	14,240	42,700	24,647	5.05	4.88	5.05	4.88	B	7128	15,771	19,258	--	--	--	--	--	--
Zirconium	1 / 3	mg/kg	0.329	0.367	0.165	18.3	0.184	54.7	31.5	54.7	54.7	54.7	--	0.167	3.32	4.0	--	B	9.27	20.3	24.8	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.021	0.145	0.145	0.268	0.175	0.021	0.145	0.268	0.175	-2.59	1.8	-2.59	1.8	X	0.145	0.515	0.683	--	--	--	--	--	--
Cadmium	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	2 / 2	mg/L	--	--	0.065	0.09	0.09	0.114	0.034	0.065	0.09	0.114	0.034	-2.45	0.394	-2.45	0.394	X	0.09	0.163	0.196	--	--	--	--	--	--
Lead	0 / 2	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 3	mg/kg	0.003	0.005	0.002	0.004	0.002	0.009	0.004	0.009	0.009	0.009	--	-5.72	0.874	-4.73	--	B	0.003	0.005	0.005	--	--	119	--	--	2.8E-05
Silvex	0 / 3	mg/kg	0.002	0.005	8.3E-04	0.002	0.002	0.002	7.6E-04	--	--	--	--	-6.51	0.53	--	--	B	0.002	0.002	0.002	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	1 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	0.002	0.005	0.002	0.002	0.002	0.002	--	-6.76	1.64	-6.44	--	B	0.002	0.003	0.003	--	--	--	--	--	--
Aldrin	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 3	mg/kg	0.002	0.049	9.8E-04	0.009	0.001	0.025	0.014	--	--	--	--	-5.73	1.77	--	--	B	0.005	0.01	0.012	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	0.001	0.005	0.003	0.001	0.001	0.001	--	-6.91	1.61	-6.88	--	B	0.002	0.003	0.003	--	--	30,000	--	--	5.1E-08
Endrin ketone	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	2400	69,000	--	NSRC	NSRC

Table G.24. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/kg	0.002	0.049	9.8E-04	0.009	0.001	0.025	0.014	--	--	--	--	-5.73	1.77	--	--	B	0.005	0.01	0.012	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/kg	0.007	0.164	0.003	0.03	0.005	0.082	0.045	--	--	--	--	-4.53	1.76	--	--	B	0.017	0.034	0.04	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 22	mg/kg	0.003	0.418	0.001	0.061	0.015	0.209	0.071	0.066	0.094	0.137	0.038	-3.91	1.76	-2.42	0.384	B	0.045	0.091	0.108	--	--	4000	--	--	1.1E-05
2-Methylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 22	mg/kg	0.003	0.418	0.001	0.054	0.015	0.209	0.069	0.034	0.053	0.072	0.027	-4.04	1.69	-3.01	0.539	B	0.045	0.091	0.107	--	--	390,000	--	--	1.1E-07
Acenaphthylene	0 / 22	mg/kg	0.003	0.418	0.001	0.05	0.015	0.209	0.07	--	--	--	--	-4.15	1.65	--	--	B	0.045	0.091	0.107	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 22	mg/kg	0.028	4.18	0.014	0.525	0.147	2.09	0.696	0.623	0.623	0.623	--	-1.78	1.68	-0.473	--	B	0.449	0.907	1.07	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 22	mg/kg	0.046	6.97	0.023	0.838	0.244	3.49	1.17	--	--	--	--	-1.34	1.65	--	--	B	0.748	1.51	1.79	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 22	mg/kg	0.003	0.418	0.001	0.057	0.015	0.209	0.071	0.044	0.084	0.125	0.057	-4.01	1.72	-2.6	0.742	B	0.045	0.091	0.107	--	110,000	--	--	4.1E-07	--
Di-n-butyl phthalate	2 / 22	mg/kg	0.028	4.18	0.014	0.921	0.149	7.67	1.67	1.69	4.68	7.67	4.23	-1.47	1.83	1.28	1.07	B	1.38	2.97	3.6	--	--	190	--	--	0.007
Diethyl phthalate	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
Phenol	1 / 22	mg/kg	0.028	4.18	0.014	0.512	0.147	2.09	0.697	0.349	0.349	0.349	--	-1.81	1.66	-1.05	--	B	0.448	0.907	1.07	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 24	pCi/g	2.2	9.27	2.2	6.17	6.2	14.7	3.2	7.8	10.7	14.7	3.56	1.68	0.541	2.34	0.322	B	6.95	10.1	11.0	--	--	--	--	--	--
Americium-241	0 / 9	pCi/g	0.152	0.611	0.152	0.405	0.495	0.611	0.179	--	--	--	--	-1.02	0.56	--	--	B	0.457	0.559	0.575	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	9 / 24	pCi/g	2.32	5.74	2.32	7.68	4.93	30.9	6.53	6.31	13.5	30.9	7.77	1.81	0.63	2.48	0.492	B	8.82	15.3	17.6	--	--	--	--	--	--
Carbon-14	1 / 22	pCi/g	0.463	2.33	0.463	0.89	0.732	2.33	0.526	0.959	0.959	0.959	--	-0.227	0.436	-0.042	--	B	0.954	1.4	1.54	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 22	pCi/g	0.033	0.321	0.033	0.112	0.094	0.321	0.079	--	--	--	--	-2.38	0.607	--	--	L	0.111	0.136	0.146	0.384	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 22	pCi/g	0.014	0.334	0.014	0.12	0.114	0.334	0.09	--	--	--	--	-2.39	0.795	--	--	L	0.126	0.169	0.187	0.594	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 22	pCi/g	0.21	0.875	0.21	0.558	0.576	0.875	0.217	--	--	--	--	-0.671	0.455	--	--	N	0.558	0.619	0.638	1.07	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	0.364	0.364	0.364	0.364	--	0.364	0.364	0.364	--	-1.01	--	-1.01	--	B	0.364	0.364	0.364	--	--	--	--	--	--
Neptunium-237	0 / 9	pCi/g	0.189	0.509	0.189	0.356	0.348	0.509	0.102	--	--	--	--	-1.07	0.299	--	--	N	0.356	0.403	0.419	0.664	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 22	pCi/g	0.529	1.32	0.529	0.821	0.825	1.32	0.216	--	--	--	--	-0.23	0.257	--	--	N	0.821	0.882	0.9	1.33	--	--	1.3E+08	NSRC	NSRC

Table G.24. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 9	pCi/g	0.147	0.966	0.147	0.51	0.515	0.966	0.335	--	--	--	--	-0.918	0.786	--	--	N	0.51	0.666	0.718	1.53	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 9	pCi/g	0.207	1.15	0.207	0.614	0.613	1.15	0.39	--	--	--	--	-0.707	0.736	--	--	B	0.635	0.876	0.935	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 9	pCi/g	7.61	23.4	7.61	13.2	14.3	23.4	5.42	--	--	--	--	2.5	0.412	--	--	N	13.2	15.7	16.5	29.6	--	--	790,000	NSRC	NSRC
Potassium-40	4 / 4	pCi/g	--	--	4.63	6.41	5.75	9.5	2.14	4.63	6.41	9.5	2.14	1.82	0.307	1.82	0.307	B	6.19	7.4	7.76	--	--	--	4.2E+06	--	--
Radium-226	8 / 22	pCi/g	0.039	0.995	0.039	0.51	0.512	1.08	0.298	0.137	0.634	1.08	0.343	-0.94	0.903	-0.642	0.728	N	0.51	0.594	0.619	1.21	--	--	300,000	--	--
Strontium-89	0 / 22	pCi/g	1.14	1.88	1.14	1.47	1.51	1.88	0.19	--	--	--	--	0.378	0.13	--	--	N	1.47	1.53	1.54	1.92	--	--	--	NSRC	NSRC
Strontium-90	0 / 22	pCi/g	0.994	1.99	0.994	1.67	1.7	1.99	0.267	--	--	--	--	0.5	0.175	--	--	B	1.63	1.86	1.9	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 24	pCi/g	3.73	7.83	3.73	5.69	5.7	7.83	1.18	--	--	--	--	1.72	0.21	--	--	N	5.69	6.0	6.1	8.41	172	--	4.2E+07	NSRC	NSRC
Thorium-228	1 / 22	pCi/g	0.082	1.31	0.082	0.509	0.477	1.31	0.279	0.298	0.298	0.298	--	-0.845	0.655	-1.21	--	N	0.509	0.587	0.611	1.16	--	--	25,000	NSRC	NSRC
Thorium-230	4 / 22	pCi/g	0.063	0.995	0.063	0.454	0.425	0.995	0.232	0.406	0.452	0.552	0.069	-0.96	0.684	-0.802	0.144	N	0.454	0.52	0.539	1.0	--	--	15,000	--	--
Thorium-232	2 / 22	pCi/g	0.06	0.956	0.06	0.398	0.365	0.956	0.216	0.258	0.483	0.707	0.317	-1.1	0.67	-0.851	0.713	N	0.398	0.459	0.477	0.904	--	--	2500	--	--
Total Uranium	4 / 22	pCi/g	0.12	1.8	0.12	0.97	0.98	1.8	0.409	0.7	0.901	1.08	0.192	-0.17	0.645	-0.121	0.217	N	0.97	1.09	1.12	1.93	--	--	--	--	--
Tritium	0 / 22	pCi/g	6.57	14	6.57	9.62	9.31	14	1.92	--	--	--	--	2.25	0.192	--	--	L	9.62	10.2	10.4	14.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	1 / 24	pCi/g	0.067	0.96	0.067	0.513	0.522	0.96	0.226	0.283	0.283	0.283	--	-0.808	0.628	-1.26	--	N	0.513	0.574	0.592	1.03	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 24	pCi/g	0.078	1.22	0.078	0.596	0.618	1.22	0.283	--	--	--	--	-0.671	0.648	--	--	N	0.596	0.672	0.695	1.25	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 24	pCi/g	0.061	0.899	0.061	0.473	0.483	0.899	0.209	--	--	--	--	-0.891	0.633	--	--	N	0.473	0.529	0.546	0.956	1200	1500	100,000	NSRC	NSRC
																									SOF =	4.1E-07	0.133

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.25. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts in Y-12 Building 9207 (random and biased)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.528	8.71	8.71	16.9	11.6	0.528	8.71	16.9	11.6	1.09	2.45	1.09	2.45	B	8.71	12.9	13.8	--	--	160	--	--	0.054
Arsenic	0 / 2	mg/kg	0.212	0.284	0.106	0.124	0.124	0.142	0.025	--	--	--	--	-2.1	0.207	--	--	B	0.124	0.133	0.135	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/kg	--	--	0.117	0.148	0.148	0.179	0.044	0.117	0.148	0.179	0.044	-1.93	0.301	-1.93	0.301	B	0.148	0.164	0.167	--	--	150,000	--	--	9.9E-07
Beryllium	0 / 2	mg/kg	0.013	0.017	0.006	0.007	0.007	0.008	0.001	--	--	--	--	-4.92	0.203	--	--	B	0.007	0.008	0.008	--	--	--	--	NSRC	NSRC
Boron	0 / 2	mg/kg	0.503	0.672	0.252	0.294	0.294	0.336	0.06	--	--	--	--	-1.24	0.205	--	--	B	0.294	0.315	0.32	--	--	24,000	--	NSRC	NSRC
Cadmium	1 / 2	mg/kg	0.013	0.013	0.006	0.151	0.151	0.295	0.204	0.295	0.295	0.295	--	-3.14	2.72	-1.22	--	B	0.151	0.224	0.24	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	1.23	3.53	3.53	5.82	3.25	1.23	3.53	5.82	3.25	0.984	1.1	0.984	1.1	B	3.53	4.69	4.95	--	--	140,000	--	--	2.5E-05
Copper	2 / 2	mg/kg	--	--	0.762	4.04	4.04	7.32	4.64	0.762	4.04	7.32	4.64	0.859	1.6	0.859	1.6	B	4.04	5.7	6.08	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.377	0.504	0.189	0.22	0.22	0.252	0.045	--	--	--	--	-1.52	0.205	--	--	B	0.22	0.236	0.24	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	0.188	2.98	2.98	5.78	3.95	0.188	2.98	5.78	3.95	0.042	2.42	0.042	2.42	B	2.98	4.4	4.72	--	--	1500	--	--	0.002
Manganese	2 / 2	mg/kg	--	--	0.387	1.74	1.74	3.1	1.92	0.387	1.74	3.1	1.92	0.091	1.47	0.091	1.47	B	1.74	2.43	2.59	--	--	360,000	--	--	4.8E-06
Mercury	2 / 2	mg/kg	--	--	0.005	0.009	0.009	0.013	0.006	0.005	0.009	0.013	0.006	-4.79	0.66	-4.79	0.66	B	0.009	0.011	0.012	--	--	--	--	--	--
Molybdenum	0 / 2	mg/kg	0.05	0.067	0.025	0.029	0.029	0.034	0.006	--	--	--	--	-3.54	0.205	--	--	B	0.029	0.032	0.032	--	--	3900	--	NSRC	NSRC
Nickel	2 / 2	mg/kg	--	--	0.499	0.91	0.91	1.32	0.581	0.499	0.91	1.32	0.581	-0.209	0.688	-0.209	0.688	B	0.91	1.12	1.16	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.226	0.303	0.113	0.132	0.132	0.152	0.027	--	--	--	--	-2.03	0.207	--	--	B	0.132	0.142	0.144	--	--	1600	--	NSRC	NSRC
Silver	0 / 2	mg/kg	0.063	0.084	0.031	0.037	0.037	0.042	0.007	--	--	--	--	-3.32	0.206	--	--	B	0.037	0.039	0.04	--	--	--	--	NSRC	NSRC
Strontium	0 / 2	mg/kg	0.377	0.504	0.189	0.22	0.22	0.252	0.045	--	--	--	--	-1.52	0.205	--	--	B	0.22	0.236	0.24	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 2	mg/kg	0.088	0.118	0.044	0.051	0.051	0.059	0.011	--	--	--	--	-2.98	0.208	--	--	B	0.051	0.055	0.056	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	0.188	0.188	0.094	1.64	1.64	3.18	2.18	3.18	3.18	3.18	--	-0.604	2.49	1.16	--	B	1.64	2.42	2.6	--	--	2200	--	--	7.4E-04
Vanadium	0 / 2	mg/kg	0.188	0.252	0.094	0.11	0.11	0.126	0.023	--	--	--	--	-2.22	0.207	--	--	B	0.11	0.118	0.12	--	--	25,000	--	NSRC	NSRC
Zinc	2 / 2	mg/kg	--	--	3.67	250	250	497	349	3.67	250	497	349	3.75	3.47	3.75	3.47	B	250	375	404	--	--	--	--	--	--
Zirconium	0 / 2	mg/kg	0.251	0.336	0.126	0.147	0.147	0.168	0.03	--	--	--	--	-1.93	0.206	--	--	B	0.147	0.158	0.16	--	--	--	--	NSRC	NSRC
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.039	0.15	0.15	0.261	0.157	0.039	0.15	0.261	0.157	-2.29	1.34	-2.29	1.34	X	0.15	0.483	0.634	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.003	0.003	0.004	0.002	0.004	0.004	0.004	--	-6.01	0.69	-5.53	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.12	0.151	0.151	0.181	0.043	0.12	0.151	0.181	0.043	-1.91	0.291	-1.91	0.291	X	0.151	0.242	0.283	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	0.007	0.131	0.131	0.254	0.175	0.007	0.131	0.254	0.175	-3.16	2.54	-3.16	2.54	X	0.131	0.501	0.669	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.008	0.013	0.004	0.005	0.005	0.006	0.001	--	--	--	--	-5.27	0.286	--	--	B	0.005	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.008	0.013	0.004	0.005	0.005	0.006	0.001	--	--	--	--	-5.27	0.286	--	--	B	0.005	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 2	mg/kg	0.002	0.002	0.001	0.001	0.001	0.001	1.9E-04	0.001	0.001	0.001	--	-6.61	0.14	-6.52	--	B	0.001	0.001	0.001	--	130,000	--	--	1.0E-08	--
4,4'-DDT	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.005	0.012	0.002	0.004	0.004	0.006	0.003	--	--	--	--	-5.57	0.66	--	--	B	0.004	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 2	mg/kg	0.002	0.002	0.001	0.002	0.002	0.003	0.001	0.003	0.003	0.003	--	-6.32	0.557	-5.93	--	B	0.002	0.002	0.002	--	--	330,000	--	--	5.9E-09
Endrin	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.5E-04	0.002	4.8E-04	8.5E-04	8.5E-04	0.001	5.2E-04	--	--	--	--	-7.18	0.663	--	--	B	8.5E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	2400	69,000	--	NSRC	NSRC

Table G.25. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.005	0.012	0.002	0.004	0.004	0.006	0.003	--	--	--	--	-5.57	0.66	--	--	B	0.004	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.016	0.04	0.008	0.014	0.014	0.02	0.009	--	--	--	--	-4.37	0.664	--	--	B	0.014	0.017	0.018	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.8E-04	0.001	2.4E-04	4.2E-04	4.2E-04	6.1E-04	2.6E-04	--	--	--	--	-7.88	0.66	--	--	B	4.2E-04	5.1E-04	5.4E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 14	mg/kg	0.003	1.13	0.001	0.093	0.017	0.565	0.153	--	--	--	--	-3.57	1.7	--	--	B	0.106	0.224	0.27	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 14	mg/kg	0.003	1.13	0.001	0.093	0.017	0.565	0.153	--	--	--	--	-3.57	1.7	--	--	B	0.106	0.224	0.27	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 14	mg/kg	0.003	1.13	0.001	0.093	0.017	0.565	0.153	--	--	--	--	-3.57	1.7	--	--	B	0.106	0.224	0.27	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 14	mg/kg	0.05	18.9	0.025	1.56	0.278	9.45	2.57	--	--	--	--	-0.754	1.7	--	--	B	1.76	3.75	4.52	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 14	mg/kg	0.003	1.13	0.001	0.093	0.017	0.565	0.153	--	--	--	--	-3.57	1.7	--	--	B	0.106	0.224	0.27	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	2 / 14	mg/kg	0.03	11.3	0.015	0.973	0.318	5.65	1.52	0.196	0.353	0.51	0.222	-1.07	1.62	-1.15	0.676	L	1.28	4.49	7.52	23.9	--	190	--	--	0.007
Diethyl phthalate	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 14	mg/kg	0.03	11.3	0.015	1.25	0.167	6.21	2.08	6.21	6.21	6.21	--	-1.18	1.83	1.83	--	L	1.63	7.7	14.6	36.5	--	--	--	--	--
Phenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 14	mg/kg	0.03	11.3	0.015	0.934	0.167	5.65	1.53	--	--	--	--	-1.26	1.7	--	--	B	1.06	2.24	2.7	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	1 / 18	pCi/g	2.45	9.56	2.45	5.87	5.27	9.56	2.81	4.73	4.73	4.73	--	1.65	0.5	1.55	--	B	5.52	7.34	7.8	--	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.153	0.291	0.153	0.213	0.209	0.291	0.034	--	--	--	--	-1.56	0.156	--	--	N	0.213	0.225	0.229	0.301	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	0 / 18	pCi/g	2.6	5.82	2.6	3.72	3.36	5.82	0.914	--	--	--	--	1.29	0.233	--	--	L	3.72	4.02	4.12	6.41	--	--	--	NSRC	NSRC
Carbon-14	0 / 14	pCi/g	0.476	1.68	0.476	0.727	0.703	1.68	0.294	--	--	--	--	-0.37	0.307	--	--	B	0.828	1.12	1.21	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	2 / 14	pCi/g	0.064	0.648	0.064	0.158	0.118	0.648	0.147	0.093	0.096	0.1	0.005	-2.04	0.568	-2.34	0.052	B	0.197	0.33	0.377	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 14	pCi/g	0.066	0.606	0.066	0.172	0.138	0.606	0.138	--	--	--	--	-1.95	0.576	--	--	L	0.168	0.218	0.239	0.644	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 14	pCi/g	0.294	1.23	0.294	0.532	0.472	1.23	0.243	--	--	--	--	-0.709	0.392	--	--	L	0.531	0.623	0.659	1.37	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 14	pCi/g	0.131	0.586	0.131	0.356	0.386	0.586	0.147	--	--	--	--	-1.13	0.482	--	--	N	0.356	0.409	0.426	0.74	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 14	pCi/g	0.66	1.73	0.66	1.22	1.24	1.73	0.342	--	--	--	--	0.154	0.312	--	--	N	1.22	1.34	1.38	2.11	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.16	0.503	0.16	0.305	0.27	0.503	0.135	--	--	--	--	-1.28	0.454	--	--	B	0.291	0.378	0.402	--	--	--	15,000	NSRC	NSRC

Table G.25. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 14	pCi/g	0.161	0.568	0.161	0.345	0.321	0.568	0.158	--	--	--	--	-1.17	0.484	--	--	B	0.336	0.44	0.466	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.61	23.5	8.61	14.2	13.8	23.5	3.2	--	--	--	--	2.63	0.211	--	--	B	14.5	18.3	19.3	--	--	--	790,000	NSRC	NSRC
Radium-226	0 / 14	pCi/g	0.37	0.791	0.37	0.603	0.612	0.791	0.137	--	--	--	--	-0.533	0.252	--	--	N	0.603	0.653	0.668	0.962	--	--	300,000	NSRC	NSRC
Strontium-89	1 / 14	pCi/g	0.721	2	0.721	1.63	1.85	2.92	0.607	2.92	2.92	2.92	--	0.414	0.423	1.07	--	B	1.84	2.4	2.52	--	--	--	--	--	--
Strontium-90	6 / 14	pCi/g	1.02	1.91	1.02	2.61	1.91	6.38	1.61	2.18	3.83	6.38	1.88	0.828	0.502	1.24	0.483	B	2.5	3.79	4.21	--	--	--	400,000	--	--
Technetium-99	0 / 18	pCi/g	4.69	8.28	4.69	6.53	6.61	8.28	1.11	--	--	--	--	1.86	0.176	--	--	N	6.53	6.88	6.99	9.26	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 14	pCi/g	0.379	1.37	0.379	0.804	0.852	1.37	0.249	--	--	--	--	-0.266	0.327	--	--	N	0.804	0.893	0.921	1.45	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 14	pCi/g	0.311	1.13	0.311	0.665	0.72	1.13	0.206	--	--	--	--	-0.455	0.33	--	--	N	0.665	0.74	0.763	1.2	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 14	pCi/g	0.269	0.979	0.269	0.576	0.623	0.979	0.179	--	--	--	--	-0.6	0.33	--	--	N	0.576	0.64	0.66	1.04	--	--	2500	NSRC	NSRC
Total Uranium	3 / 14	pCi/g	0.629	1.11	0.629	1.56	0.925	6.97	1.74	1.47	4.07	6.97	2.76	0.15	0.672	1.22	0.784	B	1.88	3.26	3.77	--	--	--	--	--	--
Tritium	0 / 14	pCi/g	5.98	12.5	5.98	9.14	9.17	12.5	2.12	--	--	--	--	2.19	0.238	--	--	N	9.14	9.91	10.1	14.7	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	5 / 18	pCi/g	0.337	0.636	0.337	1.03	0.563	5.86	1.37	0.861	2.45	5.86	2.12	-0.365	0.763	0.614	0.82	B	1.41	2.59	3.04	--	1700	2.8E+07	100,000	8.3E-04	5.0E-08
Uranium-235/236	0 / 18	pCi/g	0.372	0.884	0.372	0.601	0.583	0.884	0.141	--	--	--	--	-0.535	0.236	--	--	N	0.601	0.645	0.659	0.946	1500	9500	100,000	NSRC	NSRC
Uranium-238	2 / 18	pCi/g	0.308	0.734	0.308	0.53	0.484	1.25	0.218	0.645	0.948	1.25	0.428	-0.696	0.345	-0.108	0.468	L	0.527	0.658	0.717	1.16	1200	1500	100,000	4.4E-04	3.5E-04
																									SOF =	0.001	0.064

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.26. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts in Y-12 Building 9210 (random and biased)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	5.05	43.8	43.8	82.5	54.8	5.05	43.8	82.5	54.8	3.02	1.98	3.02	1.98	B	43.8	63.4	67.8	--	--	160	--	--	0.274
Arsenic	2 / 2	mg/kg	--	--	7.9	11.3	11.3	14.7	4.81	7.9	11.3	14.7	4.81	2.38	0.439	2.38	0.439	B	11.3	13.0	13.4	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	0.16	362	362	723	511	0.16	362	723	511	2.38	5.95	2.38	5.95	B	362	545	586	--	--	150,000	--	--	0.002
Beryllium	0 / 2	mg/kg	0.016	0.018	0.008	0.009	0.009	0.009	7.1E-04	--	--	--	--	-4.75	0.082	--	--	B	0.009	0.009	0.009	--	--	--	--	NSRC	NSRC
Boron	1 / 2	mg/kg	0.65	0.65	0.325	3.54	3.54	6.75	4.54	6.75	6.75	6.75	--	0.393	2.14	1.91	--	B	3.54	5.17	5.53	--	--	24,000	--	--	1.5E-04
Cadmium	2 / 2	mg/kg	--	--	1.99	3.8	3.8	5.61	2.56	1.99	3.8	5.61	2.56	1.21	0.733	1.21	0.733	B	3.8	4.72	4.92	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	23.4	25.7	25.7	27.9	3.18	23.4	25.7	27.9	3.18	3.24	0.124	3.24	0.124	B	25.7	26.8	27.0	--	--	140,000	--	--	1.8E-04
Copper	2 / 2	mg/kg	--	--	41.9	58.1	58.1	74.2	22.8	41.9	58.1	74.2	22.8	4.02	0.404	4.02	0.404	B	58.1	66.2	68.1	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.488	0.55	0.244	0.26	0.26	0.275	0.022	--	--	--	--	-1.35	0.085	--	--	B	0.26	0.267	0.269	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	288	291	291	294	4.24	288	291	294	4.24	5.67	0.015	5.67	0.015	B	291	293	293	--	--	1500	--	--	0.194
Manganese	2 / 2	mg/kg	--	--	673	724	724	774	71.4	673	724	774	71.4	6.58	0.099	6.58	0.099	B	724	749	755	--	--	360,000	--	--	0.002
Mercury	2 / 2	mg/kg	--	--	0.007	0.034	0.034	0.061	0.038	0.007	0.034	0.061	0.038	-3.85	1.49	-3.85	1.49	B	0.034	0.048	0.051	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	10.6	13.4	13.4	16.1	3.89	10.6	13.4	16.1	3.89	2.57	0.296	2.57	0.296	B	13.4	14.7	15.1	--	--	3900	--	--	0.003
Nickel	2 / 2	mg/kg	--	--	45.1	73.1	73.1	101	39.5	45.1	73.1	101	39.5	4.21	0.57	4.21	0.57	B	73.1	87.2	90.4	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.293	0.33	0.147	0.156	0.156	0.165	0.013	--	--	--	--	-1.86	0.084	--	--	B	0.156	0.16	0.161	--	--	1600	--	NSRC	NSRC
Silver	2 / 2	mg/kg	--	--	3.03	4.83	4.83	6.62	2.54	3.03	4.83	6.62	2.54	1.5	0.553	1.5	0.553	B	4.83	5.73	5.94	--	--	--	--	--	--
Strontium	1 / 2	mg/kg	0.55	0.55	0.275	6.79	6.79	13.3	9.21	13.3	13.3	13.3	--	0.648	2.74	2.59	--	B	6.79	10.1	10.8	--	--	300,000	--	--	2.3E-05
Thallium	0 / 2	mg/kg	0.114	0.128	0.057	0.061	0.061	0.064	0.005	--	--	--	--	-2.81	0.082	--	--	B	0.061	0.062	0.063	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	6.91	8.56	8.56	10.2	2.33	6.91	8.56	10.2	2.33	2.13	0.275	2.13	0.275	B	8.56	9.39	9.58	--	--	2200	--	--	0.004
Vanadium	0 / 2	mg/kg	0.244	0.275	0.122	0.13	0.13	0.138	0.011	--	--	--	--	-2.04	0.085	--	--	B	0.13	0.134	0.135	--	--	25,000	--	NSRC	NSRC
Zinc	2 / 2	mg/kg	--	--	9590	26,145	26,145	42,700	23,412	9590	26,145	42,700	23,412	9.92	1.06	9.92	1.06	B	26,145	34,534	36,434	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.367	0.367	0.184	0.328	0.328	0.473	0.205	0.473	0.473	0.473	--	-1.22	0.67	-0.749	--	B	0.328	0.402	0.418	--	--	--	--	--	--
Herbicides																											
2,4-D	0 / 2	mg/kg	0.003	0.005	0.002	0.002	0.002	0.002	5.5E-04	--	--	--	--	-6.26	0.285	--	--	B	0.002	0.002	0.002	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.003	0.005	0.002	0.002	0.002	0.002	5.5E-04	--	--	--	--	-6.26	0.285	--	--	B	0.002	0.002	0.002	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 2	mg/kg	5.7E-04	5.7E-04	2.9E-04	0.007	0.007	0.014	0.01	0.014	0.014	0.014	--	-6.22	2.75	-4.27	--	B	0.007	0.011	0.011	--	77,000	--	--	9.3E-08	--
4,4'-DDE	1 / 2	mg/kg	5.7E-04	5.7E-04	2.9E-04	0.024	0.024	0.049	0.034	0.049	0.049	0.049	--	-5.59	3.63	-3.02	--	B	0.024	0.037	0.039	--	130,000	--	--	1.9E-07	--
4,4'-DDT	2 / 2	mg/kg	--	--	0.002	0.164	0.164	0.326	0.229	0.002	0.164	0.326	0.229	-3.78	3.76	-3.78	3.76	B	0.164	0.246	0.265	--	--	--	--	--	--
Aldrin	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.003	0.01	0.001	0.003	0.003	0.005	0.002	--	--	--	--	-5.95	0.854	--	--	B	0.003	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	5.7E-04	0.002	2.9E-04	6.2E-04	6.2E-04	9.6E-04	4.7E-04	--	--	--	--	-7.56	0.855	--	--	B	6.2E-04	7.9E-04	8.3E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	5.7E-04	0.002	2.9E-04	6.2E-04	6.2E-04	9.6E-04	4.7E-04	--	--	--	--	-7.56	0.855	--	--	B	6.2E-04	7.9E-04	8.3E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	5.7E-04	0.002	2.9E-04	6.2E-04	6.2E-04	9.6E-04	4.7E-04	--	--	--	--	-7.56	0.855	--	--	B	6.2E-04	7.9E-04	8.3E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	5.7E-04	0.002	2.9E-04	6.2E-04	6.2E-04	9.6E-04	4.7E-04	--	--	--	--	-7.56	0.855	--	--	B	6.2E-04	7.9E-04	8.3E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 2	mg/kg	0.002	0.002	9.6E-04	9.9E-04	9.9E-04	0.001	5.3E-05	0.001	0.001	0.001	--	-6.92	0.053	-6.88	--	B	9.9E-04	0.001	0.001	--	--	30,000	--	--	3.3E-08
Endrin ketone	0 / 2	mg/kg	5.7E-04	0.002	2.9E-04	6.2E-04	6.2E-04	9.6E-04	4.7E-04	--	--	--	--	-7.56	0.855	--	--	B	6.2E-04	7.9E-04	8.3E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 2	mg/kg	2.9E-04	2.9E-04	1.4E-04	0.001	0.001	0.002	0.002	0.002	0.002	0.002	--	-7.47	1.96	-6.08	--	B	0.001	0.002	0.002	--	180	940	--	6.7E-06	1.3E-06
Methoxychlor	0 / 2	mg/kg	0.003	0.01	0.001	0.003	0.003	0.005	0.002	--	--	--	--	-5.95	0.854	--	--	B	0.003	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.009	0.032	0.005	0.01	0.01	0.016	0.008	--	--	--	--	-4.75	0.855	--	--	B	0.01	0.013	0.014	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	2.9E-04	9.5E-04	1.4E-04	3.1E-04	3.1E-04	4.8E-04	2.4E-04	--	--	--	--	-8.25	0.854	--	--	B	3.1E-04	3.9E-04	4.1E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	10,800	--	NSRC	NSRC

Table G.26. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
2,4,5-Trichlorophenol	1 / 14	mg/kg	0.04	2.7	0.02	0.326	0.11	1.35	0.435	0.406	0.406	0.406	--	-1.88	1.29	-0.901	--	L	0.351	0.814	1.14	4.44	--	--	--	--	--
2,4,6-Trichlorophenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 14	mg/kg	0.004	0.27	0.002	0.03	0.01	0.135	0.044	--	--	--	--	-4.32	1.28	--	--	B	0.029	0.059	0.069	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 14	mg/kg	0.004	0.27	0.002	0.03	0.01	0.135	0.044	--	--	--	--	-4.32	1.28	--	--	B	0.029	0.059	0.069	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 14	mg/kg	0.004	0.27	0.002	0.03	0.01	0.135	0.044	--	--	--	--	-4.32	1.28	--	--	B	0.029	0.059	0.069	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 14	mg/kg	0.067	4.5	0.033	0.503	0.167	2.25	0.735	--	--	--	--	-1.51	1.28	--	--	B	0.492	0.979	1.16	--	--	9810	--	NSRC	NSRC
Carbazole	4 / 14	mg/kg	0.004	0.27	0.002	0.042	0.014	0.148	0.053	0.015	0.06	0.148	0.062	-3.97	1.38	-3.26	1.1	L	0.048	0.124	0.181	0.686	110,000	--	--	4.4E-07	--
Di-n-butyl phthalate	5 / 14	mg/kg	0.054	2.7	0.027	0.932	0.347	7.67	1.98	0.261	1.84	7.67	3.26	-1.16	1.44	-0.399	1.39	L	0.878	2.42	3.65	13.4	--	190	--	--	0.005
Diethyl phthalate	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	--	--	NSRC	NSRC
Phenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 14	mg/kg	0.04	2.7	0.02	0.301	0.1	1.35	0.44	--	--	--	--	-2.02	1.28	--	--	B	0.295	0.587	0.695	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	0 / 15	pCi/g	2.43	9.27	2.43	6.54	6.57	9.27	2.07	--	--	--	--	1.82	0.366	--	--	N	6.54	7.26	7.48	11.9	--	--	--	NSRC	NSRC
Americium-241	0 / 14	pCi/g	0.19	0.581	0.19	0.337	0.27	0.581	0.145	--	--	--	--	-1.17	0.413	--	--	B	0.309	0.405	0.434	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	0 / 15	pCi/g	1.38	5.63	1.38	4.02	3.96	5.63	1.0	--	--	--	--	1.35	0.328	--	--	N	4.02	4.37	4.48	6.6	--	--	--	NSRC	NSRC
Carbon-14	0 / 14	pCi/g	0.422	0.752	0.422	0.574	0.563	0.752	0.106	--	--	--	--	-0.571	0.185	--	--	N	0.574	0.612	0.624	0.851	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 14	pCi/g	0.105	0.421	0.105	0.212	0.17	0.421	0.095	--	--	--	--	-1.63	0.42	--	--	L	0.213	0.253	0.269	0.585	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 14	pCi/g	0.113	0.334	0.113	0.209	0.172	0.334	0.078	--	--	--	--	-1.63	0.375	--	--	L	0.21	0.245	0.258	0.522	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 14	pCi/g	0.232	0.949	0.232	0.51	0.497	0.949	0.16	--	--	--	--	-0.717	0.309	--	--	L	0.512	0.579	0.603	1.1	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 14	pCi/g	0.258	0.935	0.258	0.468	0.403	0.935	0.199	--	--	--	--	-0.838	0.402	--	--	L	0.469	0.553	0.585	1.24	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 14	pCi/g	0.79	10.3	0.79	1.79	1.22	10.3	2.46	--	--	--	--	0.272	0.619	--	--	B	2.66	4.72	5.49	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.158	0.693	0.158	0.292	0.228	0.693	0.16	--	--	--	--	-1.34	0.452	--	--	B	0.294	0.42	0.462	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.221	0.825	0.221	0.366	0.293	0.825	0.176	--	--	--	--	-1.09	0.388	--	--	B	0.369	0.51	0.558	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.04	23.4	8.04	11.6	9.89	23.4	4.24	--	--	--	--	2.4	0.302	--	--	B	11.8	15.4	16.6	--	--	--	790,000	NSRC	NSRC
Radium-226	3 / 14	pCi/g	0.3	0.928	0.3	0.45	0.368	0.928	0.184	0.346	0.432	0.597	0.143	-0.861	0.35	-0.872	0.309	B	0.45	0.595	0.645	--	--	--	300,000	--	--
Strontium-89	0 / 14	pCi/g	0.973	1.98	0.973	1.7	1.83	1.98	0.301	--	--	--	--	0.516	0.206	--	--	B	1.71	1.91	1.94	--	--	--	--	NSRC	NSRC
Strontium-90	1 / 14	pCi/g	0.96	1.99	0.96	1.7	1.79	1.99	0.331	1.79	1.79	1.79	--	0.509	0.227	0.582	--	B	1.69	1.9	1.93	--	--	--	400,000	--	--
Technetium-99	0 / 15	pCi/g	3.76	7.72	3.76	5.26	4.77	7.72	1.17	--	--	--	--	1.64	0.217	--	--	N	5.26	5.67	5.79	8.27	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 14	pCi/g	0.25	0.822	0.25	0.442	0.345	0.822	0.198	--	--	--	--	-0.899	0.408	--	--	B	0.408	0.546	0.59	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 14	pCi/g	0.189	0.878	0.189	0.395	0.326	0.878	0.21	0.267	0.267	0.267	--	-1.04	0.467	-1.32	--	L	0.394	0.48	0.515	1.2	--	--	15,000	--	--
Thorium-232	0 / 14	pCi/g	0.181	0.658	0.181	0.333	0.262	0.658	0.154	--	--	--	--	-1.19	0.417	--	--	B	0.314	0.429	0.466	--	--	--	2500	NSRC	NSRC

Table G.26. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Total Uranium	2 / 14	pCi/g	0.636	1.12	0.636	0.762	0.732	1.12	0.124	0.7	0.706	0.712	0.008	-0.282	0.146	-0.348	0.012	B	0.78	0.899	0.936	--	--	--	--	--	--
Tritium	0 / 14	pCi/g	6.31	12.8	6.31	8.73	8.6	12.8	1.96	--	--	--	--	2.14	0.222	--	--	N	8.73	9.43	9.65	13.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	1 / 15	pCi/g	0.286	0.625	0.283	0.403	0.404	0.625	0.089	0.283	0.283	0.283	--	-0.93	0.211	-1.26	--	N	0.403	0.434	0.443	0.631	1700	2.8E+07	100,000	2.4E-04	1.4E-08
Uranium-235/236	0 / 15	pCi/g	0.331	0.725	0.331	0.475	0.475	0.725	0.099	--	--	--	--	-0.764	0.201	--	--	N	0.475	0.509	0.52	0.729	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 15	pCi/g	0.242	0.572	0.242	0.369	0.374	0.572	0.082	--	--	--	--	-1.02	0.216	--	--	N	0.369	0.398	0.407	0.58	1200	1500	100,000	NSRC	NSRC
																									SOF =	2.4E-04	0.484

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.27. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts in Y-12 Building 9401-1 (random and biased)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	7.5	12.4	12.4	17.3	6.93	7.5	12.4	17.3	6.93	2.43	0.591	2.43	0.591	B	12.4	14.9	15.4	--	--	160	--	--	0.078
Arsenic	2 / 2	mg/kg	--	--	2.2	20.3	20.3	38.4	25.6	2.2	20.3	38.4	25.6	2.22	2.02	2.22	2.02	B	20.3	29.5	31.5	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	0.469	0.82	0.82	1.17	0.496	0.469	0.82	1.17	0.496	-0.3	0.646	-0.3	0.646	B	0.82	0.997	1.04	--	--	150,000	--	--	5.5E-06
Beryllium	0 / 2	mg/kg	0.018	0.1	0.009	0.029	0.029	0.05	0.029	--	--	--	--	-3.86	1.22	--	--	B	0.029	0.04	0.042	--	--	--	--	NSRC	NSRC
Boron	0 / 2	mg/kg	0.717	4	0.359	1.18	1.18	2	1.16	--	--	--	--	-0.166	1.22	--	--	B	1.18	1.6	1.69	--	--	24,000	--	NSRC	NSRC
Cadmium	2 / 2	mg/kg	--	--	0.452	2.59	2.59	4.72	3.02	0.452	2.59	4.72	3.02	0.379	1.66	0.379	1.66	B	2.59	3.67	3.91	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	18.4	76.2	76.2	134	81.7	18.4	76.2	134	81.7	3.91	1.4	3.91	1.4	B	76.2	105	112	--	--	140,000	--	--	5.4E-04
Copper	2 / 2	mg/kg	--	--	22.8	340	340	657	448	22.8	340	657	448	4.81	2.38	4.81	2.38	B	340	501	537	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.538	3	0.269	0.885	0.885	1.5	0.87	--	--	--	--	-0.454	1.22	--	--	B	0.885	1.2	1.27	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	117	218	218	319	143	117	218	319	143	5.26	0.709	5.26	0.709	B	218	269	281	--	--	1500	--	--	0.145
Manganese	2 / 2	mg/kg	--	--	556	1903	1903	3250	1905	556	1903	3250	1905	7.2	1.25	7.2	1.25	B	1903	2586	2740	--	--	360,000	--	--	0.005
Mercury	2 / 2	mg/kg	--	--	0.054	0.064	0.064	0.075	0.015	0.054	0.064	0.075	0.015	-2.76	0.23	-2.76	0.23	B	0.064	0.07	0.071	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	2.71	41.2	41.2	79.7	54.4	2.71	41.2	79.7	54.4	2.69	2.39	2.69	2.39	B	41.2	60.7	65.1	--	--	3900	--	--	0.011
Nickel	2 / 2	mg/kg	--	--	17.1	95.6	95.6	174	111	17.1	95.6	174	111	4.0	1.64	4.0	1.64	B	95.6	135	144	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.323	1.8	0.162	0.531	0.531	0.9	0.522	--	--	--	--	-0.964	1.21	--	--	B	0.531	0.718	0.76	--	--	1600	--	NSRC	NSRC
Silver	2 / 2	mg/kg	--	--	3.17	12.1	12.1	21.1	12.7	3.17	12.1	21.1	12.7	2.1	1.34	2.1	1.34	B	12.1	16.7	17.7	--	--	--	--	--	--
Strontium	0 / 2	mg/kg	0.538	0.6	0.269	0.285	0.285	0.3	0.022	--	--	--	--	-1.26	0.077	--	--	B	0.285	0.292	0.294	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 2	mg/kg	0.125	0.7	0.063	0.206	0.206	0.35	0.203	--	--	--	--	-1.91	1.22	--	--	B	0.206	0.279	0.296	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	3.72	16.9	16.9	30	18.6	3.72	16.9	30	18.6	2.36	1.48	2.36	1.48	B	16.9	23.5	25.0	--	--	2200	--	--	0.008
Total Uranium	3 / 3	mg/kg	--	--	0.322	0.544	0.606	0.704	0.198	0.322	0.544	0.704	0.198	-0.662	0.415	-0.662	0.415	B	0.575	0.66	0.674	--	--	--	--	--	--
Vanadium	0 / 2	mg/kg	0.269	1.5	0.135	0.442	0.442	0.75	0.435	--	--	--	--	-1.15	1.22	--	--	B	0.442	0.598	0.634	--	--	25,000	--	NSRC	NSRC
Zinc	2 / 2	mg/kg	--	--	78,000	93,000	93,000	108,000	21,213	78,000	93,000	108,000	21,213	11.4	0.23	11.4	0.23	B	93,000	100,601	102,322	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	2	2	0.404	0.702	0.702	1	0.421	0.404	0.404	0.404	--	-0.453	0.641	-0.906	--	B	0.702	0.853	0.887	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.053	0.054	0.054	0.055	0.002	0.053	0.054	0.055	0.002	-2.92	0.03	-2.92	0.03	X	0.054	0.057	0.059	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.005	0.005	0.008	0.004	0.008	0.008	0.008	--	-5.7	1.14	-4.89	--	X	0.005	0.014	0.018	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.057	0.137	0.137	0.216	0.112	0.057	0.137	0.216	0.112	-2.2	0.94	-2.2	0.94	X	0.137	0.375	0.483	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	0.312	0.337	0.337	0.362	0.035	0.312	0.337	0.362	0.035	-1.09	0.105	-1.09	0.105	X	0.337	0.412	0.446	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.007	0.009	0.003	0.004	0.004	0.004	7.0E-04	--	--	--	--	-5.54	0.178	--	--	B	0.004	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.007	0.009	0.003	0.004	0.004	0.004	7.0E-04	--	--	--	--	-5.54	0.178	--	--	B	0.004	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.043	0.054	0.021	0.024	0.024	0.027	0.004	--	--	--	--	-3.73	0.167	--	--	B	0.024	0.026	0.026	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	0.009	0.011	0.004	0.005	0.005	0.005	8.1E-04	--	--	--	--	-5.34	0.169	--	--	B	0.005	0.005	0.005	--	--	30,000	--	NSRC	NSRC

Table G.27. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.043	0.054	0.021	0.024	0.024	0.027	0.004	--	--	--	--	-3.73	0.167	--	--	B	0.024	0.026	0.026	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.142	0.179	0.071	0.08	0.08	0.09	0.013	--	--	--	--	-2.53	0.164	--	--	B	0.08	0.085	0.086	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	0.004	0.005	0.002	0.002	0.002	0.003	4.0E-04	--	--	--	--	-6.04	0.167	--	--	B	0.002	0.003	0.003	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 13	mg/kg	0.025	0.465	0.012	0.031	0.014	0.233	0.061	--	--	--	--	-4.05	0.79	--	--	B	0.05	0.095	0.113	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 13	mg/kg	0.025	0.465	0.012	0.031	0.014	0.233	0.061	--	--	--	--	-4.05	0.79	--	--	B	0.05	0.095	0.113	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 13	mg/kg	0.025	0.465	0.012	0.031	0.014	0.233	0.061	--	--	--	--	-4.05	0.79	--	--	B	0.05	0.095	0.113	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 13	mg/kg	0.413	7.76	0.207	0.619	0.235	3.88	1.05	1.55	1.55	1.55	--	-1.09	0.911	0.438	--	B	0.837	1.59	1.89	--	--	9810	--	--	8.5E-05
Carbazole	0 / 13	mg/kg	0.025	0.465	0.012	0.031	0.014	0.233	0.061	--	--	--	--	-4.05	0.79	--	--	B	0.05	0.095	0.113	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	--	--	NSRC	NSRC
Phenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 13	mg/kg	0.248	4.65	0.124	0.31	0.14	2.33	0.606	--	--	--	--	-1.74	0.79	--	--	B	0.502	0.952	1.13	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	0 / 13	pCi/g	4.43	9.87	4.43	8.06	8.8	9.87	1.82	--	--	--	--	2.06	0.262	--	--	B	8.25	9.39	9.56	--	--	--	--	NSRC	NSRC
Americium-241	0 / 13	pCi/g	0.188	0.482	0.188	0.259	0.225	0.482	0.081	--	--	--	--	-1.39	0.268	--	--	B	0.262	0.33	0.354	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	1 / 13	pCi/g	2.87	5.76	2.87	4.1	4.06	5.76	1.09	4.13	4.13	4.13	--	1.38	0.262	1.42	--	L	4.11	4.57	4.74	7.99	--	--	--	--	--
Carbon-14	0 / 13	pCi/g	0.347	0.909	0.347	0.605	0.582	0.909	0.153	--	--	--	--	-0.533	0.256	--	--	N	0.605	0.662	0.68	1.01	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 13	pCi/g	0.058	0.512	0.058	0.279	0.285	0.512	0.129	--	--	--	--	-1.41	0.604	--	--	N	0.279	0.327	0.342	0.622	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 13	pCi/g	0.07	0.966	0.07	0.316	0.265	0.966	0.225	--	--	--	--	-1.35	0.648	--	--	L	0.321	0.439	0.494	1.47	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 13	pCi/g	0.504	1.32	0.504	0.726	0.654	1.32	0.21	--	--	--	--	-0.352	0.25	--	--	L	0.726	0.802	0.83	1.37	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 13	pCi/g	0.216	0.56	0.216	0.296	0.277	0.56	0.09	--	--	--	--	-1.25	0.253	--	--	B	0.314	0.397	0.424	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 13	pCi/g	1.09	2.87	1.09	2.16	2.23	2.87	0.57	--	--	--	--	0.731	0.299	--	--	N	2.16	2.37	2.44	3.68	--	--	1.3E+08	NSRC	NSRC

Table G.27. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 13	pCi/g	0.125	0.424	0.125	0.268	0.275	0.424	0.107	--	--	--	--	-1.4	0.423	--	--	N	0.268	0.308	0.321	0.553	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 13	pCi/g	0.176	0.596	0.176	0.377	0.387	0.596	0.15	--	--	--	--	-1.05	0.422	--	--	N	0.377	0.433	0.451	0.777	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 13	pCi/g	9	14.2	9	11.7	11.7	14.2	1.47	--	--	--	--	2.45	0.127	--	--	N	11.7	12.3	12.5	15.7	--	--	790,000	NSRC	NSRC
Radium-226	2 / 13	pCi/g	0.203	0.756	0.203	0.415	0.447	0.756	0.169	0.26	0.379	0.498	0.168	-0.963	0.435	-1.02	0.46	N	0.415	0.479	0.499	0.866	--	--	300,000	--	--
Strontium-89	0 / 13	pCi/g	1.26	1.96	1.26	1.76	1.91	1.96	0.262	--	--	--	--	0.555	0.161	--	--	B	1.81	1.93	1.94	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 13	pCi/g	1.5	1.99	1.5	1.88	1.93	1.99	0.141	--	--	--	--	0.626	0.081	--	--	B	1.87	1.96	1.97	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 16	pCi/g	0.931	8.35	0.931	4.46	4.5	8.35	2.18	--	--	--	--	1.31	0.718	--	--	B	4.54	6.43	6.87	--	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thorium-228	0 / 16	pCi/g	0.27	0.87	0.27	0.559	0.595	0.87	0.217	--	--	--	--	-0.66	0.419	--	--	N	0.559	0.632	0.654	1.11	--	--	25,000	NSRC	NSRC
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	1 / 16	pCi/g	0.205	0.662	0.205	0.454	0.475	0.662	0.143	0.482	0.482	0.482	--	-0.843	0.349	-0.73	--	N	0.454	0.502	0.517	0.815	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	0 / 16	pCi/g	0.196	0.636	0.196	0.412	0.435	0.636	0.154	--	--	--	--	-0.959	0.401	--	--	N	0.412	0.463	0.479	0.801	--	--	2500	NSRC	NSRC
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Total Uranium	1 / 13	pCi/g	0.749	1.42	0.749	0.952	0.953	1.42	0.166	1.04	1.04	1.04	--	-0.062	0.158	0.039	--	L	0.951	1.08	1.13	1.44	--	--	--	--	--
Tritium	0 / 13	pCi/g	6.83	13	6.83	10.0	10.5	13	1.83	--	--	--	--	2.29	0.193	--	--	N	10.0	10.7	10.9	14.9	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 3	pCi/g	2.86	3.22	2.86	3.01	2.96	3.22	0.186	--	--	--	--	1.1	0.061	--	--	B	2.99	3.08	3.1	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	5 / 16	pCi/g	0.42	0.795	0.42	0.605	0.558	1.15	0.181	0.582	0.762	1.15	0.231	-0.537	0.256	-0.305	0.274	B	0.633	0.811	0.867	--	1700	2.8E+07	100,000	3.7E-04	2.3E-08
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	0 / 3	pCi/g	1.75	1.97	1.75	1.84	1.81	1.97	0.114	--	--	--	--	0.61	0.061	--	--	B	1.83	1.88	1.9	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235	3 / 3	pCi/g	--	--	0.014	0.024	0.024	0.034	0.01	0.014	0.024	0.034	0.01	-3.79	0.43	-3.79	0.43	B	0.024	0.029	0.03	--	1500	9500	100,000	1.6E-05	2.5E-06
Uranium-235/236	0 / 16	pCi/g	0.339	0.921	0.339	0.572	0.574	0.921	0.135	--	--	--	--	-0.586	0.242	--	--	N	0.572	0.617	0.631	0.912	1500	9500	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	3 / 3	pCi/g	--	--	0.009	0.017	0.019	0.023	0.007	0.009	0.017	0.023	0.007	-4.14	0.504	-4.14	0.504	B	0.018	0.021	0.022	--	1700	280,000	100,000	1.1E-05	6.5E-08
Uranium-238	3 / 16	pCi/g	0.384	0.728	0.106	0.446	0.454	0.728	0.125	0.106	0.277	0.378	0.149	-0.865	0.405	-1.43	0.711	B	0.441	0.596	0.629	--	1200	1500	100,000	3.7E-04	2.9E-04
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	7.7E-04	0.247

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

Table G.27. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.28. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Floors in Y-12 Building 9207 (random and biased)																											
Metals																											
Antimony	2 / 5	mg/kg	0.31	0.321	0.155	0.438	0.161	1.01	0.398	0.705	0.858	1.01	0.216	-1.18	0.927	-0.17	0.254	B	0.301	0.476	0.546	--	--	160	--	--	0.002
Arsenic	5 / 5	mg/kg	--	--	1.89	4.37	3.88	8.2	2.39	1.89	4.37	8.2	2.39	1.36	0.542	1.36	0.542	B	4.27	5.88	6.32	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	49.2	132	67	398	149	49.2	132	398	149	4.53	0.834	4.53	0.834	B	119	195	223	--	--	150,000	--	--	7.9E-04
Beryllium	5 / 5	mg/kg	--	--	0.185	0.339	0.381	0.497	0.126	0.185	0.339	0.497	0.126	-1.14	0.403	-1.14	0.403	B	0.368	0.443	0.458	--	--	--	--	--	--
Boron	5 / 5	mg/kg	--	--	8.35	13.9	11.1	26.8	7.36	8.35	13.9	26.8	7.36	2.54	0.44	2.54	0.44	B	13.3	17.7	19.1	--	--	24,000	--	--	5.5E-04
Cadmium	5 / 5	mg/kg	--	--	0.05	2.37	0.218	10.6	4.61	0.05	2.37	10.6	4.61	-0.987	2.2	-0.987	2.2	B	1.92	4.11	4.97	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	9.83	25.6	11.9	81.9	31.5	9.83	25.6	81.9	31.5	2.83	0.895	2.83	0.895	B	23.2	38.5	44.3	--	--	140,000	--	--	1.7E-04
Copper	5 / 5	mg/kg	--	--	4.98	14.7	15.1	20.9	5.93	4.98	14.7	20.9	5.93	2.58	0.564	2.58	0.564	B	14.4	18.2	18.9	--	--	--	--	--	--
Hafnium	4 / 5	mg/kg	0.584	0.584	0.292	0.8	0.598	1.43	0.46	0.568	0.927	1.43	0.418	-0.37	0.623	-0.154	0.457	B	0.686	0.973	1.06	--	--	--	--	--	--
Lead	5 / 5	mg/kg	--	--	5.12	7.72	6.99	12.3	2.7	5.12	7.72	12.3	2.7	2.0	0.317	2.0	0.317	B	7.56	9.37	9.89	--	--	1500	--	--	0.005
Manganese	5 / 5	mg/kg	--	--	82.9	307	172	716	275	82.9	307	716	275	5.38	0.944	5.38	0.944	B	248	398	447	--	--	360,000	--	--	6.9E-04
Mercury	5 / 5	mg/kg	--	--	0.01	0.045	0.032	0.107	0.037	0.01	0.045	0.107	0.037	-3.37	0.865	-3.37	0.865	B	0.041	0.065	0.072	--	--	--	--	--	--
Molybdenum	5 / 5	mg/kg	--	--	0.393	0.825	0.624	1.72	0.524	0.393	0.825	1.72	0.524	-0.327	0.554	-0.327	0.554	B	0.768	1.09	1.19	--	--	3900	--	--	2.0E-04
Nickel	5 / 5	mg/kg	--	--	4.18	10.7	7.57	27.4	9.52	4.18	10.7	27.4	9.52	2.13	0.722	2.13	0.722	B	10.3	15.8	17.6	--	--	--	--	--	--
Selenium	2 / 5	mg/kg	1.64	1.75	0.82	0.901	0.84	1.14	0.135	0.832	0.986	1.14	0.218	-0.112	0.138	-0.026	0.223	B	0.887	0.957	0.983	--	--	1600	--	--	5.5E-04
Silver	4 / 5	mg/kg	0.479	0.479	0.24	6.75	7.09	15	5.49	3.71	8.38	15	4.75	1.32	1.61	2.01	0.571	B	7.27	11.0	11.9	--	--	--	--	--	--
Strontium	5 / 5	mg/kg	--	--	127	232	266	288	67.2	127	232	288	67.2	5.41	0.342	5.41	0.342	B	247	278	282	--	--	300,000	--	--	8.2E-04
Thallium	0 / 5	mg/kg	0.128	0.681	0.064	0.121	0.068	0.341	0.122	--	--	--	--	-2.38	0.73	--	--	B	0.113	0.17	0.193	--	--	--	--	NSRC	NSRC
Tin	2 / 5	mg/kg	0.282	2.99	0.141	2.81	1.5	7.57	3.25	4.71	6.14	7.57	2.02	0.015	1.89	1.79	0.336	B	2.28	4.09	4.66	--	--	2200	--	--	0.001
Vanadium	5 / 5	mg/kg	--	--	9.02	18.0	12.7	43.8	14.5	9.02	18.0	43.8	14.5	2.71	0.62	2.71	0.62	B	17.3	25.3	28.0	--	--	25,000	--	--	6.9E-04
Zinc	5 / 5	mg/kg	--	--	26.5	270	63.2	1120	476	26.5	270	1120	476	4.53	1.5	4.53	1.5	B	233	466	555	--	--	--	--	--	--
Zirconium	5 / 5	mg/kg	--	--	19	29.5	21.6	45.5	13.0	19	29.5	45.5	13.0	3.31	0.428	3.31	0.428	B	25.2	31.2	33.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 5	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	5 / 5	mg/L	--	--	0.281	0.328	0.345	0.354	0.031	0.281	0.328	0.354	0.031	-1.12	0.098	-1.12	0.098	X	0.328	0.369	0.388	--	--	--	--	--	--
Cadmium	1 / 5	mg/L	0.003	0.003	0.002	0.004	0.002	0.014	0.006	0.014	0.014	0.014	--	-6.06	0.992	-4.28	--	X	0.004	0.011	0.015	--	--	--	--	--	--
Chromium	4 / 5	mg/L	0.03	0.03	0.015	0.065	0.066	0.128	0.035	0.033	0.074	0.128	0.039	-3.01	0.821	-2.71	0.555	X*	0.065	0.12	0.145	--	--	--	--	--	--
Lead	0 / 5	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 5	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 5	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 5	mg/kg	0.002	0.008	8.3E-04	0.003	0.004	0.004	0.001	--	--	--	--	-5.82	0.715	--	--	B	0.004	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 5	mg/kg	0.002	0.008	8.3E-04	0.003	0.004	0.004	0.001	--	--	--	--	-5.82	0.715	--	--	B	0.004	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 5	mg/kg	9.8E-04	9.9E-04	4.9E-04	0.003	4.9E-04	0.011	0.005	0.001	0.006	0.011	0.007	-6.82	1.34	-5.64	1.58	B	0.002	0.004	0.005	--	130,000	--	--	1.7E-08	--
4,4'-DDT	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 5	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	1.6E-05	--	--	--	--	-6.0	0.006	--	--	B	0.002	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 5	mg/kg	9.8E-04	1.0E-03	4.9E-04	5.0E-04	4.9E-04	5.0E-04	3.2E-06	--	--	--	--	-7.61	0.006	--	--	B	4.9E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	1000	1500	--	NSRC	NSRC

Table G.28. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	1.6E-05	--	--	--	--	-6.0	0.006	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/kg	0.016	0.017	0.008	0.008	0.008	0.008	5.0E-05	--	--	--	--	-4.8	0.006	--	--	B	0.008	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 5	mg/kg	4.9E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	1.6E-06	--	--	--	--	-8.3	0.006	--	--	B	2.5E-04	2.5E-04	2.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 42	mg/kg	0.018	0.75	0.009	0.813	0.015	31.1	4.79	0.198	10.8	31.1	17.6	-3.42	1.56	0.65	2.57	B	5.19	11.5	14.0	--	--	4000	--	--	0.001
2-Methylphenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	850	--	NSRC	NSRC
Acenaphthene	3 / 42	mg/kg	0.018	0.75	0.009	0.174	0.015	5.39	0.827	0.048	1.87	5.39	3.05	-3.54	1.27	-1.05	2.45	B	0.91	2.0	2.44	--	--	390,000	--	--	2.3E-06
Acenaphthylene	0 / 42	mg/kg	0.018	0.75	0.009	0.041	0.015	0.375	0.066	--	--	--	--	-3.77	0.915	--	--	B	0.074	0.15	0.18	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 42	mg/kg	0.177	7.5	0.089	0.419	0.149	3.75	0.654	0.405	0.405	0.405	--	-1.44	0.915	-0.904	--	B	0.739	1.5	1.8	--	--	330	--	NSRC	NSRC
Benzenemethanol	3 / 42	mg/kg	0.177	7.5	0.089	0.488	0.149	3.75	0.686	0.894	1.21	1.54	0.323	-1.32	0.999	0.165	0.272	B	0.739	1.5	1.8	--	--	1200	--	--	6.2E-04
Benzidine	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 42	mg/kg	0.294	12.5	0.147	0.687	0.249	6.25	1.09	--	--	--	--	-0.953	0.915	--	--	B	1.23	2.5	3.0	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 42	mg/kg	0.018	0.75	0.009	0.042	0.015	0.375	0.065	0.033	0.036	0.04	0.005	-3.72	0.914	-3.32	0.135	B	0.074	0.15	0.18	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	4 / 42	mg/kg	0.177	7.5	0.089	0.472	0.15	3.75	0.66	0.597	0.775	1.06	0.203	-1.31	0.965	-0.279	0.248	B	0.739	1.5	1.8	--	--	190	--	--	0.004
Diethyl phthalate	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 42	mg/kg	0.177	7.5	0.089	0.422	0.149	3.75	0.655	0.569	0.569	0.569	--	-1.43	0.922	-0.564	--	B	0.739	1.5	1.8	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	2800	500	--	NSRC	NSRC
Isophorone	8 / 42	mg/kg	0.177	7.5	0.089	0.605	0.15	3.75	0.825	0.35	1.33	3.54	0.984	-1.14	1.07	0.079	0.678	B	0.739	1.5	1.8	--	6100	15,000	--	1.2E-04	4.9E-05
N-Nitroso-di-n-propylamine	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	--	--	NSRC	NSRC
Phenol	2 / 42	mg/kg	0.177	7.5	0.089	0.511	0.149	3.75	0.763	1.81	2.21	2.61	0.566	-1.33	1.03	0.776	0.259	B	0.739	1.5	1.8	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 42	mg/kg	0.177	7.5	0.089	0.412	0.149	3.75	0.656	--	--	--	--	-1.46	0.915	--	--	B	0.739	1.5	1.8	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	0.688	0.688	0.688	0.688	--	0.688	0.688	0.688	--	-0.374	--	-0.374	--	B	0.688	0.688	0.688	--	--	--	--	--	--
Alpha activity	26 / 45	pCi/g	2.27	9.99	2.27	15.8	8.81	208	31.4	3.09	22.1	208	40.3	2.21	0.851	2.46	0.982	B	40.9	84.6	101	--	--	--	--	--	--
Beta activity	40 / 45	pCi/g	3.1	4.1	1.56	19.9	8.34	370	55.7	1.56	21.9	370	58.9	2.17	0.978	2.27	0.987	B	67.5	144	174	--	--	--	--	--	--
Bismuth-214	1 / 1	pCi/g	--	--	0.484	0.484	0.484	0.484	--	0.484	0.484	0.484	--	-0.726	--	-0.726	--	B	0.484	0.484	0.484	--	--	--	--	--	--
Carbon-14	0 / 42	pCi/g	0.512	2.52	0.512	2.18	2.24	2.52	0.396	--	--	--	--	0.744	0.321	--	--	B	2.0	2.39	2.44	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 42	pCi/g	0.059	0.155	0.059	0.105	0.102	0.155	0.023	--	--	--	--	-2.28	0.221	--	--	N	0.105	0.109	0.111	0.153	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 42	pCi/g	0.035	0.203	0.035	0.123	0.121	0.203	0.036	--	--	--	--	-2.15	0.35	--	--	N	0.123	0.13	0.132	0.199	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 42	pCi/g	0.258	1.27	0.258	0.762	0.768	1.27	0.257	--	--	--	--	-0.333	0.369	--	--	N	0.762	0.814	0.829	1.31	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	0.43	0.779	0.579	1.53	0.506	0.43	0.779	1.53	0.506	-0.378	0.554	-0.378	0.554	B	0.712	0.972	1.06	--	--	--	--	--	--
Lead-214	3 / 3	pCi/g	--	--	0.43	0.462	0.464	0.492	0.031	0.43	0.462	0.492	0.031	-0.774	0.068	-0.774	0.068	B	0.463	0.478	0.482	--	--	--	--	--	--
Nickel-63	0 / 42	pCi/g	0.548	1.51	0.548	0.838	0.775	1.51	0.206	--	--	--	--	-0.204	0.229	--	--	L	0.837	0.926	0.967	1.32	--	--	1.3E+08	NSRC	NSRC

Table G.28. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	16 / 16	pCi/g	--	--	3.58	7.79	7.36	18.9	3.58	3.58	7.79	18.9	3.58	1.97	0.391	1.97	0.391	L	7.78	9.01	9.46	19.3	--	--	4.2E+06	--	--
Radium-226	20 / 42	pCi/g	0.359	1.05	0.359	0.833	0.786	1.62	0.27	0.394	0.97	1.62	0.307	-0.233	0.319	-0.083	0.343	L	0.834	0.893	0.911	1.55	--	--	300,000	--	--
Strontium-89	0 / 42	pCi/g	0.795	1.98	0.795	1.72	1.8	1.98	0.244	--	--	--	--	0.531	0.172	--	--	B	1.66	1.89	1.93	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 42	pCi/g	0.637	1.98	0.637	1.46	1.49	1.98	0.388	--	--	--	--	0.332	0.318	--	--	B	1.43	1.75	1.81	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 45	pCi/g	4.27	7.72	4.27	5.77	5.73	7.72	0.724	--	--	--	--	1.75	0.124	--	--	N	5.77	5.91	5.95	7.29	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.58	0.58	0.58	0.58	--	0.58	0.58	0.58	--	-0.545	--	-0.545	--	B	0.58	0.58	0.58	--	--	--	--	--	--
Thorium-228	6 / 42	pCi/g	0.277	0.984	0.256	0.549	0.53	1.41	0.239	0.256	0.549	1.41	0.433	-0.684	0.415	-0.783	0.607	L	0.55	0.602	0.619	1.21	--	--	25,000	--	--
Thorium-230	24 / 42	pCi/g	0.31	1.05	0.31	0.673	0.617	1.6	0.257	0.387	0.669	1.6	0.284	-0.46	0.356	-0.469	0.35	L	0.672	0.726	0.743	1.34	--	--	15,000	--	--
Thorium-232	14 / 42	pCi/g	0.216	0.788	0.216	0.465	0.428	1.61	0.245	0.231	0.485	1.61	0.355	-0.868	0.444	-0.878	0.521	B	0.59	0.922	1.03	--	--	--	2500	--	--
Total Uranium	34 / 42	pCi/g	0.556	2.02	0.556	2.52	1.38	23.9	4.34	0.802	2.79	23.9	4.79	0.477	0.715	0.535	0.764	B	5.0	9.97	11.9	--	--	--	--	--	--
Tritium	0 / 42	pCi/g	5.55	14.7	5.55	12.9	14.1	14.7	2.03	--	--	--	--	2.54	0.198	--	--	B	12.8	14.3	14.5	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	36 / 45	pCi/g	0.296	1.08	0.296	4.07	0.665	81.5	13.0	0.403	4.91	81.5	14.4	0.012	1.22	0.121	1.33	B	14.1	30.6	37.3	--	1700	2.8E+07	100,000	0.008	5.0E-07
Uranium-235/236	4 / 45	pCi/g	0.296	1.38	0.296	0.712	0.528	5.64	0.83	0.633	2.33	5.64	2.35	-0.564	0.546	0.439	1.05	B	1.34	2.49	2.93	--	1500	9500	100,000	8.9E-04	1.4E-04
Uranium-238	34 / 45	pCi/g	0.277	1.01	0.277	2.64	0.595	57.9	8.95	0.374	3.3	57.9	10.2	-0.212	1.05	-0.091	1.17	B	10.1	21.9	26.6	--	1200	1500	100,000	0.008	0.007
																									SOF =	0.018	0.025

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.29. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Floors in Y-12 Building 9210 (random and biased)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.595	1.1	1.1	1.61	0.718	0.595	1.1	1.61	0.718	-0.021	0.704	-0.021	0.704	B	1.1	1.36	1.42	--	--	160	--	--	0.007
Arsenic	1 / 2	mg/kg	1.6	1.6	0.8	2.4	2.4	4	2.26	4	4	4	--	0.582	1.14	1.39	--	B	2.4	3.21	3.39	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	59.5	102	102	144	59.8	59.5	102	144	59.8	4.53	0.625	4.53	0.625	B	102	123	128	--	--	150,000	--	--	6.8E-04
Beryllium	2 / 2	mg/kg	--	--	0.107	0.214	0.214	0.32	0.151	0.107	0.214	0.32	0.151	-1.69	0.775	-1.69	0.775	B	0.214	0.267	0.28	--	--	--	--	--	--
Boron	2 / 2	mg/kg	--	--	15.4	16.5	16.5	17.5	1.48	15.4	16.5	17.5	1.48	2.8	0.09	2.8	0.09	B	16.5	17.0	17.1	--	--	24,000	--	--	6.9E-04
Cadmium	1 / 2	mg/kg	0.019	0.019	0.009	0.279	0.279	0.548	0.381	0.548	0.548	0.548	--	-2.64	2.88	-0.601	--	B	0.279	0.415	0.446	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	4.72	8.51	8.51	12.3	5.36	4.72	8.51	12.3	5.36	2.03	0.677	2.03	0.677	B	8.51	10.4	10.9	--	--	140,000	--	--	6.1E-05
Copper	2 / 2	mg/kg	--	--	4.76	4.87	4.87	4.98	0.156	4.76	4.87	4.98	0.156	1.58	0.032	1.58	0.032	B	4.87	4.93	4.94	--	--	--	--	--	--
Hafnium	1 / 2	mg/kg	0.567	0.567	0.284	0.912	0.912	1.54	0.888	1.54	1.54	1.54	--	-0.414	1.2	0.432	--	B	0.912	1.23	1.3	--	--	--	--	--	--
Lead	2 / 2	mg/kg	--	--	1.32	1.69	1.69	2.06	0.523	1.32	1.69	2.06	0.523	0.5	0.315	0.5	0.315	B	1.69	1.88	1.92	--	--	1500	--	--	0.001
Manganese	2 / 2	mg/kg	--	--	95.1	98.1	98.1	101	4.17	95.1	98.1	101	4.17	4.59	0.043	4.59	0.043	B	98.1	99.5	99.9	--	--	360,000	--	--	2.7E-04
Mercury	1 / 2	mg/kg	0.004	0.004	0.002	0.004	0.004	0.006	0.003	0.006	0.006	0.006	--	-5.7	0.81	-5.12	--	B	0.004	0.005	0.005	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.097	0.267	0.267	0.437	0.24	0.097	0.267	0.437	0.24	-1.58	1.06	-1.58	1.06	B	0.267	0.353	0.373	--	--	3900	--	--	6.9E-05
Nickel	2 / 2	mg/kg	--	--	2.45	3.58	3.58	4.7	1.59	2.45	3.58	4.7	1.59	1.22	0.461	1.22	0.461	B	3.58	4.15	4.27	--	--	--	--	--	--
Selenium	1 / 2	mg/kg	1.7	1.7	0.409	0.63	0.63	0.85	0.312	0.409	0.409	0.409	--	-0.528	0.517	-0.894	--	B	0.63	0.741	0.767	--	--	1600	--	--	3.9E-04
Silver	1 / 2	mg/kg	0.909	0.909	0.455	3.16	3.16	5.86	3.82	5.86	5.86	5.86	--	0.49	1.81	1.77	--	B	3.16	4.53	4.84	--	--	--	--	--	--
Strontium	2 / 2	mg/kg	--	--	185	239	239	293	76.4	185	239	293	76.4	5.45	0.325	5.45	0.325	B	239	266	273	--	--	300,000	--	--	8.0E-04
Thallium	0 / 2	mg/kg	0.13	0.132	0.065	0.066	0.066	0.066	7.1E-04	--	--	--	--	-2.73	0.011	--	--	B	0.066	0.066	0.066	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	4.11	5.98	5.98	7.85	2.64	4.11	5.98	7.85	2.64	1.74	0.458	1.74	0.458	B	5.98	6.93	7.14	--	--	2200	--	--	0.003
Vanadium	2 / 2	mg/kg	--	--	6.08	9.89	9.89	13.7	5.39	6.08	9.89	13.7	5.39	2.21	0.574	2.21	0.574	B	9.89	11.8	12.3	--	--	25,000	--	--	4.0E-04
Zinc	2 / 2	mg/kg	--	--	15	20.9	20.9	26.7	8.27	15	20.9	26.7	8.27	3.0	0.408	3.0	0.408	B	20.9	23.8	24.5	--	--	--	--	--	--
Zirconium	2 / 2	mg/kg	--	--	5.08	29.9	29.9	54.7	35.1	5.08	29.9	54.7	35.1	2.81	1.68	2.81	1.68	B	29.9	42.5	45.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.268	0.424	0.424	0.579	0.22	0.268	0.424	0.579	0.22	-0.932	0.545	-0.932	0.545	X	0.424	0.89	1.1	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.016	0.016	0.03	0.02	0.03	0.03	0.03	--	-5.01	2.11	-3.52	--	X	0.016	0.058	0.077	--	--	--	--	--	--
Chromium	1 / 2	mg/L	0.03	0.03	0.015	0.065	0.065	0.114	0.07	0.114	0.114	0.114	--	-3.19	1.43	-2.17	--	X	0.065	0.213	0.28	--	--	--	--	--	--
Lead	0 / 2	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 2	mg/kg	0.002	0.002	8.3E-04	0.005	0.005	0.009	0.006	0.009	0.009	0.009	--	-5.91	1.67	-4.73	--	B	0.005	0.007	0.007	--	--	119	--	--	4.1E-05
Silvex	0 / 2	mg/kg	0.002	0.002	8.3E-04	8.3E-04	8.3E-04	8.3E-04	0	--	--	--	--	-7.09	0	--	--	B	8.3E-04	0.002	0.002	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.005	0.049	0.002	0.014	0.014	0.025	0.016	--	--	--	--	-4.86	1.64	--	--	B	0.014	0.019	0.02	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.7E-04	0.01	4.8E-04	0.003	0.003	0.005	0.003	--	--	--	--	-6.47	1.64	--	--	B	0.003	0.004	0.004	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	1000	1500	--	NSRC	NSRC

Table G.29. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.005	0.049	0.002	0.014	0.014	0.025	0.016	--	--	--	--	-4.86	1.64	--	--	B	0.014	0.019	0.02	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.016	0.164	0.008	0.045	0.045	0.082	0.052	--	--	--	--	-3.66	1.64	--	--	B	0.045	0.064	0.068	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.8E-04	0.005	2.4E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.17	1.64	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 19	mg/kg	0.01	0.299	0.005	1.33	0.015	14.1	3.9	0.137	8.21	14.1	7.23	-3.37	2.41	1.0	2.59	B	2.36	5.22	6.37	--	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 19	mg/kg	0.01	0.299	0.005	1.85	0.015	23.7	5.85	10.9	17.3	23.7	9.05	-3.46	2.48	2.78	0.549	B	3.96	8.76	10.7	--	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 19	mg/kg	0.01	0.299	0.005	0.071	0.015	0.455	0.123	0.309	0.382	0.455	0.103	-3.85	1.52	-0.981	0.274	B	0.087	0.181	0.217	--	--	93,200	--	--	9.3E-07
Acetophenone	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 19	mg/kg	0.099	2.99	0.049	0.424	0.149	1.5	0.579	0.623	0.623	0.623	--	-1.69	1.28	-0.473	--	B	0.356	0.677	0.794	--	--	1200	--	--	3.0E-04
Benzidine	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 19	mg/kg	0.164	4.99	0.082	0.666	0.247	2.5	0.967	--	--	--	--	-1.26	1.25	--	--	B	0.594	1.13	1.32	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 19	mg/kg	0.01	0.299	0.005	0.75	0.015	8.86	2.25	4.79	6.83	8.86	2.88	-3.55	2.23	1.87	0.435	B	1.49	3.28	4.01	--	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	6 / 19	mg/kg	0.099	2.99	0.049	0.612	0.223	1.69	0.625	0.223	0.791	1.69	0.532	-1.19	1.33	-0.442	0.734	B	0.439	0.816	0.947	--	--	190	--	--	0.002
Diethyl phthalate	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	--	--	NSRC	NSRC
Phenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 19	mg/kg	0.099	2.99	0.049	0.399	0.148	1.5	0.58	--	--	--	--	-1.77	1.25	--	--	B	0.356	0.677	0.793	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	8 / 21	pCi/g	4.12	8.94	4.12	8.2	7.8	15.5	2.3	7.08	9.62	15.5	2.82	2.07	0.274	2.23	0.265	B	8.47	11.4	12.2	--	--	--	--	--	--
Beta activity	18 / 21	pCi/g	3.44	4.38	3.44	8.09	7.32	20.2	4.22	3.67	8.77	20.2	4.18	1.97	0.489	2.07	0.457	L	8.11	9.55	10.1	23.0	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	0.353	0.485	0.485	0.616	0.186	0.353	0.485	0.616	0.186	-0.763	0.394	-0.763	0.394	B	0.485	0.551	0.566	--	--	--	--	--	--
Carbon-14	3 / 19	pCi/g	0.636	1.94	0.636	1.14	0.79	1.94	0.563	0.661	0.762	0.959	0.17	0.025	0.476	-0.287	0.212	B	0.956	1.26	1.36	--	165	--	1.0E+07	0.006	--
Cesium-137	1 / 19	pCi/g	0.049	0.19	0.049	0.105	0.091	0.211	0.042	0.211	0.211	0.211	--	-2.32	0.364	-1.56	--	L	0.105	0.118	0.123	0.236	--	--	1.5E+06	--	--
Cobalt-60	0 / 19	pCi/g	0.055	0.237	0.055	0.12	0.119	0.237	0.048	--	--	--	--	-2.19	0.403	--	--	N	0.12	0.135	0.139	0.236	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 19	pCi/g	0.367	1.1	0.367	0.719	0.674	1.1	0.234	--	--	--	--	-0.384	0.348	--	--	N	0.719	0.791	0.812	1.29	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	0.294	0.294	0.294	0.294	--	0.294	0.294	0.294	--	-1.22	--	-1.22	--	B	0.294	0.294	0.294	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	0.394	0.509	0.509	0.624	0.163	0.394	0.509	0.624	0.163	-0.702	0.325	-0.702	0.325	B	0.509	0.567	0.58	--	--	--	--	--	--
Nickel-63	0 / 19	pCi/g	0.41	1.12	0.41	0.744	0.69	1.12	0.239	--	--	--	--	-0.346	0.329	--	--	L	0.747	0.833	0.863	1.57	--	--	1.3E+08	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	1.88	5.73	5.81	9.5	2.7	1.88	5.73	9.5	2.7	1.63	0.598	1.63	0.598	B	5.77	7.69	8.12	--	--	--	4.2E+06	--	--

Table G.29. Y-12 Biology Complex summary statistics for Floors in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Radium-226	12 / 19	pCi/g	0.389	0.793	0.389	0.655	0.613	1.08	0.19	0.499	0.724	1.08	0.189	-0.461	0.278	-0.353	0.249	L	0.655	0.717	0.739	1.24	--	--	300,000	--	--
Strontium-89	0 / 19	pCi/g	1.22	1.89	1.22	1.62	1.64	1.89	0.215	--	--	--	--	0.473	0.139	--	--	B	1.61	1.77	1.8	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 19	pCi/g	1.21	2	1.21	1.79	1.89	2	0.226	--	--	--	--	0.575	0.14	--	--	B	1.8	1.95	1.97	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 21	pCi/g	2.96	8.91	2.96	5.5	5.46	8.91	1.4	--	--	--	--	1.67	0.258	--	--	N	5.5	5.91	6.03	8.83	172	--	4.2E+07	NSRC	NSRC
Thorium-228	3 / 19	pCi/g	0.192	1.31	0.192	0.603	0.613	1.31	0.277	0.225	0.363	0.633	0.234	-0.627	0.544	-1.14	0.589	N	0.603	0.687	0.713	1.27	--	--	25,000	--	--
Thorium-230	13 / 19	pCi/g	0.456	0.995	0.291	0.722	0.552	1.94	0.439	0.291	0.773	1.94	0.512	-0.468	0.522	-0.437	0.607	L	0.718	0.866	0.922	2.22	--	--	15,000	--	--
Thorium-232	5 / 19	pCi/g	0.139	0.956	0.139	0.467	0.454	0.956	0.199	0.184	0.356	0.707	0.222	-0.864	0.493	-1.18	0.584	N	0.467	0.527	0.546	0.948	--	--	2500	--	--
Total Uranium	11 / 19	pCi/g	0.888	1.3	0.888	1.58	1.16	7.52	1.46	1.05	1.92	7.52	1.88	0.3	0.461	0.445	0.561	B	2.17	3.6	4.14	--	--	--	--	--	--
Tritium	0 / 19	pCi/g	4.61	14.5	4.61	10.7	11.8	14.5	3.31	--	--	--	--	2.31	0.383	--	--	B	11.1	13.3	13.7	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	10 / 21	pCi/g	0.498	0.727	0.427	0.89	0.568	6.13	1.21	0.427	1.2	6.13	1.74	-0.381	0.549	-0.239	0.78	B	1.47	2.67	3.13	--	1700	2.8E+07	100,000	8.7E-04	5.3E-08
Uranium-235/236	0 / 21	pCi/g	0.406	0.844	0.406	0.602	0.59	0.844	0.133	--	--	--	--	-0.532	0.223	--	--	N	0.602	0.64	0.652	0.917	1500	9500	100,000	NSRC	NSRC
Uranium-238	9 / 21	pCi/g	0.456	0.666	0.43	0.568	0.514	0.992	0.132	0.43	0.59	0.992	0.19	-0.588	0.202	-0.566	0.284	B	0.58	0.714	0.757	--	1200	1500	100,000	4.8E-04	3.9E-04
																									SOF =	0.007	0.018

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.30. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Hoods in Y-12 Building 9207 (random and biased)																											
Metals																											
Antimony	4 / 5	mg/kg	0.174	0.174	0.087	4.55	2.24	14.6	5.99	0.464	5.67	14.6	6.29	0.392	2.03	1.1	1.46	B	3.94	7.39	8.53	--	--	160	--	--	0.025
Arsenic	2 / 5	mg/kg	0.178	0.351	0.089	2.6	0.176	9.95	4.25	2.67	6.31	9.95	5.15	-0.597	2.11	1.64	0.93	B	1.79	3.81	4.62	--	--	--	--	--	--
Barium	4 / 5	mg/kg	0.053	0.053	0.026	1487	9.29	7410	3311	0.203	1858	7410	3701	1.7	4.81	3.04	4.35	B	1241	2744	3349	--	--	150,000	--	--	0.008
Beryllium	1 / 5	mg/kg	0.011	0.082	0.005	0.034	0.01	0.108	0.044	0.108	0.108	0.108	--	-4.03	1.28	-2.23	--	B	0.026	0.048	0.056	--	--	--	--	--	--
Boron	2 / 5	mg/kg	0.422	3.26	0.211	799	1.34	3990	1784	1.34	1996	3990	2820	1.33	3.98	4.29	5.66	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	4 / 5	mg/kg	0.011	0.011	0.005	3.0	1.26	10.9	4.47	0.817	3.75	10.9	4.79	-0.422	2.87	0.783	1.13	B	2.66	5.19	6.05	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	0.596	274	9.08	1290	569	0.596	274	1290	569	2.57	3.23	2.57	3.23	B	221	485	590	--	--	140,000	--	--	0.002
Copper	5 / 5	mg/kg	--	--	0.306	56.6	30.9	184	76.4	0.306	56.6	184	76.4	2.13	3.01	2.13	3.01	B	51.3	95.6	110	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.317	2.93	0.159	0.675	0.312	1.47	0.62	--	--	--	--	-0.791	1.02	--	--	B	0.479	0.782	0.886	--	--	--	--	NSRC	NSRC
Lead	5 / 5	mg/kg	--	--	0.06	297	161	1010	410	0.06	297	1010	410	3.76	3.81	3.76	3.81	B	276	518	596	--	--	1500	--	--	0.184
Manganese	5 / 5	mg/kg	--	--	0.144	316	18	1530	679	0.144	316	1530	679	2.33	3.57	2.33	3.57	B	267	582	707	--	--	360,000	--	--	7.4E-04
Mercury	4 / 5	mg/kg	0.002	0.002	0.001	0.101	0.01	0.448	0.194	0.009	0.127	0.448	0.215	-4.05	2.23	-3.34	1.82	B	0.081	0.174	0.211	--	--	--	--	--	--
Molybdenum	4 / 5	mg/kg	0.058	0.058	0.029	7.09	1.15	23.9	10.3	0.05	8.85	23.9	11.0	-0.181	3.04	0.66	2.76	B	4.75	9.92	11.9	--	--	3900	--	--	0.001
Nickel	5 / 5	mg/kg	--	--	0.217	82.9	20.9	284	121	0.217	82.9	284	121	2.22	3.22	2.22	3.22	B	61.3	125	147	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.19	1.47	0.095	0.879	0.187	3.25	1.35	3.25	3.25	3.25	--	-1.04	1.47	1.18	--	B	0.682	1.35	1.61	--	--	1600	--	--	4.3E-04
Silver	3 / 5	mg/kg	0.053	0.072	0.026	3.01	0.903	13	5.61	0.903	4.99	13	6.94	-0.888	2.59	0.84	1.5	B	2.77	5.65	6.7	--	--	--	--	--	--
Strontium	2 / 5	mg/kg	0.317	2.45	0.159	8.22	1.23	36.9	16.1	2.52	19.7	36.9	24.3	0.346	2.13	2.27	1.9	B	6.99	14.8	17.8	--	--	300,000	--	--	2.3E-05
Thallium	0 / 5	mg/kg	0.074	0.684	0.037	0.158	0.073	0.342	0.145	--	--	--	--	-2.25	1.02	--	--	B	0.112	0.183	0.207	--	--	--	--	NSRC	NSRC
Tin	4 / 5	mg/kg	0.158	0.158	0.079	29.2	2.85	132	57.6	1.17	36.5	132	63.8	1.17	2.73	2.1	2.05	B	23.9	51.5	62.2	--	--	2200	--	--	0.011
Vanadium	2 / 5	mg/kg	0.158	1.22	0.079	12.4	0.61	59.6	26.4	1.36	30.5	59.6	41.2	-0.173	2.66	2.2	2.67	B	10.4	22.6	27.4	--	--	25,000	--	--	4.1E-04
Zinc	5 / 5	mg/kg	--	--	1.33	1398	22.1	5600	2419	1.33	1398	5600	2419	4.42	3.42	4.42	3.42	B	948	2088	2545	--	--	--	--	--	--
Zirconium	2 / 5	mg/kg	0.211	1.63	0.106	1.34	0.618	4.94	2.03	0.618	2.78	4.94	3.06	-0.582	1.47	0.558	1.47	B	1.25	2.37	2.75	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.028	0.478	0.478	0.929	0.637	0.028	0.478	0.929	0.637	-1.83	2.48	-1.83	2.48	X	0.478	1.83	2.44	--	--	--	--	--	--
Cadmium	2 / 2	mg/L	--	--	0.03	0.034	0.034	0.039	0.006	0.03	0.034	0.039	0.006	-3.39	0.185	-3.39	0.185	X	0.034	0.048	0.054	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.183	0.517	0.517	0.85	0.472	0.183	0.517	0.85	0.472	-0.93	1.09	-0.93	1.09	X	0.517	1.52	1.97	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	3.91	4.94	4.94	5.97	1.46	3.91	4.94	5.97	1.46	1.58	0.299	1.58	0.299	X	4.94	8.03	9.43	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	6.0E-04	--	--	--	--	-5.83	0.224	--	--	B	0.003	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	6.0E-04	--	--	--	--	-5.83	0.224	--	--	B	0.003	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 4	mg/kg	3.7E-04	4.9E-04	1.8E-04	0.002	7.6E-04	0.007	0.003	0.001	0.004	0.007	0.004	-7.13	1.69	-5.8	1.21	B	0.002	0.003	0.004	--	130,000	--	--	1.3E-08	--
4,4'-DDT	1 / 4	mg/kg	3.7E-04	8.7E-04	1.8E-04	6.2E-04	3.4E-04	0.002	6.7E-04	0.002	0.002	0.002	--	-7.77	0.965	-6.43	--	B	5.3E-04	8.6E-04	9.7E-04	--	--	--	--	--	--
Aldrin	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	8.1E-04	--	--	--	--	-7.06	0.962	--	--	B	0.001	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 4	mg/kg	9.1E-05	4.9E-04	4.5E-05	0.001	2.2E-04	0.005	0.002	0.005	0.005	0.005	--	-8.06	1.97	-5.31	--	B	9.7E-04	0.002	0.002	--	--	330,000	--	--	2.9E-09
Endrin	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.3E-04	2.2E-04	4.3E-04	1.6E-04	--	--	--	--	-8.66	0.962	--	--	B	2.2E-04	3.2E-04	3.5E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	2400	69,000	--	NSRC	NSRC

Table G.30. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 4	mg/kg	1.8E-04	4.3E-04	7.9E-05	1.3E-04	1.1E-04	2.2E-04	6.2E-05	7.9E-05	7.9E-05	7.9E-05	--	-9.04	0.446	-9.44	--	B	1.2E-04	1.5E-04	1.7E-04	--	1000	1500	--	1.2E-07	8.1E-08
Lindane	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	8.1E-04	--	--	--	--	-7.06	0.962	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.002	0.014	7.6E-04	0.004	0.004	0.007	0.003	--	--	--	--	-5.85	0.96	--	--	B	0.004	0.005	0.006	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.1E-04	1.1E-04	2.2E-04	8.1E-05	--	--	--	--	-9.36	0.962	--	--	B	1.1E-04	1.6E-04	1.7E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 27	mg/kg	0.002	0.6	0.001	0.047	0.015	0.3	0.066	--	--	--	--	-3.83	1.29	--	--	B	0.06	0.124	0.149	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 27	mg/kg	0.002	0.6	0.001	0.047	0.015	0.3	0.066	--	--	--	--	-3.83	1.29	--	--	B	0.06	0.124	0.149	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 27	mg/kg	0.002	0.6	0.001	0.047	0.015	0.3	0.066	--	--	--	--	-3.83	1.29	--	--	B	0.06	0.124	0.149	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 27	mg/kg	0.024	6	0.012	0.476	0.167	3	0.656	0.23	0.23	0.23	--	-1.5	1.29	-1.47	--	L	0.51	0.868	1.05	4.09	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 27	mg/kg	0.041	10	0.02	0.786	0.245	5	1.1	--	--	--	--	-1.02	1.29	--	--	B	1.0	2.07	2.48	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 27	mg/kg	0.002	0.6	0.001	0.047	0.015	0.3	0.066	--	--	--	--	-3.83	1.29	--	--	B	0.06	0.124	0.149	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	2 / 27	mg/kg	0.024	6	0.012	0.517	0.167	3	0.662	0.483	0.787	1.09	0.429	-1.4	1.31	-0.321	0.576	L	0.58	0.999	1.21	4.73	--	190	--	--	0.003
Diethyl phthalate	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 27	mg/kg	0.024	6	0.012	0.474	0.147	3	0.657	0.129	0.129	0.129	--	-1.5	1.27	-2.05	--	L	0.501	0.843	1.01	3.94	--	--	--	NSRC	NSRC
Phenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 27	mg/kg	0.024	6	0.012	0.472	0.147	3	0.658	--	--	--	--	-1.53	1.29	--	--	B	0.6	1.24	1.49	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	2 / 28	pCi/g	2.08	9.25	2.08	6.03	3.44	48.3	8.6	3.11	25.7	48.3	32.0	1.48	0.648	2.51	1.94	B	10.7	20.5	24.2	--	--	--	--	--	--
Americium-241	0 / 26	pCi/g	0.142	0.374	0.142	0.226	0.232	0.374	0.054	--	--	--	--	-1.52	0.242	--	--	N	0.226	0.24	0.244	0.349	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	1 / 28	pCi/g	2.59	5.43	2.59	4.53	4.03	18.5	2.82	18.5	18.5	18.5	--	1.43	0.343	2.92	--	B	6.2	9.81	11.1	--	--	--	--	NSRC	NSRC
Carbon-14	3 / 27	pCi/g	0.312	0.943	0.312	0.843	0.636	4.35	0.853	0.549	2.65	4.35	1.93	-0.381	0.539	0.661	1.11	B	1.2	2.11	2.43	--	165	--	1.0E+07	0.007	--
Cesium-137	1 / 27	pCi/g	0.049	0.426	0.049	0.17	0.131	0.426	0.096	0.21	0.21	0.21	--	-1.91	0.553	-1.56	--	L	0.172	0.202	0.213	0.514	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 27	pCi/g	0.054	0.337	0.054	0.174	0.139	0.337	0.087	--	--	--	--	-1.87	0.523	--	--	L	0.176	0.205	0.215	0.5	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 27	pCi/g	0.207	1.37	0.207	0.653	0.587	1.37	0.296	--	--	--	--	-0.52	0.446	--	--	L	0.656	0.745	0.776	1.63	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 26	pCi/g	0.163	0.551	0.163	0.276	0.273	0.551	0.088	--	--	--	--	-1.33	0.302	--	--	L	0.276	0.3	0.308	0.524	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 27	pCi/g	0.655	3.51	0.655	1.2	1.05	3.51	0.564	--	--	--	--	0.113	0.349	--	--	B	1.39	2.07	2.29	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 26	pCi/g	0.159	0.487	0.159	0.242	0.228	0.487	0.077	--	--	--	--	-1.46	0.266	--	--	B	0.26	0.341	0.365	--	--	--	15,000	NSRC	NSRC

Table G.30. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9207 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 26	pCi/g	0.149	0.538	0.149	0.243	0.211	0.538	0.093	--	--	--	--	-1.47	0.322	--	--	B	0.255	0.348	0.378	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 26	pCi/g	7.95	18.3	7.95	12.4	13.2	18.3	2.58	--	--	--	--	2.49	0.22	--	--	N	12.4	13.0	13.2	18.2	--	--	790,000	NSRC	NSRC
Radium-226	1 / 27	pCi/g	0.311	0.977	0.311	0.562	0.551	0.977	0.181	0.658	0.658	0.658	--	-0.626	0.325	-0.419	--	N	0.562	0.608	0.622	0.972	--	--	300,000	NSRC	NSRC
Strontium-89	0 / 27	pCi/g	0.983	1.95	0.983	1.64	1.71	1.95	0.273	--	--	--	--	0.482	0.186	--	--	B	1.63	1.84	1.88	--	--	--	--	NSRC	NSRC
Strontium-90	9 / 27	pCi/g	1.24	1.98	1.24	2.55	1.88	14.4	2.5	1.98	4.27	14.4	3.9	0.754	0.5	1.24	0.61	B	3.86	6.71	7.78	--	--	--	400,000	--	--
Technetium-99	1 / 28	pCi/g	4.03	8.14	4.03	6.29	5.82	16.8	2.3	16.8	16.8	16.8	--	1.8	0.265	2.82	--	B	7.35	10.4	11.4	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 27	pCi/g	0.386	1.38	0.386	0.703	0.585	1.38	0.266	--	--	--	--	-0.414	0.35	--	--	L	0.702	0.773	0.797	1.46	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 27	pCi/g	0.317	1.13	0.317	0.596	0.562	1.13	0.212	0.562	0.562	0.562	--	-0.575	0.34	-0.576	--	L	0.596	0.654	0.674	1.21	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 27	pCi/g	0.274	0.98	0.274	0.506	0.447	0.98	0.187	--	--	--	--	-0.741	0.347	--	--	L	0.506	0.557	0.573	1.04	--	--	2500	NSRC	NSRC
Total Uranium	4 / 27	pCi/g	0.421	2.03	0.421	1.05	0.807	3.04	0.642	1.1	1.97	3.04	0.835	-0.097	0.534	0.609	0.434	L	1.05	1.22	1.29	3.03	--	--	--	--	--
Tritium	0 / 27	pCi/g	3.97	14.7	3.97	8.87	8.72	14.7	2.53	--	--	--	--	2.14	0.3	--	--	N	8.87	9.51	9.7	14.6	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	5 / 28	pCi/g	0.228	1.16	0.228	0.679	0.47	2.27	0.493	0.725	1.45	2.27	0.583	-0.588	0.617	0.303	0.433	L	0.672	0.807	0.856	2.22	1700	2.8E+07	100,000	4.0E-04	2.4E-08
Uranium-235/236	0 / 28	pCi/g	0.266	1.28	0.266	0.552	0.465	1.28	0.266	--	--	--	--	-0.684	0.414	--	--	L	0.55	0.616	0.638	1.28	1500	9500	100,000	NSRC	NSRC
Uranium-238	2 / 28	pCi/g	0.213	1.06	0.213	0.473	0.429	1.06	0.221	0.494	0.544	0.594	0.071	-0.839	0.422	-0.613	0.13	L	0.472	0.53	0.55	1.12	1200	1500	100,000	3.9E-04	3.1E-04
																									SOF =	0.008	0.263

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.31. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Hoods in Y-12 Building 9210 (random and biased)																											
Metals																											
Antimony	1 / 1	mg/kg	--	--	0.643	0.643	0.643	0.643	--	0.643	0.643	0.643	--	-0.442	--	-0.442	--	B	0.643	0.643	0.643	--	--	160	--	--	0.004
Arsenic	0 / 1	mg/kg	0.268	0.268	0.134	0.134	0.134	0.134	--	--	--	--	--	-2.01	--	--	--	B	0.134	0.268	0.268	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/kg	--	--	0.807	0.807	0.807	0.807	--	0.807	0.807	0.807	--	-0.214	--	-0.214	--	B	0.807	0.807	0.807	--	--	150,000	--	--	5.4E-06
Beryllium	0 / 1	mg/kg	0.016	0.016	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.84	--	--	--	B	0.008	0.016	0.016	--	--	--	--	NSRC	NSRC
Boron	1 / 1	mg/kg	--	--	4.71	4.71	4.71	4.71	--	4.71	4.71	4.71	--	1.55	--	1.55	--	B	4.71	4.71	4.71	--	--	24,000	--	--	2.0E-04
Cadmium	1 / 1	mg/kg	--	--	0.194	0.194	0.194	0.194	--	0.194	0.194	0.194	--	-1.64	--	-1.64	--	B	0.194	0.194	0.194	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	25.6	25.6	25.6	25.6	--	25.6	25.6	25.6	--	3.24	--	3.24	--	B	25.6	25.6	25.6	--	--	140,000	--	--	1.8E-04
Copper	1 / 1	mg/kg	--	--	9.77	9.77	9.77	9.77	--	9.77	9.77	9.77	--	2.28	--	2.28	--	B	9.77	9.77	9.77	--	--	--	--	--	--
Hafnium	0 / 1	mg/kg	0.475	0.475	0.238	0.238	0.238	0.238	--	--	--	--	--	-1.44	--	--	--	B	0.238	0.475	0.475	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/kg	--	--	8.22	8.22	8.22	8.22	--	8.22	8.22	8.22	--	2.11	--	2.11	--	B	8.22	8.22	8.22	--	--	1500	--	--	0.005
Manganese	1 / 1	mg/kg	--	--	12.4	12.4	12.4	12.4	--	12.4	12.4	12.4	--	2.52	--	2.52	--	B	12.4	12.4	12.4	--	--	360,000	--	--	3.4E-05
Mercury	1 / 1	mg/kg	--	--	0.021	0.021	0.021	0.021	--	0.021	0.021	0.021	--	-3.88	--	-3.88	--	B	0.021	0.021	0.021	--	--	--	--	--	--
Molybdenum	1 / 1	mg/kg	--	--	0.206	0.206	0.206	0.206	--	0.206	0.206	0.206	--	-1.58	--	-1.58	--	B	0.206	0.206	0.206	--	--	3900	--	--	5.3E-05
Nickel	1 / 1	mg/kg	--	--	0.587	0.587	0.587	0.587	--	0.587	0.587	0.587	--	-0.533	--	-0.533	--	B	0.587	0.587	0.587	--	--	--	--	--	--
Selenium	0 / 1	mg/kg	0.285	0.285	0.143	0.143	0.143	0.143	--	--	--	--	--	-1.95	--	--	--	B	0.143	0.285	0.285	--	--	1600	--	NSRC	NSRC
Silver	0 / 1	mg/kg	0.079	0.079	0.04	0.04	0.04	0.04	--	--	--	--	--	-3.23	--	--	--	B	0.04	0.079	0.079	--	--	--	--	NSRC	NSRC
Strontium	0 / 1	mg/kg	0.475	0.475	0.238	0.238	0.238	0.238	--	--	--	--	--	-1.44	--	--	--	B	0.238	0.475	0.475	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 1	mg/kg	0.111	0.111	0.056	0.056	0.056	0.056	--	--	--	--	--	-2.89	--	--	--	B	0.056	0.111	0.111	--	--	--	--	NSRC	NSRC
Tin	1 / 1	mg/kg	--	--	0.745	0.745	0.745	0.745	--	0.745	0.745	0.745	--	-0.294	--	-0.294	--	B	0.745	0.745	0.745	--	--	2200	--	--	3.4E-04
Vanadium	0 / 1	mg/kg	0.238	0.238	0.119	0.119	0.119	0.119	--	--	--	--	--	-2.13	--	--	--	B	0.119	0.238	0.238	--	--	25,000	--	NSRC	NSRC
Zinc	1 / 1	mg/kg	--	--	22.8	22.8	22.8	22.8	--	22.8	22.8	22.8	--	3.13	--	3.13	--	B	22.8	22.8	22.8	--	--	--	--	--	--
Zirconium	1 / 1	mg/kg	--	--	0.759	0.759	0.759	0.759	--	0.759	0.759	0.759	--	-0.276	--	-0.276	--	B	0.759	0.759	0.759	--	--	--	--	--	--
Herbicides																											
2,4-D	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.13	--	--	--	B	0.006	0.012	0.012	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	10,800	--	NSRC	NSRC

Table G.31. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
2,4,5-Trichlorophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 11	mg/kg	0.005	2.94	0.002	0.191	0.032	1.47	0.431	--	--	--	--	-3.44	2.08	--	--	B	0.267	0.574	0.693	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 11	mg/kg	0.005	2.94	0.002	0.191	0.032	1.47	0.431	--	--	--	--	-3.44	2.08	--	--	B	0.267	0.574	0.693	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 11	mg/kg	0.005	2.94	0.002	0.191	0.032	1.47	0.431	--	--	--	--	-3.44	2.08	--	--	B	0.267	0.574	0.693	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 11	mg/kg	0.078	49	0.039	3.18	0.54	24.5	7.18	--	--	--	--	-0.624	2.08	--	--	B	4.45	9.56	11.6	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 11	mg/kg	0.005	2.94	0.002	0.191	0.032	1.47	0.431	--	--	--	--	-3.44	2.08	--	--	B	0.267	0.574	0.693	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	--	--	NSRC	NSRC
Phenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 11	mg/kg	0.047	29.4	0.023	1.91	0.324	14.7	4.31	--	--	--	--	-1.14	2.08	--	--	B	2.67	5.74	6.93	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	1 / 12	pCi/g	2.2	4.57	2.2	3.26	3.23	4.57	0.71	4.3	4.3	4.3	--	1.16	0.217	1.46	--	N	3.26	3.54	3.63	5.21	--	--	--	--	--
Americium-241	0 / 11	pCi/g	0.152	0.611	0.152	0.319	0.212	0.611	0.175	--	--	--	--	-1.28	0.541	--	--	B	0.269	0.376	0.412	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	1 / 12	pCi/g	2.54	5.74	2.54	6.85	4.23	34.8	8.84	34.8	34.8	34.8	--	1.62	0.644	3.55	--	B	9.04	16.1	18.7	--	--	--	--	--	--
Carbon-14	2 / 11	pCi/g	0.506	2.4	0.506	38.6	0.722	416	125	1.32	209	416	293	0.331	1.94	3.15	4.07	B	69.9	154	188	--	165	--	1.0E+07	0.424	--
Cesium-137	0 / 11	pCi/g	0.058	0.544	0.058	0.213	0.137	0.544	0.176	--	--	--	--	-1.83	0.784	--	--	L	0.217	0.344	0.414	1.45	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 11	pCi/g	0.03	0.514	0.03	0.219	0.137	0.514	0.175	--	--	--	--	-1.84	0.882	--	--	L	0.235	0.407	0.509	1.9	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 11	pCi/g	0.379	1.2	0.379	0.724	0.687	1.2	0.241	--	--	--	--	-0.374	0.339	--	--	N	0.724	0.824	0.856	1.4	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 11	pCi/g	0.243	0.744	0.243	0.512	0.509	0.744	0.164	--	--	--	--	-0.723	0.354	--	--	N	0.512	0.58	0.601	0.973	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 11	pCi/g	0.661	1.96	0.661	0.956	0.818	1.96	0.361	--	--	--	--	-0.093	0.301	--	--	B	0.982	1.29	1.39	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 11	pCi/g	0.147	0.966	0.147	0.378	0.19	0.966	0.33	--	--	--	--	-1.27	0.768	--	--	B	0.312	0.491	0.557	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 11	pCi/g	0.207	1.15	0.207	0.466	0.267	1.15	0.38	--	--	--	--	-1.01	0.697	--	--	B	0.404	0.612	0.688	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 11	pCi/g	7.61	16.7	7.61	10.4	8.55	16.7	3.45	--	--	--	--	2.29	0.299	--	--	B	9.75	11.8	12.6	--	--	--	790,000	NSRC	NSRC
Radium-226	4 / 11	pCi/g	0.196	0.574	0.137	0.452	0.525	0.664	0.165	0.137	0.4	0.664	0.224	-0.884	0.498	-1.07	0.68	N	0.452	0.521	0.543	0.918	--	--	300,000	--	--
Strontium-89	0 / 11	pCi/g	1.2	1.73	1.2	1.54	1.61	1.73	0.193	--	--	--	--	0.424	0.132	--	--	B	1.56	1.68	1.69	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 11	pCi/g	1.22	1.99	1.22	1.62	1.66	1.99	0.281	--	--	--	--	0.466	0.178	--	--	N	1.62	1.73	1.77	2.41	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 12	pCi/g	4	8.47	4	6.2	6.14	8.47	1.25	--	--	--	--	1.8	0.208	--	--	N	6.2	6.69	6.85	9.63	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 11	pCi/g	0.314	1.33	0.314	0.555	0.414	1.33	0.366	--	--	--	--	-0.726	0.497	--	--	B	0.55	0.782	0.863	--	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 11	pCi/g	0.237	1.03	0.237	0.428	0.314	1.03	0.295	--	--	--	--	-0.997	0.515	--	--	B	0.421	0.602	0.665	--	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 11	pCi/g	0.228	0.969	0.228	0.412	0.308	0.969	0.259	--	--	--	--	-1.01	0.481	--	--	B	0.405	0.576	0.635	--	--	--	2500	NSRC	NSRC

Table G.31. Y-12 Biology Complex summary statistics for Hoods in Y-12 Building 9210 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Total Uranium	1 / 11	pCi/g	0.661	1.7	0.661	0.968	0.871	1.7	0.301	0.792	0.792	0.792	--	-0.07	0.274	-0.233	--	L	0.968	1.1	1.14	2.01	--	--	--	--	--
Tritium	0 / 11	pCi/g	8.16	15.3	8.16	10.6	9.77	15.3	2.14	--	--	--	--	2.35	0.192	--	--	N	10.6	11.5	11.8	16.7	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	0 / 12	pCi/g	0.292	0.95	0.292	0.516	0.462	0.95	0.179	--	--	--	--	-0.71	0.318	--	--	N	0.516	0.586	0.609	1.01	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 12	pCi/g	0.321	1.1	0.321	0.595	0.537	1.1	0.211	--	--	--	--	-0.571	0.33	--	--	N	0.595	0.678	0.704	1.17	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 12	pCi/g	0.266	0.869	0.266	0.473	0.423	0.869	0.163	0.361	0.361	0.361	--	-0.797	0.316	-1.02	--	N	0.473	0.537	0.557	0.918	1200	1500	100,000	3.9E-04	3.2E-04
																									SOF =	0.424	0.011

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.32. Y-12 Biology Complex summary statistics for Interior Walls in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Walls in Y-12 Building 9401-1 (random and biased)																											
Metals																											
Antimony	1 / 2	mg/kg	0.286	0.286	0.143	0.228	0.228	0.313	0.12	0.313	0.313	0.313	--	-1.55	0.554	-1.16	--	B	0.228	0.271	0.281	--	--	160	--	--	0.001
Arsenic	1 / 3	mg/kg	0.332	1.49	0.166	2.86	0.745	7.68	4.18	7.68	7.68	7.68	--	-0.017	1.93	2.04	--	B	1.8	3.49	4.09	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	18.3	25.1	26.5	30.4	6.18	18.3	25.1	30.4	6.18	3.2	0.263	3.2	0.263	B	25.8	28.6	29.1	--	--	150,000	--	--	1.7E-04
Beryllium	1 / 2	mg/kg	0.02	0.02	0.01	0.05	0.05	0.089	0.056	0.089	0.089	0.089	--	-3.52	1.56	-2.42	--	B	0.05	0.07	0.074	--	--	--	--	--	--
Boron	2 / 2	mg/kg	--	--	2.61	50.9	50.9	99.2	68.3	2.61	50.9	99.2	68.3	2.78	2.57	2.78	2.57	B	50.9	75.4	80.9	--	--	24,000	--	--	0.002
Cadmium	3 / 3	mg/kg	--	--	0.017	2.08	0.118	6.12	3.49	0.017	2.08	6.12	3.49	-1.47	3.0	-1.47	3.0	B	1.1	2.37	2.87	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	1.92	5.53	1.96	12.7	6.21	1.92	5.53	12.7	6.21	1.29	1.08	1.29	1.08	B	3.74	5.94	6.82	--	--	140,000	--	--	2.7E-05
Copper	2 / 2	mg/kg	--	--	0.768	2.26	2.26	3.75	2.11	0.768	2.26	3.75	2.11	0.529	1.12	0.529	1.12	B	2.26	3.01	3.19	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.589	2.65	0.295	0.81	0.81	1.33	0.729	--	--	--	--	-0.471	1.06	--	--	B	0.81	1.07	1.13	--	--	--	--	NSRC	NSRC
Lead	3 / 3	mg/kg	--	--	0.67	1.36	1.6	1.8	0.603	0.67	1.36	1.8	0.603	0.219	0.54	0.219	0.54	B	1.48	1.71	1.74	--	--	1500	--	--	9.9E-04
Manganese	2 / 2	mg/kg	--	--	20.2	27.2	27.2	34.2	9.9	20.2	27.2	34.2	9.9	3.27	0.372	3.27	0.372	B	27.2	30.7	31.6	--	--	360,000	--	--	7.6E-05
Mercury	1 / 3	mg/kg	0.003	0.003	0.002	0.02	0.002	0.056	0.032	0.056	0.056	0.056	--	-5.2	2.01	-2.88	--	B	0.011	0.022	0.026	--	--	--	--	--	--
Molybdenum	1 / 2	mg/kg	0.079	0.079	0.039	0.72	0.72	1.4	0.962	1.4	1.4	1.4	--	-1.45	2.53	0.336	--	B	0.72	1.06	1.14	--	--	3900	--	--	1.8E-04
Nickel	2 / 2	mg/kg	--	--	1.49	1.76	1.76	2.03	0.382	1.49	1.76	2.03	0.382	0.553	0.219	0.553	0.219	B	1.76	1.9	1.93	--	--	--	--	--	--
Selenium	0 / 3	mg/kg	0.297	1.59	0.149	0.374	0.177	0.795	0.365	--	--	--	--	-1.29	0.922	--	--	B	0.275	0.415	0.467	--	--	1600	--	NSRC	NSRC
Silver	2 / 3	mg/kg	0.867	0.867	0.434	2.2	2.69	3.47	1.58	2.69	3.08	3.47	0.552	0.466	1.13	1.12	0.18	B	2.44	3.12	3.23	--	--	--	--	--	--
Strontium	2 / 2	mg/kg	--	--	6.3	1238	1238	2470	1742	6.3	1238	2470	1742	4.83	4.22	4.83	4.22	B	1238	1862	2004	--	--	300,000	--	--	0.004
Thallium	0 / 2	mg/kg	0.138	0.618	0.069	0.189	0.189	0.309	0.17	--	--	--	--	-1.92	1.06	--	--	B	0.189	0.25	0.264	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	0.823	3.59	3.59	6.36	3.92	0.823	3.59	6.36	3.92	0.828	1.45	0.828	1.45	B	3.59	4.99	5.31	--	--	2200	--	--	0.002
Total Uranium	1 / 1	mg/kg	--	--	16,900	16,900	16,900	16,900	--	16,900	16,900	16,900	--	9.74	--	9.74	--	B	16,900	16,900	16,900	--	--	--	--	--	--
Vanadium	2 / 2	mg/kg	--	--	0.881	1.65	1.65	2.42	1.09	0.881	1.65	2.42	1.09	0.379	0.715	0.379	0.715	B	1.65	2.04	2.13	--	--	25,000	--	--	6.6E-05
Zinc	2 / 2	mg/kg	--	--	9.07	22.2	22.2	35.3	18.5	9.07	22.2	35.3	18.5	2.88	0.961	2.88	0.961	B	22.2	28.8	30.3	--	--	--	--	--	--
Zirconium	2 / 2	mg/kg	--	--	1.79	4.52	4.52	7.25	3.86	1.79	4.52	7.25	3.86	1.28	0.989	1.28	0.989	B	4.52	5.9	6.22	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 3	mg/L	0.017	0.017	0.009	0.014	0.009	0.026	0.01	0.026	0.026	0.026	--	-4.4	0.645	-3.65	--	X	0.014	0.032	0.04	--	--	--	--	--	--
Barium	3 / 3	mg/L	--	--	0.124	0.197	0.143	0.324	0.11	0.124	0.197	0.324	0.11	-1.72	0.518	-1.72	0.518	X	0.197	0.388	0.475	--	--	--	--	--	--
Cadmium	3 / 3	mg/L	--	--	0.003	0.018	0.004	0.046	0.025	0.003	0.018	0.046	0.025	-4.77	1.47	-4.77	1.47	X	0.018	0.06	0.079	--	--	--	--	--	--
Chromium	1 / 3	mg/L	0.03	0.03	0.015	0.034	0.015	0.072	0.033	0.072	0.072	0.072	--	-3.68	0.903	-2.64	--	X	0.034	0.091	0.116	--	--	--	--	--	--
Lead	1 / 3	mg/L	0.005	0.005	0.003	0.009	0.003	0.022	0.011	0.022	0.022	0.022	--	-5.27	1.25	-3.82	--	X	0.009	0.028	0.037	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	3.5E-05	--	--	--	--	-4.79	0.004	--	--	B	0.008	0.008	0.008	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	3.5E-05	--	--	--	--	-4.79	0.004	--	--	B	0.008	0.008	0.008	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Silvex	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	1 / 2	mg/kg	0.019	0.019	0.01	0.026	0.026	0.042	0.023	0.042	0.042	0.042	--	-3.92	1.05	-3.17	--	B	0.026	0.034	0.036	--	--	--	--	--	--
Aldrin	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.095	0.1	0.048	0.049	0.049	0.05	0.002	--	--	--	--	-3.02	0.033	--	--	B	0.049	0.049	0.049	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	--	330,000	--	NSRC	NSRC

Table G.32. Y-12 Biology Complex summary statistics for Interior Walls in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	0.019	0.02	0.01	0.01	0.01	0.01	3.2E-04	--	--	--	--	-4.63	0.033	--	--	B	0.01	0.01	0.01	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.095	0.1	0.048	0.049	0.049	0.05	0.002	--	--	--	--	-3.02	0.033	--	--	B	0.049	0.049	0.049	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.317	0.332	0.159	0.162	0.162	0.166	0.005	--	--	--	--	-1.82	0.033	--	--	B	0.162	0.164	0.165	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	0.01	0.01	0.005	0.005	0.005	0.005	1.6E-04	--	--	--	--	-5.32	0.033	--	--	B	0.005	0.005	0.005	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 1	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	--	--	--	--	--	-7.87	--	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 1	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	--	--	--	--	--	-9.9	--	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	--	--	--	--	--	-7.2	--	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1254	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
PCB-1260	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1262	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 19	mg/kg	0.003	0.3	0.002	0.056	0.015	0.15	0.06	0.011	0.027	0.039	0.014	-3.63	1.41	-3.74	0.656	B	0.035	0.069	0.081	--	--	4000	--	--	8.8E-06
2-Methylphenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	2 / 19	mg/kg	0.099	3	0.034	0.535	0.15	1.5	0.615	0.034	0.035	0.035	0.001	-1.38	1.32	-3.37	0.035	B	0.356	0.685	0.803	--	--	850	--	--	4.2E-04
Acenaphthene	0 / 19	mg/kg	0.003	0.3	0.002	0.053	0.015	0.15	0.062	--	--	--	--	-3.76	1.45	--	--	B	0.035	0.069	0.081	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 19	mg/kg	0.003	0.3	0.002	0.053	0.015	0.15	0.062	--	--	--	--	-3.76	1.45	--	--	B	0.035	0.069	0.081	--	--	93,200	--	NSRC	NSRC
Acetophenone	2 / 19	mg/kg	0.033	3	0.017	0.944	0.15	6.62	1.7	4.18	5.4	6.62	1.73	-1.32	1.67	1.66	0.325	L	1.07	3.04	4.53	15.1	--	330	--	--	0.003
Benzenemethanol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 19	mg/kg	0.056	5	0.028	0.889	0.25	2.5	1.03	--	--	--	--	-0.945	1.45	--	--	B	0.588	1.15	1.35	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 19	mg/kg	0.01	0.3	0.005	0.055	0.015	0.15	0.061	0.01	0.013	0.016	0.004	-3.55	1.16	-4.34	0.318	B	0.036	0.068	0.08	--	110,000	--	--	3.3E-07	--
Di-n-butyl phthalate	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	190	--	NSRC	NSRC

Table G.32. Y-12 Biology Complex summary statistics for Interior Walls in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	--	--	NSRC	NSRC
Phenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 19	mg/kg	0.033	3	0.017	0.533	0.15	1.5	0.617	--	--	--	--	-1.46	1.45	--	--	B	0.353	0.689	0.808	--	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 1	mg/L	0.019	0.019	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.68	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	2 / 2	pCi/g	--	--	1.58	1.7	1.7	1.82	0.17	1.58	1.7	1.82	0.17	0.528	0.1	0.528	0.1	B	1.7	1.76	1.77	--	--	--	--	--	--
Alpha activity	13 / 19	pCi/g	2.65	8.17	2.65	16.3	16.3	43.2	11.0	8.51	21.3	43.2	9.78	2.54	0.787	2.96	0.478	N	16.3	19.7	20.7	43.0	--	--	--	--	--
Beta activity	15 / 19	pCi/g	1.82	4.94	1.82	38.8	36.2	122	34.0	5.02	48.4	122	31.9	3.01	1.39	3.55	0.989	B	44.8	75.2	83.8	--	--	--	--	--	--
Bismuth-214	5 / 5	pCi/g	--	--	0.93	1.07	1.08	1.27	0.142	0.93	1.07	1.27	0.142	0.063	0.132	0.063	0.132	B	1.09	1.17	1.19	--	--	--	--	--	--
Carbon-14	0 / 19	pCi/g	0.327	2.25	0.327	0.702	0.644	2.25	0.395	--	--	--	--	-0.439	0.382	--	--	B	0.859	1.32	1.47	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 19	pCi/g	0.029	0.173	0.029	0.111	0.12	0.173	0.041	--	--	--	--	-2.29	0.487	--	--	N	0.111	0.123	0.127	0.21	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 19	pCi/g	0.025	0.195	0.025	0.123	0.124	0.195	0.051	--	--	--	--	-2.21	0.563	--	--	N	0.123	0.139	0.144	0.247	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 19	pCi/g	0.191	0.934	0.191	0.536	0.538	0.934	0.212	--	--	--	--	-0.709	0.448	--	--	N	0.536	0.601	0.621	1.05	13	--	1500	NSRC	NSRC
Lead-212	11 / 11	pCi/g	--	--	1.04	1.37	1.41	1.7	0.272	1.04	1.37	1.7	0.272	0.296	0.204	0.296	0.204	B	1.4	1.56	1.6	--	--	--	--	--	--
Lead-214	7 / 7	pCi/g	--	--	0.754	1.11	1.16	1.45	0.237	0.754	1.11	1.45	0.237	0.081	0.225	0.081	0.225	N	1.11	1.24	1.28	1.92	--	--	--	--	--
Nickel-63	0 / 19	pCi/g	0.323	1.44	0.323	0.615	0.501	1.44	0.277	--	--	--	--	-0.563	0.386	--	--	B	0.628	0.896	0.982	--	--	--	1.3E+08	NSRC	NSRC
Potassium-40	11 / 11	pCi/g	--	--	21.2	47.0	50.4	64.5	14.7	21.2	47.0	64.5	14.7	3.79	0.368	3.79	0.368	N	47.0	53.1	55.0	88.5	--	--	4.2E+06	--	--
Radium-226	13 / 19	pCi/g	0.251	0.744	0.251	0.709	0.554	1.36	0.339	0.351	0.827	1.36	0.334	-0.459	0.503	-0.276	0.447	N	0.709	0.812	0.844	1.53	--	--	300,000	--	--
Strontium-89	1 / 19	pCi/g	1.23	1.95	1.23	1.82	1.77	4.23	0.622	4.23	4.23	4.23	--	0.564	0.253	1.44	--	B	2.09	2.82	3.05	--	--	--	--	--	--
Strontium-90	0 / 19	pCi/g	1.15	1.99	1.15	1.64	1.6	1.99	0.225	--	--	--	--	0.487	0.141	--	--	N	1.64	1.71	1.73	2.19	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 21	pCi/g	1.19	7.95	1.19	5.78	6.36	7.95	1.76	--	--	--	--	1.68	0.44	--	--	B	5.76	7.24	7.47	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.476	0.527	0.531	0.564	0.032	0.476	0.527	0.564	0.032	-0.643	0.062	-0.643	0.062	B	0.527	0.549	0.553	--	--	--	--	--	--
Thorium-228	10 / 21	pCi/g	0.541	3.76	0.541	1.01	0.89	3.76	0.682	0.89	1.11	1.27	0.115	-0.114	0.449	0.101	0.107	B	1.31	2.05	2.31	--	--	--	25,000	--	--
Thorium-230	14 / 21	pCi/g	0.442	3.09	0.442	1.06	0.857	3.2	0.768	0.472	1.15	3.2	0.658	-0.123	0.573	0.038	0.443	B	1.18	1.84	2.05	--	--	--	15,000	--	--
Thorium-232	11 / 21	pCi/g	0.398	2.68	0.398	1.0	0.985	2.68	0.6	0.979	1.3	1.8	0.265	-0.166	0.599	0.242	0.202	B	1.17	1.74	1.91	--	--	--	2500	--	--
Total Uranium	11 / 19	pCi/g	0.739	1.59	0.739	1.57	1.59	2.42	0.474	1.23	1.85	2.42	0.375	0.402	0.321	0.595	0.21	N	1.57	1.71	1.75	2.71	--	--	--	--	--
Tritium	0 / 19	pCi/g	6.26	13	6.26	8.75	8.32	13	1.62	--	--	--	--	2.15	0.173	--	--	B	8.76	10.5	10.9	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 1	pCi/g	37.3	37.3	37.3	37.3	37.3	37.3	--	--	--	--	--	3.62	--	--	--	B	37.3	37.3	37.3	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	12 / 21	pCi/g	0.414	0.889	0.414	33.1	0.753	679	148	0.67	57.4	679	196	0.048	1.51	0.431	1.93	B	114	251	307	--	1700	2.8E+07	100,000	0.067	4.1E-06

Table G.32. Y-12 Biology Complex summary statistics for Interior Walls in Y-12 Building 9401-1 (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Uranium-234	1 / 1	pCi/g	--	--	796	796	796	796	--	796	796	796	--	6.68	--	6.68	--	B	796	796	796	--	1700	2.8E+07	100,000	0.468	2.8E-05
Uranium-235	1 / 1	pCi/g	--	--	75.3	75.3	75.3	75.3	--	75.3	75.3	75.3	--	4.32	--	4.32	--	B	75.3	75.3	75.3	--	1500	9500	100,000	0.05	0.008
Uranium-235/236	0 / 21	pCi/g	0.312	211	0.312	10.7	0.615	211	45.9	--	--	--	--	-0.182	1.3	--	--	B	35.6	78.4	95.6	--	1500	9500	100,000	NSRC	NSRC
Uranium-236	1 / 1	pCi/g	--	--	34.5	34.5	34.5	34.5	--	34.5	34.5	34.5	--	3.54	--	3.54	--	B	34.5	34.5	34.5	--	1700	280,000	100,000	0.02	1.2E-04
Uranium-238	11 / 21	pCi/g	0.379	0.813	0.379	270	0.736	5660	1235	0.531	515	5660	1706	0.066	1.98	0.603	2.67	B	944	2089	2552	--	1200	1500	100,000	0.787	0.629
																									SOF =	**1.39**	0.652

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.33. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex random data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
All Y-12 Biology Complex random data combined																											
Metals																											
Antimony	28 / 41	mg/kg	0.156	0.332	0.078	4.31	0.528	82.5	13.3	0.313	6.25	82.5	15.8	-0.32	1.68	0.438	1.5	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	27 / 41	mg/kg	0.16	1.6	0.08	4.76	1.89	38.4	8.01	0.582	7.1	38.4	9.05	0.342	1.78	1.43	1.01	B	7.67	16.0	19.1	--	--	--	--	--	--
Barium	38 / 41	mg/kg	0.053	0.099	0.026	256	18.3	7410	1161	0.117	276	7410	1204	2.1	3.01	2.52	2.71	L	763	4693	8811	4820	--	150,000	--	--	0.005
Beryllium	21 / 41	mg/kg	0.005	0.1	0.002	0.111	0.033	0.545	0.152	0.019	0.205	0.545	0.165	-3.3	1.62	-2.0	1.04	B	0.113	0.232	0.275	--	--	--	--	--	--
Boron	23 / 41	mg/kg	0.187	4	0.094	105	2	3990	622	1.18	186	3990	829	0.846	2.1	2.25	1.7	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	32 / 41	mg/kg	0.011	0.02	0.005	1.57	0.24	10.9	2.83	0.037	2.01	10.9	3.07	-1.51	2.38	-0.58	1.8	B	1.98	4.26	5.14	--	--	--	--	--	--
Chromium	41 / 41	mg/kg	--	--	0.405	54.5	10.6	1290	201	0.405	54.5	1290	201	2.41	1.61	2.41	1.61	L	54.5	148	191	336	--	140,000	--	--	3.9E-04
Copper	41 / 41	mg/kg	--	--	0.306	52.1	11.6	657	133	0.306	52.1	657	133	2.36	1.84	2.36	1.84	L	57.8	122	157	525	--	--	--	--	--
Hafnium	6 / 41	mg/kg	0.14	3	0.07	0.929	0.292	19.4	2.99	0.568	4.11	19.4	7.5	-0.96	0.949	0.463	1.3	B	3.44	7.42	9.0	--	--	--	--	--	--
Lead	41 / 41	mg/kg	--	--	0.06	164	11.3	2210	415	0.06	164	2210	415	2.74	2.49	2.74	2.49	L	343	1223	1895	3017	--	1500	--	--	0.228
Manganese	41 / 41	mg/kg	--	--	0.144	307	95.1	3250	578	0.144	307	3250	578	3.97	2.55	3.97	2.55	B	605	1292	1557	--	--	360,000	--	--	0.002
Mercury	31 / 41	mg/kg	0.002	0.016	0.001	0.43	0.024	13	2.04	0.005	0.568	13	2.34	-3.76	2.07	-3.0	1.76	B	2.18	4.82	5.88	--	--	--	--	--	--
Molybdenum	35 / 41	mg/kg	0.05	0.079	0.025	8.3	0.652	91.1	19.5	0.05	9.72	91.1	20.8	-0.137	2.32	0.422	2.04	L	12.9	39.8	58.5	120	--	3900	--	--	0.003
Nickel	41 / 41	mg/kg	--	--	0.217	33.5	6.08	302	69.8	0.217	33.5	302	69.8	1.93	1.84	1.93	1.84	L	37.5	78.9	102	341	--	--	--	--	--
Selenium	12 / 41	mg/kg	0.084	1.8	0.042	0.505	0.178	3.25	0.584	0.409	0.976	3.25	0.816	-1.17	0.983	-0.248	0.649	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	19 / 41	mg/kg	0.047	1.17	0.024	3.33	0.468	25.4	5.84	0.09	6.9	25.4	7.11	-0.553	2.15	1.17	1.6	B	4.55	9.83	11.9	--	--	--	--	--	--
Strontium	27 / 41	mg/kg	0.317	2.45	0.159	131	4.07	2470	391	0.631	199	2470	471	1.89	2.98	3.53	2.3	B	414	916	1117	--	--	300,000	--	--	0.001
Thallium	3 / 41	mg/kg	0.033	0.7	0.016	0.107	0.067	0.35	0.098	0.249	0.256	0.263	0.007	-2.53	0.711	-1.36	0.027	B	0.106	0.185	0.211	--	--	--	--	--	--
Tin	30 / 41	mg/kg	0.158	3.5	0.079	7.75	3.18	132	21.2	0.361	10.4	132	24.3	0.6	1.8	1.41	1.25	B	24.1	51.8	62.6	--	--	2200	--	--	0.011
Vanadium	26 / 41	mg/kg	0.142	1.5	0.071	11.4	1.36	173	28.6	0.113	17.8	173	34.5	0.435	2.26	1.79	1.64	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	41 / 41	mg/kg	--	--	1.33	6153	50.9	108,000	21,304	1.33	6153	108,000	21,304	4.61	2.77	4.61	2.77	B	18,034	39,907	48,728	--	--	--	--	--	--
Zirconium	26 / 41	mg/kg	0.094	2	0.047	7.24	0.815	54.7	13.1	0.379	11.3	54.7	15.0	0.262	2.02	1.38	1.63	B	9.67	21.0	25.4	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 31	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.004	0.024	0.033	0.041	0.012	-4.68	0.334	-3.46	0.387	X*	0.018	0.021	0.023	--	--	--	--	--	--
Barium	31 / 31	mg/L	--	--	0.021	0.214	0.188	0.929	0.193	0.021	0.214	0.929	0.193	-1.98	1.05	-1.98	1.05	G	0.214	0.273	0.293	0.829	--	--	--	--	--
Cadmium	12 / 31	mg/L	0.003	0.003	0.002	0.007	0.003	0.039	0.009	0.003	0.014	0.039	0.012	-5.79	1.06	-4.67	0.906	X*	0.007	0.012	0.015	--	--	--	--	--	--
Chromium	18 / 31	mg/L	0.03	0.03	0.015	0.104	0.057	0.85	0.15	0.033	0.157	0.85	0.185	-3.04	1.16	-2.2	0.784	G*	0.104	0.132	0.146	0.459	--	--	--	--	--
Lead	18 / 31	mg/L	0.005	0.005	0.003	0.43	0.019	5.97	1.23	0.007	0.738	5.97	1.58	-3.57	2.5	-1.83	1.84	X*	0.43	1.11	1.42	--	--	--	--	--	--
Mercury	0 / 13	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 31	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 31	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 39	mg/kg	7.0E-04	0.824	3.5E-04	0.025	0.004	0.412	0.09	0.009	0.009	0.009	--	-5.49	1.41	-4.73	--	B	0.071	0.156	0.19	--	--	119	--	NSRC	NSRC
Silvex	0 / 39	mg/kg	7.0E-04	0.824	3.5E-04	0.025	0.004	0.412	0.09	--	--	--	--	-5.55	1.42	--	--	B	0.071	0.156	0.19	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.013	0.014	0.014	0.014	--	-6.66	1.91	-4.27	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	9 / 38	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.002	0.05	0.015	0.001	0.01	0.049	0.015	-6.13	1.78	-5.56	1.41	B	0.009	0.02	0.024	--	130,000	--	--	7.1E-08	--
4,4'-DDT	6 / 38	mg/kg	1.8E-04	0.099	9.1E-05	0.016	0.001	0.326	0.054	0.001	0.065	0.326	0.129	-6.21	1.96	-4.61	2.25	B	0.055	0.122	0.148	--	--	--	--	--	--
Aldrin	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 38	mg/kg	4.5E-04	0.497	2.3E-04	0.031	0.002	0.249	0.066	--	--	--	--	-5.12	1.87	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	--	--	--	--	-6.73	1.87	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	--	--	--	--	-6.73	1.87	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	0.003	0.004	0.005	0.002	-6.62	1.87	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	--	--	--	--	-6.73	1.87	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	0.001	0.001	0.001	--	-6.7	1.85	-6.88	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 38	mg/kg	9.0E-05	0.099	4.5E-05	0.006	5.0E-04	0.05	0.013	--	--	--	--	-6.73	1.87	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.33. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex random data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	7.9E-05	7.9E-05	7.9E-05	--	-7.39	1.82	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	2 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	7.1E-04	0.001	0.002	0.001	-7.29	1.8	-6.66	0.821	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 38	mg/kg	4.5E-04	0.497	2.3E-04	0.031	0.002	0.249	0.066	--	--	--	--	-5.12	1.87	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 38	mg/kg	0.002	1.65	7.5E-04	0.105	0.008	0.825	0.218	--	--	--	--	-3.92	1.87	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 38	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.007	--	--	--	--	-7.43	1.87	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 295	mg/kg	0.006	29.4	0.003	0.473	0.149	14.7	1.08	0.406	0.406	0.406	--	-1.78	1.41	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	31 / 295	mg/kg	5.9E-04	2.94	3.0E-04	0.314	0.015	31.1	2.12	0.011	2.61	31.1	6.13	-3.84	1.8	-0.948	2.15	B	5.19	11.5	14.0	1.68	--	4000	--	--	0.001
2-Methylphenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 295	mg/kg	0.006	29.4	0.003	0.487	0.149	14.7	1.12	0.034	1.99	5.9	3.39	-1.78	1.41	-1.65	2.97	B	2.55	5.57	6.77	0.034	--	850	--	NSRC	NSRC
Acenaphthene	25 / 295	mg/kg	5.9E-04	2.94	3.0E-04	0.374	0.015	23.7	1.87	0.034	3.95	23.7	5.3	-3.83	1.89	0.207	1.94	B	3.96	8.76	10.7	3.84	--	390,000	--	--	1.0E-05
Acenaphthylene	5 / 295	mg/kg	5.9E-04	2.94	3.0E-04	0.055	0.015	1.54	0.142	0.08	0.549	1.54	0.571	-4.06	1.46	-1.02	1.06	B	0.267	0.583	0.709	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	6 / 295	mg/kg	0.006	29.4	0.003	0.501	0.149	14.7	1.15	0.23	2.02	6.62	2.73	-1.77	1.43	-0.211	1.47	B	2.55	5.57	6.77	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	5 / 295	mg/kg	0.006	29.4	0.003	0.485	0.149	14.7	1.08	0.41	0.931	1.54	0.449	-1.76	1.43	-0.174	0.524	B	2.55	5.57	6.77	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 295	mg/kg	0.006	29.4	0.003	0.476	0.149	14.7	1.08	1.17	1.17	1.17	--	-1.78	1.42	0.157	--	B	2.55	5.57	6.77	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	7 / 295	mg/kg	0.023	49	0.012	0.808	0.248	24.5	1.8	0.036	1.01	2.73	1.0	-1.23	1.4	-0.845	1.71	B	4.25	9.28	11.3	0.036	--	9810	--	NSRC	NSRC
Carbazole	35 / 295	mg/kg	0.002	2.94	7.6E-04	0.458	0.015	16.7	2.08	0.002	3.53	16.7	5.11	-3.74	1.92	-0.727	2.71	B	2.79	6.18	7.54	5.4	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	31 / 295	mg/kg	0.006	29.4	0.003	0.625	0.149	22.4	1.73	0.028	1.58	22.4	4.11	-1.58	1.43	-0.694	1.4	B	3.83	8.41	10.2	1.02	--	190	--	--	0.02
Diethyl phthalate	2 / 295	mg/kg	0.006	29.4	0.003	0.473	0.149	14.7	1.08	0.104	0.16	0.215	0.078	-1.78	1.41	-1.9	0.514	B	2.55	5.57	6.77	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	3 / 295	mg/kg	0.006	29.4	0.003	0.475	0.149	14.7	1.08	0.031	0.344	0.569	0.28	-1.77	1.41	-1.63	1.62	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	8 / 295	mg/kg	0.006	29.4	0.003	0.5	0.149	14.7	1.1	0.35	1.33	3.54	0.984	-1.74	1.44	0.079	0.678	B	2.55	5.57	6.77	0.35	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 295	mg/kg	0.014	29.4	0.007	0.508	0.149	14.7	1.17	0.013	1.8	6.21	2.97	-1.75	1.4	-1.72	2.51	B	2.55	5.57	6.77	0.013	--	--	--	NSRC	NSRC
Phenol	4 / 295	mg/kg	0.006	29.4	0.003	0.488	0.149	14.7	1.09	0.349	1.28	2.61	1.12	-1.76	1.43	-0.137	1.06	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 295	mg/kg	0.006	29.4	0.003	0.472	0.149	14.7	1.08	--	--	--	--	-1.79	1.41	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	20 / 20	pCi/g	--	--	0.688	1.76	1.67	3.08	0.566	0.688	1.76	3.08	0.566	0.514	0.343	0.514	0.343	N	1.76	1.93	1.98	3.12	--	--	--	--	--
Alpha activity	140 / 328	pCi/g	1.48	9.99	1.48	12.8	8.25	234	19.5	1.49	22.4	234	26.9	2.1	0.88	2.8	0.758	B	44.7	93.9	113	--	--	--	--	--	--
Americium-241	0 / 81	pCi/g	0.142	0.611	0.142	0.261	0.227	0.611	0.108	--	--	--	--	-1.41	0.345	--	--	B	0.277	0.391	0.427	0.127	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	184 / 328	pCi/g	0.528	6.16	0.528	17.1	5.58	757	49.4	1.56	27.5	757	64.1	2.09	1.03	2.74	0.933	B	130	285	346	--	--	--	--	--	--
Bismuth-214	46 / 46	pCi/g	--	--	0.353	1.14	1.1	2.16	0.416	0.353	1.14	2.16	0.416	0.058	0.395	0.058	0.395	N	1.14	1.22	1.24	2.01	--	--	--	--	--
Carbon-14	10 / 328	pCi/g	0.082	2.52	0.082	2.63	0.79	416	22.9	0.549	44.6	416	131	0.075	0.799	1.0	2.07	B	69.9	154	188	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	22 / 328	pCi/g	0.015	1.09	0.015	0.156	0.119	1.09	0.142	0.093	0.394	1.01	0.273	-2.11	0.675	-1.17	0.723	B	0.264	0.509	0.595	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 328	pCi/g	0.011	1.07	0.011	0.149	0.125	1.07	0.113	--	--	--	--	-2.11	0.637	--	--	B	0.263	0.507	0.591	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 328	pCi/g	0.078	1.37	0.078	0.639	0.593	1.37	0.282	--	--	--	--	-0.562	0.513	--	--	B	0.637	0.968	1.05	--	13	--	1500	NSRC	NSRC
Lead-212	74 / 74	pCi/g	--	--	0.294	1.11	1.08	2.32	0.534	0.294	1.11	2.32	0.534	-0.035	0.57	-0.035	0.57	N	1.11	1.19	1.22	2.17	--	--	--	--	--

Table G.33. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex random data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	48 / 48	pCi/g	--	--	0.394	1.21	1.09	2.29	0.507	0.394	1.21	2.29	0.507	0.103	0.445	0.103	0.445	B	1.17	1.66	1.78	--	--	--	--	--	--
Neptunium-237	0 / 81	pCi/g	0.131	0.935	0.131	0.356	0.312	0.935	0.161	--	--	--	--	-1.13	0.423	--	--	L	0.355	0.379	0.387	0.745	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 328	pCi/g	0.323	22.2	0.323	1.07	0.865	22.2	1.42	0.834	0.834	0.834	--	-0.105	0.458	-0.182	--	B	4.33	8.93	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 81	pCi/g	0.125	0.966	0.125	0.282	0.225	0.966	0.163	--	--	--	--	-1.38	0.446	--	--	B	0.332	0.528	0.594	0.092	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 81	pCi/g	0.149	1.15	0.149	0.334	0.268	1.15	0.198	--	--	--	--	-1.22	0.468	--	--	B	0.395	0.628	0.707	0.087	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 81	pCi/g	7.61	23.5	7.61	12.1	11.9	23.5	3.18	--	--	--	--	2.46	0.252	--	--	N	12.1	12.6	12.7	18.3	--	--	790,000	NSRC	NSRC
Potassium-40	101 / 101	pCi/g	--	--	1.83	18.6	14.3	64.5	15.2	1.83	18.6	64.5	15.2	2.58	0.861	2.58	0.861	B	20.6	36.0	40.7	--	--	--	4.2E+06	--	--
Radium-226	133 / 328	pCi/g	0.039	1.39	0.039	0.717	0.611	3.15	0.455	0.137	0.96	3.15	0.59	-0.493	0.576	-0.203	0.572	B	0.939	1.7	1.93	--	--	--	300,000	--	--
Strontium-89	8 / 328	pCi/g	0.448	2	0.448	1.65	1.71	4.23	0.382	1.57	2.76	4.23	1.04	0.473	0.25	0.954	0.377	B	1.92	2.89	3.15	--	--	--	--	NSRC	NSRC
Strontium-90	17 / 328	pCi/g	0.38	2.24	0.38	1.69	1.66	14.4	0.907	1.03	3.78	14.4	3.09	0.457	0.338	1.13	0.604	B	3.57	6.75	7.87	--	--	--	400,000	--	--
Technetium-99	13 / 328	pCi/g	0.738	9.69	0.113	5.66	5.6	22.5	2.07	0.113	10.5	22.5	6.03	1.66	0.428	1.93	1.41	B	7.5	13.1	14.7	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	27 / 27	pCi/g	--	--	0.192	0.495	0.528	0.737	0.129	0.192	0.495	0.737	0.129	-0.745	0.315	-0.745	0.315	N	0.495	0.527	0.537	0.786	--	--	--	--	--
Thorium-228	66 / 328	pCi/g	0.082	1.38	0.082	0.683	0.602	2.82	0.375	0.223	1.07	2.82	0.534	-0.515	0.525	-0.079	0.6	B	0.885	1.55	1.76	--	--	--	25,000	--	--
Thorium-230	114 / 328	pCi/g	0.063	1.13	0.063	0.672	0.552	3.2	0.414	0.267	0.962	3.2	0.541	-0.545	0.535	-0.185	0.546	B	0.911	1.66	1.91	--	--	--	15,000	--	--
Thorium-232	87 / 328	pCi/g	0.06	0.98	0.06	0.573	0.457	2.36	0.38	0.162	0.941	2.36	0.534	-0.728	0.575	-0.264	0.693	B	0.708	1.26	1.44	--	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	172 / 328	pCi/g	0.12	2.13	0.12	3.81	1.24	215	13.6	0.471	6.36	215	18.5	0.47	0.975	0.954	1.09	B	36.7	80.5	98.1	--	--	--	--	--	--
Tritium	0 / 328	pCi/g	1.42	32.1	1.42	10.5	11	32.1	3.18	--	--	--	--	2.29	0.371	--	--	B	12.9	20.7	22.9	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	156 / 328	pCi/g	0.067	1.19	0.067	1.92	0.652	52.5	4.66	0.221	3.44	52.5	6.44	-0.162	0.99	0.393	1.14	B	9.2	20.0	24.3	--	1700	2.8E+07	100,000	0.005	3.3E-07
Uranium-235/236	19 / 328	pCi/g	0.078	1.38	0.078	0.637	0.565	4.13	0.365	0.376	1.27	4.13	1.04	-0.548	0.419	-0.011	0.685	B	1.08	2.02	2.34	--	1500	9500	100,000	7.2E-04	1.1E-04
Uranium-238	139 / 328	pCi/g	0.061	1.09	0.061	1.77	0.568	182	10.3	0.323	3.49	182	15.6	-0.342	0.888	0.224	1.05	B	30.7	67.7	82.6	--	1200	1500	100,000	0.026	0.02
																									SOF =	0.032	0.411

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.34. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from random samples																											
Metals																											
Antimony	14 / 21	mg/kg	0.174	0.326	0.087	2.24	0.528	16.9	4.65	0.381	3.28	16.9	5.46	-0.481	1.48	0.242	1.28	B	3.18	6.72	8.09	--	--	160	--	--	0.02
Arsenic	13 / 21	mg/kg	0.178	0.351	0.089	3.99	1.86	31.2	6.88	1.68	6.36	31.2	7.93	0.133	1.83	1.44	0.854	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	18 / 21	mg/kg	0.053	0.099	0.026	393	13.5	7410	1610	0.117	459	7410	1737	1.97	3.31	2.83	2.71	B	1244	2748	3353	--	--	150,000	--	--	0.008
Beryllium	11 / 21	mg/kg	0.005	0.082	0.002	0.126	0.024	0.545	0.177	0.019	0.23	0.545	0.194	-3.33	1.75	-1.99	1.23	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	10 / 21	mg/kg	0.187	3.26	0.094	194	1.18	3990	870	1.18	408	3990	1259	0.623	2.43	2.5	2.27	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	15 / 21	mg/kg	0.011	0.02	0.005	1.44	0.24	10.9	3.15	0.05	2.02	10.9	3.59	-1.74	2.43	-0.514	1.66	L	2.19	6.53	8.5	55.2	--	--	--	--	--
Chromium	21 / 21	mg/kg	--	--	0.405	83.2	10	1290	279	0.405	83.2	1290	279	2.25	1.97	2.25	1.97	L	65.9	243	397	1010	--	140,000	--	--	4.7E-04
Copper	21 / 21	mg/kg	--	--	0.306	25.8	15	184	43.9	0.306	25.8	184	43.9	2.02	1.84	2.02	1.84	L	40.5	128	198	584	--	--	--	--	--
Hafnium	4 / 21	mg/kg	0.14	2.93	0.07	0.482	0.292	1.47	0.431	0.568	0.927	1.43	0.418	-1.04	0.774	-0.154	0.457	B	0.451	0.785	0.893	--	--	--	--	--	--
Lead	21 / 21	mg/kg	--	--	0.06	253	12.3	2210	562	0.06	253	2210	562	2.87	2.91	2.87	2.91	L	584	1931	2541	17,385	--	1500	--	--	0.389
Manganese	21 / 21	mg/kg	--	--	0.144	220	42.7	1530	384	0.144	220	1530	384	3.29	2.91	3.29	2.91	B	283	606	731	--	--	360,000	--	--	7.9E-04
Mercury	19 / 21	mg/kg	0.002	0.004	0.001	0.778	0.031	13	2.84	0.005	0.86	13	2.98	-3.32	2.22	-2.98	2.05	L	0.423	2.14	3.97	6.95	--	--	--	--	--
Molybdenum	16 / 21	mg/kg	0.05	0.079	0.025	4.1	0.558	27.9	8.11	0.05	5.37	27.9	8.96	-0.626	2.26	0.248	1.84	L	6.87	36.9	69.8	114	--	3900	--	--	0.002
Nickel	21 / 21	mg/kg	--	--	0.217	30.6	5.91	284	65.7	0.217	30.6	284	65.7	1.68	2.03	1.68	2.03	L	42.3	168	284	664	--	--	--	--	--
Selenium	5 / 21	mg/kg	0.084	1.75	0.042	0.571	0.178	3.25	0.724	0.552	1.4	3.25	1.07	-1.15	1.11	0.149	0.657	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	10 / 21	mg/kg	0.053	1.17	0.026	2.75	0.338	15	4.52	0.147	5.58	15	5.32	-0.81	2.19	0.946	1.61	B	2.73	5.86	7.08	--	--	--	--	--	--
Strontium	14 / 21	mg/kg	0.317	2.45	0.159	64.7	2.69	288	104	0.631	96.8	288	115	1.63	2.79	3.03	2.32	B	49.8	109	132	--	--	300,000	--	--	1.7E-04
Thallium	1 / 21	mg/kg	0.033	0.684	0.016	0.106	0.068	0.342	0.102	0.257	0.257	0.257	--	-2.56	0.759	-1.36	--	B	0.105	0.183	0.208	--	--	--	--	NSRC	NSRC
Tin	11 / 21	mg/kg	0.158	3.5	0.079	8.47	1.36	132	28.4	0.582	15.8	132	38.7	0.025	1.98	1.46	1.42	B	22.9	50.0	60.8	--	--	2200	--	--	0.01
Vanadium	14 / 21	mg/kg	0.158	1.22	0.079	16.9	1.36	173	38.9	0.113	25.3	173	45.9	0.583	2.47	1.84	2.01	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	21 / 21	mg/kg	--	--	1.33	477	32.6	5600	1233	1.33	477	5600	1233	4.05	2.23	4.05	2.23	L	692	3588	6704	11,415	--	--	--	--	--
Zirconium	10 / 21	mg/kg	0.094	1.63	0.047	8.05	0.618	45.5	13.8	0.618	16.7	45.5	16.3	0.025	2.28	2.0	1.64	B	8.0	17.4	21.1	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 15	mg/L	0.017	0.017	0.009	0.019	0.017	0.041	0.006	0.024	0.033	0.041	0.012	-4.59	0.471	-3.46	0.387	X*	0.019	0.026	0.029	--	--	--	--	--	--
Barium	15 / 15	mg/L	--	--	0.021	0.251	0.261	0.929	0.223	0.021	0.251	0.929	0.223	-1.8	1.08	-1.8	1.08	G	0.251	0.371	0.421	1.19	--	--	--	--	--
Cadmium	5 / 15	mg/L	0.003	0.003	0.002	0.008	0.003	0.039	0.011	0.004	0.019	0.039	0.015	-5.77	1.19	-4.3	0.95	X*	0.008	0.017	0.022	--	--	--	--	--	--
Chromium	10 / 15	mg/L	0.03	0.03	0.015	0.125	0.062	0.85	0.201	0.033	0.173	0.85	0.244	-2.91	1.21	-2.26	0.951	G*	0.125	0.209	0.251	0.775	--	--	--	--	--
Lead	10 / 15	mg/L	0.005	0.005	0.003	0.798	0.101	5.97	1.68	0.007	1.19	5.97	2.04	-2.9	2.83	-1.35	2.11	G*	0.798	1.89	2.52	8.82	--	--	--	--	--
Mercury	0 / 5	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 15	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 15	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.007	5.0E-04	0.05	0.015	0.001	0.004	0.011	0.004	-6.77	1.74	-6.05	1.03	B	0.009	0.019	0.023	--	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.006	4.9E-04	0.05	0.015	0.001	0.002	0.002	1.7E-04	-7.16	1.6	-6.51	0.113	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.015	0.003	0.004	0.005	0.002	-7.31	1.91	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.34. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.9E-05	7.9E-05	7.9E-05	--	-8.16	1.74	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	4.3E-06	2.9E-06
Lindane	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.1E-04	7.1E-04	7.1E-04	--	-8.04	1.72	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 19	mg/kg	0.002	1.65	7.5E-04	0.093	0.008	0.825	0.258	--	--	--	--	-4.72	1.81	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	9 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.27	0.015	31.1	2.6	0.032	3.73	31.1	10.3	-4.02	1.55	-1.61	2.36	B	5.19	11.5	14.0	0.91	--	4000	--	--	0.001
2-Methylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	850	--	NSRC	NSRC
Acenaphthene	5 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.084	0.015	5.39	0.462	0.048	1.37	5.39	2.29	-4.07	1.46	-1.09	1.97	B	0.908	2.0	2.44	0.166	--	390,000	--	NSRC	NSRC
Acenaphthylene	1 / 143	mg/kg	5.9E-04	1.13	3.0E-04	0.037	0.015	0.565	0.07	0.08	0.08	0.08	--	-4.17	1.31	-2.53	--	B	0.104	0.223	0.269	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	3 / 143	mg/kg	0.006	11.3	0.003	0.369	0.149	5.65	0.696	0.23	0.331	0.405	0.091	-1.86	1.31	-1.13	0.298	B	1.04	2.23	2.69	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 143	mg/kg	0.006	11.3	0.003	0.389	0.148	5.65	0.707	0.41	1.01	1.54	0.478	-1.83	1.34	-0.099	0.573	B	1.04	2.23	2.69	0.894	--	1200	--	NSRC	NSRC
Benzidine	1 / 143	mg/kg	0.006	11.3	0.003	0.372	0.148	5.65	0.7	1.17	1.17	1.17	--	-1.86	1.31	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	5 / 143	mg/kg	0.03	18.9	0.015	0.641	0.247	9.45	1.18	0.036	1.09	2.73	1.11	-1.3	1.28	-0.794	1.84	B	1.74	3.72	4.49	1.09	--	9810	--	NSRC	NSRC
Carbazole	6 / 143	mg/kg	0.002	1.13	8.9E-04	0.051	0.015	1.79	0.163	0.002	0.359	1.79	0.706	-4.09	1.36	-2.81	2.32	B	0.308	0.675	0.821	0.053	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	17 / 143	mg/kg	0.006	11.3	0.003	0.582	0.149	22.4	1.98	0.028	1.99	22.4	5.32	-1.67	1.38	-0.762	1.66	B	3.83	8.41	10.2	1.25	--	190	--	--	0.02
Diethyl phthalate	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 143	mg/kg	0.006	11.3	0.003	0.37	0.149	5.65	0.697	0.432	0.501	0.569	0.097	-1.86	1.31	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 143	mg/kg	0.006	11.3	0.003	0.421	0.149	5.65	0.756	0.35	1.33	3.54	0.984	-1.78	1.37	0.079	0.678	B	1.04	2.23	2.69	1.21	6100	15,000	--	1.7E-04	6.9E-05
N-Nitroso-di-n-propylamine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 143	mg/kg	0.019	11.3	0.01	0.438	0.148	6.21	0.967	0.013	1.8	6.21	2.97	-1.8	1.29	-1.72	2.51	B	1.14	2.43	2.94	0.129	--	--	--	NSRC	NSRC
Phenol	3 / 143	mg/kg	0.006	11.3	0.003	0.395	0.149	5.65	0.731	0.351	1.59	2.61	1.15	-1.83	1.34	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 143	mg/kg	0.006	11.3	0.003	0.365	0.148	5.65	0.697	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	11 / 11	pCi/g	--	--	0.688	1.75	1.83	2.49	0.525	0.688	1.75	2.49	0.525	0.509	0.364	0.509	0.364	N	1.75	1.97	2.04	3.23	--	--	--	--	--
Alpha activity	72 / 162	pCi/g	1.48	9.99	1.48	12.3	8.67	78.6	13.1	3.09	21.1	78.6	15.4	2.08	0.913	2.77	0.793	B	19.1	36.7	42.8	--	--	--	--	--	--
Americium-241	0 / 40	pCi/g	0.142	0.374	0.142	0.221	0.226	0.374	0.048	--	--	--	--	-1.53	0.215	--	--	N	0.221	0.231	0.234	0.323	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	93 / 162	pCi/g	1.22	5.82	1.22	11.8	5.3	63.1	12.9	1.56	17.8	63.1	14.3	2.0	0.92	2.56	0.83	B	14.3	27.9	32.9	--	--	--	--	--	--
Bismuth-214	21 / 21	pCi/g	--	--	0.484	1.18	1.13	1.96	0.393	0.484	1.18	1.96	0.393	0.111	0.363	0.111	0.363	N	1.18	1.3	1.33	2.12	--	--	--	--	--
Carbon-14	4 / 162	pCi/g	0.082	2.52	0.082	1.65	1.88	17.2	1.49	0.549	6.28	17.2	7.45	0.242	0.761	1.21	1.42	B	4.13	8.07	9.43	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 162	pCi/g	0.015	0.648	0.015	0.123	0.113	0.648	0.075	0.093	0.167	0.218	0.055	-2.24	0.558	-1.84	0.371	B	0.186	0.337	0.386	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 162	pCi/g	0.011	0.606	0.011	0.132	0.123	0.606	0.074	--	--	--	--	-2.17	0.564	--	--	B	0.185	0.33	0.375	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 162	pCi/g	0.078	1.37	0.078	0.683	0.641	1.37	0.29	--	--	--	--	-0.49	0.507	--	--	B	0.669	0.999	1.08	--	13	--	1500	NSRC	NSRC
Lead-212	32 / 32	pCi/g	--	--	0.332	1.15	1.26	2.25	0.591	0.332	1.15	2.25	0.591	-0.02	0.623	-0.02	0.623	B	1.27	1.76	1.87	--	--	--	--	--	--

Table G.34. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	21 / 21	pCi/g	--	--	0.43	1.34	1.15	2.29	0.56	0.43	1.34	2.29	0.56	0.194	0.489	0.194	0.489	N	1.34	1.5	1.55	2.67	--	--	--	--	--
Neptunium-237	0 / 40	pCi/g	0.131	0.586	0.131	0.304	0.3	0.586	0.117	--	--	--	--	-1.26	0.382	--	--	L	0.305	0.332	0.341	0.638	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 162	pCi/g	0.533	8.99	0.533	0.988	0.894	8.99	0.716	0.834	0.834	0.834	--	-0.096	0.34	-0.182	--	B	2.18	4.0	4.69	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 40	pCi/g	0.159	0.503	0.159	0.264	0.228	0.503	0.104	--	--	--	--	-1.4	0.348	--	--	B	0.262	0.347	0.373	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 40	pCi/g	0.149	0.568	0.149	0.279	0.224	0.568	0.128	--	--	--	--	-1.37	0.407	--	--	B	0.269	0.37	0.402	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 40	pCi/g	7.95	23.5	7.95	13.0	13.5	23.5	2.91	--	--	--	--	2.54	0.224	--	--	B	14.2	18.2	19.3	--	--	--	790,000	NSRC	NSRC
Potassium-40	43 / 43	pCi/g	--	--	2.75	15.9	11.4	47.3	12.4	2.75	15.9	47.3	12.4	2.48	0.774	2.48	0.774	B	15.9	26.8	30.2	--	--	--	4.2E+06	--	--
Radium-226	49 / 162	pCi/g	0.197	1.05	0.197	0.786	0.675	3.15	0.482	0.372	1.19	3.15	0.682	-0.369	0.482	0.034	0.52	B	1.01	1.72	1.95	--	--	--	300,000	--	--
Strontium-89	1 / 162	pCi/g	0.448	2	0.448	1.62	1.76	2.92	0.376	2.92	2.92	2.92	--	0.444	0.296	1.07	--	B	1.73	2.36	2.49	--	--	--	--	NSRC	NSRC
Strontium-90	16 / 162	pCi/g	0.38	2	0.38	1.73	1.64	14.4	1.26	1.03	3.9	14.4	3.15	0.431	0.442	1.16	0.606	B	3.56	6.74	7.86	--	--	--	400,000	--	--
Technetium-99	13 / 162	pCi/g	2.22	9.69	0.113	6.17	5.93	22.5	2.44	0.113	10.5	22.5	6.03	1.74	0.458	1.93	1.41	B	7.72	13.3	15.0	--	172	--	4.2E+07	0.045	--
Thallium-208	15 / 15	pCi/g	--	--	0.212	0.511	0.53	0.692	0.117	0.212	0.511	0.692	0.117	-0.703	0.28	-0.703	0.28	N	0.511	0.551	0.564	0.81	--	--	--	--	--
Thorium-228	25 / 162	pCi/g	0.203	1.38	0.203	0.684	0.592	2.4	0.375	0.256	1.18	2.4	0.579	-0.504	0.487	0.015	0.619	L	0.68	0.762	0.799	1.5	--	--	25,000	--	--
Thorium-230	47 / 162	pCi/g	0.217	1.13	0.217	0.661	0.543	2.08	0.354	0.387	0.92	2.08	0.498	-0.523	0.447	-0.216	0.513	B	0.745	1.2	1.34	--	--	--	15,000	--	--
Thorium-232	37 / 162	pCi/g	0.162	0.98	0.162	0.561	0.448	2.36	0.374	0.231	0.928	2.36	0.593	-0.73	0.519	-0.296	0.697	B	0.719	1.23	1.41	--	--	--	2500	--	--
Total Uranium	94 / 162	pCi/g	0.421	2.03	0.421	3.82	1.22	82.4	8.93	0.471	5.91	82.4	11.3	0.502	1.03	0.967	1.11	B	14.6	31.5	38.2	--	--	--	--	--	--
Tritium	0 / 162	pCi/g	1.42	14.7	1.42	10.8	11.7	14.7	3.06	--	--	--	--	2.33	0.38	--	--	B	10.5	13.3	13.8	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	85 / 162	pCi/g	0.228	1.16	0.221	2.32	0.62	52.5	5.73	0.221	3.97	52.5	7.56	-0.111	1.1	0.459	1.22	B	9.2	19.9	24.2	--	1700	2.8E+07	100,000	0.005	3.3E-07
Uranium-235/236	14 / 162	pCi/g	0.266	1.38	0.266	0.604	0.526	4.13	0.403	0.376	1.24	4.13	1.02	-0.614	0.419	-0.027	0.69	B	1.08	1.94	2.25	--	1500	9500	100,000	7.2E-04	1.1E-04
Uranium-238	75 / 162	pCi/g	0.204	1.06	0.204	1.33	0.541	25.9	2.8	0.323	2.34	25.9	3.89	-0.361	0.893	0.181	1.02	B	4.71	10.0	12.1	--	1200	1500	100,000	0.004	0.003
																									SOF =	0.055	0.485

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.35. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from random samples																											
Metals																											
Antimony	9 / 12	mg/kg	0.156	0.325	0.078	7.75	0.514	82.5	23.6	0.375	10.3	82.5	27.1	-0.291	1.86	0.319	1.74	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	8 / 12	mg/kg	0.16	1.6	0.08	3.61	2.54	14.7	4.3	0.582	5.27	14.7	4.42	0.313	1.75	1.31	0.989	L	4.94	13.1	16.8	165	--	--	--	--	--
Barium	12 / 12	mg/kg	--	--	0.16	164	23.6	947	319	0.16	164	947	319	2.44	3.15	2.44	3.15	L	421	1507	1999	62,657	--	150,000	--	--	0.003
Beryllium	6 / 12	mg/kg	0.009	0.018	0.005	0.086	0.035	0.32	0.102	0.06	0.165	0.32	0.091	-3.43	1.62	-1.93	0.574	B	0.077	0.149	0.174	--	--	--	--	--	--
Boron	8 / 12	mg/kg	0.379	0.659	0.19	5.21	3.59	17.5	5.83	2.45	7.67	17.5	5.7	0.761	1.66	1.81	0.719	B	5.34	9.58	10.9	--	--	24,000	--	--	2.2E-04
Cadmium	9 / 12	mg/kg	0.012	0.019	0.006	1.56	0.371	8.09	2.6	0.054	2.07	8.09	2.85	-1.51	2.55	-0.39	1.82	L	2.75	9.0	11.8	238	--	--	--	--	--
Chromium	12 / 12	mg/kg	--	--	4.72	20.3	14.2	77.7	19.6	4.72	20.3	77.7	19.6	2.72	0.761	2.72	0.761	L	20.2	30.6	35.9	121	--	140,000	--	--	1.4E-04
Copper	12 / 12	mg/kg	--	--	0.67	24.1	9.09	74.2	27.6	0.67	24.1	74.2	27.6	2.4	1.44	2.4	1.44	L	31.0	97.9	159	565	--	--	--	--	--
Hafnium	1 / 12	mg/kg	0.284	0.595	0.142	0.356	0.274	1.54	0.376	1.54	1.54	1.54	--	-1.26	0.575	0.432	--	B	0.463	0.781	0.893	--	--	--	--	--	--
Lead	12 / 12	mg/kg	--	--	0.543	76.7	17.0	294	117	0.543	76.7	294	117	2.72	2.15	2.72	2.15	L	98.6	296	385	5529	--	1500	--	--	0.066
Manganese	12 / 12	mg/kg	--	--	1.05	213	98.1	774	280	1.05	213	774	280	4.16	2.01	4.16	2.01	L	331	955	1237	15,526	--	360,000	--	--	9.2E-04
Mercury	8 / 12	mg/kg	0.002	0.004	0.001	0.068	0.014	0.59	0.166	0.006	0.101	0.59	0.198	-4.36	1.9	-3.34	1.43	L	0.077	0.506	1.15	2.27	--	--	--	--	--
Molybdenum	12 / 12	mg/kg	--	--	0.086	11.2	0.986	91.1	25.7	0.086	11.2	91.1	25.7	0.352	2.31	0.352	2.31	L	11.8	36.7	47.9	787	--	3900	--	--	0.003
Nickel	12 / 12	mg/kg	--	--	0.587	17.7	5.58	101	29.0	0.587	17.7	101	29.0	1.98	1.37	1.98	1.37	L	18.5	52.9	82.3	306	--	--	--	--	--
Selenium	4 / 12	mg/kg	0.17	1.7	0.085	0.421	0.164	1.65	0.464	0.409	0.81	1.65	0.578	-1.31	0.946	-0.377	0.639	L	0.421	0.746	0.94	3.58	--	1600	--	--	2.6E-04
Silver	5 / 12	mg/kg	0.047	0.984	0.024	3.58	0.471	25.4	7.26	0.09	8.2	25.4	9.95	-0.631	2.26	1.12	2.12	L	4.09	12.6	16.4	259	--	--	--	--	--
Strontium	8 / 12	mg/kg	0.357	0.55	0.179	104	23.8	478	153	1.1	156	478	166	2.23	3.16	4.07	2.0	B	95.6	199	238	--	--	300,000	--	--	3.2E-04
Thallium	2 / 12	mg/kg	0.066	0.139	0.033	0.09	0.064	0.263	0.078	0.249	0.256	0.263	0.01	-2.63	0.628	-1.36	0.039	B	0.092	0.146	0.164	--	--	--	--	--	--
Tin	11 / 12	mg/kg	0.247	0.247	0.124	4.4	4.98	10.2	3.17	0.361	4.78	10.2	3.01	0.951	1.39	1.23	1.05	N	4.4	5.64	6.04	--	--	2200	--	--	0.002
Vanadium	7 / 12	mg/kg	0.142	0.275	0.071	5.62	2.28	22.5	7.18	0.914	9.55	22.5	7.16	0.199	2.25	1.91	1.05	B	5.28	10.4	12.2	--	--	25,000	--	--	2.1E-04
Zinc	12 / 12	mg/kg	--	--	5.9	4656	45.1	42,700	12,299	5.9	4656	42,700	12,299	4.87	2.96	4.87	2.96	B	7148	15,801	19,288	--	--	--	--	--	--
Zirconium	9 / 12	mg/kg	0.238	0.367	0.119	7.24	1.09	54.7	15.6	0.379	9.6	54.7	17.6	0.312	1.93	1.04	1.65	L	8.85	62.7	146	271	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 9	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	9 / 9	mg/L	--	--	0.021	0.216	0.133	0.579	0.191	0.021	0.216	0.579	0.191	-2.04	1.22	-2.04	1.22	N	0.216	0.305	0.334	0.794	--	--	--	--	--
Cadmium	2 / 9	mg/L	0.003	0.003	0.002	0.006	0.003	0.03	0.008	0.004	0.017	0.03	0.018	-6.07	1.0	-4.56	1.47	X*	0.006	0.018	0.023	--	--	--	--	--	--
Chromium	6 / 9	mg/L	0.03	0.03	0.015	0.101	0.078	0.235	0.073	0.065	0.136	0.235	0.071	-2.8	1.12	-2.11	0.518	N*	0.101	0.138	0.15	0.302	--	--	--	--	--
Lead	4 / 9	mg/L	0.005	0.005	0.003	0.071	0.005	0.41	0.125	0.024	0.154	0.41	0.174	-4.38	2.04	-2.36	1.16	G*	0.071	0.236	0.365	1.08	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 9	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 9	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 10	mg/kg	0.002	0.066	8.3E-04	0.007	0.004	0.033	0.01	0.009	0.009	0.009	--	-5.57	1.06	-4.73	--	L	0.007	0.015	0.021	0.082	--	119	--	--	5.6E-05
Silvex	0 / 10	mg/kg	0.002	0.066	8.3E-04	0.006	0.003	0.033	0.01	--	--	--	--	-5.81	1.11	--	--	B	0.007	0.014	0.017	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.005	4.9E-04	0.014	0.006	0.014	0.014	0.014	--	-6.59	1.76	-4.27	--	B	0.003	0.006	0.007	--	77,000	--	--	3.5E-08	--
4,4'-DDE	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.01	0.003	0.049	0.015	0.002	0.022	0.049	0.024	-6.01	1.98	-4.58	1.76	L	0.012	0.034	0.044	0.785	130,000	--	--	8.9E-08	--
4,4'-DDT	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.038	0.003	0.326	0.101	0.002	0.116	0.326	0.182	-5.73	2.33	-3.82	2.66	L	0.026	0.082	0.107	2.83	--	--	--	--	--
Aldrin	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	7.3E-04	0.012	0.005	0.001	0.001	0.001	--	-6.73	1.49	-6.88	--	B	0.003	0.005	0.006	--	--	30,000	--	--	8.5E-08
Endrin ketone	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	2400	69,000	--	NSRC	NSRC

Table G.35. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	0.002	0.002	0.002	--	-7.4	1.63	-6.08	--	B	0.001	0.002	0.003	--	180	940	--	6.7E-06	1.3E-06
Methoxychlor	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 10	mg/kg	0.007	0.408	0.003	0.054	0.008	0.204	0.082	--	--	--	--	-4.05	1.56	--	--	B	0.04	0.082	0.099	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 92	mg/kg	0.014	29.4	0.007	0.441	0.145	14.7	1.58	0.406	0.406	0.406	--	-2.14	1.43	-0.901	--	B	2.55	5.57	6.76	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 92	mg/kg	0.001	2.94	7.0E-04	0.334	0.014	14.1	1.83	0.066	4.48	14.1	6.18	-4.23	1.84	-0.253	2.47	B	2.36	5.22	6.37	14.1	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	850	--	NSRC	NSRC
Acenaphthene	6 / 92	mg/kg	0.001	2.94	7.0E-04	0.434	0.014	23.7	2.71	0.034	6.02	23.7	9.64	-4.25	1.84	-0.458	2.81	B	3.96	8.76	10.7	23.7	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 92	mg/kg	0.001	2.94	7.0E-04	0.05	0.014	1.47	0.165	0.309	0.382	0.455	0.103	-4.42	1.49	-0.981	0.274	B	0.254	0.556	0.676	0.455	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.14	14.7	1.58	0.305	0.305	0.305	--	-2.16	1.43	-1.19	--	B	2.54	5.56	6.76	0.305	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 92	mg/kg	0.014	29.4	0.007	0.442	0.14	14.7	1.58	0.623	0.623	0.623	--	-2.15	1.43	-0.473	--	B	2.54	5.56	6.76	0.623	--	1200	--	NSRC	NSRC
Benzidine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 92	mg/kg	0.023	49	0.012	0.729	0.234	24.5	2.63	0.092	0.092	0.092	--	-1.63	1.4	-2.38	--	B	4.24	9.27	11.3	0.092	--	9810	--	NSRC	NSRC
Carbazole	11 / 92	mg/kg	0.002	2.94	7.6E-04	0.197	0.015	8.86	1.05	0.004	1.31	8.86	2.88	-4.2	1.73	-2.17	2.33	B	1.49	3.28	4.01	8.86	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	14 / 92	mg/kg	0.015	29.4	0.008	0.589	0.149	14.7	1.74	0.109	1.08	7.67	1.94	-1.82	1.49	-0.612	1.06	B	2.55	5.57	6.77	7.67	--	190	--	--	0.013
Diethyl phthalate	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.145	14.7	1.58	0.215	0.215	0.215	--	-2.14	1.42	-1.54	--	B	2.55	5.57	6.76	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	0.031	0.031	0.031	--	-2.15	1.4	-3.49	--	B	2.54	5.56	6.76	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	2800	500	--	NSRC	NSRC
Isophorone	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Phenol	1 / 92	mg/kg	0.014	29.4	0.007	0.439	0.14	14.7	1.58	0.349	0.349	0.349	--	-2.15	1.43	-1.05	--	B	2.54	5.56	6.76	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 92	mg/kg	0.014	29.4	0.007	0.437	0.14	14.7	1.58	--	--	--	--	-2.16	1.42	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	4 / 4	pCi/g	--	--	1.35	2.15	2.08	3.08	0.795	1.35	2.15	3.08	0.795	0.71	0.379	0.71	0.379	B	2.12	2.57	2.67	--	--	--	--	--	--
Alpha activity	35 / 106	pCi/g	1.87	9.97	1.49	10.6	7.45	201	20.3	1.49	21.4	201	32.7	1.9	0.837	2.67	0.804	B	38.7	80.9	97.2	--	--	--	--	--	--
Americium-241	0 / 27	pCi/g	0.152	0.611	0.152	0.32	0.261	0.611	0.154	--	--	--	--	-1.25	0.461	--	--	B	0.301	0.416	0.45	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	51 / 106	pCi/g	0.528	5.99	0.528	18.6	4.93	757	77.3	1.78	34.6	757	110	1.93	1.01	2.64	0.977	B	130	284	346	--	--	--	--	--	--
Bismuth-214	9 / 9	pCi/g	--	--	0.353	1.15	1.11	2.16	0.671	0.353	1.15	2.16	0.671	-0.036	0.664	-0.036	0.664	N	1.15	1.46	1.57	3.19	--	--	--	--	--
Carbon-14	5 / 106	pCi/g	0.198	2.4	0.198	5.07	0.742	416	40.3	0.661	83.9	416	186	-0.015	0.901	1.09	2.78	B	69.9	154	188	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	15 / 106	pCi/g	0.025	0.544	0.025	0.184	0.119	1.01	0.186	0.098	0.5	1.01	0.27	-2.04	0.798	-0.852	0.624	B	0.251	0.476	0.555	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 106	pCi/g	0.014	0.514	0.014	0.138	0.116	0.514	0.095	--	--	--	--	-2.19	0.668	--	--	L	0.139	0.153	0.158	0.401	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 106	pCi/g	0.083	1.26	0.083	0.584	0.545	1.26	0.274	--	--	--	--	-0.666	0.542	--	--	N	0.584	0.618	0.628	1.11	13	--	1500	NSRC	NSRC
Lead-212	14 / 14	pCi/g	--	--	0.294	1.01	0.826	2.32	0.725	0.294	1.01	2.32	0.725	-0.267	0.802	-0.267	0.802	B	0.986	1.5	1.64	--	--	--	--	--	--

Table G.35. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	9 / 9	pCi/g	--	--	0.394	1.23	1.06	2.17	0.696	0.394	1.23	2.17	0.696	0.037	0.646	0.037	0.646	N	1.23	1.55	1.66	3.34	--	--	--	--	--
Neptunium-237	0 / 27	pCi/g	0.189	0.935	0.189	0.466	0.433	0.935	0.191	--	--	--	--	-0.849	0.425	--	--	N	0.466	0.514	0.528	0.897	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 106	pCi/g	0.41	22.2	0.41	1.19	0.832	22.2	2.27	--	--	--	--	-0.107	0.507	--	--	B	4.32	8.87	10.6	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 27	pCi/g	0.147	0.966	0.147	0.322	0.221	0.966	0.24	--	--	--	--	-1.33	0.579	--	--	B	0.333	0.519	0.584	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 27	pCi/g	0.207	1.15	0.207	0.399	0.286	1.15	0.274	--	--	--	--	-1.08	0.52	--	--	B	0.417	0.629	0.705	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 27	pCi/g	7.61	23.4	7.61	11.1	9.36	23.4	3.81	--	--	--	--	2.36	0.296	--	--	B	11.4	15.1	16.3	--	--	--	790,000	NSRC	NSRC
Potassium-40	26 / 26	pCi/g	--	--	1.83	8.89	6.38	32.5	7.02	1.83	8.89	32.5	7.02	1.92	0.741	1.92	0.741	L	8.99	11.5	12.4	36.9	--	--	4.2E+06	--	--
Radium-226	49 / 106	pCi/g	0.039	0.995	0.039	0.585	0.509	2.92	0.415	0.137	0.723	2.92	0.541	-0.718	0.637	-0.507	0.578	B	0.832	1.52	1.75	--	--	--	300,000	--	--
Strontium-89	4 / 106	pCi/g	0.973	1.99	0.973	1.67	1.64	4.2	0.379	1.57	2.81	4.2	1.11	0.49	0.196	0.97	0.414	B	1.96	2.75	2.99	--	--	--	--	NSRC	NSRC
Strontium-90	1 / 106	pCi/g	0.823	2	0.823	1.61	1.64	2	0.289	1.79	1.79	1.79	--	0.461	0.194	0.582	--	B	1.56	1.83	1.88	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 106	pCi/g	2.58	8.7	2.58	5.19	5.06	8.7	1.31	--	--	--	--	1.61	0.256	--	--	N	5.19	5.35	5.4	7.7	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.192	0.482	0.519	0.737	0.208	0.192	0.482	0.737	0.208	-0.824	0.521	-0.824	0.521	B	0.501	0.634	0.661	--	--	--	--	--	--
Thorium-228	14 / 106	pCi/g	0.082	1.33	0.082	0.608	0.541	2.82	0.397	0.223	1.0	2.82	0.797	-0.67	0.596	-0.354	0.923	L	0.611	0.665	0.682	1.61	--	--	25,000	--	--
Thorium-230	32 / 106	pCi/g	0.063	1.03	0.063	0.591	0.498	2.91	0.421	0.267	0.858	2.91	0.631	-0.707	0.597	-0.375	0.656	B	0.827	1.51	1.73	--	--	--	15,000	--	--
Thorium-232	18 / 106	pCi/g	0.06	0.969	0.06	0.479	0.413	2.28	0.343	0.162	0.773	2.28	0.673	-0.918	0.595	-0.657	0.939	L	0.476	0.565	0.605	1.25	--	--	2500	--	--
Total Uranium	43 / 106	pCi/g	0.12	2.13	0.12	3.04	1.17	31.8	5.18	0.7	5.89	31.8	7.26	0.436	0.989	1.08	1.18	B	6.1	12.8	15.4	--	--	--	--	--	--
Tritium	0 / 106	pCi/g	1.66	15.3	1.66	9.92	9.77	15.3	3.11	--	--	--	--	2.23	0.405	--	--	B	9.34	12.7	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	36 / 106	pCi/g	0.067	1.19	0.067	1.69	0.632	17.2	2.92	0.283	3.83	17.2	4.29	-0.183	1.01	0.656	1.23	B	3.3	6.94	8.33	--	1700	2.8E+07	100,000	0.002	1.2E-07
Uranium-235/236	4 / 106	pCi/g	0.078	1.38	0.078	0.68	0.618	1.4	0.28	0.585	0.823	1.4	0.387	-0.475	0.451	-0.264	0.405	B	0.658	0.997	1.08	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	33 / 106	pCi/g	0.061	1.09	0.061	1.27	0.57	13.2	2.11	0.361	2.91	13.2	3.24	-0.345	0.913	0.475	1.11	B	2.59	5.4	6.47	--	1200	1500	100,000	0.002	0.002
																									SOF =	0.004	0.18

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.36. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9401-1 all media from random samples																											
Metals																											
Antimony	5 / 8	mg/kg	0.286	0.332	0.143	4.61	0.647	17.3	6.47	0.313	7.28	17.3	7.03	0.059	2.04	1.2	1.71	B	3.34	6.97	8.36	--	--	160	--	--	0.021
Arsenic	6 / 8	mg/kg	0.332	1.49	0.166	8.49	2.65	38.4	13.5	0.76	11.2	38.4	14.9	0.934	1.77	1.59	1.44	L	8.58	24.5	31.6	723	--	--	--	--	--
Barium	8 / 8	mg/kg	--	--	0.469	30.9	11.3	136	46.7	0.469	30.9	136	46.7	1.94	2.18	1.94	2.18	L	40.2	127	167	7295	--	150,000	--	--	2.7E-04
Beryllium	4 / 8	mg/kg	0.018	0.1	0.009	0.112	0.047	0.462	0.156	0.025	0.197	0.462	0.193	-2.99	1.39	-2.11	1.26	L	0.132	0.627	1.35	4.2	--	--	--	--	--
Boron	5 / 8	mg/kg	0.717	4	0.359	19.3	2.31	99.2	34.3	1.95	30.1	99.2	40.9	1.56	1.84	2.45	1.68	L	17.3	50.3	65.2	1650	--	24,000	--	--	7.2E-04
Cadmium	8 / 8	mg/kg	--	--	0.037	1.94	0.285	6.12	2.55	0.037	1.94	6.12	2.55	-0.918	2.21	-0.918	2.21	B	1.22	2.52	3.02	--	--	--	--	--	--
Chromium	8 / 8	mg/kg	--	--	1.92	30.6	11.5	134	46.4	1.92	30.6	134	46.4	2.37	1.6	2.37	1.6	L	29.5	79.7	102	1777	--	140,000	--	--	2.1E-04
Copper	8 / 8	mg/kg	--	--	0.768	163	17.6	657	276	0.768	163	657	276	3.2	2.31	3.2	2.31	L	170	555	729	38,843	--	--	--	--	--
Hafnium	1 / 8	mg/kg	0.538	3	0.269	2.96	0.301	19.4	6.66	19.4	19.4	19.4	--	-0.313	1.5	2.97	--	B	3.48	7.36	8.92	--	--	--	--	--	--
Lead	8 / 8	mg/kg	--	--	1.6	59.4	7.53	319	112	1.6	59.4	319	112	2.44	1.94	2.44	1.94	L	47.7	143	186	5588	--	1500	--	--	0.032
Manganese	8 / 8	mg/kg	--	--	20.2	674	233	3250	1082	20.2	674	3250	1082	5.47	1.66	5.47	1.66	L	698	1923	2477	47,351	--	360,000	--	--	0.002
Mercury	4 / 8	mg/kg	0.003	0.016	0.002	0.059	0.031	0.238	0.08	0.054	0.112	0.238	0.085	-3.99	1.88	-2.36	0.643	L	0.071	0.209	0.272	7.36	--	--	--	--	--
Molybdenum	7 / 8	mg/kg	0.079	0.079	0.039	14.9	1.04	79.7	28.7	0.261	17.0	79.7	30.3	0.416	2.53	0.937	2.22	L	14.4	48.8	64.4	4772	--	3900	--	--	0.004
Nickel	8 / 8	mg/kg	--	--	1.49	64.7	9.72	302	112	1.49	64.7	302	112	2.49	2.03	2.49	2.03	L	56.6	173	226	7800	--	--	--	--	--
Selenium	3 / 8	mg/kg	0.318	1.8	0.159	0.456	0.421	0.9	0.291	0.417	0.485	0.614	0.112	-0.993	0.718	-0.739	0.218	N	0.456	0.602	0.651	--	--	1600	--	--	2.9E-04
Silver	4 / 8	mg/kg	0.101	1	0.051	4.46	1.6	21.1	7.14	2.69	8.55	21.1	8.61	0.237	1.92	1.79	0.943	L	5.13	15.3	19.8	573	--	--	--	--	--
Strontium	5 / 8	mg/kg	0.53	0.6	0.265	347	4.05	2470	860	1.8	556	2470	1073	2.05	3.51	4.05	2.87	L	366	1377	1835	561,216	--	300,000	--	--	0.001
Thallium	0 / 8	mg/kg	0.124	0.7	0.062	0.133	0.07	0.35	0.122	--	--	--	--	-2.3	0.738	--	--	B	0.115	0.176	0.199	--	--	--	--	NSRC	NSRC
Tin	8 / 8	mg/kg	--	--	0.823	10.9	3.94	37.9	14.5	0.823	10.9	37.9	14.5	1.58	1.39	1.58	1.39	L	10.6	26.3	33.5	407	--	2200	--	--	0.005
Vanadium	5 / 8	mg/kg	0.265	1.5	0.133	5.48	1.65	23.2	8.41	0.881	8.56	23.2	9.6	0.402	1.91	1.51	1.34	L	5.96	17.6	22.9	649	--	25,000	--	--	2.4E-04
Zinc	8 / 8	mg/kg	--	--	9.07	23,297	85.0	108,000	43,762	9.07	23,297	108,000	43,762	5.69	3.65	5.69	3.65	B	18,058	39,938	48,758	--	--	--	--	--	--
Zirconium	7 / 8	mg/kg	2	2	0.404	5.11	1.4	15.8	6.21	0.404	5.7	15.8	6.47	0.809	1.43	0.924	1.5	L	5.1	12.9	16.4	213	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 7	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	7 / 7	mg/L	--	--	0.034	0.133	0.124	0.295	0.098	0.034	0.133	0.295	0.098	-2.28	0.813	-2.28	0.813	N	0.133	0.187	0.205	0.468	--	--	--	--	--
Cadmium	5 / 7	mg/L	0.003	0.003	0.002	0.006	0.004	0.017	0.005	0.003	0.008	0.017	0.006	-5.49	0.877	-5.08	0.655	L*	0.006	0.009	0.012	0.082	--	--	--	--	--
Chromium	2 / 7	mg/L	0.03	0.03	0.015	0.06	0.03	0.216	0.064	0.057	0.137	0.216	0.112	-3.63	1.05	-2.2	0.94	G*	0.06	0.133	0.179	0.525	--	--	--	--	--
Lead	4 / 7	mg/L	0.005	0.005	0.003	0.104	0.019	0.362	0.148	0.019	0.179	0.362	0.184	-3.99	2.19	-2.5	1.63	X*	0.104	0.298	0.386	--	--	--	--	--	--
Mercury	0 / 5	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 7	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 7	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 9	mg/kg	0.003	0.025	0.002	0.006	0.004	0.012	0.003	--	--	--	--	-5.26	0.62	--	--	B	0.005	0.008	0.009	--	--	119	--	NSRC	NSRC
Silvex	0 / 9	mg/kg	0.003	0.025	0.002	0.006	0.004	0.012	0.003	--	--	--	--	-5.26	0.62	--	--	B	0.005	0.008	0.009	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	1 / 9	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.017	0.042	0.042	0.042	--	-4.76	1.06	-3.17	--	L	0.015	0.036	0.053	0.213	--	--	--	--	--
Aldrin	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 9	mg/kg	0.02	0.465	0.01	0.056	0.027	0.233	0.068	--	--	--	--	-3.31	0.885	--	--	B	0.058	0.108	0.126	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 9	mg/kg	0.004	0.093	0.002	0.011	0.005	0.046	0.014	--	--	--	--	-4.91	0.884	--	--	B	0.012	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	2400	69,000	--	NSRC	NSRC

Table G.36. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 9	mg/kg	0.02	0.465	0.01	0.056	0.027	0.233	0.068	--	--	--	--	-3.31	0.885	--	--	B	0.058	0.108	0.126	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 9	mg/kg	0.067	1.55	0.033	0.185	0.09	0.775	0.228	--	--	--	--	-2.1	0.885	--	--	B	0.194	0.36	0.42	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 9	mg/kg	0.002	0.047	0.001	0.006	0.003	0.023	0.007	--	--	--	--	-5.61	0.885	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	16 / 60	mg/kg	0.003	0.641	0.002	0.39	0.036	5.37	0.931	0.011	1.29	5.37	1.49	-2.8	1.91	-0.837	1.95	B	0.919	2.02	2.46	5.37	--	4000	--	--	2.3E-04
2-Methylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 60	mg/kg	0.099	6.41	0.034	0.856	0.156	5.9	1.05	0.034	1.99	5.9	3.39	-0.938	1.34	-1.65	2.97	B	1.09	2.32	2.8	5.9	--	850	--	--	0.001
Acenaphthene	14 / 60	mg/kg	0.003	0.641	0.002	0.972	0.018	9.23	2.23	0.262	3.98	9.23	3.15	-2.59	2.32	0.955	1.11	B	1.55	3.42	4.18	9.23	--	390,000	--	--	4.0E-06
Acenaphthylene	2 / 60	mg/kg	0.003	0.641	0.002	0.105	0.016	1.54	0.208	0.359	0.95	1.54	0.835	-3.23	1.44	-0.296	1.03	B	0.267	0.583	0.709	1.54	--	93,200	--	NSRC	NSRC
Acetophenone	2 / 60	mg/kg	0.033	6.41	0.017	0.912	0.156	6.62	1.19	4.18	5.4	6.62	1.73	-0.943	1.41	1.66	0.325	B	1.21	2.59	3.13	6.62	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1200	--	NSRC	NSRC
Benzidine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 60	mg/kg	0.056	10.7	0.028	1.33	0.306	5.35	1.36	1.55	1.55	1.55	--	-0.442	1.35	0.438	--	B	1.1	2.26	2.69	1.55	--	9810	--	NSRC	NSRC
Carbazole	18 / 60	mg/kg	0.01	0.641	0.005	1.83	0.053	16.7	4.16	0.01	5.94	16.7	5.86	-2.21	2.51	0.847	2.1	B	2.82	6.21	7.58	16.7	110,000	--	--	2.6E-05	--
Di-n-butyl phthalate	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	190	--	NSRC	NSRC
Diethyl phthalate	1 / 60	mg/kg	0.033	6.41	0.017	0.783	0.156	3.21	0.822	0.104	0.104	0.104	--	-0.973	1.34	-2.26	--	B	0.641	1.33	1.59	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	2800	500	--	NSRC	NSRC
Isophorone	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
Phenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	3200	--	NSRC	NSRC
Pyridine	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 60	mg/kg	0.033	6.41	0.017	0.782	0.156	3.21	0.823	--	--	--	--	-0.985	1.35	--	--	B	0.641	1.33	1.59	21.4	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	5 / 5	pCi/g	--	--	1.05	1.47	1.58	1.82	0.328	1.05	1.47	1.82	0.328	0.365	0.235	0.365	0.235	B	1.53	1.71	1.74	--	--	--	--	--	--
Alpha activity	33 / 60	pCi/g	2.65	9.87	2.65	17.8	10.4	234	29.7	8.51	26.4	234	38.1	2.52	0.723	2.99	0.595	B	46.4	95.6	114	234	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.188	0.482	0.188	0.26	0.227	0.482	0.078	--	--	--	--	-1.38	0.258	--	--	B	0.263	0.332	0.355	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	40 / 60	pCi/g	1.82	6.16	1.82	28.7	16.6	338	47.2	4.13	41.0	338	53.9	2.63	1.21	3.28	0.92	B	67.7	140	167	338	--	--	--	--	--
Bismuth-214	16 / 16	pCi/g	--	--	0.731	1.07	0.996	1.66	0.253	0.731	1.07	1.66	0.253	0.041	0.221	0.041	0.221	L	1.07	1.15	1.18	1.82	--	--	--	--	--
Carbon-14	1 / 60	pCi/g	0.327	2.32	0.327	0.97	0.648	2.32	0.666	0.782	0.782	0.782	--	-0.216	0.579	-0.246	--	B	0.873	1.35	1.51	1.37	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 60	pCi/g	0.029	1.09	0.029	0.195	0.148	1.09	0.17	--	--	--	--	-1.87	0.654	--	--	B	0.285	0.531	0.615	0.294	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 60	pCi/g	0.025	1.07	0.025	0.213	0.164	1.07	0.186	--	--	--	--	-1.79	0.675	--	--	L	0.21	0.27	0.297	0.657	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 60	pCi/g	0.191	1.32	0.191	0.62	0.576	1.32	0.26	--	--	--	--	-0.57	0.449	--	--	L	0.626	0.679	0.696	1.4	13	--	1500	NSRC	NSRC
Lead-212	28 / 28	pCi/g	--	--	0.636	1.11	1.06	1.72	0.332	0.636	1.11	1.72	0.332	0.064	0.293	0.064	0.293	L	1.11	1.2	1.23	2.06	--	--	--	--	--

Table G.36. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	18 / 18	pCi/g	--	--	0.721	1.06	0.991	1.78	0.261	0.721	1.06	1.78	0.261	0.03	0.228	0.03	0.228	L	1.06	1.14	1.17	1.8	--	--	--	--	--
Neptunium-237	0 / 14	pCi/g	0.216	0.56	0.216	0.29	0.276	0.56	0.089	--	--	--	--	-1.27	0.255	--	--	B	0.313	0.397	0.423	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 60	pCi/g	0.323	2.87	0.323	1.08	0.816	2.87	0.743	--	--	--	--	-0.127	0.622	--	--	L	1.07	1.21	1.25	3.1	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.125	0.424	0.125	0.26	0.236	0.424	0.107	--	--	--	--	-1.43	0.428	--	--	L	0.262	0.313	0.333	0.732	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.176	0.596	0.176	0.365	0.331	0.596	0.151	--	--	--	--	-1.09	0.428	--	--	L	0.368	0.439	0.467	1.03	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.71	14.2	8.71	11.5	11.7	14.2	1.63	--	--	--	--	2.43	0.145	--	--	N	11.5	12.1	12.3	15.8	--	--	790,000	NSRC	NSRC
Potassium-40	32 / 32	pCi/g	--	--	13.3	30.0	24.5	64.5	16.4	13.3	30.0	64.5	16.4	3.26	0.525	3.26	0.525	B	29.3	42.0	45.8	--	--	--	4.2E+06	--	--
Radium-226	35 / 60	pCi/g	0.189	1.39	0.189	0.76	0.715	1.71	0.404	0.26	0.973	1.71	0.357	-0.431	0.591	-0.109	0.44	B	0.793	1.18	1.29	1.71	--	--	300,000	--	--
Strontium-89	3 / 60	pCi/g	1.23	1.98	1.23	1.72	1.74	4.23	0.399	1.81	2.65	4.23	1.37	0.524	0.185	0.892	0.477	B	2.07	2.79	3.03	4.23	--	--	--	--	--
Strontium-90	0 / 60	pCi/g	1.14	2.24	1.14	1.7	1.74	2.24	0.257	--	--	--	--	0.521	0.159	--	--	B	1.72	2.0	2.06	1.39	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 60	pCi/g	0.738	8.92	0.738	5.1	4.94	8.92	1.76	--	--	--	--	1.53	0.536	--	--	B	4.9	6.97	7.43	5.05	172	--	4.2E+07	NSRC	NSRC
Thallium-208	7 / 7	pCi/g	--	--	0.32	0.47	0.528	0.564	0.101	0.32	0.47	0.564	0.101	-0.778	0.237	-0.778	0.237	B	0.499	0.547	0.554	--	--	--	--	--	--
Thorium-228	27 / 60	pCi/g	0.27	1.1	0.27	0.815	0.779	1.76	0.293	0.542	1.01	1.76	0.259	-0.272	0.38	-0.023	0.262	N	0.815	0.864	0.878	1.41	--	--	25,000	--	--
Thorium-230	35 / 60	pCi/g	0.205	0.826	0.205	0.846	0.771	3.2	0.498	0.331	1.11	3.2	0.488	-0.316	0.552	0.03	0.399	L	0.849	0.942	0.973	2.22	--	--	15,000	--	--
Thorium-232	32 / 60	pCi/g	0.196	0.794	0.196	0.773	0.709	1.8	0.39	0.286	1.05	1.8	0.324	-0.389	0.53	-0.005	0.354	L	0.78	0.862	0.888	1.98	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	35 / 60	pCi/g	0.739	1.59	0.739	5.16	1.48	215	27.6	1.04	8.13	215	36.0	0.443	0.782	0.767	0.877	B	36.9	80.5	98.0	215	--	--	--	--	--
Tritium	0 / 60	pCi/g	6.26	32.1	6.26	10.3	10.1	32.1	3.52	--	--	--	--	2.3	0.261	--	--	B	13.1	19.3	21.3	4.86	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	35 / 60	pCi/g	0.414	0.889	0.414	1.25	0.699	30.3	3.82	0.603	1.74	30.3	4.98	-0.265	0.581	-0.038	0.655	B	5.58	11.7	14.2	30.3	1700	2.8E+07	100,000	0.003	2.0E-07
Uranium-235/236	1 / 60	pCi/g	0.312	1.03	0.312	0.652	0.603	3.38	0.386	3.38	3.38	3.38	--	-0.5	0.326	1.22	--	B	1.02	1.72	1.96	3.38	1500	9500	100,000	NSRC	NSRC
Uranium-238	31 / 60	pCi/g	0.379	0.813	0.379	3.81	0.694	182	23.4	0.518	6.89	182	32.5	-0.286	0.842	0.062	1.05	B	30.9	67.7	82.6	182	1200	1500	100,000	0.026	0.021
																									SOF =	0.029	0.088

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.37. Y-12 Biology Complex summary statistics for Ducts from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts from all buildings combined from random samples																											
Metals																											
Antimony	6 / 6	mg/kg	--	--	0.528	21.6	12.2	82.5	30.5	0.528	21.6	82.5	30.5	2.18	1.68	2.18	1.68	L	24.8	71.7	93.0	4520	--	160	--	--	0.155
Arsenic	4 / 6	mg/kg	0.212	0.284	0.106	10.6	5.05	38.4	14.7	2.2	15.8	38.4	15.9	0.832	2.45	2.3	1.2	L	16.5	56.5	74.6	20,575	--	--	--	--	--
Barium	6 / 6	mg/kg	--	--	0.117	121	0.324	723	295	0.117	121	723	295	0.047	3.31	0.047	3.31	B	121	267	326	--	--	150,000	--	--	8.0E-04
Beryllium	0 / 6	mg/kg	0.013	0.1	0.006	0.015	0.009	0.05	0.017	--	--	--	--	-4.51	0.754	--	--	B	0.015	0.025	0.028	--	--	--	--	NSRC	NSRC
Boron	1 / 6	mg/kg	0.503	4	0.252	1.67	0.347	6.75	2.58	6.75	6.75	6.75	--	-0.336	1.33	1.91	--	B	1.4	2.74	3.27	--	--	24,000	--	--	5.8E-05
Cadmium	5 / 6	mg/kg	0.013	0.013	0.006	2.18	1.22	5.61	2.43	0.295	2.61	5.61	2.44	-0.52	2.53	0.39	1.34	N	2.18	3.64	4.18	--	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	1.23	35.1	20.9	134	49.5	1.23	35.1	134	49.5	2.71	1.59	2.71	1.59	L	38.0	107	138	5372	--	140,000	--	--	2.7E-04
Copper	6 / 6	mg/kg	--	--	0.762	134	32.4	657	258	0.762	134	657	258	3.23	2.27	3.23	2.27	L	143	475	626	115,547	--	--	--	--	--
Hafnium	0 / 6	mg/kg	0.377	3	0.189	0.455	0.261	1.5	0.513	--	--	--	--	-1.11	0.754	--	--	B	0.455	0.742	0.848	--	--	--	--	NSRC	NSRC
Lead	6 / 6	mg/kg	--	--	0.188	171	203	319	148	0.188	171	319	148	3.66	3.03	3.66	3.03	B	188	265	280	--	--	1500	--	--	0.125
Manganese	6 / 6	mg/kg	--	--	0.387	876	615	3250	1210	0.387	876	3250	1210	4.63	3.63	4.63	3.63	L	876	2358	3029	7.1E+07	--	360,000	--	--	0.002
Mercury	6 / 6	mg/kg	--	--	0.005	0.036	0.034	0.075	0.031	0.005	0.036	0.075	0.031	-3.8	1.17	-3.8	1.17	N	0.036	0.055	0.061	0.15	--	--	--	--	--
Molybdenum	4 / 6	mg/kg	0.05	0.067	0.025	18.2	6.66	79.7	30.8	2.71	27.3	79.7	35.4	0.573	3.36	2.63	1.39	L	46.2	174	232	462,270	--	3900	--	--	0.012
Nickel	6 / 6	mg/kg	--	--	0.499	56.5	31.1	174	68.8	0.499	56.5	174	68.8	2.67	2.38	2.67	2.38	N	56.5	97.9	113	311	--	--	--	--	--
Selenium	0 / 6	mg/kg	0.226	1.8	0.113	0.273	0.157	0.9	0.308	--	--	--	--	-1.62	0.754	--	--	B	0.273	0.445	0.509	--	--	1600	--	NSRC	NSRC
Silver	4 / 6	mg/kg	0.063	0.084	0.031	5.67	3.1	21.1	7.95	3.03	8.48	21.1	8.58	0.095	2.74	1.8	0.906	L	11.6	41.1	54.5	27,889	--	--	--	--	--
Strontium	1 / 6	mg/kg	0.377	0.6	0.189	2.43	0.272	13.3	5.32	13.3	13.3	13.3	--	-0.711	1.62	2.59	--	B	2.43	5.11	6.18	--	--	300,000	--	--	8.1E-06
Thallium	0 / 6	mg/kg	0.088	0.7	0.044	0.106	0.061	0.35	0.12	--	--	--	--	-2.57	0.754	--	--	B	0.106	0.173	0.198	--	--	--	--	NSRC	NSRC
Tin	5 / 6	mg/kg	0.188	0.188	0.094	9.02	5.32	30	10.8	3.18	10.8	30	11.1	1.29	1.97	2.03	0.901	L	14.1	44.0	57.6	5324	--	2200	--	--	0.006
Vanadium	0 / 6	mg/kg	0.188	1.5	0.094	0.227	0.13	0.75	0.257	--	--	--	--	-1.8	0.755	--	--	B	0.228	0.371	0.424	--	--	25,000	--	NSRC	NSRC
Zinc	6 / 6	mg/kg	--	--	3.67	39,798	26,145	108,000	45,078	3.67	39,798	108,000	45,078	8.37	3.98	8.37	3.98	N	39,798	66,959	76,881	206,932	--	--	--	--	--
Zirconium	2 / 6	mg/kg	0.251	2	0.126	0.392	0.294	1	0.329	0.404	0.439	0.473	0.049	-1.2	0.785	-0.828	0.111	L	0.409	0.897	1.37	5.53	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.039	0.102	0.054	0.261	0.106	0.039	0.102	0.261	0.106	-2.61	0.857	-2.61	0.857	X	0.102	0.261	0.334	--	--	--	--	--	--
Cadmium	2 / 4	mg/L	0.003	0.003	0.002	0.004	0.004	0.008	0.002	0.004	0.006	0.008	0.003	-5.85	0.791	-5.21	0.451	X*	0.004	0.008	0.01	--	--	--	--	--	--
Chromium	4 / 4	mg/L	--	--	0.057	0.144	0.151	0.216	0.07	0.057	0.144	0.216	0.07	-2.06	0.591	-2.06	0.591	X	0.144	0.248	0.296	--	--	--	--	--	--
Lead	4 / 4	mg/L	--	--	0.007	0.234	0.283	0.362	0.157	0.007	0.234	0.362	0.157	-2.13	1.89	-2.13	1.89	X	0.234	0.47	0.577	--	--	--	--	--	--
Mercury	0 / 4	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 6	mg/kg	0.003	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.69	0.5	--	--	B	0.004	0.005	0.005	--	--	119	--	NSRC	NSRC
Silvex	0 / 6	mg/kg	0.003	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.69	0.5	--	--	B	0.004	0.005	0.005	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.004	0.003	0.014	0.005	0.014	0.014	0.014	--	-6.25	1.51	-4.27	--	L	0.005	0.012	0.016	0.529	77,000	--	--	5.9E-08	--
4,4'-DDE	2 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.01	0.003	0.049	0.019	0.001	0.025	0.049	0.033	-5.85	1.74	-4.77	2.47	L	0.009	0.025	0.033	1.8	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 6	mg/kg	9.5E-04	0.011	4.8E-04	0.056	0.003	0.326	0.132	0.002	0.164	0.326	0.229	-5.43	2.29	-3.78	3.76	L	0.056	0.218	0.291	21.2	--	--	--	--	--
Aldrin	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 6	mg/kg	0.003	0.054	0.001	0.01	0.005	0.027	0.011	--	--	--	--	-5.09	1.17	--	--	B	0.008	0.014	0.016	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.002	0.005	0.002	0.003	0.003	0.003	--	-6.41	1.1	-5.93	--	N	0.002	0.004	0.004	--	--	330,000	--	--	7.5E-09
Endrin	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 6	mg/kg	9.5E-04	0.011	4.8E-04	0.002	0.001	0.005	0.002	0.001	0.001	0.001	--	-6.48	0.941	-6.88	--	L	0.002	0.007	0.013	0.05	--	30,000	--	--	8.0E-08
Endrin ketone	0 / 6	mg/kg	5.7E-04	0.011	2.9E-04	0.002	0.001	0.005	0.002	--	--	--	--	-6.69	1.17	--	--	B	0.002	0.003	0.003	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	2400	69,000	--	NSRC	NSRC

Table G.37. Y-12 Biology Complex summary statistics for Ducts from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	0.001	0.003	0.001	0.002	0.002	0.002	--	-7.13	1.27	-6.08	--	N	0.001	0.002	0.002	--	180	940	--	7.5E-06	1.4E-06
Methoxychlor	0 / 6	mg/kg	0.003	0.054	0.001	0.01	0.005	0.027	0.011	--	--	--	--	-5.09	1.17	--	--	B	0.008	0.014	0.016	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 6	mg/kg	0.009	0.179	0.005	0.035	0.018	0.09	0.036	--	--	--	--	-3.88	1.17	--	--	B	0.028	0.048	0.055	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 6	mg/kg	2.9E-04	0.005	1.4E-04	0.001	5.4E-04	0.003	0.001	--	--	--	--	-7.39	1.17	--	--	B	8.3E-04	0.001	0.002	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 41	mg/kg	0.03	11.3	0.015	0.529	0.136	5.65	1.01	0.406	0.406	0.406	--	-1.63	1.32	-0.901	--	B	1.03	2.21	2.67	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 41	mg/kg	0.003	1.13	0.001	0.052	0.014	0.565	0.101	--	--	--	--	-3.98	1.33	--	--	B	0.103	0.221	0.267	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 41	mg/kg	0.05	18.9	0.025	0.9	0.226	9.45	1.7	1.55	1.55	1.55	--	-1.12	1.35	0.438	--	B	1.73	3.7	4.47	--	--	9810	--	NSRC	NSRC
Carbazole	4 / 41	mg/kg	0.003	1.13	0.001	0.056	0.014	0.565	0.102	0.015	0.06	0.148	0.062	-3.86	1.34	-3.26	1.1	B	0.104	0.222	0.268	--	110,000	--	--	9.4E-07	--
Di-n-butyl phthalate	7 / 41	mg/kg	0.03	11.3	0.015	0.749	0.161	7.67	1.49	0.196	1.41	7.67	2.76	-1.32	1.34	-0.614	1.23	B	1.39	2.98	3.61	--	--	190	--	--	0.007
Diethyl phthalate	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 41	mg/kg	0.03	11.3	0.015	0.627	0.136	6.21	1.34	6.21	6.21	6.21	--	-1.64	1.39	1.83	--	B	1.13	2.42	2.92	--	--	--	--	NSRC	NSRC
Phenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 41	mg/kg	0.03	11.3	0.015	0.52	0.136	5.65	1.01	--	--	--	--	-1.67	1.33	--	--	B	1.03	2.21	2.67	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	0 / 41	pCi/g	2.43	9.87	2.43	7.03	7.21	9.87	2.38	--	--	--	--	1.88	0.415	--	--	B	6.86	8.64	8.98	--	--	--	--	NSRC	NSRC
Americium-241	0 / 41	pCi/g	0.153	0.581	0.153	0.27	0.226	0.581	0.109	--	--	--	--	-1.37	0.334	--	--	B	0.273	0.376	0.409	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	1 / 41	pCi/g	1.38	5.82	1.38	3.98	3.96	5.82	1.02	4.13	4.13	4.13	--	1.35	0.281	1.42	--	N	3.98	4.18	4.24	6.13	--	--	--	NSRC	NSRC
Carbon-14	0 / 41	pCi/g	0.347	1.68	0.347	0.636	0.585	1.68	0.208	--	--	--	--	-0.49	0.263	--	--	B	0.728	1.05	1.15	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	2 / 41	pCi/g	0.058	0.648	0.058	0.215	0.169	0.648	0.132	0.093	0.096	0.1	0.005	-1.7	0.585	-2.34	0.052	L	0.216	0.248	0.259	0.627	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 41	pCi/g	0.066	0.966	0.066	0.23	0.182	0.966	0.164	--	--	--	--	-1.65	0.584	--	--	L	0.227	0.293	0.323	0.663	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 41	pCi/g	0.232	1.32	0.232	0.586	0.549	1.32	0.224	--	--	--	--	-0.598	0.359	--	--	L	0.586	0.634	0.649	1.18	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 41	pCi/g	0.131	0.935	0.131	0.375	0.321	0.935	0.166	--	--	--	--	-1.07	0.422	--	--	L	0.376	0.413	0.425	0.84	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 41	pCi/g	0.66	10.3	0.66	1.71	1.3	10.3	1.5	--	--	--	--	0.377	0.495	--	--	B	2.69	4.83	5.61	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 41	pCi/g	0.125	0.693	0.125	0.289	0.235	0.693	0.133	--	--	--	--	-1.34	0.435	--	--	B	0.293	0.432	0.475	--	--	--	15,000	NSRC	NSRC

Table G.37. Y-12 Biology Complex summary statistics for Ducts from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 41	pCi/g	0.161	0.825	0.161	0.362	0.296	0.825	0.158	--	--	--	--	-1.1	0.425	--	--	L	0.363	0.399	0.411	0.816	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 41	pCi/g	8.04	23.5	8.04	12.5	11.9	23.5	3.37	--	--	--	--	2.5	0.244	--	--	L	12.5	13.9	14.6	20.3	--	--	790,000	NSRC	NSRC
Radium-226	5 / 41	pCi/g	0.203	0.928	0.203	0.491	0.469	0.928	0.181	0.26	0.411	0.597	0.135	-0.781	0.39	-0.932	0.327	N	0.491	0.528	0.539	0.874	--	--	300,000	--	--
Strontium-89	1 / 41	pCi/g	0.721	2	0.721	1.7	1.86	2.92	0.415	2.92	2.92	2.92	--	0.494	0.289	1.07	--	B	1.85	2.4	2.52	--	--	--	--	NSRC	NSRC
Strontium-90	7 / 41	pCi/g	0.96	1.99	0.96	2.07	1.91	6.38	1.02	1.79	3.54	6.38	1.88	0.655	0.345	1.15	0.507	B	2.5	3.81	4.23	--	--	--	400,000	--	--
Technetium-99	0 / 41	pCi/g	0.931	8.28	0.931	5.25	5	8.28	1.76	--	--	--	--	1.57	0.514	--	--	B	4.87	6.7	7.09	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 41	pCi/g	0.25	1.37	0.25	0.62	0.615	1.37	0.26	--	--	--	--	-0.571	0.449	--	--	B	0.68	0.966	1.04	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 41	pCi/g	0.189	1.13	0.189	0.51	0.491	1.13	0.221	0.267	0.267	0.267	--	-0.771	0.458	-1.32	--	L	0.514	0.57	0.588	1.22	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 41	pCi/g	0.181	0.979	0.181	0.453	0.449	0.979	0.187	--	--	--	--	-0.883	0.442	--	--	B	0.493	0.697	0.751	--	--	--	2500	NSRC	NSRC
Total Uranium	6 / 41	pCi/g	0.629	1.42	0.629	1.1	0.863	6.97	1.06	0.7	2.44	6.97	2.5	-0.065	0.44	0.499	0.941	B	1.84	3.2	3.71	--	--	--	--	--	--
Tritium	0 / 41	pCi/g	5.98	13	5.98	9.28	9.42	13	2.0	--	--	--	--	2.2	0.222	--	--	N	9.28	9.69	9.81	13.5	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	6 / 41	pCi/g	0.286	0.795	0.283	0.692	0.484	5.86	0.939	0.283	1.94	5.86	2.19	-0.63	0.548	0.136	1.13	B	1.35	2.54	2.99	--	1700	2.8E+07	100,000	7.9E-04	4.8E-08
Uranium-235/236	0 / 41	pCi/g	0.331	0.921	0.331	0.567	0.557	0.921	0.128	--	--	--	--	-0.591	0.22	--	--	L	0.567	0.594	0.603	0.882	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 41	pCi/g	0.242	0.734	0.242	0.453	0.443	0.734	0.115	0.645	0.645	0.645	--	-0.823	0.25	-0.439	--	N	0.453	0.476	0.483	0.696	1200	1500	100,000	NSRC	NSRC
																									SOF =	8.0E-04	0.31

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.38. Y-12 Biology Complex summary statistics for Floors from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Floors from all buildings combined from random samples																											
Metals																											
Antimony	4 / 7	mg/kg	0.31	0.321	0.155	0.628	0.595	1.61	0.545	0.595	0.98	1.61	0.455	-0.846	0.986	-0.096	0.44	N	0.628	0.924	1.03	--	--	160	--	--	0.004
Arsenic	6 / 7	mg/kg	1.6	1.6	0.8	3.81	3.88	8.2	2.36	1.89	4.31	8.2	2.15	1.14	0.745	1.36	0.485	N	3.81	5.09	5.54	--	--	--	--	--	--
Barium	7 / 7	mg/kg	--	--	49.2	124	67	398	125	49.2	124	398	125	4.53	0.727	4.53	0.727	B	119	195	223	--	--	150,000	--	--	7.9E-04
Beryllium	7 / 7	mg/kg	--	--	0.107	0.303	0.32	0.497	0.134	0.107	0.303	0.497	0.134	-1.3	0.528	-1.3	0.528	N	0.303	0.376	0.401	0.759	--	--	--	--	--
Boron	7 / 7	mg/kg	--	--	8.35	14.6	12	26.8	6.17	8.35	14.6	26.8	6.17	2.62	0.382	2.62	0.382	N	14.6	18.0	19.1	35.6	--	24,000	--	--	6.1E-04
Cadmium	6 / 7	mg/kg	0.019	0.019	0.009	1.78	0.218	10.6	3.91	0.05	2.07	10.6	4.19	-1.46	2.29	-0.923	1.97	L	1.47	4.83	6.35	566	--	--	--	--	--
Chromium	7 / 7	mg/kg	--	--	4.72	20.7	11.9	81.9	27.1	4.72	20.7	81.9	27.1	2.6	0.873	2.6	0.873	B	22.4	39.9	46.1	--	--	140,000	--	--	1.6E-04
Copper	7 / 7	mg/kg	--	--	4.76	11.9	15	20.9	6.8	4.76	11.9	20.9	6.8	2.3	0.672	2.3	0.672	B	14.3	18.2	18.9	--	--	--	--	--	--
Hafnium	5 / 7	mg/kg	0.567	0.584	0.284	0.832	0.598	1.54	0.525	0.568	1.05	1.54	0.454	-0.383	0.706	-0.037	0.475	N	0.832	1.12	1.22	--	--	--	--	--	--
Lead	7 / 7	mg/kg	--	--	1.32	6.0	6.87	12.3	3.68	1.32	6.0	12.3	3.68	1.57	0.787	1.57	0.787	N	6.0	8.0	8.7	18.5	--	1500	--	--	0.004
Manganese	7 / 7	mg/kg	--	--	82.9	247	101	716	247	82.9	247	716	247	5.15	0.863	5.15	0.863	B	200	334	386	--	--	360,000	--	--	5.6E-04
Mercury	6 / 7	mg/kg	0.004	0.004	0.002	0.033	0.031	0.107	0.036	0.006	0.039	0.107	0.037	-4.04	1.38	-3.67	1.05	L	0.037	0.094	0.12	1.9	--	--	--	--	--
Molybdenum	7 / 7	mg/kg	--	--	0.097	0.665	0.558	1.72	0.517	0.097	0.665	1.72	0.517	-0.685	0.875	-0.685	0.875	N	0.665	0.946	1.04	2.42	--	3900	--	--	1.7E-04
Nickel	7 / 7	mg/kg	--	--	2.45	8.64	5.45	27.4	8.53	2.45	8.64	27.4	8.53	1.87	0.76	1.87	0.76	L	8.64	16.3	22.3	85.6	--	--	--	--	--
Selenium	3 / 7	mg/kg	1.64	1.75	0.409	0.824	0.84	1.14	0.214	0.409	0.794	1.14	0.367	-0.231	0.314	-0.316	0.525	B	0.818	0.998	1.03	--	--	1600	--	--	5.1E-04
Silver	5 / 7	mg/kg	0.479	0.909	0.24	5.72	5.86	15	5.06	3.71	7.87	15	4.27	1.08	1.56	1.96	0.506	N	5.72	8.48	9.44	--	--	--	--	--	--
Strontium	7 / 7	mg/kg	--	--	127	234	266	293	63.2	127	234	293	63.2	5.42	0.31	5.42	0.31	N	234	269	281	449	--	300,000	--	--	7.8E-04
Thallium	0 / 7	mg/kg	0.128	0.681	0.064	0.105	0.066	0.341	0.104	--	--	--	--	-2.48	0.619	--	--	B	0.111	0.168	0.191	--	--	--	--	NSRC	NSRC
Tin	4 / 7	mg/kg	0.282	2.99	0.141	3.72	4.11	7.85	3.25	4.11	6.06	7.85	1.92	0.507	1.77	1.76	0.329	N	3.72	5.49	6.11	--	--	2200	--	--	0.002
Vanadium	7 / 7	mg/kg	--	--	6.08	15.7	12.7	43.8	12.7	6.08	15.7	43.8	12.7	2.56	0.608	2.56	0.608	L	15.6	24.7	30.5	103	--	25,000	--	--	6.3E-04
Zinc	7 / 7	mg/kg	--	--	15	199	32.6	1120	407	15	199	1120	407	4.09	1.45	4.09	1.45	B	211	440	530	--	--	--	--	--	--
Zirconium	7 / 7	mg/kg	--	--	5.08	29.6	21.6	54.7	17.8	5.08	29.6	54.7	17.8	3.17	0.807	3.17	0.807	N	29.6	39.3	42.7	90.1	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 7	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	7 / 7	mg/L	--	--	0.268	0.355	0.345	0.579	0.104	0.268	0.355	0.579	0.104	-1.07	0.253	-1.07	0.253	G	0.355	0.437	0.47	0.778	--	--	--	--	--
Cadmium	2 / 7	mg/L	0.003	0.003	0.002	0.008	0.003	0.03	0.009	0.014	0.022	0.03	0.011	-5.76	1.29	-3.9	0.542	G*	0.008	0.02	0.027	0.098	--	--	--	--	--
Chromium	5 / 7	mg/L	0.03	0.03	0.015	0.067	0.066	0.128	0.037	0.033	0.082	0.128	0.039	-3.06	0.894	-2.6	0.538	N*	0.067	0.09	0.098	0.193	--	--	--	--	--
Lead	0 / 7	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 7	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 7	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 7	mg/kg	0.002	0.008	8.3E-04	0.004	0.004	0.009	0.003	0.009	0.009	0.009	--	-5.85	0.899	-4.73	--	B	0.004	0.006	0.007	--	--	119	--	--	3.7E-05
Silvex	0 / 7	mg/kg	0.002	0.008	8.3E-04	0.003	0.004	0.004	0.002	--	--	--	--	-6.19	0.852	--	--	B	0.003	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.003	4.9E-04	0.011	0.004	0.001	0.006	0.011	0.007	-6.72	1.3	-5.64	1.58	B	0.002	0.004	0.005	--	130,000	--	--	1.7E-08	--
4,4'-DDT	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Aldrin	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 7	mg/kg	0.005	0.049	0.002	0.006	0.002	0.025	0.008	--	--	--	--	-5.68	0.87	--	--	B	0.006	0.011	0.012	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 7	mg/kg	9.7E-04	0.01	4.8E-04	0.001	4.9E-04	0.005	0.002	--	--	--	--	-7.29	0.87	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	1000	1500	--	NSRC	NSRC

Table G.38. Y-12 Biology Complex summary statistics for Floors from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 7	mg/kg	0.005	0.049	0.002	0.006	0.002	0.025	0.008	--	--	--	--	-5.68	0.87	--	--	B	0.006	0.011	0.012	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 7	mg/kg	0.016	0.164	0.008	0.019	0.008	0.082	0.028	--	--	--	--	-4.47	0.87	--	--	B	0.021	0.036	0.042	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 7	mg/kg	4.8E-04	0.005	2.4E-04	5.6E-04	2.5E-04	0.002	8.4E-04	--	--	--	--	-7.98	0.87	--	--	B	6.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 61	mg/kg	0.01	0.75	0.005	0.973	0.015	31.1	4.51	0.137	9.51	31.1	12.1	-3.4	1.85	0.825	2.32	B	5.19	11.5	14.0	31.1	--	4000	--	--	0.001
2-Methylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	850	--	NSRC	NSRC
Acenaphthene	5 / 61	mg/kg	0.01	0.75	0.005	0.696	0.015	23.7	3.37	0.048	8.04	23.7	9.83	-3.51	1.71	0.48	2.73	B	3.96	8.76	10.7	23.7	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 61	mg/kg	0.01	0.75	0.005	0.051	0.015	0.455	0.088	0.309	0.382	0.455	0.103	-3.79	1.13	-0.981	0.274	B	0.087	0.181	0.217	0.455	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 61	mg/kg	0.099	7.5	0.049	0.413	0.149	3.75	0.627	0.405	0.405	0.405	--	-1.54	1.03	-0.904	--	B	0.733	1.51	1.81	0.405	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 61	mg/kg	0.099	7.5	0.049	0.468	0.149	3.75	0.65	0.623	1.06	1.54	0.394	-1.43	1.1	0.005	0.389	B	0.733	1.51	1.81	1.54	--	1200	--	--	6.1E-04
Benzidine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 61	mg/kg	0.164	12.5	0.082	0.68	0.248	6.25	1.05	--	--	--	--	-1.05	1.03	--	--	B	1.22	2.52	3.02	50	--	9810	--	NSRC	NSRC
Carbazole	4 / 61	mg/kg	0.01	0.75	0.005	0.263	0.015	8.86	1.28	0.033	3.43	8.86	4.26	-3.67	1.44	-0.724	3.01	B	1.49	3.28	4.01	8.86	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	10 / 61	mg/kg	0.099	7.5	0.049	0.516	0.15	3.75	0.647	0.223	0.785	1.69	0.414	-1.27	1.08	-0.377	0.572	B	0.733	1.51	1.81	1.69	--	190	--	--	0.004
Diethyl phthalate	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 61	mg/kg	0.099	7.5	0.049	0.415	0.149	3.75	0.628	0.569	0.569	0.569	--	-1.54	1.04	-0.564	--	B	0.733	1.51	1.81	0.569	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	2800	500	--	NSRC	NSRC
Isophorone	8 / 61	mg/kg	0.099	7.5	0.049	0.541	0.149	3.75	0.758	0.35	1.33	3.54	0.984	-1.34	1.16	0.079	0.678	B	0.733	1.51	1.81	3.54	6100	15,000	--	1.2E-04	4.9E-05
N-Nitroso-di-n-propylamine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
Phenol	2 / 61	mg/kg	0.099	7.5	0.049	0.476	0.149	3.75	0.708	1.81	2.21	2.61	0.566	-1.47	1.11	0.776	0.259	B	0.733	1.51	1.81	2.61	--	3200	--	NSRC	NSRC
Pyridine	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 61	mg/kg	0.099	7.5	0.049	0.408	0.149	3.75	0.628	--	--	--	--	-1.56	1.03	--	--	B	0.733	1.51	1.81	25	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	0.688	0.688	0.688	0.688	--	0.688	0.688	0.688	--	-0.374	--	-0.374	--	B	0.688	0.688	0.688	--	--	--	--	--	--
Alpha activity	31 / 61	pCi/g	2.27	9.99	2.27	9.19	8.15	33.5	5.69	3.09	11.0	33.5	7.35	2.08	0.512	2.22	0.59	B	11.4	19.0	21.4	33.5	--	--	--	--	--
Beta activity	53 / 61	pCi/g	3.1	4.38	1.56	9.12	8.19	43.2	7.02	1.56	9.91	43.2	7.21	2.0	0.632	2.1	0.62	L	9.0	11.4	12.4	26.5	--	--	--	--	--
Bismuth-214	3 / 3	pCi/g	--	--	0.353	0.484	0.484	0.616	0.132	0.353	0.484	0.616	0.132	-0.75	0.279	-0.75	0.279	B	0.484	0.551	0.566	--	--	--	--	--	--
Carbon-14	3 / 61	pCi/g	0.512	2.52	0.512	1.86	2.21	2.52	0.66	0.661	0.762	0.959	0.17	0.52	0.501	-0.287	0.212	B	1.98	2.38	2.43	1.2	165	--	1.0E+07	NSRC	NSRC
Cesium-137	1 / 61	pCi/g	0.049	0.19	0.049	0.105	0.1	0.211	0.03	0.211	0.211	0.211	--	-2.29	0.271	-1.56	--	L	0.105	0.11	0.111	0.175	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 61	pCi/g	0.035	0.237	0.035	0.122	0.12	0.237	0.04	--	--	--	--	-2.16	0.365	--	--	N	0.122	0.129	0.131	0.202	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 61	pCi/g	0.258	1.27	0.258	0.749	0.749	1.27	0.249	--	--	--	--	-0.349	0.361	--	--	N	0.749	0.79	0.802	1.25	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.294	0.682	0.564	1.53	0.489	0.294	0.682	1.53	0.489	-0.548	0.611	-0.548	0.611	B	0.68	0.986	1.08	--	--	--	--	--	--
Lead-214	5 / 5	pCi/g	--	--	0.394	0.481	0.464	0.624	0.088	0.394	0.481	0.624	0.088	-0.745	0.174	-0.745	0.174	B	0.479	0.537	0.554	--	--	--	--	--	--
Nickel-63	0 / 61	pCi/g	0.41	1.51	0.41	0.809	0.769	1.51	0.219	--	--	--	--	-0.248	0.269	--	--	N	0.809	0.845	0.856	1.25	--	--	1.3E+08	NSRC	NSRC

Table G.38. Y-12 Biology Complex summary statistics for Floors from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	21 / 21	pCi/g	--	--	1.88	7.3	7.22	18.9	3.44	1.88	7.3	18.9	3.44	1.89	0.458	1.89	0.458	L	7.36	8.55	8.99	19.6	--	--	4.2E+06	--	--
Radium-226	32 / 61	pCi/g	0.359	1.05	0.359	0.777	0.753	1.62	0.26	0.394	0.878	1.62	0.292	-0.304	0.323	-0.184	0.334	L	0.777	0.823	0.837	1.42	--	--	300,000	--	--
Strontium-89	0 / 61	pCi/g	0.795	1.98	0.795	1.69	1.79	1.98	0.238	--	--	--	--	0.513	0.163	--	--	B	1.66	1.89	1.92	1.44	--	--	--	NSRC	NSRC
Strontium-90	0 / 61	pCi/g	0.637	2	0.637	1.56	1.69	2	0.378	--	--	--	--	0.407	0.296	--	--	B	1.57	1.86	1.91	1.24	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 61	pCi/g	2.96	7.72	2.96	5.63	5.71	7.72	0.922	--	--	--	--	1.71	0.174	--	--	N	5.63	5.78	5.83	7.49	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.58	0.58	0.58	0.58	--	0.58	0.58	0.58	--	-0.545	--	-0.545	--	B	0.58	0.58	0.58	--	--	--	--	--	--
Thorium-228	9 / 61	pCi/g	0.192	1.31	0.192	0.566	0.56	1.41	0.25	0.225	0.487	1.41	0.373	-0.667	0.455	-0.901	0.59	N	0.566	0.608	0.62	1.07	--	--	25,000	--	--
Thorium-230	37 / 61	pCi/g	0.31	1.05	0.291	0.688	0.598	1.94	0.321	0.291	0.705	1.94	0.377	-0.462	0.41	-0.458	0.448	L	0.684	0.796	0.846	1.44	--	--	15,000	--	--
Thorium-232	19 / 61	pCi/g	0.139	0.956	0.139	0.466	0.441	1.61	0.23	0.184	0.451	1.61	0.325	-0.867	0.456	-0.957	0.539	B	0.586	0.947	1.06	1.61	--	--	2500	--	--
Total Uranium	45 / 61	pCi/g	0.556	2.02	0.556	2.22	1.29	23.9	3.7	0.802	2.58	23.9	4.26	0.422	0.648	0.513	0.715	B	4.94	9.89	11.8	23.9	--	--	--	--	--
Tritium	0 / 61	pCi/g	4.61	14.7	4.61	12.2	13	14.7	2.69	--	--	--	--	2.47	0.288	--	--	B	11.9	13.9	14.2	12.1	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	43 / 61	pCi/g	0.296	1.08	0.296	1.28	0.638	14.8	2.51	0.403	1.55	14.8	2.95	-0.267	0.745	-0.188	0.857	B	2.94	5.98	7.17	14.8	1700	2.8E+07	100,000	0.002	1.1E-07
Uranium-235/236	2 / 61	pCi/g	0.296	1.38	0.296	0.569	0.541	1.38	0.212	0.633	0.662	0.69	0.04	-0.621	0.331	-0.414	0.061	L	0.567	0.641	0.674	1.05	1500	9500	100,000	NSRC	NSRC
Uranium-238	40 / 61	pCi/g	0.277	1.01	0.277	0.801	0.557	8.34	1.13	0.374	0.915	8.34	1.38	-0.474	0.53	-0.416	0.611	B	1.81	3.53	4.18	8.34	1200	1500	100,000	0.002	0.001
																									SOF =	0.003	0.021

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.39. Y-12 Biology Complex summary statistics for Hoods from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Hoods from all buildings combined from random samples																											
Metals																											
Antimony	5 / 6	mg/kg	0.174	0.174	0.087	3.9	1.44	14.6	5.59	0.464	4.66	14.6	5.89	0.253	1.85	0.792	1.44	L	4.33	13.1	17.1	1206	--	160	--	--	0.027
Arsenic	2 / 6	mg/kg	0.178	0.351	0.089	2.19	0.155	9.95	3.94	2.67	6.31	9.95	5.15	-0.833	1.97	1.64	0.93	B	1.78	3.79	4.6	--	--	--	--	--	--
Barium	5 / 6	mg/kg	0.053	0.053	0.026	1239	5.05	7410	3023	0.203	1487	7410	3311	1.38	4.37	2.39	4.04	L	1239	4942	6619	4.3E+07	--	150,000	--	--	0.008
Beryllium	1 / 6	mg/kg	0.011	0.082	0.005	0.03	0.009	0.108	0.041	0.108	0.108	0.108	--	-4.17	1.19	-2.23	--	L	0.027	0.065	0.082	1.27	--	--	--	--	--
Boron	3 / 6	mg/kg	0.422	3.26	0.211	666	1.49	3990	1628	1.34	1332	3990	2302	1.36	3.56	3.38	4.3	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	5 / 6	mg/kg	0.011	0.011	0.005	2.54	1.04	10.9	4.16	0.194	3.04	10.9	4.44	-0.625	2.61	0.298	1.46	L	4.75	16.6	22.0	8601	--	--	--	--	--
Chromium	6 / 6	mg/kg	--	--	0.596	233	17.3	1290	519	0.596	233	1290	519	2.69	2.9	2.69	2.9	L	194	701	931	679,295	--	140,000	--	--	0.001
Copper	6 / 6	mg/kg	--	--	0.306	48.8	20.3	184	70.9	0.306	48.8	184	70.9	2.16	2.69	2.16	2.69	L	86.0	304	403	188,969	--	--	--	--	--
Hafnium	0 / 6	mg/kg	0.317	2.93	0.159	0.602	0.275	1.47	0.582	--	--	--	--	-0.899	0.949	--	--	B	0.454	0.75	0.854	--	--	--	--	NSRC	NSRC
Lead	6 / 6	mg/kg	--	--	0.06	249	110	1010	385	0.06	249	1010	385	3.49	3.48	3.49	3.48	L	249	721	934	1.3E+07	--	1500	--	--	0.166
Manganese	6 / 6	mg/kg	--	--	0.144	266	15.2	1530	619	0.144	266	1530	619	2.36	3.2	2.36	3.2	L	215	799	1064	1.5E+06	--	360,000	--	--	6.0E-04
Mercury	5 / 6	mg/kg	0.002	0.002	0.001	0.088	0.015	0.448	0.177	0.009	0.105	0.448	0.192	-4.02	1.99	-3.45	1.6	L	0.072	0.225	0.295	29.0	--	--	--	--	--
Molybdenum	5 / 6	mg/kg	0.058	0.058	0.029	5.94	0.678	23.9	9.66	0.05	7.12	23.9	10.3	-0.415	2.78	0.212	2.59	L	7.38	26.4	35.0	19,718	--	3900	--	--	0.002
Nickel	6 / 6	mg/kg	--	--	0.217	69.2	10.7	284	113	0.217	69.2	284	113	1.76	3.09	1.76	3.09	L	101	373	497	550,302	--	--	--	--	--
Selenium	1 / 6	mg/kg	0.19	1.47	0.095	0.757	0.165	3.25	1.24	3.25	3.25	3.25	--	-1.19	1.36	1.18	--	L	0.614	1.59	2.04	47.5	--	1600	--	--	3.8E-04
Silver	3 / 6	mg/kg	0.053	0.079	0.026	2.51	0.471	13	5.16	0.903	4.99	13	6.94	-1.28	2.51	0.84	1.5	L	2.15	7.43	9.82	3061	--	--	--	--	--
Strontium	2 / 6	mg/kg	0.317	2.45	0.159	6.89	0.769	36.9	14.7	2.52	19.7	36.9	24.3	0.049	2.04	2.27	1.9	L	6.89	24.9	33.1	1989	--	300,000	--	--	2.3E-05
Thallium	0 / 6	mg/kg	0.074	0.684	0.037	0.141	0.064	0.342	0.136	--	--	--	--	-2.35	0.949	--	--	B	0.106	0.175	0.2	--	--	--	--	NSRC	NSRC
Tin	5 / 6	mg/kg	0.158	0.158	0.079	24.5	2.01	132	52.8	0.745	29.4	132	57.5	0.926	2.52	1.62	2.08	L	19.7	68.0	89.8	28,402	--	2200	--	--	0.009
Vanadium	2 / 6	mg/kg	0.158	1.22	0.079	10.3	0.365	59.6	24.2	1.36	30.5	59.6	41.2	-0.499	2.51	2.2	2.67	L	10.3	39.9	53.3	6669	--	25,000	--	--	4.1E-04
Zinc	6 / 6	mg/kg	--	--	1.33	1169	22.5	5600	2235	1.33	1169	5600	2235	4.2	3.1	4.2	3.1	L	1187	4378	5823	6.6E+06	--	--	--	--	--
Zirconium	3 / 6	mg/kg	0.211	1.63	0.106	1.24	0.689	4.94	1.84	0.618	2.11	4.94	2.46	-0.531	1.32	0.28	1.15	L	1.14	2.92	3.73	79.1	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.028	0.478	0.478	0.929	0.637	0.028	0.478	0.929	0.637	-1.83	2.48	-1.83	2.48	X	0.478	1.83	2.44	--	--	--	--	--	--
Cadmium	2 / 2	mg/L	--	--	0.03	0.034	0.034	0.039	0.006	0.03	0.034	0.039	0.006	-3.39	0.185	-3.39	0.185	X	0.034	0.048	0.054	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.183	0.517	0.517	0.85	0.472	0.183	0.517	0.85	0.472	-0.93	1.09	-0.93	1.09	X	0.517	1.52	1.97	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	3.91	4.94	4.94	5.97	1.46	3.91	4.94	5.97	1.46	1.58	0.299	1.58	0.299	X	4.94	8.03	9.43	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 5	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	5.2E-04	--	--	--	--	-5.83	0.194	--	--	B	0.003	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 5	mg/kg	0.004	0.007	0.002	0.003	0.003	0.003	5.2E-04	--	--	--	--	-5.83	0.194	--	--	B	0.003	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 5	mg/kg	3.7E-04	7.1E-04	1.8E-04	0.002	3.5E-04	0.007	0.003	0.001	0.004	0.007	0.004	-7.29	1.51	-5.8	1.21	B	0.001	0.003	0.003	--	130,000	--	--	1.1E-08	--
4,4'-DDT	1 / 5	mg/kg	3.7E-04	8.7E-04	1.8E-04	5.7E-04	3.5E-04	0.002	6.0E-04	0.002	0.002	0.002	--	-7.81	0.84	-6.43	--	B	5.4E-04	8.7E-04	9.8E-04	--	--	--	--	--	--
Aldrin	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 5	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	7.5E-04	--	--	--	--	-6.91	0.893	--	--	B	0.001	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 5	mg/kg	9.1E-05	7.1E-04	4.5E-05	0.001	2.5E-04	0.005	0.002	0.005	0.005	0.005	--	-8.04	1.71	-5.31	--	B	9.9E-04	0.002	0.002	--	--	330,000	--	--	3.0E-09
Endrin	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 5	mg/kg	9.1E-05	8.7E-04	4.5E-05	2.5E-04	2.5E-04	4.3E-04	1.5E-04	--	--	--	--	-8.52	0.893	--	--	B	2.4E-04	3.4E-04	3.6E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	2400	69,000	--	NSRC	NSRC

Table G.39. Y-12 Biology Complex summary statistics for Hoods from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 5	mg/kg	1.8E-04	4.3E-04	7.9E-05	1.4E-04	1.2E-04	2.2E-04	5.8E-05	7.9E-05	7.9E-05	7.9E-05	--	-8.96	0.427	-9.44	--	B	1.3E-04	1.7E-04	1.8E-04	--	1000	1500	--	1.3E-07	8.8E-08
Lindane	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/kg	4.5E-04	0.004	2.3E-04	0.001	0.001	0.002	7.5E-04	--	--	--	--	-6.91	0.893	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/kg	0.002	0.014	7.6E-04	0.004	0.004	0.007	0.003	--	--	--	--	-5.71	0.891	--	--	B	0.004	0.006	0.006	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 5	mg/kg	4.5E-05	4.3E-04	2.3E-05	1.3E-04	1.2E-04	2.2E-04	7.5E-05	--	--	--	--	-9.21	0.893	--	--	B	1.2E-04	1.7E-04	1.8E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 38	mg/kg	0.024	29.4	0.012	0.891	0.199	14.7	2.4	0.23	0.23	0.23	--	-1.4	1.54	-1.47	--	L	0.806	1.43	1.73	6.64	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 38	mg/kg	0.041	49	0.02	1.48	0.262	24.5	4.0	--	--	--	--	-0.903	1.54	--	--	B	4.26	9.29	11.3	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 38	mg/kg	0.002	2.94	0.001	0.089	0.016	1.47	0.24	--	--	--	--	-3.72	1.54	--	--	B	0.256	0.558	0.677	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	2 / 38	mg/kg	0.024	29.4	0.012	0.92	0.209	14.7	2.39	0.483	0.787	1.09	0.429	-1.32	1.54	-0.321	0.576	L	0.876	1.56	1.89	7.24	--	190	--	--	0.005
Diethyl phthalate	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 38	mg/kg	0.024	29.4	0.012	0.89	0.157	14.7	2.4	0.129	0.129	0.129	--	-1.39	1.53	-2.05	--	L	0.795	1.4	1.69	6.51	--	--	--	NSRC	NSRC
Phenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 38	mg/kg	0.024	29.4	0.012	0.888	0.157	14.7	2.4	--	--	--	--	-1.41	1.54	--	--	B	2.56	5.58	6.77	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 38	pCi/g	2.08	9.25	2.08	5.27	3.35	48.3	7.46	3.11	18.6	48.3	25.8	1.38	0.582	2.16	1.5	B	10.6	20.4	24.1	--	--	--	--	--	--
Americium-241	0 / 37	pCi/g	0.142	0.611	0.142	0.253	0.229	0.611	0.112	--	--	--	--	-1.45	0.366	--	--	B	0.278	0.392	0.428	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	2 / 38	pCi/g	2.54	5.74	2.54	5.33	4.1	34.8	5.48	18.5	26.7	34.8	11.5	1.5	0.457	3.23	0.447	B	8.95	15.9	18.6	--	--	--	--	--	--
Carbon-14	5 / 38	pCi/g	0.312	2.4	0.312	11.8	0.667	416	67.3	0.549	85.1	416	185	-0.175	1.15	1.66	2.57	B	69.8	154	188	--	165	--	1.0E+07	0.423	--
Cesium-137	1 / 38	pCi/g	0.049	0.544	0.049	0.183	0.134	0.544	0.123	0.21	0.21	0.21	--	-1.89	0.618	-1.56	--	L	0.183	0.213	0.224	0.567	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 38	pCi/g	0.03	0.514	0.03	0.187	0.138	0.514	0.119	--	--	--	--	-1.86	0.634	--	--	L	0.19	0.222	0.234	0.603	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 38	pCi/g	0.207	1.37	0.207	0.674	0.603	1.37	0.28	--	--	--	--	-0.478	0.419	--	--	L	0.677	0.746	0.769	1.52	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 37	pCi/g	0.163	0.744	0.163	0.346	0.319	0.744	0.157	--	--	--	--	-1.15	0.422	--	--	L	0.346	0.382	0.394	0.783	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 38	pCi/g	0.655	3.51	0.655	1.13	1.03	3.51	0.521	--	--	--	--	0.054	0.345	--	--	B	1.38	2.05	2.28	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 37	pCi/g	0.147	0.966	0.147	0.282	0.225	0.966	0.196	--	--	--	--	-1.4	0.47	--	--	B	0.336	0.522	0.588	--	--	--	15,000	NSRC	NSRC

Table G.39. Y-12 Biology Complex summary statistics for Hoods from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 37	pCi/g	0.149	1.15	0.149	0.309	0.223	1.15	0.238	--	--	--	--	-1.34	0.502	--	--	B	0.365	0.589	0.669	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 37	pCi/g	7.61	18.3	7.61	11.8	12.2	18.3	2.97	--	--	--	--	2.43	0.259	--	--	B	12.5	15.2	15.9	--	--	--	790,000	NSRC	NSRC
Radium-226	5 / 38	pCi/g	0.196	0.977	0.137	0.53	0.528	0.977	0.182	0.137	0.452	0.664	0.226	-0.701	0.394	-0.937	0.657	N	0.53	0.569	0.58	0.92	--	--	300,000	--	--
Strontium-89	0 / 38	pCi/g	0.983	1.95	0.983	1.61	1.7	1.95	0.255	--	--	--	--	0.465	0.172	--	--	B	1.62	1.84	1.87	--	--	--	--	NSRC	NSRC
Strontium-90	9 / 38	pCi/g	1.22	1.99	1.22	2.28	1.85	14.4	2.15	1.98	4.27	14.4	3.9	0.67	0.449	1.24	0.61	B	3.84	6.69	7.76	--	--	--	400,000	--	--
Technetium-99	1 / 38	pCi/g	4	8.47	4	6.24	5.92	16.8	2.06	16.8	16.8	16.8	--	1.8	0.249	2.82	--	B	7.41	10.5	11.5	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 38	pCi/g	0.314	1.38	0.314	0.66	0.558	1.38	0.301	--	--	--	--	-0.505	0.416	--	--	B	0.654	0.919	0.998	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 38	pCi/g	0.237	1.13	0.237	0.547	0.474	1.13	0.247	0.562	0.562	0.562	--	-0.697	0.436	-0.576	--	L	0.548	0.607	0.626	1.27	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 38	pCi/g	0.228	0.98	0.228	0.479	0.41	0.98	0.211	--	--	--	--	-0.82	0.404	--	--	B	0.474	0.662	0.718	--	--	--	2500	NSRC	NSRC
Total Uranium	5 / 38	pCi/g	0.421	2.03	0.421	1.03	0.82	3.04	0.562	0.792	1.73	3.04	0.894	-0.089	0.47	0.44	0.532	L	1.02	1.26	1.37	2.5	--	--	--	--	--
Tritium	0 / 38	pCi/g	3.97	15.3	3.97	9.38	9.09	15.3	2.53	--	--	--	--	2.2	0.287	--	--	N	9.38	9.92	10.1	14.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	4 / 38	pCi/g	0.228	1.16	0.228	0.613	0.47	2.27	0.405	0.725	1.42	2.27	0.666	-0.637	0.518	0.261	0.488	B	0.73	1.2	1.37	--	1700	2.8E+07	100,000	4.3E-04	2.6E-08
Uranium-235/236	0 / 38	pCi/g	0.266	1.28	0.266	0.575	0.507	1.28	0.251	--	--	--	--	-0.632	0.39	--	--	L	0.574	0.627	0.645	1.23	1500	9500	100,000	NSRC	NSRC
Uranium-238	2 / 38	pCi/g	0.213	1.06	0.213	0.475	0.429	1.06	0.205	0.361	0.428	0.494	0.094	-0.822	0.388	-0.862	0.222	L	0.474	0.518	0.533	1.01	1200	1500	100,000	4.0E-04	3.2E-04
																									SOF =	0.424	0.247

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.40. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Walls from all buildings combined from random samples																											
Metals																											
Antimony	4 / 5	mg/kg	0.286	0.286	0.143	0.492	0.433	1.03	0.335	0.313	0.579	1.03	0.315	-0.906	0.726	-0.646	0.503	B	0.484	0.711	0.772	--	--	160	--	--	0.003
Arsenic	2 / 5	mg/kg	0.323	1.49	0.162	0.873	0.745	1.75	0.748	1.54	1.65	1.75	0.148	-0.584	1.16	0.496	0.09	B	0.815	1.22	1.33	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	13	22.5	18.3	38	11.2	13	22.5	38	11.2	3.02	0.491	3.02	0.491	B	20.7	26.9	28.8	--	--	150,000	--	--	1.4E-04
Beryllium	4 / 5	mg/kg	0.02	0.02	0.01	0.065	0.024	0.185	0.074	0.019	0.079	0.185	0.077	-3.28	1.2	-2.95	1.08	B	0.048	0.088	0.102	--	--	--	--	--	--
Boron	3 / 5	mg/kg	0.758	0.763	0.379	21.1	2.61	99.2	43.7	2.61	34.9	99.2	55.7	0.933	2.27	2.2	2.08	B	18.3	39.0	47.1	--	--	24,000	--	--	7.6E-04
Cadmium	4 / 5	mg/kg	0.019	0.019	0.01	1.27	0.066	6.12	2.71	0.057	1.59	6.12	3.02	-2.11	2.39	-1.48	2.22	B	1.07	2.32	2.82	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	1.85	4.45	1.96	10.3	3.76	1.85	4.45	10.3	3.76	1.22	0.805	1.22	0.805	B	3.33	5.08	5.77	--	--	140,000	--	--	2.4E-05
Copper	5 / 5	mg/kg	--	--	0.768	2.73	2.71	4.53	1.49	0.768	2.73	4.53	1.49	0.839	0.702	0.839	0.702	B	2.69	3.64	3.85	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.568	2.65	0.284	0.498	0.295	1.33	0.463	--	--	--	--	-0.932	0.679	--	--	B	0.465	0.679	0.764	--	--	--	--	NSRC	NSRC
Lead	5 / 5	mg/kg	--	--	1.6	19.6	3.37	71.6	30.0	1.6	19.6	71.6	30.0	1.9	1.66	1.9	1.66	B	14.4	29.2	34.9	--	--	1500	--	--	0.01
Manganese	5 / 5	mg/kg	--	--	20.2	57.4	41.7	148	51.5	20.2	57.4	148	51.5	3.8	0.732	3.8	0.732	B	55.8	86.6	96.5	--	--	360,000	--	--	1.6E-04
Mercury	3 / 5	mg/kg	0.003	0.003	0.002	0.13	0.024	0.59	0.258	0.024	0.215	0.59	0.324	-4.08	2.43	-2.56	1.77	B	0.115	0.241	0.289	--	--	--	--	--	--
Molybdenum	3 / 5	mg/kg	0.076	0.079	0.038	0.451	0.127	1.4	0.589	0.127	0.726	1.4	0.64	-1.73	1.64	-0.718	1.23	B	0.324	0.625	0.735	--	--	3900	--	--	8.3E-05
Nickel	5 / 5	mg/kg	--	--	1.03	1.95	1.49	3.81	1.1	1.03	1.95	3.81	1.1	0.558	0.499	0.558	0.499	B	1.8	2.47	2.68	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.341	1.59	0.171	0.353	0.177	0.795	0.275	0.448	0.448	0.448	--	-1.26	0.708	-0.803	--	B	0.279	0.407	0.458	--	--	1600	--	--	1.7E-04
Silver	2 / 5	mg/kg	0.097	0.919	0.049	2.1	0.46	6.85	2.85	2.69	4.77	6.85	2.94	-0.345	1.91	1.46	0.661	B	1.46	2.95	3.5	--	--	--	--	--	--
Strontium	5 / 5	mg/kg	--	--	2.69	592	6.3	2470	1070	2.69	592	2470	1070	3.64	3.13	3.64	3.13	B	416	917	1118	--	--	300,000	--	--	0.001
Thallium	0 / 5	mg/kg	0.133	0.618	0.067	0.116	0.069	0.309	0.108	--	--	--	--	-2.39	0.677	--	--	B	0.109	0.158	0.178	--	--	--	--	NSRC	NSRC
Tin	4 / 5	mg/kg	0.292	0.292	0.146	2.54	0.823	6.36	2.83	0.582	3.13	6.36	2.88	0.15	1.56	0.669	1.21	B	1.63	3.07	3.56	--	--	2200	--	--	7.4E-04
Vanadium	5 / 5	mg/kg	--	--	0.786	3.08	1.83	9.5	3.65	0.786	3.08	9.5	3.65	0.674	1.0	0.674	1.0	B	2.93	4.96	5.65	--	--	25,000	--	--	1.2E-04
Zinc	5 / 5	mg/kg	--	--	9.07	22.6	24.9	35.3	10.5	9.07	22.6	35.3	10.5	3.01	0.55	3.01	0.55	B	24.0	30.4	31.7	--	--	--	--	--	--
Zirconium	3 / 5	mg/kg	0.379	0.382	0.19	2.46	1.79	7.25	2.91	1.79	3.98	7.25	2.89	0.062	1.65	1.21	0.711	B	2.43	4.19	4.71	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 5	mg/L	0.017	0.017	0.009	0.012	0.009	0.024	0.007	0.024	0.024	0.024	--	-4.56	0.462	-3.73	--	X	0.012	0.021	0.025	--	--	--	--	--	--
Barium	5 / 5	mg/L	--	--	0.079	0.116	0.124	0.143	0.026	0.079	0.116	0.143	0.026	-2.17	0.238	-2.17	0.238	X	0.116	0.151	0.166	--	--	--	--	--	--
Cadmium	2 / 5	mg/L	0.003	0.003	0.002	0.003	0.003	0.004	4.4E-04	0.003	0.004	0.004	6.6E-04	-6.15	0.491	-5.62	0.183	X*	0.003	0.004	0.004	--	--	--	--	--	--
Chromium	1 / 5	mg/L	0.03	0.03	0.015	0.024	0.015	0.062	0.021	0.062	0.062	0.062	--	-3.92	0.634	-2.78	--	X	0.024	0.053	0.065	--	--	--	--	--	--
Lead	3 / 5	mg/L	0.005	0.005	0.003	0.236	0.022	0.739	0.295	0.022	0.389	0.739	0.359	-3.4	2.71	-1.67	1.88	X*	0.236	0.72	0.94	--	--	--	--	--	--
Selenium	0 / 5	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 5	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 5	mg/kg	0.008	0.017	0.004	0.006	0.004	0.008	0.002	--	--	--	--	-5.22	0.386	--	--	B	0.005	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 5	mg/kg	0.008	0.017	0.004	0.006	0.004	0.008	0.002	--	--	--	--	-5.22	0.386	--	--	B	0.005	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 5	mg/kg	9.9E-04	0.02	5.0E-04	0.004	0.002	0.01	0.005	0.002	0.002	0.002	--	-6.19	1.5	-6.48	--	B	0.003	0.005	0.006	--	130,000	--	--	2.1E-08	--
4,4'-DDT	1 / 5	mg/kg	9.8E-04	0.019	4.9E-04	0.011	5.0E-04	0.042	0.018	0.042	0.042	0.042	--	-6.13	2.09	-3.17	--	B	0.007	0.016	0.019	--	--	--	--	--	--
Aldrin	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 5	mg/kg	0.005	0.1	0.002	0.021	0.002	0.05	0.025	--	--	--	--	-4.81	1.63	--	--	B	0.01	0.02	0.024	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 5	mg/kg	9.8E-04	0.02	4.9E-04	0.004	5.0E-04	0.01	0.005	--	--	--	--	-6.42	1.63	--	--	B	0.002	0.004	0.005	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	1000	1500	--	NSRC	NSRC

Table G.40. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/kg	0.005	0.1	0.002	0.021	0.002	0.05	0.025	--	--	--	--	-4.81	1.63	--	--	B	0.01	0.02	0.024	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/kg	0.016	0.332	0.008	0.07	0.008	0.166	0.084	--	--	--	--	-3.61	1.63	--	--	B	0.035	0.067	0.079	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 5	mg/kg	4.9E-04	0.01	2.5E-04	0.002	2.5E-04	0.005	0.003	--	--	--	--	-7.11	1.63	--	--	B	0.001	0.002	0.002	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 46	mg/kg	0.003	0.3	0.002	0.039	0.015	0.15	0.044	0.011	0.034	0.053	0.013	-3.77	1.01	-3.48	0.526	B	0.035	0.069	0.081	--	--	4000	--	--	8.8E-06
2-Methylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	2 / 46	mg/kg	0.099	3	0.034	0.359	0.149	1.5	0.447	0.034	0.035	0.035	0.001	-1.55	0.955	-3.37	0.035	B	0.355	0.684	0.802	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 46	mg/kg	0.003	0.3	0.002	0.037	0.015	0.15	0.045	0.078	0.078	0.078	--	-3.85	1.04	-2.56	--	B	0.035	0.069	0.081	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 46	mg/kg	0.003	0.3	0.002	0.036	0.015	0.15	0.045	--	--	--	--	-3.89	1.02	--	--	B	0.035	0.069	0.081	--	--	93,200	--	NSRC	NSRC
Acetophenone	4 / 46	mg/kg	0.033	3	0.017	0.536	0.149	6.62	1.14	0.305	2.87	6.62	3.09	-1.5	1.16	0.276	1.61	B	1.21	2.58	3.12	--	--	330	--	--	0.004
Benzenemethanol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1200	--	NSRC	NSRC
Benzidine	1 / 46	mg/kg	0.033	3	0.017	0.38	0.149	1.5	0.462	1.17	1.17	1.17	--	-1.54	1.05	0.157	--	B	0.352	0.688	0.807	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 46	mg/kg	0.056	5	0.028	0.677	0.249	2.73	0.814	1.47	2.1	2.73	0.891	-0.983	1.08	0.695	0.438	B	0.625	1.23	1.45	--	--	9810	--	NSRC	NSRC
Carbazole	3 / 46	mg/kg	0.01	0.3	0.005	0.041	0.015	0.239	0.053	0.01	0.089	0.239	0.13	-3.74	0.945	-3.37	1.7	B	0.051	0.101	0.12	--	110,000	--	--	4.6E-07	--
Di-n-butyl phthalate	1 / 46	mg/kg	0.033	3	0.017	0.829	0.149	22.4	3.28	22.4	22.4	22.4	--	-1.51	1.22	3.11	--	B	3.84	8.41	10.2	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 46	mg/kg	0.033	3	0.017	0.364	0.149	1.5	0.447	0.432	0.432	0.432	--	-1.56	1.03	-0.839	--	B	0.352	0.688	0.807	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 46	mg/kg	0.033	3	0.017	0.487	0.149	6.08	0.954	6.08	6.08	6.08	--	-1.5	1.14	1.81	--	B	1.12	2.38	2.88	--	--	--	--	NSRC	NSRC
Phenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 46	mg/kg	0.033	3	0.017	0.358	0.149	1.5	0.448	--	--	--	--	-1.59	1.02	--	--	B	0.352	0.688	0.807	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	14 / 14	pCi/g	--	--	1.25	1.92	1.83	3.08	0.531	1.25	1.92	3.08	0.531	0.618	0.268	0.618	0.268	N	1.92	2.11	2.17	3.31	--	--	--	--	--
Alpha activity	36 / 46	pCi/g	2.54	8.17	2.54	19.7	19.5	52	11.8	8.51	23.7	52	10.1	2.75	0.765	3.07	0.446	N	19.7	22.0	22.6	44.3	--	--	--	--	--
Beta activity	42 / 46	pCi/g	1.82	4.94	1.82	32.2	26.9	122	24.9	2.47	35.0	122	24.3	3.07	1.06	3.26	0.873	B	38.5	68.1	77.2	--	--	--	--	--	--
Bismuth-214	25 / 25	pCi/g	--	--	0.817	1.29	1.19	2.16	0.389	0.817	1.29	2.16	0.389	0.215	0.288	0.215	0.288	L	1.29	1.4	1.44	2.4	--	--	--	--	--
Carbon-14	0 / 46	pCi/g	0.327	2.49	0.327	1.56	1.92	2.49	0.792	--	--	--	--	0.27	0.654	--	--	B	1.75	2.23	2.31	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 46	pCi/g	0.029	0.189	0.029	0.117	0.122	0.189	0.041	--	--	--	--	-2.22	0.427	--	--	N	0.117	0.125	0.127	0.202	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 46	pCi/g	0.025	0.262	0.025	0.129	0.136	0.262	0.052	--	--	--	--	-2.14	0.484	--	--	N	0.129	0.14	0.142	0.239	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 46	pCi/g	0.142	1.31	0.142	0.673	0.672	1.31	0.292	--	--	--	--	-0.512	0.529	--	--	N	0.673	0.729	0.746	1.28	13	--	1500	NSRC	NSRC
Lead-212	32 / 32	pCi/g	--	--	0.501	1.51	1.48	2.32	0.41	0.501	1.51	2.32	0.41	0.371	0.306	0.371	0.306	N	1.51	1.6	1.63	2.41	--	--	--	--	--
Lead-214	25 / 25	pCi/g	--	--	0.754	1.45	1.22	2.29	0.492	0.754	1.45	2.29	0.492	0.321	0.333	0.321	0.333	B	1.32	1.71	1.82	--	--	--	--	--	--
Nickel-63	1 / 46	pCi/g	0.323	1.44	0.323	0.755	0.81	1.44	0.233	0.834	0.834	0.834	--	-0.332	0.335	-0.182	--	B	0.834	1.12	1.19	--	--	--	1.3E+08	NSRC	NSRC

Table G.40. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	34 / 34	pCi/g	--	--	7.68	30.2	27.3	64.5	17.0	7.68	30.2	64.5	17.0	3.24	0.603	3.24	0.603	L	30.7	36.0	37.9	95.0	--	--	4.2E+06	--	--
Radium-226	34 / 46	pCi/g	0.251	1.02	0.251	1.13	0.903	3.15	0.78	0.351	1.32	3.15	0.824	-0.087	0.654	0.082	0.639	L	1.14	1.32	1.38	3.59	--	--	300,000	--	--
Strontium-89	1 / 46	pCi/g	0.504	1.99	0.504	1.74	1.78	4.23	0.483	4.23	4.23	4.23	--	0.519	0.291	1.44	--	B	1.98	2.93	3.18	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 46	pCi/g	0.515	2	0.515	1.53	1.6	2	0.336	--	--	--	--	0.398	0.268	--	--	B	1.48	1.82	1.87	--	--	--	400,000	NSRC	NSRC
Technetium-99	2 / 46	pCi/g	1.19	7.55	0.113	5.28	5.81	7.55	1.86	0.113	0.692	1.27	0.818	1.53	0.701	-0.971	1.71	B	5.15	6.77	7.02	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	21 / 21	pCi/g	--	--	0.192	0.522	0.531	0.737	0.116	0.192	0.522	0.737	0.116	-0.682	0.276	-0.682	0.276	N	0.522	0.555	0.565	0.798	--	--	--	--	--
Thorium-228	29 / 46	pCi/g	0.155	0.727	0.155	1.05	1.05	2.82	0.595	0.223	1.35	2.82	0.559	-0.122	0.637	0.188	0.543	L	1.08	1.25	1.31	3.34	--	--	25,000	--	--
Thorium-230	34 / 46	pCi/g	0.318	0.553	0.294	1.06	0.964	3.2	0.675	0.294	1.28	3.2	0.657	-0.126	0.626	0.117	0.543	L	1.07	1.23	1.29	3.26	--	--	15,000	--	--
Thorium-232	32 / 46	pCi/g	0.237	0.531	0.199	1.03	1.16	2.36	0.608	0.199	1.31	2.36	0.534	-0.181	0.71	0.136	0.607	B	1.2	1.75	1.88	--	--	--	2500	--	--
Total Uranium	32 / 46	pCi/g	0.713	1.59	0.713	1.99	1.7	5.3	1.09	0.716	2.36	5.3	1.11	0.552	0.528	0.745	0.506	L	2.0	2.24	2.32	5.22	--	--	--	--	--
Tritium	0 / 46	pCi/g	6.26	14.6	6.26	10.8	11.2	14.6	2.14	--	--	--	--	2.36	0.212	--	--	B	10.9	13.0	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	30 / 46	pCi/g	0.352	0.889	0.352	0.993	0.804	2.72	0.527	0.392	1.2	2.72	0.541	-0.131	0.498	0.083	0.458	L	0.993	1.1	1.14	2.48	1700	2.8E+07	100,000	5.8E-04	3.5E-08
Uranium-235/236	1 / 46	pCi/g	0.299	1.03	0.299	0.589	0.587	1.03	0.177	0.414	0.414	0.414	--	-0.574	0.304	-0.882	--	N	0.589	0.623	0.633	0.959	1500	9500	100,000	NSRC	NSRC
Uranium-238	28 / 46	pCi/g	0.289	0.813	0.289	0.898	0.776	2.27	0.461	0.511	1.12	2.27	0.456	-0.227	0.495	0.036	0.405	L	0.9	1.0	1.03	2.24	1200	1500	100,000	7.5E-04	6.0E-04
																									SOF =	0.001	0.021

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.41. Y-12 Biology Complex summary statistics for Roofs from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Roofs from all buildings combined from random samples																											
Metals																											
Antimony	3 / 4	mg/kg	0.325	0.325	0.163	0.525	0.393	1.15	0.431	0.381	0.645	1.15	0.437	-0.887	0.801	-0.576	0.621	B	0.481	0.727	0.8	--	--	160	--	--	0.003
Arsenic	4 / 4	mg/kg	--	--	4.34	5.39	4.93	7.36	1.35	4.34	5.39	7.36	1.35	1.66	0.231	1.66	0.231	B	5.24	5.98	6.21	--	--	--	--	--	--
Barium	4 / 4	mg/kg	--	--	10.9	26.4	22.0	50.7	17.3	10.9	26.4	50.7	17.3	3.12	0.643	3.12	0.643	B	24.9	35.0	37.8	--	--	150,000	--	--	1.7E-04
Beryllium	4 / 4	mg/kg	--	--	0.06	0.21	0.117	0.545	0.225	0.06	0.21	0.545	0.225	-1.93	0.935	-1.93	0.935	B	0.179	0.292	0.33	--	--	--	--	--	--
Boron	4 / 4	mg/kg	--	--	2.45	4.98	3.93	9.62	3.19	2.45	4.98	9.62	3.19	1.47	0.579	1.47	0.579	B	4.63	6.4	6.94	--	--	24,000	--	--	1.9E-04
Cadmium	4 / 4	mg/kg	--	--	0.754	1.12	1.19	1.34	0.281	0.754	1.12	1.34	0.281	0.086	0.273	0.086	0.273	B	1.14	1.27	1.29	--	--	--	--	--	--
Chromium	4 / 4	mg/kg	--	--	10.4	36.6	29.1	77.7	32.5	10.4	36.6	77.7	32.5	3.23	1.03	3.23	1.03	B	34.1	51.1	55.9	--	--	140,000	--	--	2.4E-04
Copper	4 / 4	mg/kg	--	--	7.47	15.9	13.0	30.2	10.1	7.47	15.9	30.2	10.1	2.62	0.605	2.62	0.605	B	14.9	20.6	22.3	--	--	--	--	--	--
Hafnium	0 / 4	mg/kg	0.55	0.594	0.275	0.286	0.285	0.297	0.009	--	--	--	--	-1.25	0.033	--	--	B	0.286	0.291	0.292	--	--	--	--	NSRC	NSRC
Lead	4 / 4	mg/kg	--	--	25.7	63.3	57.8	112	40.2	25.7	63.3	112	40.2	3.98	0.688	3.98	0.688	B	61.5	83.6	89.3	--	--	1500	--	--	0.041
Manganese	4 / 4	mg/kg	--	--	37.4	97.7	93.1	167	53.7	37.4	97.7	167	53.7	4.45	0.623	4.45	0.623	B	96.1	129	137	--	--	360,000	--	--	2.7E-04
Mercury	3 / 4	mg/kg	0.004	0.004	0.002	0.111	0.049	0.344	0.157	0.044	0.148	0.344	0.17	-3.33	2.15	-2.37	1.13	B	0.091	0.171	0.198	--	--	--	--	--	--
Molybdenum	4 / 4	mg/kg	--	--	2.04	32.2	17.7	91.1	40.8	2.04	32.2	91.1	40.8	2.64	1.64	2.64	1.64	B	27.3	48.9	55.8	--	--	3900	--	--	0.007
Nickel	4 / 4	mg/kg	--	--	3.26	14.7	6.97	41.7	18.1	3.26	14.7	41.7	18.1	2.19	1.09	2.19	1.09	B	12.1	20.9	24.0	--	--	--	--	--	--
Selenium	3 / 4	mg/kg	0.346	0.346	0.173	0.949	0.987	1.65	0.639	0.733	1.21	1.65	0.459	-0.337	1.0	0.135	0.412	B	0.962	1.33	1.41	--	--	1600	--	--	6.0E-04
Silver	1 / 4	mg/kg	0.916	0.984	0.338	0.442	0.47	0.492	0.071	0.338	0.338	0.338	--	-0.826	0.175	-1.08	--	B	0.452	0.482	0.486	--	--	--	--	--	--
Strontium	4 / 4	mg/kg	--	--	21.6	59.5	47.7	121	44.2	21.6	59.5	121	44.2	3.88	0.745	3.88	0.745	B	55.6	80.6	87.8	--	--	300,000	--	--	1.9E-04
Thallium	3 / 4	mg/kg	0.135	0.135	0.068	0.209	0.253	0.263	0.095	0.249	0.256	0.263	0.007	-1.7	0.667	-1.36	0.027	B	0.224	0.256	0.259	--	--	--	--	--	--
Tin	4 / 4	mg/kg	--	--	1.36	4.08	4.7	5.56	1.92	1.36	4.08	5.56	1.92	1.28	0.659	1.28	0.659	B	4.29	5.17	5.31	--	--	2200	--	--	0.002
Vanadium	4 / 4	mg/kg	--	--	3.65	52.3	16.2	173	80.9	3.65	52.3	173	80.9	2.97	1.64	2.97	1.64	B	40.3	78.1	91.7	--	--	25,000	--	--	0.002
Zinc	4 / 4	mg/kg	--	--	154	319	248	624	209	154	319	624	209	5.62	0.59	5.62	0.59	B	295	410	446	--	--	--	--	--	--
Zirconium	4 / 4	mg/kg	--	--	1.32	4.83	3.1	11.8	4.92	1.32	4.83	11.8	4.92	1.17	1.05	1.17	1.05	B	4.25	6.78	7.59	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.073	0.169	0.166	0.271	0.089	0.073	0.169	0.271	0.089	-1.9	0.588	-1.9	0.588	X	0.169	0.302	0.363	--	--	--	--	--	--
Cadmium	1 / 4	mg/L	0.003	0.003	0.002	0.003	0.002	0.007	0.003	0.007	0.007	0.007	--	-6.11	0.785	-4.93	--	X	0.003	0.007	0.009	--	--	--	--	--	--
Chromium	3 / 4	mg/L	0.03	0.03	0.015	0.098	0.111	0.213	0.074	0.037	0.12	0.213	0.088	-2.81	1.18	-2.35	0.888	X*	0.098	0.233	0.295	--	--	--	--	--	--
Lead	4 / 4	mg/L	--	--	0.078	0.181	0.138	0.371	0.133	0.078	0.181	0.371	0.133	-1.89	0.682	-1.89	0.682	X	0.181	0.38	0.47	--	--	--	--	--	--
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.017	0.824	0.008	0.214	0.219	0.412	0.224	--	--	--	--	-2.5	1.94	--	--	B	0.216	0.318	0.34	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.017	0.824	0.008	0.214	0.219	0.412	0.224	--	--	--	--	-2.5	1.94	--	--	B	0.216	0.318	0.34	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	--	--	NSRC	NSRC
Aldrin	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.121	0.497	0.061	0.155	0.155	0.249	0.108	--	--	--	--	-2.1	0.81	--	--	B	0.155	0.202	0.213	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	0.024	0.099	0.012	0.031	0.031	0.05	0.022	--	--	--	--	-3.71	0.812	--	--	B	0.031	0.04	0.043	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	1000	1500	--	NSRC	NSRC

Table G.41. Y-12 Biology Complex summary statistics for Roofs from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	0.121	0.497	0.061	0.155	0.155	0.249	0.108	--	--	--	--	-2.1	0.81	--	--	B	0.155	0.202	0.213	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.403	1.65	0.202	0.514	0.515	0.825	0.359	--	--	--	--	-0.894	0.81	--	--	B	0.514	0.672	0.708	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	0.012	0.05	0.006	0.015	0.015	0.025	0.011	--	--	--	--	-4.4	0.81	--	--	B	0.015	0.02	0.021	--	140	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	33 / 33	pCi/g	--	--	7.08	30.6	20.5	201	34.9	7.08	30.6	201	34.9	3.11	0.73	3.11	0.73	L	28.8	40.8	46.3	110	--	--	--	--	--
Beta activity	33 / 33	pCi/g	--	--	6.63	49.3	18.6	757	135	6.63	49.3	757	135	3.01	0.968	3.01	0.968	B	140	295	357	--	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	0.401	0.477	0.477	0.552	0.107	0.401	0.477	0.552	0.107	-0.754	0.226	-0.754	0.226	B	0.477	0.515	0.523	--	--	--	--	--	--
Carbon-14	0 / 33	pCi/g	1.66	2.4	1.66	1.95	1.88	2.4	0.211	--	--	--	--	0.662	0.104	--	--	B	1.93	2.12	2.17	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	18 / 33	pCi/g	0.06	0.218	0.06	0.311	0.212	1.01	0.253	0.098	0.448	1.01	0.273	-1.44	0.728	-0.994	0.658	L	0.309	0.38	0.406	1.17	--	--	1.5E+06	--	--
Cobalt-60	0 / 33	pCi/g	0.052	0.257	0.052	0.126	0.114	0.257	0.051	--	--	--	--	-2.16	0.414	--	--	N	0.126	0.137	0.141	0.237	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 33	pCi/g	0.167	1.26	0.167	0.684	0.757	1.26	0.329	--	--	--	--	-0.524	0.584	--	--	B	0.743	1.02	1.08	--	13	--	1500	NSRC	NSRC
Lead-212	2 / 2	pCi/g	--	--	0.361	0.372	0.372	0.383	0.016	0.361	0.372	0.383	0.016	-0.989	0.042	-0.989	0.042	B	0.372	0.378	0.379	--	--	--	--	--	--
Nickel-63	0 / 33	pCi/g	0.533	1.52	0.533	0.864	0.807	1.52	0.274	--	--	--	--	-0.191	0.301	--	--	L	0.864	0.93	0.951	1.59	--	--	1.3E+08	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	1.83	3.0	3.2	3.96	0.798	1.83	3.0	3.96	0.798	1.07	0.294	1.07	0.294	B	3.1	3.61	3.71	--	--	--	4.2E+06	--	--
Radium-226	9 / 33	pCi/g	0.495	0.93	0.321	0.624	0.622	0.93	0.138	0.321	0.526	0.752	0.15	-0.497	0.239	-0.68	0.299	N	0.624	0.656	0.665	0.925	--	--	300,000	--	--
Strontium-89	0 / 33	pCi/g	0.448	1.99	0.448	1.56	1.69	1.99	0.457	--	--	--	--	0.383	0.399	--	--	B	1.53	1.85	1.9	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 33	pCi/g	0.38	1.98	0.38	1.32	1.26	1.98	0.477	--	--	--	--	0.196	0.444	--	--	B	1.23	1.63	1.72	--	--	--	400,000	NSRC	NSRC
Technetium-99	10 / 33	pCi/g	3.45	9.69	3.45	7.86	6.9	22.5	3.85	7.17	11.9	22.5	4.53	1.97	0.419	2.42	0.334	L	7.81	9.58	10.4	17.9	172	--	4.2E+07	0.045	--
Thallium-208	1 / 1	pCi/g	--	--	0.212	0.212	0.212	0.212	--	0.212	0.212	0.212	--	-1.55	--	-1.55	--	B	0.212	0.212	0.212	--	--	--	--	--	--
Thorium-228	1 / 33	pCi/g	0.194	0.96	0.194	0.607	0.613	0.96	0.182	0.748	0.748	0.748	--	-0.556	0.366	-0.29	--	N	0.607	0.648	0.66	1.0	--	--	25,000	NSRC	NSRC
Thorium-230	5 / 33	pCi/g	0.29	0.73	0.29	0.522	0.484	1.38	0.19	0.348	0.705	1.38	0.393	-0.698	0.3	-0.454	0.495	B	0.601	0.865	0.949	--	--	--	15,000	--	--
Thorium-232	4 / 33	pCi/g	0.155	0.701	0.155	0.452	0.457	0.701	0.132	0.162	0.447	0.63	0.203	-0.846	0.351	-0.92	0.614	N	0.452	0.482	0.491	0.74	--	--	2500	--	--
Total Uranium	33 / 33	pCi/g	--	--	2.8	17.4	13	82.4	15.2	2.8	17.4	82.4	15.2	2.58	0.76	2.58	0.76	L	17.5	21.8	23.4	69.2	--	--	--	--	--
Tritium	0 / 33	pCi/g	7.82	14.5	7.82	11.6	11.5	14.5	1.71	--	--	--	--	2.44	0.16	--	--	B	11.4	13.1	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	33 / 33	pCi/g	--	--	1.33	10.6	7.62	52.5	9.75	1.33	10.6	52.5	9.75	2.06	0.795	2.06	0.795	L	10.7	13.5	14.6	44.4	1700	2.8E+07	100,000	0.006	3.8E-07
Uranium-235/236	14 / 33	pCi/g	0.569	1.21	0.569	1.05	0.8	4.13	0.694	0.585	1.33	4.13	0.984	-0.078	0.459	0.09	0.606	B	1.32	2.1	2.39	--	1500	9500	100,000	8.8E-04	1.4E-04
Uranium-238	33 / 33	pCi/g	--	--	1.09	6.02	4.95	25.9	4.99	1.09	6.02	25.9	4.99	1.49	0.815	1.49	0.815	L	6.2	7.87	8.51	26.4	1200	1500	100,000	0.005	0.004
																									SOF =	0.058	0.06

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

Table G.41. Y-12 Biology Complex summary statistics for Roofs from all buildings combined from random samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.42. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ceilings in Y-12 Building 9207 (all random samples)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.404	0.492	0.492	0.579	0.124	0.404	0.492	0.579	0.124	-0.726	0.254	-0.726	0.254	B	0.492	0.536	0.546	--	--	160	--	--	0.003
Arsenic	2 / 2	mg/kg	--	--	1.68	16.4	16.4	31.2	20.9	1.68	16.4	31.2	20.9	1.98	2.07	1.98	2.07	B	16.4	23.9	25.6	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	3.44	24.6	24.6	45.7	29.9	3.44	24.6	45.7	29.9	2.53	1.83	2.53	1.83	B	24.6	35.3	37.7	--	--	150,000	--	--	1.6E-04
Beryllium	0 / 2	mg/kg	0.005	0.014	0.002	0.005	0.005	0.007	0.003	--	--	--	--	-5.53	0.751	--	--	B	0.005	0.006	0.006	--	--	--	--	NSRC	NSRC
Boron	0 / 2	mg/kg	0.187	0.539	0.094	0.182	0.182	0.27	0.124	--	--	--	--	-1.84	0.749	--	--	B	0.182	0.226	0.236	--	--	24,000	--	NSRC	NSRC
Cadmium	2 / 2	mg/kg	--	--	0.24	0.331	0.331	0.422	0.129	0.24	0.331	0.422	0.129	-1.14	0.399	-1.14	0.399	B	0.331	0.377	0.388	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	20	81.5	81.5	143	87.0	20	81.5	143	87.0	3.98	1.39	3.98	1.39	B	81.5	113	120	--	--	140,000	--	--	5.8E-04
Copper	2 / 2	mg/kg	--	--	16	59	59	102	60.8	16	59	102	60.8	3.7	1.31	3.7	1.31	B	59	80.8	85.7	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.14	0.404	0.07	0.136	0.136	0.202	0.093	--	--	--	--	-2.13	0.749	--	--	B	0.136	0.169	0.177	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	1280	1745	1745	2210	658	1280	1745	2210	658	7.43	0.386	7.43	0.386	B	1745	1981	2034	--	--	1500	--	--	**1.16**
Manganese	2 / 2	mg/kg	--	--	272	566	566	860	416	272	566	860	416	6.18	0.814	6.18	0.814	B	566	715	749	--	--	360,000	--	--	0.002
Mercury	2 / 2	mg/kg	--	--	0.007	0.012	0.012	0.016	0.006	0.007	0.012	0.016	0.006	-4.51	0.563	-4.51	0.563	B	0.012	0.014	0.015	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	1.56	7.83	7.83	14.1	8.87	1.56	7.83	14.1	8.87	1.55	1.56	1.55	1.56	B	7.83	11.0	11.7	--	--	3900	--	--	0.002
Nickel	2 / 2	mg/kg	--	--	15.4	57.6	57.6	99.7	59.6	15.4	57.6	99.7	59.6	3.67	1.32	3.67	1.32	B	57.6	78.9	83.7	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.084	0.243	0.042	0.082	0.082	0.122	0.056	--	--	--	--	-2.64	0.75	--	--	B	0.082	0.102	0.106	--	--	1600	--	NSRC	NSRC
Silver	0 / 2	mg/kg	0.674	1.17	0.337	0.461	0.461	0.585	0.175	--	--	--	--	-0.812	0.39	--	--	B	0.461	0.524	0.538	--	--	--	--	NSRC	NSRC
Strontium	2 / 2	mg/kg	--	--	0.631	0.654	0.654	0.677	0.033	0.631	0.654	0.677	0.033	-0.425	0.05	-0.425	0.05	B	0.654	0.666	0.668	--	--	300,000	--	--	2.2E-06
Thallium	0 / 2	mg/kg	0.033	0.094	0.016	0.032	0.032	0.047	0.022	--	--	--	--	-3.58	0.749	--	--	B	0.032	0.04	0.041	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	3.5	3.5	1.75	3.86	3.86	5.96	2.98	5.96	5.96	5.96	--	1.17	0.867	1.79	--	B	3.86	4.92	5.16	--	--	2200	--	--	0.002
Vanadium	2 / 2	mg/kg	--	--	0.113	0.334	0.334	0.554	0.312	0.113	0.334	0.554	0.312	-1.39	1.12	-1.39	1.12	B	0.334	0.445	0.471	--	--	25,000	--	--	1.3E-05
Zinc	2 / 2	mg/kg	--	--	103	162	162	221	83.4	103	162	221	83.4	5.02	0.54	5.02	0.54	B	162	192	199	--	--	--	--	--	--
Zirconium	0 / 2	mg/kg	0.094	0.27	0.047	0.091	0.091	0.135	0.062	--	--	--	--	-2.53	0.75	--	--	B	0.091	0.113	0.118	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.0E-04	0.001	3.5E-04	5.1E-04	5.1E-04	6.7E-04	2.3E-04	--	--	--	--	-7.64	0.463	--	--	B	5.1E-04	5.9E-04	6.1E-04	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.0E-04	0.001	3.5E-04	5.1E-04	5.1E-04	6.7E-04	2.3E-04	--	--	--	--	-7.64	0.463	--	--	B	5.1E-04	5.9E-04	6.1E-04	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.19	--	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	8.2E-04	8.2E-04	4.1E-04	4.1E-04	4.1E-04	4.1E-04	--	--	--	--	--	-7.8	--	--	--	B	4.1E-04	8.2E-04	8.2E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.19	--	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.014	0.014	0.007	0.007	0.007	0.007	--	--	--	--	--	-4.98	--	--	--	B	0.007	0.014	0.014	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	4.1E-04	4.1E-04	2.1E-04	2.1E-04	2.1E-04	2.1E-04	--	--	--	--	--	-8.49	--	--	--	B	2.1E-04	4.1E-04	4.1E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	10,800	--	NSRC	NSRC

Table G.42. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
2,4,5-Trichlorophenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	2 / 19	mg/kg	0.002	0.03	8.9E-04	0.013	0.015	0.04	0.01	0.032	0.036	0.04	0.005	-4.76	1.16	-3.34	0.153	B	0.017	0.027	0.029	--	--	4000	--	--	4.2E-06
2-Methylphenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 19	mg/kg	0.002	0.03	8.9E-04	0.015	0.015	0.085	0.018	0.085	0.085	0.085	--	-4.76	1.2	-2.46	--	B	0.024	0.045	0.051	--	--	390,000	--	--	6.2E-08
Acenaphthylene	0 / 19	mg/kg	0.002	0.03	8.9E-04	0.011	0.015	0.015	0.006	--	--	--	--	-4.85	1.07	--	--	B	0.013	0.015	0.015	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 19	mg/kg	0.018	0.3	0.009	0.125	0.149	0.41	0.091	0.41	0.41	0.41	--	-2.49	1.13	-0.892	--	B	0.169	0.272	0.299	--	--	1200	--	--	1.4E-04
Benzidine	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 19	mg/kg	0.03	0.5	0.015	0.185	0.248	0.25	0.1	--	--	--	--	-2.04	1.07	--	--	B	0.209	0.244	0.247	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 19	mg/kg	0.002	0.03	8.9E-04	0.025	0.015	0.237	0.053	0.053	0.145	0.237	0.13	-4.64	1.38	-2.19	1.06	B	0.05	0.101	0.12	--	110,000	--	--	4.5E-07	--
Di-n-butyl phthalate	6 / 19	mg/kg	0.028	0.3	0.014	0.226	0.149	1.25	0.33	0.028	0.424	1.25	0.567	-2.05	1.03	-1.92	1.67	B	0.31	0.595	0.693	--	--	190	--	--	0.002
Diethyl phthalate	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	3 / 19	mg/kg	0.028	0.3	0.014	0.116	0.149	0.15	0.052	0.039	0.047	0.051	0.006	-2.35	0.78	-3.07	0.141	B	0.126	0.147	0.148	--	--	--	--	--	--
Phenol	1 / 19	mg/kg	0.018	0.3	0.009	0.122	0.149	0.351	0.081	0.351	0.351	0.351	--	-2.5	1.12	-1.05	--	B	0.159	0.247	0.269	--	--	3200	--	--	5.0E-05
Pyridine	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 19	mg/kg	0.018	0.3	0.009	0.111	0.149	0.15	0.06	--	--	--	--	-2.55	1.07	--	--	B	0.125	0.147	0.148	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	6 / 19	pCi/g	2.51	9.66	2.51	8.95	8.38	44.9	9.13	3.15	14.0	44.9	15.4	1.94	0.674	2.28	0.866	B	13.5	23.5	26.8	--	--	--	--	--	--
Beta activity	13 / 19	pCi/g	1.45	4.29	1.45	7.9	5.78	25.2	6.1	4.75	10.2	25.2	6.05	1.81	0.749	2.19	0.522	L	8.08	10.9	12.1	37.5	--	--	--	--	--
Carbon-14	1 / 19	pCi/g	0.082	2.35	0.082	2.41	2.25	17.2	3.7	17.2	17.2	17.2	--	0.185	1.32	2.84	--	B	4.38	8.39	9.74	--	165	--	1.0E+07	0.027	--
Cesium-137	0 / 19	pCi/g	0.015	0.208	0.015	0.079	0.075	0.208	0.045	--	--	--	--	-2.71	0.668	--	--	B	0.087	0.136	0.149	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 19	pCi/g	0.017	0.306	0.017	0.101	0.103	0.306	0.067	--	--	--	--	-2.5	0.695	--	--	L	0.105	0.137	0.151	0.444	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 19	pCi/g	0.078	0.935	0.078	0.461	0.497	0.935	0.237	--	--	--	--	-0.951	0.681	--	--	N	0.461	0.533	0.555	1.04	13	--	1500	NSRC	NSRC
Lead-212	6 / 6	pCi/g	--	--	0.332	0.441	0.419	0.632	0.104	0.332	0.441	0.632	0.104	-0.84	0.218	-0.84	0.218	N	0.441	0.503	0.526	0.825	--	--	--	--	--
Nickel-63	0 / 19	pCi/g	0.566	1.4	0.566	0.895	0.901	1.4	0.236	--	--	--	--	-0.144	0.268	--	--	N	0.895	0.967	0.989	1.47	--	--	1.3E+08	NSRC	NSRC
Potassium-40	7 / 7	pCi/g	--	--	2.75	5.29	5.53	7.04	1.38	2.75	5.29	7.04	1.38	1.63	0.307	1.63	0.307	N	5.29	6.04	6.3	9.98	--	--	4.2E+06	--	--
Radium-226	10 / 19	pCi/g	0.197	0.856	0.197	0.612	0.592	1.31	0.277	0.372	0.748	1.31	0.267	-0.596	0.486	-0.348	0.359	N	0.612	0.696	0.722	1.28	--	--	300,000	--	--
Strontium-89	0 / 19	pCi/g	0.696	1.98	0.696	1.53	1.47	1.98	0.356	--	--	--	--	0.392	0.269	--	--	N	1.53	1.64	1.67	2.39	--	--	--	NSRC	NSRC
Strontium-90	1 / 19	pCi/g	0.984	1.98	0.984	1.54	1.6	1.98	0.289	1.03	1.03	1.03	--	0.413	0.207	0.03	--	N	1.54	1.63	1.66	2.24	--	--	400,000	--	--
Technetium-99	0 / 19	pCi/g	4.27	8.42	4.27	6.27	6.17	8.42	1.05	--	--	--	--	1.82	0.17	--	--	B	6.23	7.29	7.54	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	1 / 19	pCi/g	0.258	0.92	0.258	0.499	0.423	0.92	0.219	0.679	0.679	0.679	--	-0.781	0.416	-0.387	--	B	0.478	0.644	0.693	--	--	--	25,000	--	--
Thorium-230	4 / 19	pCi/g	0.255	0.757	0.255	0.519	0.501	0.757	0.127	0.394	0.48	0.589	0.081	-0.686	0.261	-0.744	0.165	N	0.519	0.558	0.57	0.827	--	--	15,000	--	--
Thorium-232	2 / 19	pCi/g	0.22	0.655	0.22	0.403	0.336	0.655	0.141	0.33	0.483	0.635	0.216	-0.965	0.338	-0.781	0.463	L	0.403	0.451	0.468	0.864	--	--	2500	--	--
Total Uranium	13 / 19	pCi/g	0.612	1.24	0.612	0.937	0.88	1.45	0.24	0.721	0.99	1.45	0.231	-0.095	0.248	-0.033	0.222	N	0.937	1.01	1.03	1.52	--	--	--	--	--
Tritium	0 / 19	pCi/g	1.42	14.3	1.42	9.89	12	14.3	4.87	--	--	--	--	2.09	0.762	--	--	B	10.6	13.3	13.6	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	6 / 19	pCi/g	0.327	0.664	0.327	0.494	0.449	0.804	0.121	0.453	0.598	0.804	0.13	-0.731	0.228	-0.533	0.211	L	0.494	0.531	0.544	0.836	1700	2.8E+07	100,000	2.9E-04	1.8E-08

Table G.42. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Uranium-235/236	0 / 19	pCi/g	0.325	0.848	0.325	0.421	0.41	0.848	0.111	--	--	--	--	-0.887	0.203	--	--	B	0.469	0.594	0.635	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	5 / 19	pCi/g	0.306	0.622	0.306	0.451	0.425	0.681	0.097	0.44	0.545	0.681	0.09	-0.818	0.207	-0.617	0.163	N	0.451	0.48	0.489	0.686	1200	1500	100,000	3.8E-04	3.0E-04
																									SOF =	0.027	**1.17**

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.43. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ceilings in Y-12 Building 9210 (all random samples)																											
Metals																											
Antimony	1 / 1	mg/kg	--	--	1.05	1.05	1.05	1.05	--	1.05	1.05	1.05	--	0.049	--	0.049	--	B	1.05	1.05	1.05	--	--	160	--	--	0.007
Arsenic	1 / 1	mg/kg	--	--	3.54	3.54	3.54	3.54	--	3.54	3.54	3.54	--	1.26	--	1.26	--	B	3.54	3.54	3.54	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	947	947	947	947	--	947	947	947	--	6.85	--	6.85	--	B	947	947	947	--	--	150,000	--	--	0.006
Beryllium	1 / 1	mg/kg	--	--	0.192	0.192	0.192	0.192	--	0.192	0.192	0.192	--	-1.65	--	-1.65	--	B	0.192	0.192	0.192	--	--	--	--	--	--
Boron	1 / 1	mg/kg	--	--	7.41	7.41	7.41	7.41	--	7.41	7.41	7.41	--	2.0	--	2.0	--	B	7.41	7.41	7.41	--	--	24,000	--	--	3.1E-04
Cadmium	1 / 1	mg/kg	--	--	8.09	8.09	8.09	8.09	--	8.09	8.09	8.09	--	2.09	--	2.09	--	B	8.09	8.09	8.09	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	13.8	13.8	13.8	13.8	--	13.8	13.8	13.8	--	2.62	--	2.62	--	B	13.8	13.8	13.8	--	--	140,000	--	--	9.9E-05
Copper	1 / 1	mg/kg	--	--	61.3	61.3	61.3	61.3	--	61.3	61.3	61.3	--	4.12	--	4.12	--	B	61.3	61.3	61.3	--	--	--	--	--	--
Hafnium	0 / 1	mg/kg	0.544	0.544	0.272	0.272	0.272	0.272	--	--	--	--	--	-1.3	--	--	--	B	0.272	0.544	0.544	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/kg	--	--	39.4	39.4	39.4	39.4	--	39.4	39.4	39.4	--	3.67	--	3.67	--	B	39.4	39.4	39.4	--	--	1500	--	--	0.026
Manganese	1 / 1	mg/kg	--	--	544	544	544	544	--	544	544	544	--	6.3	--	6.3	--	B	544	544	544	--	--	360,000	--	--	0.002
Mercury	1 / 1	mg/kg	--	--	0.037	0.037	0.037	0.037	--	0.037	0.037	0.037	--	-3.29	--	-3.29	--	B	0.037	0.037	0.037	--	--	--	--	--	--
Molybdenum	1 / 1	mg/kg	--	--	1.32	1.32	1.32	1.32	--	1.32	1.32	1.32	--	0.278	--	0.278	--	B	1.32	1.32	1.32	--	--	3900	--	--	3.4E-04
Nickel	1 / 1	mg/kg	--	--	11.3	11.3	11.3	11.3	--	11.3	11.3	11.3	--	2.42	--	2.42	--	B	11.3	11.3	11.3	--	--	--	--	--	--
Selenium	0 / 1	mg/kg	0.327	0.327	0.164	0.164	0.164	0.164	--	--	--	--	--	-1.81	--	--	--	B	0.164	0.327	0.327	--	--	1600	--	NSRC	NSRC
Silver	1 / 1	mg/kg	--	--	25.4	25.4	25.4	25.4	--	25.4	25.4	25.4	--	3.23	--	3.23	--	B	25.4	25.4	25.4	--	--	--	--	--	--
Strontium	1 / 1	mg/kg	--	--	181	181	181	181	--	181	181	181	--	5.2	--	5.2	--	B	181	181	181	--	--	300,000	--	--	6.0E-04
Thallium	0 / 1	mg/kg	0.127	0.127	0.064	0.064	0.064	0.064	--	--	--	--	--	-2.76	--	--	--	B	0.064	0.127	0.127	--	--	--	--	NSRC	NSRC
Tin	1 / 1	mg/kg	--	--	5.19	5.19	5.19	5.19	--	5.19	5.19	5.19	--	1.65	--	1.65	--	B	5.19	5.19	5.19	--	--	2200	--	--	0.002
Vanadium	1 / 1	mg/kg	--	--	10.5	10.5	10.5	10.5	--	10.5	10.5	10.5	--	2.35	--	2.35	--	B	10.5	10.5	10.5	--	--	25,000	--	--	4.2E-04
Zinc	1 / 1	mg/kg	--	--	2930	2930	2930	2930	--	2930	2930	2930	--	7.98	--	7.98	--	B	2930	2930	2930	--	--	--	--	--	--
Zirconium	1 / 1	mg/kg	--	--	15.9	15.9	15.9	15.9	--	15.9	15.9	15.9	--	2.77	--	2.77	--	B	15.9	15.9	15.9	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.344	0.344	0.344	0.344	--	0.344	0.344	0.344	--	-1.07	--	-1.07	--	D	0.344	--	--	--	--	--	--	--	--
Cadmium	1 / 1	mg/L	--	--	0.004	0.004	0.004	0.004	--	0.004	0.004	0.004	--	-5.6	--	-5.6	--	D	0.004	--	--	--	--	--	--	--	--
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.5	--	--	--	B	0.004	0.008	0.008	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.5	--	--	--	B	0.004	0.008	0.008	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 1	mg/kg	--	--	0.015	0.015	0.015	0.015	--	0.015	0.015	0.015	--	-4.22	--	-4.22	--	B	0.015	0.015	0.015	--	130,000	--	--	1.1E-07	--
4,4'-DDT	1 / 1	mg/kg	--	--	0.02	0.02	0.02	0.02	--	0.02	0.02	0.02	--	-3.91	--	-3.91	--	B	0.02	0.02	0.02	--	--	--	--	--	--
Aldrin	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	B	0.003	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	0.001	0.001	5.0E-04	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	--	-7.6	--	--	--	B	5.0E-04	0.001	0.001	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	1000	1500	--	NSRC	NSRC

Table G.43. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	B	0.003	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	B	0.008	0.017	0.017	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 8	mg/kg	0.03	0.3	0.015	0.326	0.072	2.12	0.727	0.066	0.755	2.12	1.18	-2.61	1.69	-1.51	1.96	L	0.326	1.1	1.45	15.9	--	4000	--	--	8.2E-05
2-Methylphenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	850	--	NSRC	NSRC
Acenaphthene	3 / 8	mg/kg	0.03	0.3	0.015	0.22	0.053	1.31	0.444	0.034	0.472	1.31	0.726	-2.77	1.57	-1.91	1.93	L	0.167	0.446	0.572	9.45	--	390,000	--	--	4.3E-07
Acenaphthylene	0 / 8	mg/kg	0.03	0.3	0.015	0.049	0.015	0.15	0.063	--	--	--	--	-3.63	1.07	--	--	B	0.037	0.065	0.076	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 8	mg/kg	0.496	4.99	0.248	0.81	0.249	2.5	1.04	--	--	--	--	-0.814	1.07	--	--	B	0.623	1.08	1.26	--	--	9810	--	NSRC	NSRC
Carbazole	3 / 8	mg/kg	0.03	0.3	0.015	0.076	0.07	0.15	0.061	0.044	0.088	0.125	0.041	-2.99	1.07	-2.52	0.545	B	0.074	0.109	0.117	--	110,000	--	--	6.7E-07	--
Di-n-butyl phthalate	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	--	--	NSRC	NSRC
Phenol	1 / 8	mg/kg	0.298	3	0.149	0.512	0.15	1.5	0.614	0.349	0.349	0.349	--	-1.22	1.04	-1.05	--	B	0.375	0.649	0.759	--	--	3200	--	--	1.2E-04
Pyridine	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 8	mg/kg	0.298	3	0.149	0.487	0.15	1.5	0.625	--	--	--	--	-1.32	1.07	--	--	B	0.375	0.648	0.759	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	2 / 8	pCi/g	7.78	9.28	7.78	9.6	8.79	14.7	2.29	11	12.9	14.7	2.62	2.24	0.21	2.54	0.205	B	9.61	11.3	11.8	--	--	--	--	--	--
Beta activity	7 / 8	pCi/g	4.37	4.37	4.37	13.0	10.5	30.9	9.36	6.31	14.3	30.9	9.38	2.36	0.668	2.49	0.608	L	13.3	21.2	26.0	89.2	--	--	--	--	--
Carbon-14	0 / 8	pCi/g	1.77	2.33	1.77	2.06	2.08	2.33	0.228	--	--	--	--	0.719	0.111	--	--	B	2.07	2.21	2.24	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 8	pCi/g	0.056	0.203	0.056	0.087	0.065	0.203	0.049	--	--	--	--	-2.54	0.43	--	--	B	0.086	0.119	0.131	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 8	pCi/g	0.044	0.15	0.044	0.091	0.09	0.15	0.032	--	--	--	--	-2.45	0.365	--	--	N	0.091	0.107	0.113	0.193	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 8	pCi/g	0.457	0.942	0.457	0.716	0.746	0.942	0.174	--	--	--	--	-0.363	0.258	--	--	N	0.716	0.803	0.832	1.27	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.306	0.359	0.364	0.43	0.05	0.306	0.359	0.43	0.05	-1.03	0.139	-1.03	0.139	B	0.365	0.397	0.404	--	--	--	--	--	--
Lead-214	1 / 1	pCi/g	--	--	0.458	0.458	0.458	0.458	--	0.458	0.458	0.458	--	-0.781	--	-0.781	--	B	0.458	0.458	0.458	--	--	--	--	--	--
Nickel-63	0 / 8	pCi/g	0.604	1.01	0.604	0.773	0.757	1.01	0.131	--	--	--	--	-0.269	0.166	--	--	N	0.773	0.839	0.861	1.19	--	--	1.3E+08	NSRC	NSRC
Potassium-40	6 / 6	pCi/g	--	--	3.27	5.48	5.12	7.97	1.68	3.27	5.48	7.97	1.68	1.66	0.314	1.66	0.314	N	5.48	6.49	6.86	11.7	--	--	4.2E+06	--	--
Radium-226	5 / 8	pCi/g	0.786	0.995	0.464	0.746	0.813	0.995	0.205	0.464	0.649	0.869	0.193	-0.33	0.299	-0.467	0.295	N	0.746	0.849	0.883	1.4	--	--	300,000	--	--

Table G.43. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Strontium-89	0 / 8	pCi/g	1.38	1.9	1.38	1.6	1.57	1.9	0.149	--	--	--	--	0.466	0.091	--	--	N	1.6	1.67	1.7	2.08	--	--	--	NSRC	NSRC
Strontium-90	0 / 8	pCi/g	1.23	1.95	1.23	1.54	1.5	1.95	0.281	--	--	--	--	0.417	0.18	--	--	N	1.54	1.68	1.73	2.44	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 8	pCi/g	3.27	7.93	3.27	5.29	5.23	7.93	1.38	--	--	--	--	1.64	0.263	--	--	N	5.29	5.98	6.22	9.7	172	--	4.2E+07	NSRC	NSRC
Thorium-228	2 / 8	pCi/g	0.253	0.573	0.253	0.383	0.384	0.573	0.102	0.298	0.377	0.455	0.111	-0.991	0.264	-0.999	0.299	N	0.383	0.434	0.451	0.709	--	--	25,000	--	--
Thorium-230	4 / 8	pCi/g	0.29	0.541	0.29	0.446	0.445	0.581	0.109	0.406	0.485	0.581	0.092	-0.836	0.26	-0.737	0.19	N	0.446	0.501	0.519	0.794	--	--	15,000	--	--
Thorium-232	2 / 8	pCi/g	0.239	0.419	0.239	0.309	0.294	0.419	0.059	0.258	0.272	0.285	0.019	-1.19	0.183	-1.31	0.07	N	0.309	0.338	0.348	0.496	--	--	2500	--	--
Total Uranium	3 / 8	pCi/g	0.714	1.24	0.714	0.987	0.972	1.31	0.246	0.775	1.06	1.31	0.268	-0.041	0.253	0.031	0.266	N	0.987	1.11	1.15	1.77	--	--	--	--	--
Tritium	0 / 8	pCi/g	11.7	14.4	11.7	13.0	12.8	14.4	1.09	--	--	--	--	2.56	0.084	--	--	N	13.0	13.5	13.7	16.5	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	1 / 8	pCi/g	0.443	0.697	0.443	0.538	0.515	0.697	0.1	0.494	0.494	0.494	--	-0.634	0.181	-0.705	--	N	0.538	0.588	0.605	0.858	1700	2.8E+07	100,000	3.2E-04	1.9E-08
Uranium-235/236	0 / 8	pCi/g	0.367	0.809	0.367	0.533	0.455	0.809	0.187	--	--	--	--	-0.68	0.338	--	--	B	0.499	0.607	0.641	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 8	pCi/g	0.424	0.638	0.424	0.518	0.52	0.638	0.086	0.58	0.58	0.58	--	-0.67	0.167	-0.545	--	N	0.518	0.561	0.576	0.792	1200	1500	100,000	4.3E-04	3.5E-04
																									SOF =	7.5E-04	0.045

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.44. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ceilings in Y-12 Building 9401-1 (all random samples)																											
Metals																											
Antimony	2 / 3	mg/kg	0.33	0.33	0.165	3.82	0.98	10.3	5.63	0.98	5.64	10.3	6.59	0.17	2.07	1.16	1.66	B	2.4	4.68	5.49	--	--	160	--	--	0.015
Arsenic	3 / 3	mg/kg	--	--	3.1	8.54	3.83	18.7	8.8	3.1	8.54	18.7	8.8	1.8	0.982	1.8	0.982	B	6.19	9.56	10.8	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	0.561	64.2	55.9	136	68.1	0.561	64.2	136	68.1	2.79	2.95	2.79	2.95	B	60.0	94.8	103	--	--	150,000	--	--	4.0E-04
Beryllium	2 / 3	mg/kg	0.088	0.088	0.044	0.239	0.211	0.462	0.21	0.211	0.337	0.462	0.177	-1.82	1.2	-1.16	0.554	B	0.225	0.332	0.359	--	--	--	--	--	--
Boron	2 / 3	mg/kg	3.53	3.53	1.77	16.2	11.5	35.2	17.2	11.5	23.4	35.2	16.8	2.19	1.51	3.0	0.791	B	13.8	22.3	24.7	--	--	24,000	--	--	5.8E-04
Cadmium	3 / 3	mg/kg	--	--	0.037	0.049	0.042	0.067	0.016	0.037	0.049	0.067	0.016	-3.05	0.313	-3.05	0.313	B	0.045	0.053	0.055	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	7.78	28.7	15.3	63.1	30.0	7.78	28.7	63.1	30.0	2.97	1.07	2.97	1.07	B	22.0	35.1	39.4	--	--	140,000	--	--	1.6E-04
Copper	3 / 3	mg/kg	--	--	11.6	194	12.4	559	316	11.6	194	559	316	3.76	2.22	3.76	2.22	B	103	214	259	--	--	--	--	--	--
Hafnium	1 / 3	mg/kg	0.593	0.599	0.297	6.67	0.3	19.4	11.0	19.4	19.4	19.4	--	0.181	2.41	2.97	--	B	3.48	7.35	8.91	--	--	--	--	--	--
Lead	3 / 3	mg/kg	--	--	3.73	6.26	3.75	11.3	4.36	3.73	6.26	11.3	4.36	1.69	0.638	1.69	0.638	B	5.01	6.54	7.16	--	--	1500	--	--	0.003
Manganese	3 / 3	mg/kg	--	--	161	428	219	905	414	161	428	905	414	5.76	0.921	5.76	0.921	B	324	490	550	--	--	360,000	--	--	9.0E-04
Mercury	2 / 3	mg/kg	0.014	0.014	0.007	0.109	0.083	0.238	0.118	0.083	0.16	0.238	0.11	-2.96	1.8	-1.96	0.747	B	0.096	0.155	0.171	--	--	--	--	--	--
Molybdenum	3 / 3	mg/kg	--	--	0.386	11.8	0.679	34.2	19.4	0.386	11.8	34.2	19.4	0.731	2.44	0.731	2.44	B	6.22	13.2	15.9	--	--	3900	--	--	0.002
Nickel	3 / 3	mg/kg	--	--	6.93	107	12.5	302	169	6.93	107	302	169	3.39	2.03	3.39	2.03	B	59.8	121	145	--	--	--	--	--	--
Selenium	2 / 3	mg/kg	0.318	0.318	0.159	0.397	0.417	0.614	0.228	0.417	0.516	0.614	0.139	-1.07	0.696	-0.681	0.274	B	0.407	0.52	0.543	--	--	1600	--	--	2.5E-04
Silver	1 / 3	mg/kg	0.935	1	0.468	2.74	0.5	7.25	3.91	7.25	7.25	7.25	--	0.176	1.56	1.98	--	B	1.62	3.0	3.56	--	--	--	--	--	--
Strontium	2 / 3	mg/kg	0.53	0.53	0.265	100	145	155	86.6	145	150	155	7.07	2.9	3.66	5.01	0.047	B	123	149	152	--	--	300,000	--	--	4.1E-04
Thallium	0 / 3	mg/kg	0.124	0.14	0.062	0.067	0.069	0.07	0.004	--	--	--	--	-2.7	0.066	--	--	B	0.068	0.07	0.07	--	--	--	--	NSRC	NSRC
Tin	3 / 3	mg/kg	--	--	3.37	15.1	4.16	37.9	19.7	3.37	15.1	37.9	19.7	2.09	1.34	2.09	1.34	B	9.65	16.9	19.7	--	--	2200	--	--	0.004
Vanadium	2 / 3	mg/kg	0.265	0.265	0.133	12.3	13.5	23.2	11.6	13.5	18.4	23.2	6.86	1.24	2.84	2.87	0.383	B	12.9	18.6	19.8	--	--	25,000	--	--	5.2E-04
Zinc	3 / 3	mg/kg	--	--	25.5	94.8	119	140	61.0	25.5	94.8	140	61.0	4.32	0.94	4.32	0.94	B	107	131	134	--	--	--	--	--	--
Zirconium	3 / 3	mg/kg	--	--	0.638	9.85	13.1	15.8	8.09	0.638	9.85	15.8	8.09	1.63	1.8	1.63	1.8	B	11.5	14.6	15.0	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 3	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	3 / 3	mg/L	--	--	0.034	0.186	0.229	0.295	0.136	0.034	0.186	0.295	0.136	-2.03	1.18	-2.03	1.18	X	0.186	0.421	0.528	--	--	--	--	--	--
Cadmium	2 / 3	mg/L	0.003	0.003	0.002	0.009	0.006	0.017	0.006	0.006	0.011	0.017	0.008	-5.25	1.22	-4.63	0.81	X*	0.009	0.024	0.031	--	--	--	--	--	--
Chromium	0 / 3	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	0	--	--	--	--	-4.2	0	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	1 / 3	mg/L	0.005	0.005	0.003	0.008	0.003	0.019	0.009	0.019	0.019	0.019	--	-5.32	1.16	-3.98	--	X	0.008	0.024	0.031	--	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.003	0.016	0.002	0.004	0.004	0.008	0.003	--	--	--	--	-5.58	0.66	--	--	B	0.004	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.003	0.016	0.002	0.004	0.004	0.008	0.003	--	--	--	--	-5.58	0.66	--	--	B	0.004	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	--	--	NSRC	NSRC
Aldrin	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.02	0.465	0.01	0.073	0.025	0.233	0.107	--	--	--	--	-3.37	1.34	--	--	B	0.057	0.106	0.124	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	0.004	0.093	0.002	0.015	0.005	0.046	0.021	--	--	--	--	-4.98	1.34	--	--	B	0.011	0.021	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	2400	69,000	--	NSRC	NSRC

Table G.44. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	0.02	0.465	0.01	0.073	0.025	0.233	0.107	--	--	--	--	-3.37	1.34	--	--	B	0.057	0.106	0.124	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.067	1.55	0.033	0.243	0.082	0.775	0.355	--	--	--	--	-2.16	1.34	--	--	B	0.19	0.354	0.414	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	0.002	0.047	0.001	0.007	0.002	0.023	0.011	--	--	--	--	-5.67	1.34	--	--	B	0.006	0.011	0.012	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	13 / 26	mg/kg	0.01	0.558	0.005	0.832	0.147	5.37	1.3	0.033	1.58	5.37	1.51	-1.59	1.96	-0.168	1.44	L	1.4	4.28	6.43	17.7	--	4000	--	--	3.5E-04
2-Methylphenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	1 / 26	mg/kg	0.099	5.94	0.05	1.3	1.45	5.9	1.22	5.9	5.9	5.9	--	-0.253	1.21	1.77	--	B	1.96	3.42	3.85	--	--	850	--	NSRC	NSRC
Acenaphthene	14 / 26	mg/kg	0.01	0.558	0.005	2.18	0.333	9.23	3.02	0.262	3.98	9.23	3.15	-1.0	2.45	0.955	1.11	B	1.76	3.73	4.48	--	--	390,000	--	--	4.5E-06
Acenaphthylene	2 / 26	mg/kg	0.01	0.594	0.005	0.175	0.145	1.54	0.293	0.359	0.95	1.54	0.835	-2.48	1.32	-0.296	1.03	B	0.354	0.703	0.826	--	--	93,200	--	--	3.8E-06
Acetophenone	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 26	mg/kg	0.165	9.9	0.083	1.89	2.42	4.95	1.3	--	--	--	--	0.204	1.15	--	--	B	2.45	3.69	3.98	--	--	9810	--	NSRC	NSRC
Carbazole	16 / 26	mg/kg	0.01	0.558	0.005	4.15	1.39	16.7	5.56	1.11	6.69	16.7	5.8	-0.274	2.53	1.5	0.975	B	3.71	7.47	8.81	--	110,000	--	--	3.4E-05	--
Di-n-butyl phthalate	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	190	--	NSRC	NSRC
Diethyl phthalate	1 / 26	mg/kg	0.29	5.94	0.104	1.13	1.45	2.97	0.776	0.104	0.104	0.104	--	-0.278	1.09	-2.26	--	B	1.48	2.21	2.38	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	--	--	NSRC	NSRC
Phenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 26	mg/kg	0.099	5.94	0.05	1.13	1.45	2.97	0.779	--	--	--	--	-0.306	1.15	--	--	B	1.47	2.21	2.39	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	1.05	1.32	1.21	1.7	0.339	1.05	1.32	1.7	0.339	0.257	0.248	0.257	0.248	B	1.27	1.43	1.48	--	--	--	--	--	--
Alpha activity	18 / 26	pCi/g	6.01	9.35	6.01	15.4	14.7	36.8	8.2	9.38	19.0	36.8	7.25	2.6	0.534	2.88	0.365	L	15.5	18.2	19.2	45.3	--	--	--	--	--
Americium-241	0 / 1	pCi/g	0.269	0.269	0.269	0.269	0.269	0.269	--	--	--	--	--	-1.31	--	--	--	B	0.269	0.269	0.269	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	22 / 26	pCi/g	4.06	6.16	4.06	21.4	21.7	43.9	12.6	5.46	24.4	43.9	11.3	2.83	0.771	3.06	0.584	B	22.4	32.6	35.1	--	--	--	--	--	--
Bismuth-214	10 / 10	pCi/g	--	--	0.731	1.0	0.907	1.54	0.234	0.731	1.0	1.54	0.234	-0.017	0.214	-0.017	0.214	L	1.01	1.11	1.15	1.83	--	--	--	--	--
Carbon-14	1 / 26	pCi/g	0.453	2.32	0.453	1.31	0.792	2.32	0.773	0.782	0.782	0.782	--	0.081	0.651	-0.246	--	B	0.99	1.44	1.59	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 26	pCi/g	0.081	0.7	0.081	0.183	0.154	0.7	0.134	--	--	--	--	-1.86	0.515	--	--	B	0.233	0.377	0.426	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 26	pCi/g	0.081	0.596	0.081	0.196	0.157	0.596	0.117	--	--	--	--	-1.77	0.52	--	--	L	0.195	0.228	0.24	0.557	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 26	pCi/g	0.192	1.21	0.192	0.607	0.541	1.21	0.277	--	--	--	--	-0.605	0.483	--	--	N	0.607	0.679	0.7	1.24	13	--	1500	NSRC	NSRC
Lead-212	16 / 16	pCi/g	--	--	0.636	0.897	0.888	1.22	0.164	0.636	0.897	1.22	0.164	-0.125	0.185	-0.125	0.185	N	0.897	0.952	0.969	1.31	--	--	--	--	--

Table G.44. Y-12 Biology Complex summary statistics for Ceilings in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	10 / 10	pCi/g	--	--	0.721	0.949	0.951	1.2	0.135	0.721	0.949	1.2	0.135	-0.061	0.142	-0.061	0.142	N	0.949	1.01	1.03	1.34	--	--	--	--	--
Neptunium-237	0 / 1	pCi/g	0.216	0.216	0.216	0.216	0.216	0.216	--	--	--	--	--	-1.53	--	--	--	B	0.216	0.216	0.216	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 26	pCi/g	0.403	2.81	0.403	0.894	0.732	2.81	0.53	--	--	--	--	-0.232	0.466	--	--	L	0.88	1.13	1.24	2.29	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 1	pCi/g	0.149	0.149	0.149	0.149	0.149	0.149	--	--	--	--	--	-1.9	--	--	--	B	0.149	0.149	0.149	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 1	pCi/g	0.21	0.21	0.21	0.21	0.21	0.21	--	--	--	--	--	-1.56	--	--	--	B	0.21	0.21	0.21	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 1	pCi/g	8.71	8.71	8.71	8.71	8.71	8.71	--	--	--	--	--	2.16	--	--	--	B	8.71	8.71	8.71	--	--	--	790,000	NSRC	NSRC
Potassium-40	20 / 20	pCi/g	--	--	13.3	21.1	17.0	39	8.57	13.3	21.1	39	8.57	2.98	0.361	2.98	0.361	B	20.0	26.1	28.1	--	--	--	4.2E+06	--	--
Radium-226	19 / 26	pCi/g	0.189	1.39	0.189	0.951	0.973	1.6	0.377	0.685	1.1	1.6	0.251	-0.154	0.514	0.067	0.229	N	0.951	1.05	1.08	1.81	--	--	300,000	--	--
Strontium-89	2 / 26	pCi/g	1.26	1.98	1.26	1.64	1.62	1.98	0.204	1.81	1.86	1.9	0.064	0.486	0.126	0.618	0.034	N	1.64	1.69	1.71	2.1	--	--	--	--	--
Strontium-90	0 / 26	pCi/g	1.14	2.24	1.14	1.64	1.69	2.24	0.289	--	--	--	--	0.482	0.18	--	--	N	1.64	1.72	1.74	2.3	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 26	pCi/g	0.738	8.01	0.738	5.24	5.2	8.01	1.39	--	--	--	--	1.6	0.432	--	--	B	4.92	6.69	7.04	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.32	0.328	0.328	0.335	0.011	0.32	0.328	0.335	0.011	-1.12	0.032	-1.12	0.032	B	0.328	0.331	0.332	--	--	--	--	--	--
Thorium-228	16 / 26	pCi/g	0.366	1.1	0.366	0.828	0.837	1.36	0.27	0.542	0.898	1.36	0.224	-0.247	0.361	-0.138	0.254	N	0.828	0.898	0.918	1.44	--	--	25,000	--	--
Thorium-230	20 / 26	pCi/g	0.314	0.826	0.314	0.91	0.973	1.62	0.378	0.331	1.05	1.62	0.304	-0.201	0.506	-0.006	0.36	N	0.91	1.01	1.04	1.77	--	--	15,000	--	--
Thorium-232	20 / 26	pCi/g	0.302	0.794	0.286	0.79	0.791	1.38	0.297	0.286	0.89	1.38	0.246	-0.321	0.449	-0.162	0.336	N	0.79	0.866	0.889	1.47	--	--	2500	--	--
Total Uranium	21 / 26	pCi/g	0.761	1.04	0.761	1.89	1.69	7.88	1.34	1.1	2.12	7.88	1.39	0.506	0.47	0.651	0.399	B	2.56	4.23	4.8	--	--	--	--	--	--
Tritium	0 / 26	pCi/g	6.72	14.2	6.72	10.7	10.7	14.2	2.13	--	--	--	--	2.35	0.213	--	--	N	10.7	11.3	11.4	15.6	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	20 / 26	pCi/g	0.426	0.587	0.426	0.804	0.751	1.52	0.268	0.63	0.888	1.52	0.248	-0.268	0.315	-0.152	0.255	L	0.804	0.878	0.902	1.57	1700	2.8E+07	100,000	4.7E-04	2.9E-08
Uranium-235/236	0 / 26	pCi/g	0.374	0.834	0.374	0.565	0.555	0.834	0.12	--	--	--	--	-0.592	0.214	--	--	N	0.565	0.596	0.606	0.839	1500	9500	100,000	NSRC	NSRC
Uranium-238	19 / 26	pCi/g	0.39	0.597	0.39	0.973	0.762	6.63	1.17	0.518	1.15	6.63	1.34	-0.249	0.529	-0.079	0.518	B	1.68	3.05	3.55	--	1200	1500	100,000	0.001	0.001
																									SOF =	0.002	0.029

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.45. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Exterior Walls in Y-12 Building 9207 (all random samples)																											
Metals																											
Antimony	0 / 1	mg/kg	0.308	0.308	0.154	0.154	0.154	0.154	--	--	--	--	--	-1.87	--	--	--	B	0.154	0.308	0.308	--	--	160	--	NSRC	NSRC
Arsenic	1 / 1	mg/kg	--	--	1.86	1.86	1.86	1.86	--	1.86	1.86	1.86	--	0.621	--	0.621	--	B	1.86	1.86	1.86	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	19.1	19.1	19.1	19.1	--	19.1	19.1	19.1	--	2.95	--	2.95	--	B	19.1	19.1	19.1	--	--	150,000	--	--	1.3E-04
Beryllium	1 / 1	mg/kg	--	--	0.033	0.033	0.033	0.033	--	0.033	0.033	0.033	--	-3.43	--	-3.43	--	B	0.033	0.033	0.033	--	--	--	--	--	--
Boron	1 / 1	mg/kg	--	--	1.18	1.18	1.18	1.18	--	1.18	1.18	1.18	--	0.166	--	0.166	--	B	1.18	1.18	1.18	--	--	24,000	--	--	4.9E-05
Cadmium	0 / 1	mg/kg	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.63	--	--	--	B	0.01	0.02	0.02	--	--	--	--	NSRC	NSRC
Chromium	1 / 1	mg/kg	--	--	2.82	2.82	2.82	2.82	--	2.82	2.82	2.82	--	1.04	--	1.04	--	B	2.82	2.82	2.82	--	--	140,000	--	--	2.0E-05
Copper	1 / 1	mg/kg	--	--	2	2	2	2	--	2	2	2	--	0.693	--	0.693	--	B	2	2	2	--	--	--	--	--	--
Hafnium	0 / 1	mg/kg	0.584	0.584	0.292	0.292	0.292	0.292	--	--	--	--	--	-1.23	--	--	--	B	0.292	0.584	0.584	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/kg	--	--	10	10	10	10	--	10	10	10	--	2.3	--	2.3	--	B	10	10	10	--	--	1500	--	--	0.007
Manganese	1 / 1	mg/kg	--	--	85.9	85.9	85.9	85.9	--	85.9	85.9	85.9	--	4.45	--	4.45	--	B	85.9	85.9	85.9	--	--	360,000	--	--	2.4E-04
Mercury	1 / 1	mg/kg	--	--	2.11	2.11	2.11	2.11	--	2.11	2.11	2.11	--	0.747	--	0.747	--	B	2.11	2.11	2.11	--	--	--	--	--	--
Molybdenum	1 / 1	mg/kg	--	--	0.359	0.359	0.359	0.359	--	0.359	0.359	0.359	--	-1.02	--	-1.02	--	B	0.359	0.359	0.359	--	--	3900	--	--	9.2E-05
Nickel	1 / 1	mg/kg	--	--	5.91	5.91	5.91	5.91	--	5.91	5.91	5.91	--	1.78	--	1.78	--	B	5.91	5.91	5.91	--	--	--	--	--	--
Selenium	1 / 1	mg/kg	--	--	0.552	0.552	0.552	0.552	--	0.552	0.552	0.552	--	-0.594	--	-0.594	--	B	0.552	0.552	0.552	--	--	1600	--	--	3.5E-04
Silver	1 / 1	mg/kg	--	--	0.147	0.147	0.147	0.147	--	0.147	0.147	0.147	--	-1.92	--	-1.92	--	B	0.147	0.147	0.147	--	--	--	--	--	--
Strontium	1 / 1	mg/kg	--	--	4.32	4.32	4.32	4.32	--	4.32	4.32	4.32	--	1.46	--	1.46	--	B	4.32	4.32	4.32	--	--	300,000	--	--	1.4E-05
Thallium	0 / 1	mg/kg	0.136	0.136	0.068	0.068	0.068	0.068	--	--	--	--	--	-2.69	--	--	--	B	0.068	0.136	0.136	--	--	--	--	NSRC	NSRC
Tin	0 / 1	mg/kg	0.28	0.28	0.14	0.14	0.14	0.14	--	--	--	--	--	-1.97	--	--	--	B	0.14	0.28	0.28	--	--	2200	--	NSRC	NSRC
Vanadium	1 / 1	mg/kg	--	--	16.2	16.2	16.2	16.2	--	16.2	16.2	16.2	--	2.79	--	2.79	--	B	16.2	16.2	16.2	--	--	25,000	--	--	6.5E-04
Zinc	1 / 1	mg/kg	--	--	10.5	10.5	10.5	10.5	--	10.5	10.5	10.5	--	2.35	--	2.35	--	B	10.5	10.5	10.5	--	--	--	--	--	--
Zirconium	1 / 1	mg/kg	--	--	0.699	0.699	0.699	0.699	--	0.699	0.699	0.699	--	-0.358	--	-0.358	--	B	0.699	0.699	0.699	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 1	mg/L	--	--	0.041	0.041	0.041	0.041	--	0.041	0.041	0.041	--	-3.19	--	-3.19	--	D	0.041	--	--	--	--	--	--	--	--
Barium	1 / 1	mg/L	--	--	0.188	0.188	0.188	0.188	--	0.188	0.188	0.188	--	-1.67	--	-1.67	--	D	0.188	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/L	--	--	0.101	0.101	0.101	0.101	--	0.101	0.101	0.101	--	-2.29	--	-2.29	--	D	0.101	--	--	--	--	--	--	--	--
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.51	--	--	--	B	0.004	0.008	0.008	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.51	--	--	--	B	0.004	0.008	0.008	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.02	--	--	--	B	0.002	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.63	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	1000	1500	--	NSRC	NSRC

Table G.45. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.02	--	--	--	B	0.002	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.016	0.016	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.82	--	--	--	B	0.008	0.016	0.016	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.4E-04	2.4E-04	2.4E-04	2.4E-04	--	--	--	--	--	-8.32	--	--	--	B	2.4E-04	4.9E-04	4.9E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	1 / 4	mg/kg	0.029	0.03	0.015	0.239	0.015	0.91	0.448	0.91	0.91	0.91	--	-3.18	2.06	-0.094	--	B	0.164	0.345	0.418	--	--	4000	--	--	4.1E-05
2-Methylphenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 4	mg/kg	0.029	0.03	0.015	0.306	0.015	1.18	0.583	1.18	1.18	1.18	--	-3.12	2.19	0.166	--	B	0.209	0.445	0.54	--	--	390,000	--	--	5.4E-07
Acenaphthylene	1 / 4	mg/kg	0.029	0.03	0.015	0.031	0.015	0.08	0.032	0.08	0.08	0.08	--	-3.79	0.84	-2.53	--	B	0.026	0.039	0.044	--	--	93,200	--	--	2.8E-07
Acetophenone	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 4	mg/kg	0.49	0.498	0.245	0.458	0.249	1.09	0.421	1.09	1.09	1.09	--	-1.03	0.741	0.086	--	B	0.388	0.561	0.63	--	--	9810	--	--	4.0E-05
Carbazole	1 / 4	mg/kg	0.029	0.03	0.015	0.459	0.015	1.79	0.888	1.79	1.79	1.79	--	-3.01	2.4	0.582	--	B	0.311	0.67	0.815	--	110,000	--	--	2.8E-06	--
Di-n-butyl phthalate	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	--	--	NSRC	NSRC
Phenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 4	mg/kg	0.294	0.299	0.147	0.149	0.149	0.15	0.001	--	--	--	--	-1.91	0.007	--	--	B	0.149	0.149	0.149	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	2.08	2.08	2.08	2.08	--	2.08	2.08	2.08	--	0.732	--	0.732	--	B	2.08	2.08	2.08	--	--	--	--	--	--
Alpha activity	4 / 4	pCi/g	--	--	24.2	27.7	27.3	32	4.04	24.2	27.7	32	4.04	3.31	0.146	3.31	0.146	B	27.6	29.6	30.1	--	--	--	--	--	--
Beta activity	4 / 4	pCi/g	--	--	26	39.9	37.2	59.4	15.5	26	39.9	59.4	15.5	3.63	0.387	3.63	0.387	B	39	47.5	49.8	--	--	--	--	--	--
Bismuth-214	3 / 3	pCi/g	--	--	1.08	1.31	1.11	1.73	0.367	1.08	1.31	1.73	0.367	0.243	0.264	0.243	0.264	B	1.21	1.35	1.4	--	--	--	--	--	--
Carbon-14	0 / 4	pCi/g	2.23	2.41	2.23	2.33	2.34	2.41	0.079	--	--	--	--	0.844	0.034	--	--	B	2.33	2.37	2.38	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 4	pCi/g	0.126	0.163	0.126	0.143	0.142	0.163	0.017	--	--	--	--	-1.95	0.117	--	--	B	0.143	0.152	0.155	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 4	pCi/g	0.129	0.262	0.129	0.167	0.139	0.262	0.064	--	--	--	--	-1.84	0.333	--	--	B	0.158	0.187	0.198	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 4	pCi/g	0.583	1.16	0.583	0.885	0.899	1.16	0.238	--	--	--	--	-0.151	0.287	--	--	B	0.89	1.03	1.06	--	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	1.07	1.33	1.4	1.45	0.18	1.07	1.33	1.45	0.18	0.278	0.144	0.278	0.144	B	1.35	1.43	1.44	--	--	--	--	--	--
Lead-214	4 / 4	pCi/g	--	--	1.08	1.36	1.3	1.77	0.295	1.08	1.36	1.77	0.295	0.291	0.208	0.291	0.208	B	1.34	1.51	1.56	--	--	--	--	--	--
Nickel-63	0 / 4	pCi/g	0.696	0.924	0.696	0.795	0.78	0.924	0.095	--	--	--	--	-0.235	0.117	--	--	B	0.79	0.848	0.864	--	--	--	1.3E+08	NSRC	NSRC

Table G.45. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	4 / 4	pCi/g	--	--	14.3	28.8	28.8	43.3	12.3	14.3	28.8	43.3	12.3	3.28	0.475	3.28	0.475	B	28.8	36.1	37.8	--	--	--	4.2E+06	--	--
Radium-226	3 / 4	pCi/g	0.613	0.613	0.613	1.57	1.54	2.59	0.921	0.997	1.89	2.59	0.813	0.298	0.665	0.56	0.5	B	1.56	2.06	2.18	--	--	--	300,000	--	--
Strontium-89	0 / 4	pCi/g	1.55	1.83	1.55	1.69	1.7	1.83	0.153	--	--	--	--	0.523	0.091	--	--	B	1.69	1.76	1.78	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 4	pCi/g	0.769	1.99	0.769	1.32	1.26	1.99	0.551	--	--	--	--	0.209	0.428	--	--	B	1.3	1.61	1.69	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 4	pCi/g	5.08	6.38	5.08	5.46	5.19	6.38	0.622	--	--	--	--	1.69	0.109	--	--	B	5.37	5.66	5.76	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.44	0.44	0.44	0.44	--	0.44	0.44	0.44	--	-0.821	--	-0.821	--	B	0.44	0.44	0.44	--	--	--	--	--	--
Thorium-228	4 / 4	pCi/g	--	--	1.04	1.25	1.25	1.47	0.177	1.04	1.25	1.47	0.177	0.218	0.143	0.218	0.143	B	1.25	1.36	1.39	--	--	--	25,000	--	--
Thorium-230	4 / 4	pCi/g	--	--	0.864	1.35	1.32	1.9	0.426	0.864	1.35	1.9	0.426	0.261	0.323	0.261	0.323	B	1.34	1.6	1.67	--	--	--	15,000	--	--
Thorium-232	4 / 4	pCi/g	--	--	0.882	1.23	1.32	1.4	0.234	0.882	1.23	1.4	0.234	0.19	0.212	0.19	0.212	B	1.26	1.36	1.38	--	--	--	2500	--	--
Total Uranium	4 / 4	pCi/g	--	--	2.34	2.8	2.78	3.31	0.456	2.34	2.8	3.31	0.456	1.02	0.163	1.02	0.163	B	2.79	3.04	3.1	--	--	--	--	--	--
Tritium	0 / 4	pCi/g	12.4	14.5	12.4	13.8	14.2	14.5	0.974	--	--	--	--	2.62	0.073	--	--	B	14.0	14.4	14.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	4 / 4	pCi/g	--	--	1.05	1.32	1.37	1.49	0.206	1.05	1.32	1.49	0.206	0.266	0.164	0.266	0.164	B	1.33	1.43	1.45	--	1700	2.8E+07	100,000	7.8E-04	4.8E-08
Uranium-235/236	0 / 4	pCi/g	0.31	0.665	0.31	0.517	0.546	0.665	0.152	--	--	--	--	-0.699	0.334	--	--	B	0.526	0.61	0.626	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	4 / 4	pCi/g	--	--	1.01	1.25	1.28	1.43	0.205	1.01	1.25	1.43	0.205	0.213	0.168	0.213	0.168	B	1.26	1.36	1.38	--	1200	1500	100,000	0.001	8.4E-04
																									SOF =	0.002	0.009

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.46. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Exterior Walls in Y-12 Building 9210 (all random samples)																											
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 3	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	2.9E-05	--	--	--	--	-4.2	0.002	--	--	B	0.015	0.015	0.015	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 3	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	2.9E-05	--	--	--	--	-4.2	0.002	--	--	B	0.015	0.015	0.015	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 3	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	2.9E-05	--	--	--	--	-4.2	0.002	--	--	B	0.015	0.015	0.015	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 3	mg/kg	0.498	0.5	0.249	0.25	0.25	0.25	5.8E-04	--	--	--	--	-1.39	0.002	--	--	B	0.25	0.25	0.25	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 3	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	2.9E-05	--	--	--	--	-4.2	0.002	--	--	B	0.015	0.015	0.015	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	--	--	NSRC	NSRC
Phenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 3	mg/kg	0.299	0.3	0.15	0.15	0.15	0.15	2.9E-04	--	--	--	--	-1.9	0.002	--	--	B	0.15	0.15	0.15	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	1.64	1.64	1.64	1.64	--	1.64	1.64	1.64	--	0.495	--	0.495	--	B	1.64	1.64	1.64	--	--	--	--	--	--
Alpha activity	3 / 3	pCi/g	--	--	16.5	19.6	19.8	22.5	3.0	16.5	19.6	22.5	3.0	2.97	0.156	2.97	0.156	B	19.7	21.2	21.5	--	--	--	--	--	--
Beta activity	3 / 3	pCi/g	--	--	18.9	23.7	25.5	26.6	4.16	18.9	23.7	26.6	4.16	3.15	0.186	3.15	0.186	B	24.6	26.1	26.3	--	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	0.895	1.0	1.0	1.11	0.152	0.895	1.0	1.11	0.152	-0.003	0.152	-0.003	0.152	B	1.0	1.06	1.07	--	--	--	--	--	--
Carbon-14	0 / 3	pCi/g	1.8	2.16	1.8	1.96	1.91	2.16	0.184	--	--	--	--	0.668	0.093	--	--	B	1.93	2.02	2.05	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 3	pCi/g	0.081	0.159	0.081	0.119	0.118	0.159	0.039	--	--	--	--	-2.16	0.337	--	--	B	0.119	0.139	0.143	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 3	pCi/g	0.107	0.2	0.107	0.139	0.11	0.2	0.053	--	--	--	--	-2.02	0.353	--	--	B	0.125	0.144	0.152	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 3	pCi/g	0.28	1.1	0.28	0.63	0.511	1.1	0.423	--	--	--	--	-0.616	0.686	--	--	B	0.571	0.778	0.837	--	13	--	1500	NSRC	NSRC
Lead-212	3 / 3	pCi/g	--	--	1.15	1.33	1.42	1.42	0.156	1.15	1.33	1.42	0.156	0.28	0.122	0.28	0.122	B	1.38	1.41	1.42	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	1.06	1.17	1.17	1.28	0.156	1.06	1.17	1.28	0.156	0.153	0.133	0.153	0.133	B	1.17	1.23	1.24	--	--	--	--	--	--
Nickel-63	0 / 3	pCi/g	0.789	1.05	0.789	0.885	0.816	1.05	0.144	--	--	--	--	-0.131	0.156	--	--	B	0.851	0.91	0.931	--	--	--	1.3E+08	NSRC	NSRC
Potassium-40	3 / 3	pCi/g	--	--	12.9	16.6	17	20	3.56	12.9	16.6	20	3.56	2.8	0.222	2.8	0.222	B	16.8	18.6	18.9	--	--	--	4.2E+06	--	--
Radium-226	3 / 3	pCi/g	--	--	0.86	1.36	1.03	2.18	0.718	0.86	1.36	2.18	0.718	0.219	0.493	0.219	0.493	B	1.19	1.5	1.61	--	--	--	300,000	--	--
Strontium-89	0 / 3	pCi/g	1.51	1.86	1.51	1.65	1.59	1.86	0.183	--	--	--	--	0.499	0.109	--	--	B	1.62	1.71	1.73	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 3	pCi/g	0.823	1.66	0.823	1.25	1.28	1.66	0.419	--	--	--	--	0.186	0.355	--	--	B	1.27	1.48	1.52	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 3	pCi/g	4.8	5.99	4.8	5.28	5.04	5.99	0.629	--	--	--	--	1.66	0.116	--	--	B	5.16	5.45	5.54	--	172	--	4.2E+07	NSRC	NSRC

Table G.46. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Thallium-208	1 / 1	pCi/g	--	--	0.519	0.519	0.519	0.519	--	0.519	0.519	0.519	--	-0.656	--	-0.656	--	B	0.519	0.519	0.519	--	--	--	--	--	--
Thorium-228	3 / 3	pCi/g	--	--	1.32	1.35	1.35	1.37	0.025	1.32	1.35	1.37	0.025	0.298	0.019	0.298	0.019	B	1.35	1.36	1.36	--	--	--	25,000	--	--
Thorium-230	3 / 3	pCi/g	--	--	0.85	1.17	1.08	1.59	0.379	0.85	1.17	1.59	0.379	0.126	0.316	0.126	0.316	B	1.13	1.32	1.37	--	--	--	15,000	--	--
Thorium-232	3 / 3	pCi/g	--	--	1.18	1.32	1.37	1.4	0.119	1.18	1.32	1.4	0.119	0.272	0.093	0.272	0.093	B	1.34	1.39	1.39	--	--	--	2500	--	--
Total Uranium	3 / 3	pCi/g	--	--	1.73	2.47	2.57	3.12	0.7	1.73	2.47	3.12	0.7	0.877	0.301	0.877	0.301	B	2.52	2.86	2.93	--	--	--	--	--	--
Tritium	0 / 3	pCi/g	12.3	12.6	12.3	12.4	12.4	12.6	0.153	--	--	--	--	2.52	0.012	--	--	B	12.4	12.5	12.5	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	3 / 3	pCi/g	--	--	0.979	1.14	1.21	1.24	0.143	0.979	1.14	1.24	0.143	0.128	0.13	0.128	0.13	B	1.18	1.23	1.23	--	1700	2.8E+07	100,000	6.9E-04	4.2E-08
Uranium-235/236	0 / 3	pCi/g	0.571	0.699	0.571	0.627	0.611	0.699	0.065	--	--	--	--	-0.47	0.103	--	--	B	0.619	0.652	0.661	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	3 / 3	pCi/g	--	--	0.57	0.983	0.918	1.46	0.449	0.57	0.983	1.46	0.449	-0.09	0.47	-0.09	0.47	B	0.95	1.18	1.24	--	1200	1500	100,000	7.9E-04	6.3E-04
																									SOF =	0.001	6.3E-04

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.47. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Exterior Walls in Y-12 Building 9401-1 (all random samples)																											
Metals																											
Antimony	0 / 1	mg/kg	0.332	0.332	0.166	0.166	0.166	0.166	--	--	--	--	--	-1.8	--	--	--	B	0.166	0.332	0.332	--	--	160	--	NSRC	NSRC
Arsenic	1 / 1	mg/kg	--	--	0.76	0.76	0.76	0.76	--	0.76	0.76	0.76	--	-0.274	--	-0.274	--	B	0.76	0.76	0.76	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	4.22	4.22	4.22	4.22	--	4.22	4.22	4.22	--	1.44	--	1.44	--	B	4.22	4.22	4.22	--	--	150,000	--	--	2.8E-05
Beryllium	1 / 1	mg/kg	--	--	0.025	0.025	0.025	0.025	--	0.025	0.025	0.025	--	-3.71	--	-3.71	--	B	0.025	0.025	0.025	--	--	--	--	--	--
Boron	1 / 1	mg/kg	--	--	1.95	1.95	1.95	1.95	--	1.95	1.95	1.95	--	0.668	--	0.668	--	B	1.95	1.95	1.95	--	--	24,000	--	--	8.1E-05
Cadmium	1 / 1	mg/kg	--	--	3.99	3.99	3.99	3.99	--	3.99	3.99	3.99	--	1.38	--	1.38	--	B	3.99	3.99	3.99	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	2.51	2.51	2.51	2.51	--	2.51	2.51	2.51	--	0.92	--	0.92	--	B	2.51	2.51	2.51	--	--	140,000	--	--	1.8E-05
Copper	1 / 1	mg/kg	--	--	39.1	39.1	39.1	39.1	--	39.1	39.1	39.1	--	3.67	--	3.67	--	B	39.1	39.1	39.1	--	--	--	--	--	--
Hafnium	0 / 1	mg/kg	0.604	0.604	0.302	0.302	0.302	0.302	--	--	--	--	--	-1.2	--	--	--	B	0.302	0.604	0.604	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/kg	--	--	17	17	17	17	--	17	17	17	--	2.83	--	2.83	--	B	17	17	17	--	--	1500	--	--	0.011
Manganese	1 / 1	mg/kg	--	--	247	247	247	247	--	247	247	247	--	5.51	--	5.51	--	B	247	247	247	--	--	360,000	--	--	6.9E-04
Mercury	0 / 1	mg/kg	0.016	0.016	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.82	--	--	--	B	0.008	0.016	0.016	--	--	--	--	NSRC	NSRC
Molybdenum	1 / 1	mg/kg	--	--	0.261	0.261	0.261	0.261	--	0.261	0.261	0.261	--	-1.34	--	-1.34	--	B	0.261	0.261	0.261	--	--	3900	--	--	6.7E-05
Nickel	1 / 1	mg/kg	--	--	1.92	1.92	1.92	1.92	--	1.92	1.92	1.92	--	0.652	--	0.652	--	B	1.92	1.92	1.92	--	--	--	--	--	--
Selenium	1 / 1	mg/kg	--	--	0.425	0.425	0.425	0.425	--	0.425	0.425	0.425	--	-0.856	--	-0.856	--	B	0.425	0.425	0.425	--	--	1600	--	--	2.7E-04
Silver	0 / 1	mg/kg	0.101	0.101	0.051	0.051	0.051	0.051	--	--	--	--	--	-2.99	--	--	--	B	0.051	0.101	0.101	--	--	--	--	NSRC	NSRC
Strontium	1 / 1	mg/kg	--	--	1.8	1.8	1.8	1.8	--	1.8	1.8	1.8	--	0.588	--	0.588	--	B	1.8	1.8	1.8	--	--	300,000	--	--	6.0E-06
Thallium	0 / 1	mg/kg	0.141	0.141	0.071	0.071	0.071	0.071	--	--	--	--	--	-2.65	--	--	--	B	0.071	0.141	0.141	--	--	--	--	NSRC	NSRC
Tin	1 / 1	mg/kg	--	--	0.992	0.992	0.992	0.992	--	0.992	0.992	0.992	--	-0.008	--	-0.008	--	B	0.992	0.992	0.992	--	--	2200	--	--	4.5E-04
Vanadium	1 / 1	mg/kg	--	--	2.8	2.8	2.8	2.8	--	2.8	2.8	2.8	--	1.03	--	1.03	--	B	2.8	2.8	2.8	--	--	25,000	--	--	1.1E-04
Zinc	1 / 1	mg/kg	--	--	50.9	50.9	50.9	50.9	--	50.9	50.9	50.9	--	3.93	--	3.93	--	B	50.9	50.9	50.9	--	--	--	--	--	--
Zirconium	1 / 1	mg/kg	--	--	0.933	0.933	0.933	0.933	--	0.933	0.933	0.933	--	-0.069	--	-0.069	--	B	0.933	0.933	0.933	--	--	--	--	--	--
Herbicides																											
2,4-D	0 / 1	mg/kg	0.025	0.025	0.012	0.012	0.012	0.012	--	--	--	--	--	-4.4	--	--	--	B	0.012	0.025	0.025	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.025	0.025	0.012	0.012	0.012	0.012	--	--	--	--	--	-4.4	--	--	--	B	0.012	0.025	0.025	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.126	0.126	0.063	0.063	0.063	0.063	--	--	--	--	--	-2.76	--	--	--	B	0.063	0.126	0.126	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	0.025	0.025	0.013	0.013	0.013	0.013	--	--	--	--	--	-4.37	--	--	--	B	0.013	0.025	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.126	0.126	0.063	0.063	0.063	0.063	--	--	--	--	--	-2.76	--	--	--	B	0.063	0.126	0.126	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.419	0.419	0.21	0.21	0.21	0.21	--	--	--	--	--	-1.56	--	--	--	B	0.21	0.419	0.419	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	0.013	0.013	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.07	--	--	--	B	0.006	0.013	0.013	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	10,800	--	NSRC	NSRC

Table G.47. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
2,4,5-Trichlorophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 2	mg/kg	0.029	0.641	0.014	0.167	0.167	0.321	0.217	--	--	--	--	-2.69	2.2	--	--	B	0.167	0.245	0.263	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 2	mg/kg	0.029	0.641	0.014	0.167	0.167	0.321	0.217	--	--	--	--	-2.69	2.2	--	--	B	0.167	0.245	0.263	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 2	mg/kg	0.029	0.641	0.014	0.167	0.167	0.321	0.217	--	--	--	--	-2.69	2.2	--	--	B	0.167	0.245	0.263	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 2	mg/kg	0.476	10.7	0.238	2.79	2.79	5.35	3.61	--	--	--	--	0.121	2.2	--	--	B	2.79	4.09	4.38	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 2	mg/kg	0.029	0.641	0.014	0.167	0.167	0.321	0.217	--	--	--	--	-2.69	2.2	--	--	B	0.167	0.245	0.263	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	--	--	NSRC	NSRC
Phenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 2	mg/kg	0.285	6.41	0.143	1.67	1.67	3.21	2.17	--	--	--	--	-0.392	2.2	--	--	B	1.67	2.45	2.63	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	2 / 2	pCi/g	--	--	18.5	126	126	234	152	18.5	126	234	152	4.19	1.79	4.19	1.79	B	126	181	193	--	--	--	--	--	--
Beta activity	2 / 2	pCi/g	--	--	36	187	187	338	214	36	187	338	214	4.7	1.58	4.7	1.58	B	187	264	281	--	--	--	--	--	--
Bismuth-214	1 / 1	pCi/g	--	--	1.66	1.66	1.66	1.66	--	1.66	1.66	1.66	--	0.507	--	0.507	--	B	1.66	1.66	1.66	--	--	--	--	--	--
Carbon-14	0 / 2	pCi/g	0.544	2.29	0.544	1.42	1.42	2.29	1.23	--	--	--	--	0.11	1.02	--	--	B	1.42	1.86	1.96	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 2	pCi/g	0.148	1.09	0.148	0.619	0.619	1.09	0.666	--	--	--	--	-0.912	1.41	--	--	B	0.619	0.858	0.912	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 2	pCi/g	0.174	1.07	0.174	0.622	0.622	1.07	0.634	--	--	--	--	-0.841	1.28	--	--	B	0.622	0.849	0.9	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 2	pCi/g	0.524	1.27	0.524	0.897	0.897	1.27	0.528	--	--	--	--	-0.204	0.626	--	--	B	0.897	1.09	1.13	--	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	1.72	1.72	1.72	1.72	--	1.72	1.72	1.72	--	0.542	--	0.542	--	B	1.72	1.72	1.72	--	--	--	--	--	--
Lead-214	1 / 1	pCi/g	--	--	1.78	1.78	1.78	1.78	--	1.78	1.78	1.78	--	0.577	--	0.577	--	B	1.78	1.78	1.78	--	--	--	--	--	--
Nickel-63	0 / 2	pCi/g	0.618	1.1	0.618	0.859	0.859	1.1	0.341	--	--	--	--	-0.193	0.408	--	--	B	0.859	0.981	1.01	--	--	--	1.3E+08	NSRC	NSRC
Potassium-40	1 / 1	pCi/g	--	--	22.8	22.8	22.8	22.8	--	22.8	22.8	22.8	--	3.13	--	3.13	--	B	22.8	22.8	22.8	--	--	--	4.2E+06	--	--
Radium-226	1 / 2	pCi/g	0.312	0.312	0.312	1.01	1.01	1.71	0.989	1.71	1.71	1.71	--	-0.314	1.2	0.536	--	B	1.01	1.37	1.45	--	--	--	300,000	--	--
Strontium-89	0 / 2	pCi/g	1.3	1.81	1.3	1.56	1.56	1.81	0.361	--	--	--	--	0.428	0.234	--	--	B	1.56	1.68	1.71	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 2	pCi/g	1.92	1.94	1.92	1.93	1.93	1.94	0.014	--	--	--	--	0.658	0.007	--	--	B	1.93	1.94	1.94	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 2	pCi/g	4.6	8.92	4.6	6.76	6.76	8.92	3.05	--	--	--	--	1.86	0.468	--	--	B	6.76	7.85	8.1	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	1 / 2	pCi/g	0.782	0.782	0.782	1.27	1.27	1.76	0.692	1.76	1.76	1.76	--	0.16	0.574	0.565	--	B	1.27	1.52	1.57	--	--	--	25,000	--	--
Thorium-230	1 / 2	pCi/g	0.594	0.594	0.594	1.24	1.24	1.89	0.916	1.89	1.89	1.89	--	0.058	0.818	0.637	--	B	1.24	1.57	1.64	--	--	--	15,000	--	--
Thorium-232	1 / 2	pCi/g	0.571	0.571	0.571	1.05	1.05	1.52	0.671	1.52	1.52	1.52	--	-0.071	0.692	0.419	--	B	1.05	1.29	1.34	--	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--

Table G.47. Y-12 Biology Complex summary statistics for Exterior Walls in Y-12 Building 9401-1 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Total Uranium	2 / 2	pCi/g	--	--	3.44	109	109	215	150	3.44	109	215	150	3.3	2.92	3.3	2.92	B	109	163	175	--	--	--	--	--	--
Tritium	0 / 2	pCi/g	12.6	32.1	12.6	22.4	22.4	32.1	13.8	--	--	--	--	3.0	0.661	--	--	B	22.4	27.3	28.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	2 / 2	pCi/g	--	--	1.66	16.0	16.0	30.3	20.3	1.66	16.0	30.3	20.3	1.96	2.05	1.96	2.05	B	16.0	23.2	24.9	--	1700	2.8E+07	100,000	0.009	5.7E-07
Uranium-235/236	1 / 2	pCi/g	0.597	0.597	0.597	1.99	1.99	3.38	1.97	3.38	3.38	3.38	--	0.351	1.23	1.22	--	B	1.99	2.69	2.85	--	1500	9500	100,000	0.001	2.1E-04
Uranium-238	2 / 2	pCi/g	--	--	1.27	91.6	91.6	182	128	1.27	91.6	182	128	2.72	3.51	2.72	3.51	B	91.6	137	148	--	1200	1500	100,000	0.076	0.061
																									SOF =	0.087	0.074

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.48. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Wall in Y-12 Building 9207 (all random samples)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.54	0.785	0.785	1.03	0.346	0.54	0.785	1.03	0.346	-0.293	0.457	-0.293	0.457	B	0.785	0.909	0.937	--	--	160	--	--	0.005
Arsenic	1 / 2	mg/kg	0.323	0.323	0.162	0.956	0.956	1.75	1.12	1.75	1.75	1.75	--	-0.632	1.68	0.56	--	B	0.956	1.36	1.45	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	13	13	13	13	0	13	13	13	0	2.56	0	2.56	0	B	13	13	13	--	--	150,000	--	--	8.7E-05
Beryllium	2 / 2	mg/kg	--	--	0.019	0.022	0.022	0.024	0.003	0.019	0.022	0.024	0.003	-3.84	0.145	-3.84	0.145	B	0.022	0.023	0.023	--	--	--	--	--	--
Boron	0 / 2	mg/kg	0.758	0.763	0.379	0.38	0.38	0.382	0.002	--	--	--	--	-0.967	0.005	--	--	B	0.38	0.381	0.381	--	--	24,000	--	NSRC	NSRC
Cadmium	1 / 2	mg/kg	0.019	0.019	0.01	0.038	0.038	0.066	0.04	0.066	0.066	0.066	--	-3.69	1.36	-2.73	--	B	0.038	0.052	0.055	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	1.85	6.08	6.08	10.3	5.98	1.85	6.08	10.3	5.98	1.47	1.21	1.47	1.21	B	6.08	8.22	8.7	--	--	140,000	--	--	4.3E-05
Copper	2 / 2	mg/kg	--	--	1.88	3.21	3.21	4.53	1.87	1.88	3.21	4.53	1.87	1.07	0.622	1.07	0.622	B	3.21	3.88	4.03	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.568	0.573	0.284	0.285	0.285	0.287	0.002	--	--	--	--	-1.25	0.006	--	--	B	0.285	0.286	0.286	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	19.4	45.5	45.5	71.6	36.9	19.4	45.5	71.6	36.9	3.62	0.923	3.62	0.923	B	45.5	58.7	61.7	--	--	1500	--	--	0.03
Manganese	2 / 2	mg/kg	--	--	41.7	42.2	42.2	42.7	0.707	41.7	42.2	42.7	0.707	3.74	0.017	3.74	0.017	B	42.2	42.5	42.5	--	--	360,000	--	--	1.2E-04
Mercury	2 / 2	mg/kg	--	--	0.024	0.028	0.028	0.032	0.005	0.024	0.028	0.032	0.005	-3.58	0.185	-3.58	0.185	B	0.028	0.03	0.03	--	--	--	--	--	--
Molybdenum	1 / 2	mg/kg	0.076	0.076	0.038	0.083	0.083	0.127	0.063	0.127	0.127	0.127	--	-2.66	0.85	-2.06	--	B	0.083	0.105	0.11	--	--	3900	--	--	2.1E-05
Nickel	2 / 2	mg/kg	--	--	1.03	1.2	1.2	1.37	0.24	1.03	1.2	1.37	0.24	0.172	0.202	0.172	0.202	B	1.2	1.29	1.31	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.341	0.344	0.171	0.171	0.171	0.172	0.001	--	--	--	--	-1.76	0.006	--	--	B	0.171	0.172	0.172	--	--	1600	--	NSRC	NSRC
Silver	1 / 2	mg/kg	0.097	0.097	0.049	3.45	3.45	6.85	4.81	6.85	6.85	6.85	--	-0.549	3.5	1.92	--	B	3.45	5.17	5.56	--	--	--	--	--	--
Strontium	2 / 2	mg/kg	--	--	2.69	3.38	3.38	4.07	0.976	2.69	3.38	4.07	0.976	1.2	0.293	1.2	0.293	B	3.38	3.73	3.81	--	--	300,000	--	--	1.1E-05
Thallium	0 / 2	mg/kg	0.133	0.134	0.067	0.067	0.067	0.067	3.5E-04	--	--	--	--	-2.71	0.005	--	--	B	0.067	0.067	0.067	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	0.292	0.292	0.146	0.364	0.364	0.582	0.308	0.582	0.582	0.582	--	-1.23	0.978	-0.541	--	B	0.364	0.474	0.499	--	--	2200	--	--	1.7E-04
Vanadium	2 / 2	mg/kg	--	--	0.786	1.31	1.31	1.83	0.738	0.786	1.31	1.83	0.738	0.182	0.598	0.182	0.598	B	1.31	1.57	1.63	--	--	25,000	--	--	5.2E-05
Zinc	2 / 2	mg/kg	--	--	24.9	26.8	26.8	28.7	2.69	24.9	26.8	28.7	2.69	3.29	0.1	3.29	0.1	B	26.8	27.8	28.0	--	--	--	--	--	--
Zirconium	0 / 2	mg/kg	0.379	0.382	0.19	0.19	0.19	0.191	0.001	--	--	--	--	-1.66	0.006	--	--	B	0.19	0.191	0.191	--	--	--	--	NSRC	NSRC
TCLP Metals																											
Arsenic	1 / 2	mg/L	0.017	0.017	0.009	0.016	0.016	0.024	0.011	0.024	0.024	0.024	--	-4.25	0.731	-3.73	--	X	0.016	0.039	0.05	--	--	--	--	--	--
Barium	2 / 2	mg/L	--	--	0.079	0.091	0.091	0.103	0.017	0.079	0.091	0.103	0.017	-2.41	0.187	-2.41	0.187	X	0.091	0.127	0.143	--	--	--	--	--	--
Cadmium	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	1 / 2	mg/L	0.03	0.03	0.015	0.038	0.038	0.062	0.033	0.062	0.062	0.062	--	-3.49	1.0	-2.78	--	X	0.038	0.109	0.141	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	0.407	0.573	0.573	0.739	0.235	0.407	0.573	0.739	0.235	-0.601	0.422	-0.601	0.422	X	0.573	1.07	1.3	--	--	--	--	--	--
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	4.2E-05	--	--	--	--	-5.5	0.01	--	--	B	0.004	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	4.2E-05	--	--	--	--	-5.5	0.01	--	--	B	0.004	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.0	0	--	--	B	0.002	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.9E-04	9.9E-04	5.0E-04	5.0E-04	5.0E-04	5.0E-04	3.5E-07	--	--	--	--	-7.61	7.1E-04	--	--	B	5.0E-04	5.0E-04	5.0E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	1000	1500	--	NSRC	NSRC

Table G.48. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.0	0	--	--	B	0.002	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	3.5E-05	--	--	--	--	-4.79	0.004	--	--	B	0.008	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.3	0	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 19	mg/kg	0.029	0.149	0.014	0.031	0.015	0.075	0.025	0.034	0.041	0.053	0.01	-3.72	0.7	-3.22	0.24	B	0.025	0.037	0.042	--	--	4000	--	--	6.2E-06
2-Methylphenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 19	mg/kg	0.029	0.149	0.014	0.027	0.015	0.075	0.025	--	--	--	--	-3.88	0.675	--	--	B	0.025	0.037	0.042	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 19	mg/kg	0.029	0.149	0.014	0.027	0.015	0.075	0.025	--	--	--	--	-3.88	0.675	--	--	B	0.025	0.037	0.042	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 19	mg/kg	0.288	1.49	0.144	0.282	0.148	0.745	0.245	0.358	0.358	0.358	--	-1.53	0.681	-1.03	--	B	0.247	0.37	0.419	--	--	330	--	--	7.5E-04
Benzenemethanol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	1200	--	NSRC	NSRC
Benzidine	1 / 19	mg/kg	0.288	1.49	0.144	0.324	0.148	1.17	0.319	1.17	1.17	1.17	--	-1.47	0.778	0.157	--	B	0.318	0.527	0.61	--	0.161	1.2	--	**1.97**	0.265
Benzoic acid	2 / 19	mg/kg	0.48	2.48	0.24	0.646	0.247	2.73	0.685	1.47	2.1	2.73	0.891	-0.849	0.865	0.695	0.438	B	0.66	1.17	1.37	--	--	9810	--	--	6.7E-05
Carbazole	0 / 19	mg/kg	0.029	0.149	0.014	0.027	0.015	0.075	0.025	--	--	--	--	-3.88	0.675	--	--	B	0.025	0.037	0.042	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	1 / 19	mg/kg	0.288	1.49	0.144	1.41	0.148	22.4	5.09	22.4	22.4	22.4	--	-1.4	1.25	3.11	--	B	3.86	8.36	10.2	--	--	190	--	--	0.02
Diethyl phthalate	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 19	mg/kg	0.288	1.49	0.144	0.286	0.149	0.745	0.247	0.432	0.432	0.432	--	-1.52	0.689	-0.839	--	B	0.247	0.37	0.419	--	--	30,700	--	--	8.1E-06
Diphenylamine	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 19	mg/kg	0.288	1.49	0.144	0.583	0.148	6.08	1.35	6.08	6.08	6.08	--	-1.38	1.02	1.81	--	B	1.14	2.34	2.82	--	--	--	--	--	--
Phenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 19	mg/kg	0.288	1.49	0.144	0.271	0.148	0.745	0.246	--	--	--	--	-1.58	0.675	--	--	B	0.247	0.37	0.419	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	9 / 9	pCi/g	--	--	1.25	1.84	1.83	2.49	0.427	1.25	1.84	2.49	0.427	0.583	0.236	0.583	0.236	N	1.84	2.03	2.1	3.13	--	--	--	--	--
Alpha activity	17 / 19	pCi/g	2.54	3.62	2.54	24.0	22.6	52	11.7	15.8	26.5	52	9.67	3.0	0.738	3.22	0.331	N	24.0	27.6	28.7	52.4	--	--	--	--	--
Beta activity	19 / 19	pCi/g	--	--	2.47	30.0	27.7	63.1	15.7	2.47	30.0	63.1	15.7	3.18	0.837	3.18	0.837	N	30.0	34.8	36.2	68.0	--	--	--	--	--
Bismuth-214	16 / 16	pCi/g	--	--	0.817	1.25	1.19	1.96	0.349	0.817	1.25	1.96	0.349	0.183	0.278	0.183	0.278	N	1.25	1.36	1.4	2.13	--	--	--	--	--
Carbon-14	0 / 19	pCi/g	1.69	2.49	1.69	2.14	2.23	2.49	0.27	--	--	--	--	0.752	0.129	--	--	B	2.18	2.37	2.41	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 19	pCi/g	0.043	0.182	0.043	0.117	0.124	0.182	0.037	--	--	--	--	-2.2	0.365	--	--	N	0.117	0.129	0.132	0.208	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 19	pCi/g	0.052	0.228	0.052	0.125	0.13	0.228	0.045	--	--	--	--	-2.15	0.388	--	--	N	0.125	0.139	0.143	0.235	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 19	pCi/g	0.382	1.31	0.382	0.843	0.884	1.31	0.282	--	--	--	--	-0.234	0.382	--	--	N	0.843	0.929	0.955	1.53	13	--	1500	NSRC	NSRC
Lead-212	16 / 16	pCi/g	--	--	1.03	1.57	1.48	2.25	0.38	1.03	1.57	2.25	0.38	0.424	0.24	0.424	0.24	N	1.57	1.7	1.74	2.53	--	--	--	--	--
Lead-214	14 / 14	pCi/g	--	--	1.02	1.53	1.33	2.29	0.498	1.02	1.53	2.29	0.498	0.374	0.322	0.374	0.322	B	1.44	1.76	1.85	--	--	--	--	--	--
Nickel-63	1 / 19	pCi/g	0.569	1.09	0.569	0.888	0.926	1.09	0.127	0.834	0.834	0.834	--	-0.13	0.155	-0.182	--	N	0.888	0.927	0.939	1.2	--	--	1.3E+08	--	--

Table G.48. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	16 / 16	pCi/g	--	--	14.1	25.4	24.6	47.3	11.1	14.1	25.4	47.3	11.1	3.15	0.432	3.15	0.432	B	26.6	35.1	37.4	--	--	--	4.2E+06	--	--
Radium-226	14 / 19	pCi/g	0.579	1.02	0.579	1.5	1.17	3.15	0.839	0.582	1.74	3.15	0.845	0.253	0.565	0.429	0.545	L	1.51	1.86	1.99	5.06	--	--	300,000	--	--
Strontium-89	0 / 19	pCi/g	0.504	1.99	0.504	1.67	1.74	1.99	0.411	--	--	--	--	0.465	0.369	--	--	B	1.58	1.88	1.92	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 19	pCi/g	0.515	2	0.515	1.46	1.66	2	0.431	--	--	--	--	0.328	0.363	--	--	B	1.53	1.85	1.9	--	--	--	400,000	NSRC	NSRC
Technetium-99	2 / 19	pCi/g	2.92	7.55	0.113	4.81	5.35	7.55	2.23	0.113	0.692	1.27	0.818	1.33	0.974	-0.971	1.71	B	4.84	6.55	6.85	--	172	--	4.2E+07	0.028	--
Thallium-208	12 / 12	pCi/g	--	--	0.407	0.536	0.533	0.692	0.088	0.407	0.536	0.692	0.088	-0.636	0.162	-0.636	0.162	N	0.536	0.57	0.581	0.775	--	--	--	--	--
Thorium-228	13 / 19	pCi/g	0.298	0.611	0.298	1.21	1.26	2.4	0.616	0.652	1.53	2.4	0.466	0.043	0.591	0.375	0.335	N	1.21	1.4	1.45	2.7	--	--	25,000	--	--
Thorium-230	12 / 19	pCi/g	0.318	0.485	0.318	1.11	1.11	2.08	0.61	1.03	1.51	2.08	0.361	-0.077	0.657	0.387	0.242	B	1.14	1.59	1.7	--	--	--	15,000	--	--
Thorium-232	14 / 19	pCi/g	0.237	0.446	0.237	1.15	1.2	2.36	0.642	0.5	1.43	2.36	0.502	-0.052	0.695	0.287	0.421	N	1.15	1.35	1.41	2.71	--	--	2500	--	--
Total Uranium	13 / 19	pCi/g	0.713	1.24	0.713	2.28	1.93	4.23	1.1	1.3	2.83	4.23	0.879	0.701	0.53	0.989	0.347	N	2.28	2.62	2.72	4.95	--	--	--	--	--
Tritium	0 / 19	pCi/g	10.3	14.6	10.3	12.1	12.1	14.6	1.14	--	--	--	--	2.49	0.093	--	--	N	12.1	12.4	12.5	14.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	13 / 19	pCi/g	0.381	0.694	0.381	1.12	0.961	2.09	0.515	0.609	1.36	2.09	0.45	0.009	0.487	0.247	0.374	L	1.14	1.35	1.43	3.28	1700	2.8E+07	100,000	6.7E-04	4.1E-08
Uranium-235/236	1 / 19	pCi/g	0.299	0.852	0.299	0.576	0.57	0.852	0.168	0.414	0.414	0.414	--	-0.596	0.309	-0.882	--	N	0.576	0.627	0.642	0.983	1500	9500	100,000	3.8E-04	6.1E-05
Uranium-238	13 / 19	pCi/g	0.356	0.635	0.356	1.02	0.85	1.84	0.472	0.523	1.23	1.84	0.42	-0.086	0.484	0.147	0.38	L	1.03	1.22	1.29	2.97	1200	1500	100,000	8.6E-04	6.9E-04
																									SOF =	**2.0**	0.322

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.49. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Wall in Y-12 Building 9210 (all random samples)																											
Metals																											
Antimony	1 / 1	mg/kg	--	--	0.433	0.433	0.433	0.433	--	0.433	0.433	0.433	--	-0.837	--	-0.837	--	B	0.433	0.433	0.433	--	--	160	--	--	0.003
Arsenic	1 / 1	mg/kg	--	--	1.54	1.54	1.54	1.54	--	1.54	1.54	1.54	--	0.432	--	0.432	--	B	1.54	1.54	1.54	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	38	38	38	38	--	38	38	38	--	3.64	--	3.64	--	B	38	38	38	--	--	150,000	--	--	2.5E-04
Beryllium	1 / 1	mg/kg	--	--	0.185	0.185	0.185	0.185	--	0.185	0.185	0.185	--	-1.69	--	-1.69	--	B	0.185	0.185	0.185	--	--	--	--	--	--
Boron	1 / 1	mg/kg	--	--	2.83	2.83	2.83	2.83	--	2.83	2.83	2.83	--	1.04	--	1.04	--	B	2.83	2.83	2.83	--	--	24,000	--	--	1.2E-04
Cadmium	1 / 1	mg/kg	--	--	0.057	0.057	0.057	0.057	--	0.057	0.057	0.057	--	-2.87	--	-2.87	--	B	0.057	0.057	0.057	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	6.21	6.21	6.21	6.21	--	6.21	6.21	6.21	--	1.83	--	1.83	--	B	6.21	6.21	6.21	--	--	140,000	--	--	4.4E-05
Copper	1 / 1	mg/kg	--	--	2.71	2.71	2.71	2.71	--	2.71	2.71	2.71	--	0.997	--	0.997	--	B	2.71	2.71	2.71	--	--	--	--	--	--
Hafnium	0 / 1	mg/kg	0.595	0.595	0.298	0.298	0.298	0.298	--	--	--	--	--	-1.21	--	--	--	B	0.298	0.595	0.595	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/kg	--	--	3.37	3.37	3.37	3.37	--	3.37	3.37	3.37	--	1.21	--	1.21	--	B	3.37	3.37	3.37	--	--	1500	--	--	0.002
Manganese	1 / 1	mg/kg	--	--	148	148	148	148	--	148	148	148	--	5.0	--	5.0	--	B	148	148	148	--	--	360,000	--	--	4.1E-04
Mercury	1 / 1	mg/kg	--	--	0.59	0.59	0.59	0.59	--	0.59	0.59	0.59	--	-0.528	--	-0.528	--	B	0.59	0.59	0.59	--	--	--	--	--	--
Molybdenum	1 / 1	mg/kg	--	--	0.652	0.652	0.652	0.652	--	0.652	0.652	0.652	--	-0.428	--	-0.428	--	B	0.652	0.652	0.652	--	--	3900	--	--	1.7E-04
Nickel	1 / 1	mg/kg	--	--	3.81	3.81	3.81	3.81	--	3.81	3.81	3.81	--	1.34	--	1.34	--	B	3.81	3.81	3.81	--	--	--	--	--	--
Selenium	1 / 1	mg/kg	--	--	0.448	0.448	0.448	0.448	--	0.448	0.448	0.448	--	-0.803	--	-0.803	--	B	0.448	0.448	0.448	--	--	1600	--	--	2.8E-04
Silver	0 / 1	mg/kg	0.919	0.919	0.46	0.46	0.46	0.46	--	--	--	--	--	-0.778	--	--	--	B	0.46	0.919	0.919	--	--	--	--	NSRC	NSRC
Strontium	1 / 1	mg/kg	--	--	478	478	478	478	--	478	478	478	--	6.17	--	6.17	--	B	478	478	478	--	--	300,000	--	--	0.002
Thallium	0 / 1	mg/kg	0.139	0.139	0.07	0.07	0.07	0.07	--	--	--	--	--	-2.67	--	--	--	B	0.07	0.139	0.139	--	--	--	--	NSRC	NSRC
Tin	1 / 1	mg/kg	--	--	4.77	4.77	4.77	4.77	--	4.77	4.77	4.77	--	1.56	--	1.56	--	B	4.77	4.77	4.77	--	--	2200	--	--	0.002
Vanadium	1 / 1	mg/kg	--	--	9.5	9.5	9.5	9.5	--	9.5	9.5	9.5	--	2.25	--	2.25	--	B	9.5	9.5	9.5	--	--	25,000	--	--	3.8E-04
Zinc	1 / 1	mg/kg	--	--	15	15	15	15	--	15	15	15	--	2.71	--	2.71	--	B	15	15	15	--	--	--	--	--	--
Zirconium	1 / 1	mg/kg	--	--	2.9	2.9	2.9	2.9	--	2.9	2.9	2.9	--	1.06	--	1.06	--	B	2.9	2.9	2.9	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.133	0.133	0.133	0.133	--	0.133	0.133	0.133	--	-2.02	--	-2.02	--	D	0.133	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.49	--	--	--	B	0.004	0.008	0.008	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.008	0.008	0.004	0.004	0.004	0.004	--	--	--	--	--	-5.49	--	--	--	B	0.004	0.008	0.008	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 1	mg/kg	--	--	0.002	0.002	0.002	0.002	--	0.002	0.002	0.002	--	-6.48	--	-6.48	--	B	0.002	0.002	0.002	--	130,000	--	--	1.2E-08	--
4,4'-DDT	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.01	--	--	--	B	0.002	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	9.8E-04	9.8E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.62	--	--	--	B	4.9E-04	9.8E-04	9.8E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	1000	1500	--	NSRC	NSRC

Table G.49. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.01	--	--	--	B	0.002	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.016	0.016	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.81	--	--	--	B	0.008	0.016	0.016	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	4.9E-04	4.9E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.31	--	--	--	B	2.5E-04	4.9E-04	4.9E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 8	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	5.2E-05	--	--	--	--	-4.21	0.003	--	--	B	0.015	0.015	0.015	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 8	mg/kg	0.03	0.03	0.015	0.023	0.015	0.078	0.022	0.078	0.078	0.078	--	-4.0	0.583	-2.56	--	B	0.025	0.038	0.043	--	--	390,000	--	--	6.5E-08
Acenaphthylene	0 / 8	mg/kg	0.03	0.03	0.015	0.015	0.015	0.015	5.2E-05	--	--	--	--	-4.21	0.003	--	--	B	0.015	0.015	0.015	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 8	mg/kg	0.297	0.299	0.149	0.169	0.149	0.305	0.055	0.305	0.305	0.305	--	-1.81	0.253	-1.19	--	B	0.175	0.207	0.22	--	--	330	--	--	5.3E-04
Benzenemethanol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 8	mg/kg	0.495	0.499	0.248	0.249	0.249	0.25	8.3E-04	--	--	--	--	-1.39	0.003	--	--	B	0.249	0.249	0.249	--	--	9810	--	NSRC	NSRC
Carbazole	1 / 8	mg/kg	0.03	0.03	0.015	0.043	0.015	0.239	0.079	0.239	0.239	0.239	--	-3.86	0.981	-1.43	--	B	0.052	0.098	0.116	--	110,000	--	--	4.8E-07	--
Di-n-butyl phthalate	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	190	--	NSRC	NSRC
Diethyl phthalate	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	--	--	NSRC	NSRC
Phenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 8	mg/kg	0.297	0.3	0.149	0.149	0.149	0.15	5.2E-04	--	--	--	--	-1.9	0.003	--	--	B	0.149	0.149	0.15	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	1.35	2.31	2.51	3.08	0.882	1.35	2.31	3.08	0.882	0.782	0.43	0.782	0.43	B	2.41	2.82	2.89	--	--	--	--	--	--
Alpha activity	6 / 8	pCi/g	6.2	7.25	6.2	17.5	13.8	38.8	11.7	8.78	21.1	38.8	11.5	2.66	0.686	2.91	0.593	N	17.5	23.4	25.4	54.9	--	--	--	--	--
Beta activity	8 / 8	pCi/g	--	--	5.46	22.0	20.7	46.6	12.1	5.46	22.0	46.6	12.1	2.94	0.625	2.94	0.625	N	22.0	28.1	30.2	60.7	--	--	--	--	--
Bismuth-214	4 / 4	pCi/g	--	--	1.18	1.75	1.83	2.16	0.456	1.18	1.75	2.16	0.456	0.53	0.28	0.53	0.28	B	1.77	2.01	2.05	--	--	--	--	--	--
Carbon-14	0 / 8	pCi/g	2.15	2.32	2.15	2.25	2.26	2.32	0.054	--	--	--	--	0.808	0.024	--	--	N	2.25	2.27	2.28	2.42	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 8	pCi/g	0.058	0.189	0.058	0.13	0.142	0.189	0.049	--	--	--	--	-2.11	0.434	--	--	N	0.13	0.155	0.163	0.286	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 8	pCi/g	0.06	0.262	0.06	0.155	0.161	0.262	0.069	--	--	--	--	-1.96	0.503	--	--	N	0.155	0.19	0.201	0.375	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 8	pCi/g	0.142	1.06	0.142	0.595	0.661	1.06	0.305	--	--	--	--	-0.705	0.74	--	--	N	0.595	0.747	0.799	1.57	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.501	1.62	1.91	2.32	0.703	0.501	1.62	2.32	0.703	0.363	0.615	0.363	0.615	B	1.74	2.14	2.2	--	--	--	--	--	--
Lead-214	4 / 4	pCi/g	--	--	1.04	1.81	2.02	2.17	0.527	1.04	1.81	2.17	0.527	0.553	0.348	0.553	0.348	B	1.88	2.1	2.13	--	--	--	--	--	--
Nickel-63	0 / 8	pCi/g	0.6	0.916	0.6	0.772	0.785	0.916	0.097	--	--	--	--	-0.266	0.131	--	--	N	0.772	0.821	0.837	1.08	--	--	1.3E+08	NSRC	NSRC

Table G.49. Y-12 Biology Complex summary statistics for Interior Wall in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	7 / 7	pCi/g	--	--	7.68	15.0	12.4	32.5	8.48	7.68	15.0	32.5	8.48	2.59	0.481	2.59	0.481	L	15.0	21.0	24.2	68.7	--	--	4.2E+06	--	--
Radium-226	7 / 8	pCi/g	0.632	0.632	0.375	1.28	0.836	2.92	0.967	0.375	1.37	2.92	1.01	-0.009	0.763	0.055	0.801	N	1.28	1.76	1.93	4.36	--	--	300,000	--	--
Strontium-89	0 / 8	pCi/g	1.41	1.89	1.41	1.73	1.82	1.89	0.195	--	--	--	--	0.541	0.119	--	--	B	1.76	1.86	1.87	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 8	pCi/g	1.04	1.75	1.04	1.44	1.52	1.75	0.247	--	--	--	--	0.351	0.185	--	--	N	1.44	1.56	1.61	2.23	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 8	pCi/g	4.93	6.22	4.93	5.43	5.32	6.22	0.462	--	--	--	--	1.69	0.084	--	--	N	5.43	5.66	5.74	6.9	172	--	4.2E+07	NSRC	NSRC
Thallium-208	4 / 4	pCi/g	--	--	0.192	0.473	0.482	0.737	0.238	0.192	0.473	0.737	0.238	-0.866	0.592	-0.866	0.592	B	0.476	0.613	0.643	--	--	--	--	--	--
Thorium-228	6 / 8	pCi/g	0.155	0.357	0.155	1.08	0.824	2.82	0.99	0.223	1.36	2.82	1.0	-0.416	1.14	-0.072	1.08	N	1.08	1.58	1.74	4.24	--	--	25,000	--	--
Thorium-230	8 / 8	pCi/g	--	--	0.294	1.17	0.783	2.91	0.942	0.294	1.17	2.91	0.942	-0.148	0.846	-0.148	0.846	N	1.17	1.64	1.8	4.17	--	--	15,000	--	--
Thorium-232	7 / 8	pCi/g	0.259	0.259	0.199	0.967	0.735	2.28	0.828	0.199	1.07	2.28	0.839	-0.46	1.04	-0.333	1.06	B	0.903	1.43	1.58	--	--	--	2500	--	--
Total Uranium	8 / 8	pCi/g	--	--	0.716	2.32	1.66	5.3	1.77	0.716	2.32	5.3	1.77	0.556	0.825	0.556	0.825	N	2.32	3.21	3.51	7.98	--	--	--	--	--
Tritium	0 / 8	pCi/g	12.3	12.7	12.3	12.5	12.6	12.7	0.175	--	--	--	--	2.53	0.014	--	--	B	12.5	12.6	12.6	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	6 / 8	pCi/g	0.352	0.416	0.352	1.14	0.767	2.72	0.901	0.392	1.39	2.72	0.912	-0.162	0.828	0.105	0.785	L	1.2	2.29	3.08	11.9	1700	2.8E+07	100,000	7.0E-04	4.3E-08
Uranium-235/236	0 / 8	pCi/g	0.368	0.608	0.368	0.462	0.45	0.608	0.076	--	--	--	--	-0.785	0.16	--	--	N	0.462	0.5	0.513	0.705	1500	9500	100,000	NSRC	NSRC
Uranium-238	5 / 8	pCi/g	0.289	0.38	0.289	1.0	0.741	2.27	0.757	0.511	1.4	2.27	0.679	-0.28	0.823	0.22	0.584	N	1.0	1.38	1.51	3.41	1200	1500	100,000	8.3E-04	6.7E-04
																									SOF =	0.002	0.012

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.50. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Roof in Y-12 Building 9207 (all random samples)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.381	0.766	0.766	1.15	0.544	0.381	0.766	1.15	0.544	-0.413	0.781	-0.413	0.781	B	0.766	0.96	1.0	--	--	160	--	--	0.005
Arsenic	2 / 2	mg/kg	--	--	4.34	5.85	5.85	7.36	2.14	4.34	5.85	7.36	2.14	1.73	0.373	1.73	0.373	B	5.85	6.62	6.79	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	18.4	34.6	34.6	50.7	22.8	18.4	34.6	50.7	22.8	3.42	0.717	3.42	0.717	B	34.6	42.7	44.6	--	--	150,000	--	--	2.3E-04
Beryllium	2 / 2	mg/kg	--	--	0.109	0.327	0.327	0.545	0.308	0.109	0.327	0.545	0.308	-1.41	1.14	-1.41	1.14	B	0.327	0.437	0.462	--	--	--	--	--	--
Boron	2 / 2	mg/kg	--	--	3.52	6.57	6.57	9.62	4.31	3.52	6.57	9.62	4.31	1.76	0.711	1.76	0.711	B	6.57	8.12	8.47	--	--	24,000	--	--	2.7E-04
Cadmium	2 / 2	mg/kg	--	--	1.04	1.19	1.19	1.34	0.212	1.04	1.19	1.34	0.212	0.166	0.179	0.166	0.179	B	1.19	1.27	1.28	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	10.4	29	29	47.6	26.3	10.4	29	47.6	26.3	3.1	1.08	3.1	1.08	B	29	38.4	40.6	--	--	140,000	--	--	2.1E-04
Copper	2 / 2	mg/kg	--	--	15.7	23.0	23.0	30.2	10.3	15.7	23.0	30.2	10.3	3.08	0.463	3.08	0.463	B	23.0	26.6	27.5	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.577	0.594	0.289	0.293	0.293	0.297	0.006	--	--	--	--	-1.23	0.021	--	--	B	0.293	0.295	0.295	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	80.2	96.1	96.1	112	22.5	80.2	96.1	112	22.5	4.55	0.236	4.55	0.236	B	96.1	104	106	--	--	1500	--	--	0.064
Manganese	2 / 2	mg/kg	--	--	37.4	102	102	167	91.6	37.4	102	167	91.6	4.37	1.06	4.37	1.06	B	102	135	142	--	--	360,000	--	--	2.8E-04
Mercury	2 / 2	mg/kg	--	--	0.055	0.199	0.199	0.344	0.204	0.055	0.199	0.344	0.204	-1.98	1.3	-1.98	1.3	B	0.199	0.273	0.289	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	2.04	15.0	15.0	27.9	18.3	2.04	15.0	27.9	18.3	2.02	1.85	2.02	1.85	B	15.0	21.5	23.0	--	--	3900	--	--	0.004
Nickel	2 / 2	mg/kg	--	--	6.08	23.9	23.9	41.7	25.2	6.08	23.9	41.7	25.2	2.77	1.36	2.77	1.36	B	23.9	32.9	35.0	--	--	--	--	--	--
Selenium	1 / 2	mg/kg	0.346	0.346	0.173	0.707	0.707	1.24	0.754	1.24	1.24	1.24	--	-0.77	1.39	0.215	--	B	0.707	0.977	1.04	--	--	1600	--	--	4.4E-04
Silver	1 / 2	mg/kg	0.916	0.916	0.338	0.398	0.398	0.458	0.085	0.338	0.338	0.338	--	-0.933	0.215	-1.08	--	B	0.398	0.428	0.435	--	--	--	--	--	--
Strontium	2 / 2	mg/kg	--	--	21.6	71.3	71.3	121	70.3	21.6	71.3	121	70.3	3.93	1.22	3.93	1.22	B	71.3	96.5	102	--	--	300,000	--	--	2.4E-04
Thallium	1 / 2	mg/kg	0.135	0.135	0.068	0.162	0.162	0.257	0.134	0.257	0.257	0.257	--	-2.03	0.945	-1.36	--	B	0.162	0.21	0.221	--	--	--	--	--	--
Tin	2 / 2	mg/kg	--	--	1.36	2.74	2.74	4.12	1.95	1.36	2.74	4.12	1.95	0.862	0.784	0.862	0.784	B	2.74	3.44	3.6	--	--	2200	--	--	0.001
Vanadium	2 / 2	mg/kg	--	--	9.97	91.5	91.5	173	115	9.97	91.5	173	115	3.73	2.02	3.73	2.02	B	91.5	133	142	--	--	25,000	--	--	0.004
Zinc	2 / 2	mg/kg	--	--	154	389	389	624	332	154	389	624	332	5.74	0.989	5.74	0.989	B	389	508	535	--	--	--	--	--	--
Zirconium	2 / 2	mg/kg	--	--	1.32	6.56	6.56	11.8	7.41	1.32	6.56	11.8	7.41	1.37	1.55	1.37	1.55	B	6.56	9.22	9.82	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.211	0.241	0.241	0.271	0.042	0.211	0.241	0.271	0.042	-1.43	0.177	-1.43	0.177	X	0.241	0.331	0.372	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.004	0.004	0.007	0.004	0.007	0.007	0.007	--	-5.72	1.11	-4.93	--	X	0.004	0.013	0.017	--	--	--	--	--	--
Chromium	1 / 2	mg/L	0.03	0.03	0.015	0.026	0.026	0.037	0.015	0.037	0.037	0.037	--	-3.75	0.635	-3.3	--	X	0.026	0.059	0.073	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	0.172	0.272	0.272	0.371	0.141	0.172	0.272	0.371	0.141	-1.38	0.544	-1.38	0.544	X	0.272	0.57	0.705	--	--	--	--	--	--
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.809	0.824	0.405	0.408	0.408	0.412	0.005	--	--	--	--	-0.896	0.013	--	--	B	0.408	0.41	0.411	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.809	0.824	0.405	0.408	0.408	0.412	0.005	--	--	--	--	-0.896	0.013	--	--	B	0.408	0.41	0.411	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.496	0.497	0.248	0.248	0.248	0.249	3.5E-04	--	--	--	--	-1.39	0.001	--	--	B	0.248	0.248	0.248	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	0.099	0.099	0.05	0.05	0.05	0.05	0	--	--	--	--	-3.0	0	--	--	B	0.05	0.099	0.099	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	1000	1500	--	NSRC	NSRC

Table G.50. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.496	0.497	0.248	0.248	0.248	0.249	3.5E-04	--	--	--	--	-1.39	0.001	--	--	B	0.248	0.248	0.248	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	1.65	1.65	0.825	0.825	0.825	0.825	0	--	--	--	--	-0.192	0	--	--	B	0.825	1.65	1.65	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	0.05	0.05	0.025	0.025	0.025	0.025	3.5E-05	--	--	--	--	-3.7	0.001	--	--	B	0.025	0.025	0.025	--	140	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	19 / 19	pCi/g	--	--	8.55	29.1	24.7	78.6	19.7	8.55	29.1	78.6	19.7	3.17	0.658	3.17	0.658	L	29.5	37.9	41.3	117	--	--	--	--	--
Beta activity	19 / 19	pCi/g	--	--	6.63	20.9	17.8	54.8	12.7	6.63	20.9	54.8	12.7	2.88	0.584	2.88	0.584	L	21.1	26.1	28.1	73.2	--	--	--	--	--
Bismuth-214	1 / 1	pCi/g	--	--	0.552	0.552	0.552	0.552	--	0.552	0.552	0.552	--	-0.594	--	-0.594	--	B	0.552	0.552	0.552	--	--	--	--	--	--
Carbon-14	0 / 19	pCi/g	1.66	2.4	1.66	1.91	1.85	2.4	0.211	--	--	--	--	0.642	0.104	--	--	B	1.91	2.1	2.15	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	4 / 19	pCi/g	0.06	0.218	0.06	0.156	0.15	0.218	0.048	0.142	0.192	0.218	0.035	-1.91	0.348	-1.67	0.198	N	0.156	0.171	0.175	0.272	--	--	1.5E+06	--	--
Cobalt-60	0 / 19	pCi/g	0.08	0.235	0.08	0.139	0.135	0.235	0.043	--	--	--	--	-2.01	0.296	--	--	N	0.139	0.152	0.156	0.242	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 19	pCi/g	0.286	1.2	0.286	0.839	0.864	1.2	0.249	--	--	--	--	-0.233	0.382	--	--	B	0.824	1.04	1.09	--	13	--	1500	NSRC	NSRC
Lead-212	2 / 2	pCi/g	--	--	0.361	0.372	0.372	0.383	0.016	0.361	0.372	0.383	0.016	-0.989	0.042	-0.989	0.042	B	0.372	0.378	0.379	--	--	--	--	--	--
Nickel-63	0 / 19	pCi/g	0.533	1.05	0.533	0.769	0.806	1.05	0.169	--	--	--	--	-0.286	0.225	--	--	N	0.769	0.821	0.836	1.18	--	--	1.3E+08	NSRC	NSRC
Radium-226	1 / 19	pCi/g	0.527	0.93	0.527	0.686	0.672	0.93	0.109	0.611	0.611	0.611	--	-0.389	0.158	-0.493	--	N	0.686	0.719	0.729	0.95	--	--	300,000	--	--
Strontium-89	0 / 19	pCi/g	0.448	1.99	0.448	1.39	1.58	1.99	0.534	--	--	--	--	0.238	0.476	--	--	B	1.46	1.81	1.86	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 19	pCi/g	0.38	1.98	0.38	1.2	1.18	1.98	0.547	--	--	--	--	0.067	0.529	--	--	N	1.2	1.37	1.42	2.53	--	--	400,000	NSRC	NSRC
Technetium-99	10 / 19	pCi/g	4.08	9.69	4.08	9.26	8.82	22.5	4.43	7.17	11.9	22.5	4.53	2.13	0.427	2.42	0.334	L	9.26	10.7	11.3	23.8	172	--	4.2E+07	0.054	--
Thallium-208	1 / 1	pCi/g	--	--	0.212	0.212	0.212	0.212	--	0.212	0.212	0.212	--	-1.55	--	-1.55	--	B	0.212	0.212	0.212	--	--	--	--	--	--
Thorium-228	1 / 19	pCi/g	0.337	0.834	0.337	0.622	0.613	0.834	0.109	0.748	0.748	0.748	--	-0.491	0.192	-0.29	--	N	0.622	0.655	0.665	0.885	--	--	25,000	--	--
Thorium-230	2 / 19	pCi/g	0.36	0.634	0.36	0.491	0.472	0.634	0.074	0.569	0.596	0.623	0.038	-0.723	0.148	-0.519	0.064	N	0.491	0.513	0.52	0.67	--	--	15,000	--	--
Thorium-232	3 / 19	pCi/g	0.352	0.61	0.352	0.47	0.457	0.63	0.077	0.458	0.542	0.63	0.086	-0.768	0.158	-0.62	0.159	N	0.47	0.493	0.5	0.656	--	--	2500	--	--
Total Uranium	19 / 19	pCi/g	--	--	4.4	19.7	14.7	82.4	19.0	4.4	19.7	82.4	19.0	2.64	0.827	2.64	0.827	L	19.7	27.7	31.3	104	--	--	--	--	--
Tritium	0 / 19	pCi/g	11	14.5	11	12.1	11.5	14.5	1.07	--	--	--	--	2.49	0.085	--	--	B	11.9	12.7	13.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	19 / 19	pCi/g	--	--	2.35	12.5	7.87	52.5	12.2	2.35	12.5	52.5	12.2	2.17	0.853	2.17	0.853	L	12.6	18.0	20.4	69.1	1700	2.8E+07	100,000	0.007	4.5E-07
Uranium-235/236	10 / 19	pCi/g	0.569	0.927	0.569	1.14	0.8	4.13	0.886	0.642	1.53	4.13	1.09	-0.054	0.559	0.232	0.631	B	1.32	2.1	2.39	--	1500	9500	100,000	8.8E-04	1.4E-04
Uranium-238	19 / 19	pCi/g	--	--	1.22	6.26	4.72	25.9	6.02	1.22	6.26	25.9	6.02	1.46	0.889	1.46	0.889	L	6.4	9.34	10.7	37.1	1200	1500	100,000	0.005	0.004
																									SOF =	0.067	0.084

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

Table G.50. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.51. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Roof in Y-12 Building 9210 (all random samples)																											
Metals																											
Antimony	1 / 2	mg/kg	0.325	0.325	0.163	0.284	0.284	0.405	0.171	0.405	0.405	0.405	--	-1.36	0.646	-0.904	--	B	0.284	0.345	0.359	--	--	160	--	--	0.002
Arsenic	2 / 2	mg/kg	--	--	4.77	4.93	4.93	5.09	0.226	4.77	4.93	5.09	0.226	1.59	0.046	1.59	0.046	B	4.93	5.01	5.03	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	10.9	18.2	18.2	25.5	10.3	10.9	18.2	25.5	10.3	2.81	0.601	2.81	0.601	B	18.2	21.9	22.7	--	--	150,000	--	--	1.2E-04
Beryllium	2 / 2	mg/kg	--	--	0.06	0.093	0.093	0.125	0.046	0.06	0.093	0.125	0.046	-2.44	0.514	-2.44	0.514	B	0.093	0.109	0.113	--	--	--	--	--	--
Boron	2 / 2	mg/kg	--	--	2.45	3.4	3.4	4.34	1.34	2.45	3.4	4.34	1.34	1.18	0.404	1.18	0.404	B	3.4	3.87	3.98	--	--	24,000	--	--	1.4E-04
Cadmium	2 / 2	mg/kg	--	--	0.754	1.05	1.05	1.34	0.414	0.754	1.05	1.34	0.414	0.005	0.407	0.005	0.407	B	1.05	1.2	1.23	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	10.6	44.2	44.2	77.7	47.4	10.6	44.2	77.7	47.4	3.36	1.41	3.36	1.41	B	44.2	61.2	65.0	--	--	140,000	--	--	3.2E-04
Copper	2 / 2	mg/kg	--	--	7.47	8.84	8.84	10.2	1.93	7.47	8.84	10.2	1.93	2.17	0.22	2.17	0.22	B	8.84	9.53	9.68	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.55	0.564	0.275	0.279	0.279	0.282	0.005	--	--	--	--	-1.28	0.018	--	--	B	0.279	0.28	0.281	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	25.7	30.5	30.5	35.3	6.79	25.7	30.5	35.3	6.79	3.41	0.224	3.41	0.224	B	30.5	32.9	33.5	--	--	1500	--	--	0.02
Manganese	2 / 2	mg/kg	--	--	84.2	93.1	93.1	102	12.6	84.2	93.1	102	12.6	4.53	0.136	4.53	0.136	B	93.1	97.6	98.6	--	--	360,000	--	--	2.6E-04
Mercury	1 / 2	mg/kg	0.004	0.004	0.002	0.023	0.023	0.044	0.03	0.044	0.044	0.044	--	-4.69	2.2	-3.13	--	B	0.023	0.033	0.036	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	7.56	49.3	49.3	91.1	59.1	7.56	49.3	91.1	59.1	3.27	1.76	3.27	1.76	B	49.3	70.5	75.3	--	--	3900	--	--	0.013
Nickel	2 / 2	mg/kg	--	--	3.26	5.56	5.56	7.86	3.25	3.26	5.56	7.86	3.25	1.62	0.622	1.62	0.622	B	5.56	6.73	6.99	--	--	--	--	--	--
Selenium	2 / 2	mg/kg	--	--	0.733	1.19	1.19	1.65	0.648	0.733	1.19	1.65	0.648	0.095	0.574	0.095	0.574	B	1.19	1.42	1.48	--	--	1600	--	--	7.4E-04
Silver	0 / 2	mg/kg	0.963	0.984	0.482	0.487	0.487	0.492	0.007	--	--	--	--	-0.72	0.015	--	--	B	0.487	0.489	0.49	--	--	--	--	NSRC	NSRC
Strontium	2 / 2	mg/kg	--	--	34.3	47.7	47.7	61.1	19.0	34.3	47.7	61.1	19.0	3.82	0.408	3.82	0.408	B	47.7	54.5	56.0	--	--	300,000	--	--	1.6E-04
Thallium	2 / 2	mg/kg	--	--	0.249	0.256	0.256	0.263	0.01	0.249	0.256	0.263	0.01	-1.36	0.039	-1.36	0.039	B	0.256	0.26	0.26	--	--	--	--	--	--
Tin	2 / 2	mg/kg	--	--	5.28	5.42	5.42	5.56	0.198	5.28	5.42	5.56	0.198	1.69	0.037	1.69	0.037	B	5.42	5.49	5.51	--	--	2200	--	--	0.002
Vanadium	2 / 2	mg/kg	--	--	3.65	13.1	13.1	22.5	13.3	3.65	13.1	22.5	13.3	2.2	1.29	2.2	1.29	B	13.1	17.9	18.9	--	--	25,000	--	--	5.2E-04
Zinc	2 / 2	mg/kg	--	--	227	248	248	269	29.7	227	248	269	29.7	5.51	0.12	5.51	0.12	B	248	259	261	--	--	--	--	--	--
Zirconium	2 / 2	mg/kg	--	--	1.42	3.1	3.1	4.78	2.38	1.42	3.1	4.78	2.38	0.958	0.858	0.958	0.858	B	3.1	3.95	4.14	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.073	0.096	0.096	0.12	0.033	0.073	0.096	0.12	0.033	-2.37	0.352	-2.37	0.352	X	0.096	0.167	0.199	--	--	--	--	--	--
Cadmium	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	2 / 2	mg/L	--	--	0.111	0.162	0.162	0.213	0.072	0.111	0.162	0.213	0.072	-1.87	0.461	-1.87	0.461	X	0.162	0.315	0.384	--	--	--	--	--	--
Lead	2 / 2	mg/L	--	--	0.078	0.091	0.091	0.104	0.018	0.078	0.091	0.104	0.018	-2.41	0.202	-2.41	0.202	X	0.091	0.13	0.147	--	--	--	--	--	--
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	0.017	0.066	0.008	0.021	0.021	0.033	0.018	--	--	--	--	-4.1	0.981	--	--	B	0.021	0.027	0.028	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	0.017	0.066	0.008	0.021	0.021	0.033	0.018	--	--	--	--	-4.1	0.981	--	--	B	0.021	0.027	0.028	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	--	--	NSRC	NSRC
Aldrin	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	0.121	0.123	0.061	0.061	0.061	0.062	7.1E-04	--	--	--	--	-2.8	0.012	--	--	B	0.061	0.061	0.061	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	0.024	0.025	0.012	0.012	0.012	0.012	1.1E-04	--	--	--	--	-4.41	0.009	--	--	B	0.012	0.012	0.012	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	1000	1500	--	NSRC	NSRC

Table G.51. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 2	mg/kg	0.121	0.123	0.061	0.061	0.061	0.062	7.1E-04	--	--	--	--	-2.8	0.012	--	--	B	0.061	0.061	0.061	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.403	0.408	0.202	0.203	0.203	0.204	0.002	--	--	--	--	-1.6	0.009	--	--	B	0.203	0.203	0.204	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	7.1E-05	--	--	--	--	-5.1	0.012	--	--	B	0.006	0.006	0.006	--	140	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	14 / 14	pCi/g	--	--	7.08	32.6	18.4	201	49.6	7.08	32.6	201	49.6	3.02	0.837	3.02	0.837	B	46.9	89.4	105	--	--	--	--	--	--
Beta activity	14 / 14	pCi/g	--	--	6.83	87.8	19.5	757	205	6.83	87.8	757	205	3.2	1.33	3.2	1.33	B	140	296	357	--	--	--	--	--	--
Bismuth-214	1 / 1	pCi/g	--	--	0.401	0.401	0.401	0.401	--	0.401	0.401	0.401	--	-0.914	--	-0.914	--	B	0.401	0.401	0.401	--	--	--	--	--	--
Carbon-14	0 / 14	pCi/g	1.76	2.32	1.76	2.0	1.89	2.32	0.206	--	--	--	--	0.689	0.1	--	--	B	1.94	2.08	2.12	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	14 / 14	pCi/g	--	--	0.098	0.521	0.446	1.01	0.267	0.098	0.521	1.01	0.267	-0.802	0.615	-0.802	0.615	N	0.521	0.617	0.647	1.22	--	--	1.5E+06	--	--
Cobalt-60	0 / 14	pCi/g	0.052	0.257	0.052	0.107	0.089	0.257	0.057	--	--	--	--	-2.35	0.481	--	--	L	0.107	0.132	0.141	0.336	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 14	pCi/g	0.167	1.26	0.167	0.473	0.394	1.26	0.312	--	--	--	--	-0.919	0.587	--	--	L	0.474	0.616	0.677	1.85	13	--	1500	NSRC	NSRC
Nickel-63	0 / 14	pCi/g	0.559	1.52	0.559	0.993	0.924	1.52	0.338	--	--	--	--	-0.062	0.348	--	--	N	0.993	1.12	1.15	1.88	--	--	1.3E+08	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	1.83	3.0	3.2	3.96	0.798	1.83	3.0	3.96	0.798	1.07	0.294	1.07	0.294	B	3.1	3.61	3.71	--	--	--	4.2E+06	--	--
Radium-226	8 / 14	pCi/g	0.495	0.719	0.321	0.541	0.538	0.752	0.131	0.321	0.516	0.752	0.156	-0.644	0.256	-0.703	0.31	N	0.541	0.588	0.603	0.883	--	--	300,000	--	--
Strontium-89	0 / 14	pCi/g	1.59	1.99	1.59	1.79	1.76	1.99	0.141	--	--	--	--	0.579	0.078	--	--	N	1.79	1.84	1.86	2.16	--	--	--	NSRC	NSRC
Strontium-90	0 / 14	pCi/g	1.18	1.98	1.18	1.48	1.39	1.98	0.312	--	--	--	--	0.371	0.204	--	--	B	1.45	1.65	1.71	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 14	pCi/g	3.45	8.7	3.45	5.97	5.87	8.7	1.65	--	--	--	--	1.75	0.295	--	--	N	5.97	6.57	6.76	10.3	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 14	pCi/g	0.194	0.96	0.194	0.585	0.59	0.96	0.253	--	--	--	--	-0.644	0.513	--	--	N	0.585	0.677	0.705	1.25	--	--	25,000	NSRC	NSRC
Thorium-230	3 / 14	pCi/g	0.29	0.73	0.29	0.564	0.561	1.38	0.28	0.348	0.778	1.38	0.537	-0.665	0.435	-0.411	0.693	L	0.565	0.677	0.721	1.6	--	--	15,000	--	--
Thorium-232	1 / 14	pCi/g	0.155	0.701	0.155	0.428	0.43	0.701	0.183	0.162	0.162	0.162	--	-0.951	0.497	-1.82	--	N	0.428	0.494	0.515	0.907	--	--	2500	--	--
Total Uranium	14 / 14	pCi/g	--	--	2.8	14.2	12.8	31.8	7.33	2.8	14.2	31.8	7.33	2.49	0.679	2.49	0.679	N	14.2	16.9	17.7	33.4	--	--	--	--	--
Tritium	0 / 14	pCi/g	7.82	13.6	7.82	11.0	11.1	13.6	2.21	--	--	--	--	2.38	0.213	--	--	B	11.0	12.4	12.7	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	14 / 14	pCi/g	--	--	1.33	7.99	7.59	17.2	4.06	1.33	7.99	17.2	4.06	1.9	0.709	1.9	0.709	N	7.99	9.46	9.91	18.6	1700	2.8E+07	100,000	0.005	2.9E-07
Uranium-235/236	4 / 14	pCi/g	0.699	1.21	0.585	0.932	0.832	1.4	0.268	0.585	0.823	1.4	0.387	-0.11	0.289	-0.264	0.405	N	0.932	1.03	1.06	1.63	1500	9500	100,000	6.2E-04	9.8E-05
Uranium-238	14 / 14	pCi/g	--	--	1.09	5.69	5.2	13.2	3.3	1.09	5.69	13.2	3.3	1.54	0.733	1.54	0.733	N	5.69	6.88	7.25	14.3	1200	1500	100,000	0.005	0.004
																									SOF =	0.01	0.043

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

Table G.51. Y-12 Biology Complex summary statistics for Roof in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.52. Y-12 Biology Complex summary statistics for Residue from Y-12 Building 9401-1 (biased sample)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Residue from Y-12 Building 9401-1 (biased sample)																											
Metals																											
Arsenic	1 / 1	mg/kg	--	--	4.17	4.17	4.17	4.17	--	4.17	4.17	4.17	--	1.43	--	1.43	--	B	4.17	4.17	4.17	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	13	13	13	13	--	13	13	13	--	2.56	--	2.56	--	B	13	13	13	--	--	150,000	--	--	8.7E-05
Cadmium	1 / 1	mg/kg	--	--	1.67	1.67	1.67	1.67	--	1.67	1.67	1.67	--	0.513	--	0.513	--	B	1.67	1.67	1.67	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	75	75	75	75	--	75	75	75	--	4.32	--	4.32	--	B	75	75	75	--	--	140,000	--	--	5.4E-04
Lead	1 / 1	mg/kg	--	--	107	107	107	107	--	107	107	107	--	4.67	--	4.67	--	B	107	107	107	--	--	1500	--	--	0.071
Mercury	1 / 1	mg/kg	--	--	0.412	0.412	0.412	0.412	--	0.412	0.412	0.412	--	-0.887	--	-0.887	--	B	0.412	0.412	0.412	--	--	--	--	--	--
Selenium	1 / 1	mg/kg	--	--	0.651	0.651	0.651	0.651	--	0.651	0.651	0.651	--	-0.429	--	-0.429	--	B	0.651	0.651	0.651	--	--	1600	--	--	4.1E-04
Silver	1 / 1	mg/kg	--	--	0.846	0.846	0.846	0.846	--	0.846	0.846	0.846	--	-0.167	--	-0.167	--	B	0.846	0.846	0.846	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.105	0.105	0.105	0.105	--	0.105	0.105	0.105	--	-2.25	--	-2.25	--	D	0.105	--	--	--	--	--	--	--	--
Cadmium	1 / 1	mg/L	--	--	0.055	0.055	0.055	0.055	--	0.055	0.055	0.055	--	-2.89	--	-2.89	--	D	0.055	--	--	--	--	--	--	--	--
Chromium	1 / 1	mg/L	--	--	0.099	0.099	0.099	0.099	--	0.099	0.099	0.099	--	-2.32	--	-2.32	--	D	0.099	--	--	--	--	--	--	--	--
Lead	1 / 1	mg/L	--	--	0.11	0.11	0.11	0.11	--	0.11	0.11	0.11	--	-2.21	--	-2.21	--	D	0.11	--	--	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Silvex	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 1	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	--	--	--	--	--	-7.87	--	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 1	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	--	--	--	--	--	-9.9	--	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	--	--	--	--	--	-7.2	--	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
PCB-1254	1 / 1	mg/kg	--	--	21.7	21.7	21.7	21.7	--	21.7	21.7	21.7	--	3.08	--	3.08	--	B	21.7	21.7	21.7	--	--	--	--	--	--
PCB-1260	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
PCB-1262	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 1	mg/kg	1.1	1.1	0.55	0.55	0.55	0.55	--	--	--	--	--	-0.598	--	--	--	B	0.55	1.1	1.1	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	1 / 1	mg/kg	--	--	21.7	21.7	21.7	21.7	--	21.7	21.7	21.7	--	3.08	--	3.08	--	B	21.7	21.7	21.7	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC

Table G.52. Y-12 Biology Complex summary statistics for Residue from Y-12 Building 9401-1 (biased sample)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Pentachlorophenol	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.29	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 1	mg/L	--	--	0.676	0.676	0.676	0.676	--	0.676	0.676	0.676	--	-0.392	--	-0.392	--	D	0.676	--	--	--	--	--	--	--	--
Carbon tetrachloride	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 1	mg/L	--	--	0.005	0.005	0.005	0.005	--	0.005	0.005	0.005	--	-5.28	--	-5.28	--	D	0.005	--	--	--	--	--	--	--	--
Trichloroethene	1 / 1	mg/L	--	--	0.024	0.024	0.024	0.024	--	0.024	0.024	0.024	--	-3.74	--	-3.74	--	D	0.024	--	--	--	--	--	--	--	--
Vinyl chloride	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.4	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Technetium-99	0 / 1	pCi/g	7.6	7.6	7.6	7.6	7.6	7.6	--	--	--	--	--	2.03	--	--	--	B	7.6	7.6	7.6	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 1	pCi/g	0.866	0.866	0.866	0.866	0.866	0.866	--	--	--	--	--	-0.144	--	--	--	B	0.866	0.866	0.866	--	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 1	pCi/g	0.924	0.924	0.924	0.924	0.924	0.924	--	--	--	--	--	-0.079	--	--	--	B	0.924	0.924	0.924	--	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 1	pCi/g	0.693	0.693	0.693	0.693	0.693	0.693	--	--	--	--	--	-0.367	--	--	--	B	0.693	0.693	0.693	--	--	--	2500	NSRC	NSRC
Uranium-233/234	1 / 1	pCi/g	--	--	2.4	2.4	2.4	2.4	--	2.4	2.4	2.4	--	0.875	--	0.875	--	B	2.4	2.4	2.4	--	1700	2.8E+07	100,000	0.001	8.6E-08
Uranium-235/236	0 / 1	pCi/g	1.14	1.14	1.14	1.14	1.14	1.14	--	--	--	--	--	0.131	--	--	--	B	1.14	1.14	1.14	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 1	pCi/g	--	--	5.07	5.07	5.07	5.07	--	5.07	5.07	5.07	--	1.62	--	1.62	--	B	5.07	5.07	5.07	--	1200	1500	100,000	0.004	0.003
																									SOF =	0.006	0.076

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.53. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Sink Drains in Y-12 Building 9207 (all random samples)																											
Metals																											
Antimony	0 / 2	mg/kg	0.325	0.326	0.163	0.163	0.163	0.163	3.5E-04	--	--	--	--	-1.82	0.002	--	--	B	0.163	0.163	0.163	--	--	160	--	NSRC	NSRC
Arsenic	0 / 2	mg/kg	0.333	0.334	0.167	0.167	0.167	0.167	3.5E-04	--	--	--	--	-1.79	0.002	--	--	B	0.167	0.167	0.167	--	--	--	--	NSRC	NSRC
Barium	0 / 2	mg/kg	0.098	0.099	0.049	0.049	0.049	0.049	1.4E-04	--	--	--	--	-3.01	0.003	--	--	B	0.049	0.049	0.049	--	--	150,000	--	NSRC	NSRC
Beryllium	0 / 2	mg/kg	0.02	0.02	0.01	0.01	0.01	0.01	3.5E-05	--	--	--	--	-4.62	0.004	--	--	B	0.01	0.01	0.01	--	--	--	--	NSRC	NSRC
Boron	0 / 2	mg/kg	0.787	0.791	0.394	0.395	0.395	0.396	0.001	--	--	--	--	-0.93	0.004	--	--	B	0.395	0.395	0.395	--	--	24,000	--	NSRC	NSRC
Cadmium	0 / 2	mg/kg	0.02	0.02	0.01	0.01	0.01	0.01	3.5E-05	--	--	--	--	-4.62	0.004	--	--	B	0.01	0.01	0.01	--	--	--	--	NSRC	NSRC
Chromium	2 / 2	mg/kg	--	--	0.405	1.7	1.7	2.99	1.83	0.405	1.7	2.99	1.83	0.096	1.41	0.096	1.41	B	1.7	2.35	2.5	--	--	140,000	--	--	1.2E-05
Copper	2 / 2	mg/kg	--	--	0.374	2.7	2.7	5.03	3.29	0.374	2.7	5.03	3.29	0.316	1.84	0.316	1.84	B	2.7	3.88	4.15	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.591	0.593	0.296	0.296	0.296	0.297	7.1E-04	--	--	--	--	-1.22	0.002	--	--	B	0.296	0.296	0.296	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	0.222	0.392	0.392	0.561	0.24	0.222	0.392	0.561	0.24	-1.04	0.656	-1.04	0.656	B	0.392	0.477	0.497	--	--	1500	--	--	2.6E-04
Manganese	2 / 2	mg/kg	--	--	0.26	0.264	0.264	0.268	0.006	0.26	0.264	0.268	0.006	-1.33	0.021	-1.33	0.021	B	0.264	0.266	0.266	--	--	360,000	--	--	7.3E-07
Mercury	1 / 2	mg/kg	0.004	0.004	0.002	6.5	6.5	13	9.19	13	13	13	--	-1.83	6.21	2.56	--	B	6.5	9.79	10.5	--	--	--	--	--	--
Molybdenum	1 / 2	mg/kg	0.079	0.079	0.04	0.189	0.189	0.339	0.212	0.339	0.339	0.339	--	-2.16	1.52	-1.08	--	B	0.189	0.265	0.282	--	--	3900	--	--	4.9E-05
Nickel	2 / 2	mg/kg	--	--	0.307	0.734	0.734	1.16	0.603	0.307	0.734	1.16	0.603	-0.516	0.94	-0.516	0.94	B	0.734	0.95	0.999	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.354	0.356	0.177	0.178	0.178	0.178	7.1E-04	--	--	--	--	-1.73	0.004	--	--	B	0.178	0.178	0.178	--	--	1600	--	NSRC	NSRC
Silver	0 / 2	mg/kg	0.098	0.099	0.049	0.049	0.049	0.049	1.4E-04	--	--	--	--	-3.01	0.003	--	--	B	0.049	0.049	0.049	--	--	--	--	NSRC	NSRC
Strontium	0 / 2	mg/kg	0.591	0.593	0.296	0.296	0.296	0.297	7.1E-04	--	--	--	--	-1.22	0.002	--	--	B	0.296	0.296	0.296	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 2	mg/kg	0.138	0.138	0.069	0.069	0.069	0.069	0	--	--	--	--	-2.67	0	--	--	B	0.069	0.138	0.138	--	--	--	--	NSRC	NSRC
Tin	0 / 2	mg/kg	0.295	0.296	0.148	0.148	0.148	0.148	3.5E-04	--	--	--	--	-1.91	0.002	--	--	B	0.148	0.148	0.148	--	--	2200	--	NSRC	NSRC
Vanadium	0 / 2	mg/kg	0.295	0.296	0.148	0.148	0.148	0.148	3.5E-04	--	--	--	--	-1.91	0.002	--	--	B	0.148	0.148	0.148	--	--	25,000	--	NSRC	NSRC
Zinc	2 / 2	mg/kg	--	--	2.29	3.29	3.29	4.29	1.41	2.29	3.29	4.29	1.41	1.14	0.444	1.14	0.444	B	3.29	3.8	3.91	--	--	--	--	--	--
Zirconium	0 / 2	mg/kg	0.394	0.395	0.197	0.197	0.197	0.198	3.5E-04	--	--	--	--	-1.62	0.002	--	--	B	0.197	0.197	0.197	--	--	--	--	NSRC	NSRC
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.021	0.021	0.021	0.021	--	0.021	0.021	0.021	--	-3.89	--	-3.89	--	D	0.021	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	1 / 1	mg/L	--	--	0.017	0.017	0.017	0.017	--	0.017	0.017	0.017	--	-4.07	--	-4.07	--	D	0.017	--	--	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.6E-04	0.003	3.8E-04	0.001	0.001	0.002	8.9E-04	--	--	--	--	-7.14	1.03	--	--	B	0.001	0.001	0.001	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.6E-04	0.003	3.8E-04	0.001	0.001	0.002	8.9E-04	--	--	--	--	-7.14	1.03	--	--	B	0.001	0.001	0.001	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	1 / 2	mg/kg	1.8E-04	1.8E-04	9.1E-05	5.7E-04	5.7E-04	0.001	6.7E-04	0.001	0.001	0.001	--	-8.09	1.72	-6.87	--	B	5.7E-04	8.1E-04	8.6E-04	--	130,000	--	--	4.4E-09	--
4,4'-DDT	1 / 2	mg/kg	1.8E-04	1.8E-04	9.1E-05	7.4E-04	7.4E-04	0.001	9.1E-04	0.001	0.001	0.001	--	-7.95	1.92	-6.59	--	B	7.4E-04	0.001	0.001	--	--	--	--	--	--
Aldrin	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	4.5E-04	9.1E-04	2.3E-04	3.4E-04	3.4E-04	4.5E-04	1.6E-04	--	--	--	--	-8.05	0.497	--	--	B	3.4E-04	4.0E-04	4.1E-04	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.0E-05	1.8E-04	4.5E-05	6.8E-05	6.8E-05	9.1E-05	3.3E-05	--	--	--	--	-9.66	0.497	--	--	B	6.8E-05	8.0E-05	8.2E-05	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	2400	69,000	--	NSRC	NSRC

Table G.53. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 2	mg/kg	9.1E-05	9.1E-05	4.6E-05	3.8E-04	3.8E-04	7.1E-04	4.7E-04	7.1E-04	7.1E-04	7.1E-04	--	-8.62	1.95	-7.24	--	B	3.8E-04	5.5E-04	5.9E-04	--	180	940	--	2.1E-06	4.0E-07
Methoxychlor	0 / 2	mg/kg	4.5E-04	9.1E-04	2.3E-04	3.4E-04	3.4E-04	4.5E-04	1.6E-04	--	--	--	--	-8.05	0.497	--	--	B	3.4E-04	4.0E-04	4.1E-04	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.002	0.003	7.5E-04	0.001	0.001	0.002	5.4E-04	--	--	--	--	-6.84	0.497	--	--	B	0.001	0.001	0.001	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.5E-05	9.1E-05	2.3E-05	3.4E-05	3.4E-05	4.6E-05	1.6E-05	--	--	--	--	-10.4	0.497	--	--	B	3.4E-05	4.0E-05	4.1E-05	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 18	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.003	0.045	0.01	--	--	--	--	-5.75	1.24	--	--	B	0.009	0.019	0.023	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 18	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.003	0.045	0.01	--	--	--	--	-5.75	1.24	--	--	B	0.009	0.019	0.023	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 18	mg/kg	5.9E-04	0.09	3.0E-04	0.007	0.003	0.045	0.01	--	--	--	--	-5.75	1.24	--	--	B	0.009	0.019	0.023	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 18	mg/kg	0.032	1.5	0.016	0.119	0.064	0.75	0.172	0.036	0.078	0.119	0.058	-2.73	1.07	-2.72	0.84	L	0.115	0.193	0.234	0.891	--	9810	--	--	1.2E-05
Carbazole	1 / 18	mg/kg	0.002	0.09	9.6E-04	0.007	0.003	0.045	0.01	0.002	0.002	0.002	--	-5.66	1.1	-6.4	--	B	0.01	0.019	0.023	--	110,000	--	--	8.7E-08	--
Di-n-butyl phthalate	2 / 18	mg/kg	0.006	0.282	0.003	0.233	0.029	3.29	0.765	0.183	1.74	3.29	2.2	-3.25	1.59	-0.254	2.04	B	0.568	1.24	1.51	--	--	190	--	--	0.003
Diethyl phthalate	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 18	mg/kg	0.019	0.901	0.01	0.067	0.028	0.451	0.104	0.013	0.013	0.013	--	-3.37	1.11	-4.37	--	B	0.095	0.19	0.226	--	--	--	--	--	--
Phenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 18	mg/kg	0.006	0.901	0.003	0.067	0.028	0.451	0.105	--	--	--	--	-3.45	1.24	--	--	B	0.094	0.192	0.228	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	1 / 18	pCi/g	1.48	5.94	1.48	2.97	2.64	5.94	1.16	5.46	5.46	5.46	--	1.03	0.349	1.7	--	L	2.97	3.35	3.48	6.57	--	--	--	--	--
Beta activity	0 / 18	pCi/g	1.22	4.86	1.22	3.1	3.1	4.86	0.784	--	--	--	--	1.1	0.298	--	--	N	3.1	3.35	3.43	5.03	--	--	--	NSRC	NSRC
Carbon-14	0 / 18	pCi/g	0.397	0.819	0.397	0.59	0.58	0.819	0.146	--	--	--	--	-0.557	0.252	--	--	L	0.591	0.643	0.661	1.06	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 18	pCi/g	0.022	0.32	0.022	0.081	0.059	0.32	0.069	--	--	--	--	-2.76	0.698	--	--	L	0.081	0.107	0.118	0.351	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 18	pCi/g	0.011	0.321	0.011	0.085	0.061	0.321	0.07	--	--	--	--	-2.73	0.757	--	--	L	0.087	0.119	0.133	0.419	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 18	pCi/g	0.097	1.1	0.097	0.514	0.473	1.1	0.224	--	--	--	--	-0.772	0.518	--	--	N	0.514	0.584	0.605	1.06	13	--	1500	NSRC	NSRC
Nickel-63	0 / 18	pCi/g	0.604	8.99	0.604	1.32	0.877	8.99	1.92	--	--	--	--	-0.032	0.589	--	--	B	2.18	3.97	4.65	--	--	--	1.3E+08	NSRC	NSRC
Radium-226	0 / 18	pCi/g	0.201	0.833	0.201	0.523	0.555	0.833	0.179	--	--	--	--	-0.714	0.392	--	--	N	0.523	0.579	0.596	0.962	--	--	300,000	NSRC	NSRC
Strontium-89	0 / 18	pCi/g	0.994	1.92	0.994	1.57	1.62	1.92	0.278	--	--	--	--	0.437	0.19	--	--	N	1.57	1.66	1.69	2.25	--	--	--	NSRC	NSRC
Strontium-90	0 / 18	pCi/g	0.966	1.98	0.966	1.56	1.58	1.98	0.25	--	--	--	--	0.434	0.176	--	--	N	1.56	1.64	1.67	2.18	--	--	400,000	NSRC	NSRC

Table G.53. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9207 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Technetium-99	0 / 18	pCi/g	2.22	7.2	2.22	4.52	4.42	7.2	1.42	--	--	--	--	1.46	0.33	--	--	N	4.52	4.96	5.1	7.99	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 18	pCi/g	0.203	0.753	0.203	0.453	0.404	0.753	0.168	--	--	--	--	-0.862	0.391	--	--	N	0.453	0.505	0.522	0.865	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 18	pCi/g	0.217	0.758	0.217	0.432	0.374	0.758	0.163	--	--	--	--	-0.906	0.375	--	--	N	0.432	0.483	0.498	0.831	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 18	pCi/g	0.162	0.568	0.162	0.345	0.295	0.568	0.125	--	--	--	--	-1.13	0.376	--	--	L	0.347	0.396	0.413	0.813	--	--	2500	NSRC	NSRC
Total Uranium	4 / 18	pCi/g	0.602	0.98	0.471	0.915	0.754	3.79	0.728	0.471	1.44	3.79	1.57	-0.217	0.424	-6.8E-04	0.915	B	1.21	1.96	2.23	--	--	--	--	--	--
Tritium	0 / 18	pCi/g	5.04	10.2	5.04	7.95	7.86	10.2	1.7	--	--	--	--	2.05	0.226	--	--	N	7.95	8.48	8.64	12.1	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	3 / 18	pCi/g	0.288	0.526	0.221	0.545	0.404	3.09	0.64	0.221	1.21	3.09	1.63	-0.834	0.536	-0.511	1.43	B	0.821	1.45	1.69	--	1700	2.8E+07	100,000	4.8E-04	2.9E-08
Uranium-235/236	1 / 18	pCi/g	0.28	0.668	0.28	0.468	0.468	0.668	0.108	0.376	0.376	0.376	--	-0.785	0.241	-0.978	--	N	0.468	0.503	0.513	0.734	1500	9500	100,000	3.1E-04	4.9E-05
Uranium-238	1 / 18	pCi/g	0.204	0.49	0.204	0.361	0.362	0.49	0.082	0.323	0.323	0.323	--	-1.05	0.246	-1.13	--	N	0.361	0.387	0.395	0.562	1200	1500	100,000	3.0E-04	2.4E-04
																									SOF =	0.001	0.004

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.54. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Sink Drains in Y-12 Building 9210 (all random samples)																											
Metals																											
Antimony	1 / 3	mg/kg	0.156	0.272	0.078	0.196	0.136	0.375	0.157	0.375	0.375	0.375	--	-1.84	0.796	-0.981	--	B	0.166	0.239	0.261	--	--	160	--	--	0.001
Arsenic	1 / 3	mg/kg	0.16	0.278	0.08	0.267	0.139	0.582	0.274	0.582	0.582	0.582	--	-1.68	1.02	-0.541	--	B	0.203	0.32	0.359	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	0.165	7.31	0.179	21.6	12.4	0.165	7.31	21.6	12.4	-0.15	2.79	-0.15	2.79	B	3.75	8.09	9.84	--	--	150,000	--	--	2.5E-05
Beryllium	0 / 3	mg/kg	0.009	0.017	0.005	0.006	0.006	0.008	0.002	--	--	--	--	-5.09	0.279	--	--	B	0.006	0.007	0.007	--	--	--	--	NSRC	NSRC
Boron	0 / 3	mg/kg	0.379	0.659	0.19	0.252	0.238	0.33	0.071	--	--	--	--	-1.4	0.278	--	--	B	0.245	0.281	0.291	--	--	24,000	--	NSRC	NSRC
Cadmium	1 / 3	mg/kg	0.012	0.017	0.006	0.023	0.008	0.054	0.027	0.054	0.054	0.054	--	-4.28	1.19	-2.92	--	B	0.016	0.026	0.03	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	7.59	13.7	14.6	18.8	5.66	7.59	13.7	18.8	5.66	2.55	0.468	2.55	0.468	B	14.1	16.8	17.4	--	--	140,000	--	--	1.0E-04
Copper	3 / 3	mg/kg	--	--	0.67	23.9	8.4	62.6	33.7	0.67	23.9	62.6	33.7	1.95	2.27	1.95	2.27	B	16.1	30.6	35.5	--	--	--	--	--	--
Hafnium	0 / 3	mg/kg	0.284	0.494	0.142	0.189	0.179	0.247	0.053	--	--	--	--	-1.69	0.278	--	--	B	0.184	0.211	0.218	--	--	--	--	NSRC	NSRC
Lead	3 / 3	mg/kg	--	--	0.543	74.4	5.68	217	124	0.543	74.4	217	124	2.17	3.02	2.17	3.02	B	40.0	85.5	103	--	--	1500	--	--	0.027
Manganese	3 / 3	mg/kg	--	--	1.05	7.57	7.05	14.6	6.79	1.05	7.57	14.6	6.79	1.56	1.36	1.56	1.36	B	7.31	10.8	11.6	--	--	360,000	--	--	2.0E-05
Mercury	1 / 3	mg/kg	0.002	0.003	0.001	0.016	0.002	0.046	0.026	0.046	0.046	0.046	--	-5.41	2.02	-3.08	--	B	0.009	0.018	0.022	--	--	--	--	--	--
Molybdenum	3 / 3	mg/kg	--	--	0.086	2.25	0.137	6.54	3.71	0.086	2.25	6.54	3.71	-0.854	2.38	-0.854	2.38	B	1.2	2.52	3.05	--	--	3900	--	--	3.1E-04
Nickel	3 / 3	mg/kg	--	--	4.89	10.8	6.27	21.1	8.99	4.89	10.8	21.1	8.99	2.16	0.782	2.16	0.782	B	8.51	12.2	13.5	--	--	--	--	--	--
Selenium	0 / 3	mg/kg	0.17	0.297	0.085	0.114	0.107	0.149	0.032	--	--	--	--	-2.2	0.28	--	--	B	0.11	0.127	0.131	--	--	1600	--	NSRC	NSRC
Silver	1 / 3	mg/kg	0.047	0.082	0.024	0.052	0.041	0.09	0.035	0.09	0.09	0.09	--	-3.11	0.674	-2.4	--	B	0.046	0.063	0.068	--	--	--	--	--	--
Strontium	1 / 3	mg/kg	0.357	0.494	0.179	0.509	0.247	1.1	0.513	1.1	1.1	1.1	--	-1.01	0.97	0.095	--	B	0.378	0.584	0.658	--	--	300,000	--	--	1.3E-06
Thallium	0 / 3	mg/kg	0.066	0.115	0.033	0.044	0.042	0.058	0.012	--	--	--	--	-3.15	0.277	--	--	B	0.043	0.049	0.051	--	--	--	--	NSRC	NSRC
Tin	2 / 3	mg/kg	0.247	0.247	0.124	0.712	0.361	1.65	0.821	0.361	1.01	1.65	0.911	-0.87	1.3	-0.259	1.07	B	0.536	0.901	1.02	--	--	2200	--	--	2.4E-04
Vanadium	1 / 3	mg/kg	0.142	0.247	0.071	0.37	0.124	0.914	0.472	0.914	0.914	0.914	--	-1.61	1.34	-0.09	--	B	0.247	0.432	0.5	--	--	25,000	--	--	9.9E-06
Zinc	3 / 3	mg/kg	--	--	5.9	25.3	6.35	63.5	33.1	5.9	25.3	63.5	33.1	2.59	1.35	2.59	1.35	B	15.8	27.6	32.3	--	--	--	--	--	--
Zirconium	1 / 3	mg/kg	0.238	0.329	0.119	0.221	0.165	0.379	0.139	0.379	0.379	0.379	--	-1.63	0.598	-0.97	--	B	0.193	0.256	0.276	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 3	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	3 / 3	mg/L	--	--	0.021	0.142	0.021	0.383	0.209	0.021	0.142	0.383	0.209	-2.9	1.68	-2.9	1.68	X	0.142	0.504	0.668	--	--	--	--	--	--
Cadmium	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	3 / 3	mg/L	--	--	0.065	0.126	0.078	0.235	0.094	0.065	0.126	0.235	0.094	-2.24	0.693	-2.24	0.693	X	0.126	0.29	0.364	--	--	--	--	--	--
Lead	2 / 3	mg/L	0.005	0.005	0.003	0.146	0.024	0.41	0.187	0.024	0.217	0.41	0.273	-3.53	2.56	-2.31	2.0	X*	0.146	0.603	0.81	--	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.38	--	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.38	--	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.002	0.002	9.8E-04	9.8E-04	9.8E-04	9.8E-04	--	--	--	--	--	-6.93	--	--	--	B	9.8E-04	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	3.9E-04	3.9E-04	2.0E-04	2.0E-04	2.0E-04	2.0E-04	--	--	--	--	--	-8.54	--	--	--	B	2.0E-04	3.9E-04	3.9E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	2400	69,000	--	NSRC	NSRC

Table G.54. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.002	0.002	9.8E-04	9.8E-04	9.8E-04	9.8E-04	--	--	--	--	--	-6.93	--	--	--	B	9.8E-04	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.007	0.007	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.73	--	--	--	B	0.003	0.007	0.007	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	2.0E-04	2.0E-04	9.8E-05	9.8E-05	9.8E-05	9.8E-05	--	--	--	--	--	-9.24	--	--	--	B	9.8E-05	2.0E-04	2.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 29	mg/kg	0.001	0.046	7.0E-04	0.006	0.005	0.023	0.006	--	--	--	--	-5.51	1.05	--	--	B	0.007	0.013	0.015	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 29	mg/kg	0.001	0.046	7.0E-04	0.006	0.005	0.023	0.006	--	--	--	--	-5.51	1.05	--	--	B	0.007	0.013	0.015	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 29	mg/kg	0.001	0.046	7.0E-04	0.006	0.005	0.023	0.006	--	--	--	--	-5.51	1.05	--	--	B	0.007	0.013	0.015	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 29	mg/kg	0.023	0.768	0.012	0.11	0.092	0.384	0.097	0.092	0.092	0.092	--	-2.64	1.02	-2.38	--	L	0.119	0.17	0.191	0.688	--	9810	--	NSRC	NSRC
Carbazole	1 / 29	mg/kg	0.002	0.046	7.6E-04	0.007	0.005	0.023	0.006	0.004	0.004	0.004	--	-5.46	0.992	-5.59	--	L	0.007	0.01	0.011	0.039	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	3 / 29	mg/kg	0.015	0.461	0.008	0.103	0.064	0.864	0.159	0.109	0.395	0.864	0.409	-2.9	1.14	-1.3	1.06	L	0.105	0.159	0.184	0.696	--	190	--	--	5.5E-04
Diethyl phthalate	1 / 29	mg/kg	0.014	0.461	0.007	0.071	0.056	0.231	0.065	0.215	0.215	0.215	--	-3.15	1.09	-1.54	--	B	0.077	0.132	0.149	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 29	mg/kg	0.014	0.461	0.007	0.065	0.053	0.231	0.059	0.031	0.031	0.031	--	-3.16	0.999	-3.49	--	L	0.07	0.098	0.11	0.393	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	--	--	NSRC	NSRC
Phenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 29	mg/kg	0.014	0.461	0.007	0.064	0.053	0.231	0.059	--	--	--	--	-3.21	1.05	--	--	B	0.075	0.13	0.146	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	1 / 29	pCi/g	1.87	9.97	1.49	3.34	2.82	9.97	1.94	1.49	1.49	1.49	--	1.09	0.445	0.399	--	B	3.79	5.82	6.48	--	--	--	--	NSRC	NSRC
Americium-241	0 / 2	pCi/g	0.184	0.213	0.184	0.199	0.199	0.213	0.021	--	--	--	--	-1.62	0.103	--	--	B	0.199	0.206	0.208	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	2 / 29	pCi/g	0.528	5.99	0.528	3.28	3.29	5.99	1.11	1.78	2.97	4.16	1.68	1.11	0.441	1.0	0.6	N	3.28	3.55	3.63	5.76	--	--	--	--	--
Carbon-14	0 / 29	pCi/g	0.198	0.822	0.198	0.505	0.473	0.822	0.168	--	--	--	--	-0.742	0.362	--	--	N	0.505	0.546	0.558	0.88	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 29	pCi/g	0.025	0.258	0.025	0.096	0.069	0.258	0.071	--	--	--	--	-2.57	0.662	--	--	L	0.095	0.116	0.124	0.336	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 29	pCi/g	0.014	0.333	0.014	0.107	0.073	0.333	0.089	--	--	--	--	-2.54	0.795	--	--	L	0.108	0.139	0.151	0.465	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 29	pCi/g	0.083	1.2	0.083	0.487	0.361	1.2	0.284	--	--	--	--	-0.894	0.624	--	--	L	0.497	0.596	0.632	1.65	13	--	1500	NSRC	NSRC
Neptunium-237	0 / 2	pCi/g	0.189	0.21	0.189	0.2	0.2	0.21	0.015	--	--	--	--	-1.61	0.075	--	--	B	0.2	0.205	0.206	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 29	pCi/g	0.415	22.2	0.415	1.62	0.823	22.2	3.97	--	--	--	--	-0.069	0.699	--	--	B	4.32	8.86	10.6	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 2	pCi/g	0.193	0.239	0.193	0.216	0.216	0.239	0.033	--	--	--	--	-1.54	0.151	--	--	B	0.216	0.228	0.23	--	--	--	15,000	NSRC	NSRC

Table G.54. Y-12 Biology Complex summary statistics for Sink Drains in Y-12 Building 9210 (all random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-239/240	0 / 2	pCi/g	0.23	0.284	0.23	0.257	0.257	0.284	0.038	--	--	--	--	-1.36	0.149	--	--	B	0.257	0.271	0.274	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 2	pCi/g	8.71	14.3	8.71	11.5	11.5	14.3	3.95	--	--	--	--	2.41	0.351	--	--	B	11.5	12.9	13.2	--	--	--	790,000	NSRC	NSRC
Radium-226	7 / 29	pCi/g	0.039	0.697	0.039	0.363	0.35	0.697	0.166	0.236	0.401	0.644	0.149	-1.19	0.727	-0.974	0.373	N	0.363	0.403	0.415	0.734	--	--	300,000	--	--
Strontium-89	4 / 29	pCi/g	1.06	1.99	1.06	1.67	1.54	4.2	0.639	1.57	2.81	4.2	1.11	0.462	0.297	0.97	0.414	B	1.9	2.65	2.9	--	--	--	--	--	--
Strontium-90	0 / 29	pCi/g	0.994	1.99	0.994	1.62	1.6	1.99	0.225	--	--	--	--	0.474	0.147	--	--	N	1.62	1.68	1.69	2.12	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 29	pCi/g	2.58	7.5	2.58	4.39	4.17	7.5	1.22	--	--	--	--	1.44	0.26	--	--	L	4.39	4.69	4.79	7.57	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 29	pCi/g	0.082	0.955	0.082	0.58	0.597	0.955	0.214	--	--	--	--	-0.659	0.579	--	--	N	0.58	0.632	0.647	1.06	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 29	pCi/g	0.063	0.726	0.063	0.496	0.529	0.726	0.171	--	--	--	--	-0.819	0.605	--	--	B	0.484	0.637	0.663	--	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 29	pCi/g	0.06	0.698	0.06	0.435	0.452	0.698	0.154	--	--	--	--	-0.945	0.581	--	--	B	0.428	0.583	0.613	--	--	--	2500	NSRC	NSRC
Total Uranium	1 / 29	pCi/g	0.12	2.13	0.12	1.29	1.36	2.13	0.494	1.48	1.48	1.48	--	0.124	0.643	0.392	--	N	1.29	1.41	1.45	2.39	--	--	--	NSRC	NSRC
Tritium	0 / 29	pCi/g	1.66	14	1.66	7.36	7.5	14	3.04	--	--	--	--	1.89	0.502	--	--	N	7.36	8.1	8.32	14.1	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	1 / 29	pCi/g	0.067	1.19	0.067	0.73	0.758	1.39	0.296	1.39	1.39	1.39	--	-0.452	0.652	0.329	--	N	0.73	0.802	0.823	1.39	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 29	pCi/g	0.078	1.38	0.078	0.833	0.82	1.38	0.344	--	--	--	--	-0.326	0.661	--	--	N	0.833	0.916	0.941	1.6	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 29	pCi/g	0.061	1.09	0.061	0.639	0.647	1.09	0.257	--	--	--	--	-0.585	0.65	--	--	N	0.639	0.702	0.721	1.21	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	0.029

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.55. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 1 (random samples)																											
Metals																											
Antimony	4 / 5	mg/kg	0.31	0.31	0.155	4.21	0.528	14.6	6.2	0.404	5.23	14.6	6.66	0.191	1.91	0.704	1.76	B	2.81	5.85	7.03	--	--	160	--	--	0.018
Arsenic	4 / 5	mg/kg	0.284	0.284	0.142	3.27	1.89	9.95	3.85	1.68	4.05	9.95	3.96	0.497	1.54	1.11	0.817	B	2.94	5.32	6.07	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	0.117	1573	45.7	7410	3267	0.117	1573	7410	3267	3.76	4.14	3.76	4.14	B	1265	2780	3385	--	--	150,000	--	--	0.008
Beryllium	2 / 5	mg/kg	0.005	0.082	0.002	0.069	0.041	0.185	0.077	0.108	0.147	0.185	0.054	-3.59	1.81	-1.96	0.381	B	0.058	0.103	0.117	--	--	--	--	--	--
Boron	2 / 5	mg/kg	0.187	3.26	0.094	801	1.63	3990	1783	12	2001	3990	2813	1.56	4.18	5.39	4.11	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	5 / 5	mg/kg	--	--	0.067	2.74	0.422	10.9	4.63	0.067	2.74	10.9	4.63	-0.338	1.95	-0.338	1.95	B	2.11	4.41	5.29	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	5.82	23.2	9.83	71.5	27.5	5.82	23.2	71.5	27.5	2.7	0.981	2.7	0.981	B	19.4	33.9	39.2	--	--	140,000	--	--	1.4E-04
Copper	5 / 5	mg/kg	--	--	4.98	48.6	16	184	76.3	4.98	48.6	184	76.3	3.0	1.42	3.0	1.42	B	42.2	81.6	96.0	--	--	--	--	--	--
Hafnium	1 / 5	mg/kg	0.14	2.93	0.07	0.716	0.568	1.47	0.607	0.568	0.568	0.568	--	-0.804	1.25	-0.566	--	B	0.635	0.992	1.09	--	--	--	--	--	--
Lead	5 / 5	mg/kg	--	--	5.78	659	59.9	2210	967	5.78	659	2210	967	4.48	2.76	4.48	2.76	B	409	872	1052	--	--	1500	--	--	0.273
Manganese	5 / 5	mg/kg	--	--	3.1	388	101	1530	647	3.1	388	1530	647	4.44	2.32	4.44	2.32	B	323	660	783	--	--	360,000	--	--	9.0E-04
Mercury	5 / 5	mg/kg	--	--	0.005	0.021	0.009	0.046	0.02	0.005	0.021	0.046	0.02	-4.23	1.01	-4.23	1.01	B	0.015	0.024	0.027	--	--	--	--	--	--
Molybdenum	4 / 5	mg/kg	0.067	0.067	0.034	5.41	1.15	23.9	10.4	0.393	6.75	23.9	11.4	-0.114	2.38	0.706	1.75	B	4.76	9.92	11.9	--	--	3900	--	--	0.001
Nickel	5 / 5	mg/kg	--	--	1.32	30.2	15.4	109	44.8	1.32	30.2	109	44.8	2.43	1.67	2.43	1.67	B	28.7	54.0	62.4	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.084	1.64	0.042	1.0	0.735	3.25	1.3	3.25	3.25	3.25	--	-0.877	1.68	1.18	--	B	1.04	1.83	2.07	--	--	1600	--	--	6.5E-04
Silver	3 / 5	mg/kg	0.084	1.17	0.042	4.45	0.903	13	5.72	0.903	7.2	13	6.06	0.16	2.29	1.5	1.41	B	2.78	5.64	6.69	--	--	--	--	--	--
Strontium	3 / 5	mg/kg	0.504	2.45	0.252	63.0	1.23	276	120	0.677	105	276	150	1.53	2.96	2.95	3.06	B	46.9	103	126	--	--	300,000	--	--	1.6E-04
Thallium	0 / 5	mg/kg	0.033	0.684	0.016	0.153	0.064	0.342	0.149	--	--	--	--	-2.4	1.26	--	--	B	0.102	0.18	0.205	--	--	--	--	NSRC	NSRC
Tin	3 / 5	mg/kg	0.282	3.5	0.141	29.4	3.18	132	57.5	3.18	48.4	132	72.5	1.39	2.5	2.78	1.91	B	24.1	51.8	62.5	--	--	2200	--	--	0.011
Vanadium	3 / 5	mg/kg	0.252	1.22	0.113	13.9	0.61	59.6	25.8	0.113	22.9	59.6	32.1	0.308	2.76	1.37	3.22	B	10.4	22.6	27.4	--	--	25,000	--	--	4.1E-04
Zinc	5 / 5	mg/kg	--	--	22.1	1273	221	5600	2426	22.1	1273	5600	2426	5.32	2.28	5.32	2.28	B	1084	2274	2727	--	--	--	--	--	--
Zirconium	2 / 5	mg/kg	0.094	1.63	0.047	5.11	0.815	19.6	8.34	4.94	12.3	19.6	10.4	-0.096	2.45	2.29	0.975	B	3.82	8.01	9.6	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.039	0.192	0.192	0.345	0.216	0.039	0.192	0.345	0.216	-2.15	1.54	-2.15	1.54	X	0.192	0.651	0.859	--	--	--	--	--	--
Cadmium	1 / 2	mg/L	0.003	0.003	0.002	0.003	0.003	0.004	0.002	0.004	0.004	0.004	--	-6.01	0.69	-5.53	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Chromium	2 / 2	mg/L	--	--	0.033	0.107	0.107	0.181	0.105	0.033	0.107	0.181	0.105	-2.56	1.2	-2.56	1.2	X	0.107	0.329	0.43	--	--	--	--	--	--
Lead	1 / 2	mg/L	0.005	0.005	0.003	0.128	0.128	0.254	0.178	0.254	0.254	0.254	--	-3.68	3.27	-1.37	--	X	0.128	0.506	0.676	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.001	0.008	6.7E-04	0.002	0.002	0.004	0.002	--	--	--	--	-6.4	0.942	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.001	0.008	6.7E-04	0.002	0.002	0.004	0.002	--	--	--	--	-6.4	0.942	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 4	mg/kg	8.2E-04	9.9E-04	4.1E-04	9.2E-04	8.9E-04	0.001	5.4E-04	0.001	0.001	0.001	1.4E-04	-7.15	0.652	-6.59	0.103	B	9.1E-04	0.001	0.001	--	130,000	--	--	7.0E-09	--
4,4'-DDT	1 / 4	mg/kg	8.2E-04	9.9E-04	4.1E-04	7.5E-04	4.8E-04	0.002	5.8E-04	0.002	0.002	0.002	--	-7.37	0.636	-6.43	--	B	6.6E-04	9.3E-04	0.001	--	--	--	--	--	--
Aldrin	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	4.5E-04	0.005	2.3E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.66	1.16	--	--	B	0.002	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	1 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	9.1E-04	4.5E-04	0.003	0.001	0.003	0.003	0.003	--	-7.83	1.67	-5.93	--	B	7.5E-04	0.001	0.002	--	--	330,000	--	--	2.3E-09
Endrin	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	9.1E-05	9.9E-04	4.5E-05	3.6E-04	4.4E-04	4.9E-04	2.1E-04	--	--	--	--	-8.27	1.16	--	--	B	3.9E-04	4.7E-04	4.8E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	2400	69,000	--	NSRC	NSRC

Table G.55. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 4	mg/kg	4.1E-04	4.9E-04	7.9E-05	1.9E-04	2.2E-04	2.5E-04	7.8E-05	7.9E-05	7.9E-05	7.9E-05	--	-8.65	0.538	-9.44	--	B	2.0E-04	2.4E-04	2.4E-04	--	1000	1500	--	2.0E-07	1.3E-07
Lindane	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	4.5E-04	0.005	2.3E-04	0.002	0.002	0.002	0.001	--	--	--	--	-6.66	1.16	--	--	B	0.002	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.002	0.016	7.6E-04	0.006	0.007	0.008	0.003	--	--	--	--	-5.45	1.16	--	--	B	0.006	0.008	0.008	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	4.5E-05	4.9E-04	2.3E-05	1.8E-04	2.2E-04	2.5E-04	1.1E-04	--	--	--	--	-8.96	1.16	--	--	B	1.9E-04	2.3E-04	2.4E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 26	mg/kg	0.002	1.13	0.001	0.09	0.015	0.91	0.203	0.034	0.327	0.91	0.505	-3.83	1.62	-2.27	1.88	B	0.162	0.35	0.424	--	--	4000	--	--	4.0E-05
2-Methylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 26	mg/kg	0.002	1.13	0.001	0.098	0.015	1.18	0.249	1.18	1.18	1.18	--	-3.88	1.65	0.166	--	B	0.207	0.45	0.546	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	1 / 26	mg/kg	0.002	1.13	0.001	0.056	0.015	0.565	0.115	0.08	0.08	0.08	--	-3.99	1.45	-2.53	--	B	0.104	0.223	0.269	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 26	mg/kg	0.023	11.3	0.011	0.54	0.149	5.65	1.15	0.23	0.23	0.23	--	-1.72	1.42	-1.47	--	B	1.04	2.23	2.69	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 26	mg/kg	0.023	11.3	0.011	0.575	0.149	5.65	1.16	1.19	1.19	1.19	--	-1.67	1.47	0.174	--	B	1.04	2.23	2.69	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 26	mg/kg	0.046	18.9	0.023	0.896	0.248	9.45	1.93	0.119	0.119	0.119	--	-1.17	1.33	-2.13	--	B	1.74	3.72	4.49	--	--	9810	--	NSRC	NSRC
Carbazole	3 / 26	mg/kg	0.002	1.13	0.001	0.123	0.015	1.79	0.359	0.033	0.621	1.79	1.01	-3.8	1.69	-2.02	2.26	B	0.308	0.675	0.821	--	110,000	--	--	2.8E-06	--
Di-n-butyl phthalate	2 / 26	mg/kg	0.023	11.3	0.011	0.569	0.149	5.65	1.16	0.095	0.592	1.09	0.704	-1.63	1.4	-1.14	1.73	B	1.04	2.23	2.69	--	--	190	--	--	0.005
Diethyl phthalate	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	2800	500	--	NSRC	NSRC
Isophorone	3 / 26	mg/kg	0.023	11.3	0.011	0.643	0.149	5.65	1.17	0.672	1.08	1.73	0.569	-1.53	1.54	-0.008	0.494	L	0.706	1.46	1.9	7.15	6100	15,000	--	1.2E-04	4.7E-05
N-Nitroso-di-n-propylamine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	2 / 26	mg/kg	0.023	11.3	0.011	0.704	0.149	6.21	1.59	0.039	3.12	6.21	4.36	-1.67	1.48	-0.704	3.58	B	1.14	2.43	2.94	--	--	--	--	--	--
Phenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 26	mg/kg	0.023	11.3	0.011	0.535	0.149	5.65	1.16	--	--	--	--	-1.75	1.42	--	--	B	1.04	2.23	2.69	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	1.48	1.48	1.48	1.48	--	1.48	1.48	1.48	--	0.392	--	0.392	--	B	1.48	1.48	1.48	--	--	--	--	--	--
Alpha activity	11 / 26	pCi/g	1.94	9.59	1.94	11.4	6.36	48.3	11.8	4.41	19.7	48.3	14.3	1.98	0.95	2.66	0.904	L	11.4	16.1	18.1	63.1	--	--	--	--	--
Americium-241	0 / 9	pCi/g	0.166	0.257	0.166	0.217	0.227	0.257	0.031	--	--	--	--	-1.54	0.146	--	--	N	0.217	0.232	0.236	0.31	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	11 / 26	pCi/g	1.45	5.43	1.45	13.9	4.31	63.1	18.5	4.16	28.2	63.1	21.5	1.91	1.15	2.95	1.03	B	13.6	27.0	32.0	--	--	--	--	--	--
Bismuth-214	4 / 4	pCi/g	--	--	0.817	1.0	0.983	1.22	0.184	0.817	1.0	1.22	0.184	-0.012	0.183	-0.012	0.183	B	0.995	1.1	1.12	--	--	--	--	--	--
Carbon-14	1 / 26	pCi/g	0.082	2.4	0.082	1.35	0.771	4.35	1.03	4.35	4.35	4.35	--	-0.063	0.979	1.47	--	B	1.25	2.28	2.61	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	2 / 26	pCi/g	0.015	0.648	0.015	0.136	0.114	0.648	0.126	0.093	0.096	0.1	0.005	-2.36	0.934	-2.34	0.052	B	0.186	0.337	0.387	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 26	pCi/g	0.011	0.606	0.011	0.165	0.136	0.606	0.131	--	--	--	--	-2.19	1.01	--	--	B	0.193	0.34	0.385	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 26	pCi/g	0.078	1.27	0.078	0.706	0.749	1.27	0.338	--	--	--	--	-0.516	0.685	--	--	N	0.706	0.794	0.82	1.48	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	1.03	1.3	1.35	1.48	0.186	1.03	1.3	1.48	0.186	0.257	0.149	0.257	0.149	B	1.32	1.42	1.44	--	--	--	--	--	--

Table G.55. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	4 / 4	pCi/g	--	--	1.03	1.11	1.08	1.24	0.093	1.03	1.11	1.24	0.093	0.097	0.081	0.097	0.081	B	1.1	1.15	1.16	--	--	--	--	--	--
Neptunium-237	0 / 9	pCi/g	0.175	0.527	0.175	0.318	0.319	0.527	0.108	--	--	--	--	-1.2	0.352	--	--	N	0.318	0.369	0.386	0.646	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 26	pCi/g	0.548	3.51	0.548	1.04	0.798	3.51	0.645	--	--	--	--	-0.073	0.445	--	--	B	1.21	1.88	2.11	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 9	pCi/g	0.172	0.503	0.172	0.296	0.207	0.503	0.138	--	--	--	--	-1.31	0.446	--	--	B	0.251	0.327	0.353	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 9	pCi/g	0.166	0.552	0.166	0.319	0.246	0.552	0.162	--	--	--	--	-1.26	0.504	--	--	B	0.284	0.379	0.408	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 9	pCi/g	8.48	23.5	8.48	14.6	14.5	23.5	4.33	--	--	--	--	2.64	0.29	--	--	N	14.6	16.6	17.2	27.7	--	--	790,000	NSRC	NSRC
Potassium-40	5 / 5	pCi/g	--	--	14.3	35.7	41.5	47.3	13.2	14.3	35.7	47.3	13.2	3.49	0.489	3.49	0.489	B	37.9	44.7	45.6	--	--	--	4.2E+06	--	--
Radium-226	5 / 26	pCi/g	0.197	0.89	0.197	0.62	0.603	1.3	0.247	0.582	0.871	1.3	0.284	-0.563	0.44	-0.179	0.314	N	0.62	0.684	0.703	1.18	--	--	300,000	--	--
Strontium-89	1 / 26	pCi/g	0.983	1.94	0.983	1.67	1.73	2.92	0.373	2.92	2.92	2.92	--	0.488	0.221	1.07	--	B	1.8	2.3	2.43	--	--	--	--	NSRC	NSRC
Strontium-90	4 / 26	pCi/g	0.637	1.98	0.637	1.46	1.53	2.38	0.538	1.03	1.99	2.38	0.643	0.304	0.409	0.633	0.404	N	1.46	1.6	1.64	2.69	--	--	400,000	--	--
Technetium-99	1 / 26	pCi/g	2.22	8.28	2.22	5.61	5.12	16.8	2.72	16.8	16.8	16.8	--	1.64	0.395	2.82	--	L	5.57	6.9	7.5	12.7	172	--	4.2E+07	NSRC	NSRC
Thallium-208	3 / 3	pCi/g	--	--	0.432	0.467	0.44	0.53	0.054	0.432	0.467	0.53	0.054	-0.765	0.113	-0.765	0.113	B	0.454	0.476	0.484	--	--	--	--	--	--
Thorium-228	2 / 26	pCi/g	0.203	0.898	0.203	0.609	0.559	1.28	0.274	1.22	1.25	1.28	0.042	-0.591	0.446	0.223	0.034	L	0.611	0.696	0.725	1.53	--	--	25,000	--	--
Thorium-230	7 / 26	pCi/g	0.217	0.739	0.217	0.58	0.577	1.28	0.224	0.479	0.734	1.28	0.281	-0.616	0.396	-0.363	0.346	N	0.58	0.638	0.656	1.09	--	--	15,000	--	--
Thorium-232	6 / 26	pCi/g	0.162	0.64	0.162	0.502	0.445	1.33	0.278	0.285	0.74	1.33	0.461	-0.805	0.478	-0.467	0.632	L	0.501	0.577	0.603	1.33	--	--	2500	--	--
Total Uranium	10 / 26	pCi/g	0.427	2.03	0.427	2.31	1.2	23.9	4.51	1.04	4.55	23.9	6.87	0.285	0.86	1.03	0.869	B	4.85	9.84	11.7	--	--	--	--	--	--
Tritium	0 / 26	pCi/g	1.42	14.7	1.42	10.2	10.8	14.7	3.78	--	--	--	--	2.21	0.576	--	--	B	9.89	12.9	13.5	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	10 / 26	pCi/g	0.228	1.16	0.228	1.4	0.639	14.8	2.84	0.432	2.83	14.8	4.31	-0.307	0.934	0.459	1.01	B	2.93	6.01	7.19	--	1700	2.8E+07	100,000	0.002	1.0E-07
Uranium-235/236	2 / 26	pCi/g	0.291	1.28	0.291	0.57	0.54	1.28	0.225	0.376	0.533	0.69	0.222	-0.63	0.372	-0.675	0.429	L	0.571	0.634	0.655	1.24	1500	9500	100,000	3.8E-04	6.0E-05
Uranium-238	9 / 26	pCi/g	0.213	1.06	0.213	0.851	0.499	8.34	1.55	0.323	1.56	8.34	2.57	-0.606	0.735	-0.166	0.976	B	1.76	3.49	4.15	--	1200	1500	100,000	0.001	0.001
																									SOF =	0.004	0.348

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.56. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 4 (random samples)																											
Metals																											
Antimony	1 / 2	mg/kg	0.325	0.325	0.163	0.434	0.434	0.705	0.384	0.705	0.705	0.705	--	-1.08	1.04	-0.35	--	B	0.434	0.571	0.602	--	--	160	--	--	0.003
Arsenic	1 / 2	mg/kg	0.333	0.333	0.167	2.02	2.02	3.88	2.63	3.88	3.88	3.88	--	-0.218	2.23	1.36	--	B	2.02	2.96	3.18	--	--	--	--	--	--
Barium	1 / 2	mg/kg	0.098	0.098	0.049	31.9	31.9	63.8	45.1	63.8	63.8	63.8	--	0.572	5.07	4.16	--	B	31.9	48.1	51.7	--	--	150,000	--	--	2.1E-04
Beryllium	1 / 2	mg/kg	0.02	0.02	0.01	0.195	0.195	0.381	0.262	0.381	0.381	0.381	--	-2.79	2.58	-0.965	--	B	0.195	0.289	0.311	--	--	--	--	--	--
Boron	1 / 2	mg/kg	0.787	0.787	0.394	5.75	5.75	11.1	7.57	11.1	11.1	11.1	--	0.737	2.36	2.41	--	B	5.75	8.46	9.07	--	--	24,000	--	--	2.4E-04
Cadmium	1 / 2	mg/kg	0.02	0.02	0.01	0.114	0.114	0.218	0.147	0.218	0.218	0.218	--	-3.07	2.19	-1.52	--	B	0.114	0.167	0.179	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	2.99	7.45	7.45	11.9	6.3	2.99	7.45	11.9	6.3	1.79	0.977	1.79	0.977	B	7.45	9.7	10.2	--	--	140,000	--	--	5.3E-05
Copper	2 / 2	mg/kg	--	--	5.03	10.1	10.1	15.1	7.12	5.03	10.1	15.1	7.12	2.17	0.777	2.17	0.777	B	10.1	12.6	13.2	--	--	--	--	--	--
Hafnium	1 / 2	mg/kg	0.591	0.591	0.296	0.447	0.447	0.598	0.214	0.598	0.598	0.598	--	-0.867	0.498	-0.514	--	B	0.447	0.523	0.541	--	--	--	--	--	--
Lead	2 / 2	mg/kg	--	--	0.561	2.84	2.84	5.12	3.22	0.561	2.84	5.12	3.22	0.528	1.56	0.528	1.56	B	2.84	4.0	4.26	--	--	1500	--	--	0.002
Manganese	2 / 2	mg/kg	--	--	0.268	232	232	464	328	0.268	232	464	328	2.41	5.27	2.41	5.27	B	232	350	376	--	--	360,000	--	--	6.4E-04
Mercury	2 / 2	mg/kg	--	--	0.032	6.52	6.52	13	9.17	0.032	6.52	13	9.17	-0.434	4.24	-0.434	4.24	B	6.52	9.8	10.5	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.339	0.449	0.449	0.558	0.155	0.339	0.449	0.558	0.155	-0.833	0.352	-0.833	0.352	B	0.449	0.504	0.517	--	--	3900	--	--	1.2E-04
Nickel	2 / 2	mg/kg	--	--	1.16	4.95	4.95	8.73	5.35	1.16	4.95	8.73	5.35	1.16	1.43	1.16	1.43	B	4.95	6.86	7.3	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.354	1.75	0.177	0.526	0.526	0.875	0.494	--	--	--	--	-0.933	1.13	--	--	B	0.526	0.703	0.743	--	--	1600	--	NSRC	NSRC
Silver	1 / 2	mg/kg	0.098	0.098	0.049	3.57	3.57	7.09	4.98	7.09	7.09	7.09	--	-0.527	3.51	1.96	--	B	3.57	5.35	5.76	--	--	--	--	--	--
Strontium	1 / 2	mg/kg	0.591	0.591	0.296	102	102	204	144	204	204	204	--	2.05	4.62	5.32	--	B	102	154	165	--	--	300,000	--	--	3.4E-04
Thallium	0 / 2	mg/kg	0.138	0.681	0.069	0.205	0.205	0.341	0.192	--	--	--	--	-1.88	1.13	--	--	B	0.205	0.274	0.289	--	--	--	--	NSRC	NSRC
Tin	0 / 2	mg/kg	0.295	2.99	0.148	0.821	0.821	1.5	0.953	--	--	--	--	-0.756	1.64	--	--	B	0.821	1.16	1.24	--	--	2200	--	NSRC	NSRC
Vanadium	1 / 2	mg/kg	0.295	0.295	0.148	6.82	6.82	13.5	9.44	13.5	13.5	13.5	--	0.344	3.19	2.6	--	B	6.82	10.2	11.0	--	--	25,000	--	--	2.7E-04
Zinc	2 / 2	mg/kg	--	--	4.29	33.7	33.7	63.2	41.7	4.29	33.7	63.2	41.7	2.8	1.9	2.8	1.9	B	33.7	48.7	52.1	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.394	0.394	0.197	10.9	10.9	21.6	15.1	21.6	21.6	21.6	--	0.724	3.32	3.07	--	B	10.9	16.3	17.5	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.281	0.281	0.281	0.281	--	0.281	0.281	0.281	--	-1.27	--	-1.27	--	D	0.281	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	0 / 1	mg/L	0.03	0.03	0.015	0.015	0.015	0.015	--	--	--	--	--	-4.2	--	--	--	O	0.015	--	--	--	--	--	--	NSRC	NSRC
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.6E-04	0.008	3.8E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.68	1.69	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.6E-04	0.008	3.8E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.68	1.69	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	2 / 2	mg/kg	--	--	0.001	0.001	0.001	0.001	8.5E-05	0.001	0.001	0.001	8.5E-05	-6.81	0.077	-6.81	0.077	B	0.001	0.001	0.001	--	130,000	--	--	8.5E-09	--
4,4'-DDT	1 / 2	mg/kg	1.0E-03	1.0E-03	5.0E-04	9.4E-04	9.4E-04	0.001	6.2E-04	0.001	0.001	0.001	--	-7.09	0.719	-6.59	--	B	9.4E-04	0.001	0.001	--	--	--	--	--	--
Aldrin	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 2	mg/kg	4.5E-04	0.005	2.3E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.2	1.7	--	--	B	0.001	0.002	0.002	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 2	mg/kg	9.0E-05	1.0E-03	4.5E-05	2.7E-04	2.7E-04	5.0E-04	3.2E-04	--	--	--	--	-8.81	1.7	--	--	B	2.7E-04	3.9E-04	4.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	1000	1500	--	NSRC	NSRC

Table G.56. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	1 / 2	mg/kg	5.0E-04	5.0E-04	2.5E-04	4.8E-04	4.8E-04	7.1E-04	3.3E-04	7.1E-04	7.1E-04	7.1E-04	--	-7.77	0.743	-7.24	--	B	4.8E-04	6.0E-04	6.3E-04	--	180	940	--	2.7E-06	5.1E-07
Methoxychlor	0 / 2	mg/kg	4.5E-04	0.005	2.3E-04	0.001	0.001	0.002	0.002	--	--	--	--	-7.2	1.7	--	--	B	0.001	0.002	0.002	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 2	mg/kg	0.002	0.017	7.5E-04	0.005	0.005	0.008	0.005	--	--	--	--	-5.99	1.7	--	--	B	0.005	0.006	0.007	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 2	mg/kg	4.5E-05	5.0E-04	2.3E-05	1.4E-04	1.4E-04	2.5E-04	1.6E-04	--	--	--	--	-9.5	1.7	--	--	B	1.4E-04	1.9E-04	2.1E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	850	--	NSRC	NSRC
Acenaphthene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 21	mg/kg	5.9E-04	0.23	3.0E-04	0.022	0.014	0.115	0.03	--	--	--	--	-4.63	1.45	--	--	B	0.029	0.056	0.065	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 21	mg/kg	0.006	2.3	0.003	0.231	0.144	1.15	0.298	0.358	0.358	0.358	--	-2.28	1.48	-1.03	--	L	0.304	0.668	0.895	3.39	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 21	mg/kg	0.006	2.3	0.003	0.233	0.144	1.15	0.3	0.41	0.41	0.41	--	-2.28	1.48	-0.892	--	L	0.308	0.683	0.916	3.46	--	1200	--	NSRC	NSRC
Benzidine	1 / 21	mg/kg	0.006	2.3	0.003	0.269	0.144	1.17	0.362	1.17	1.17	1.17	--	-2.23	1.55	0.157	--	L	0.358	0.841	1.16	4.24	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 21	mg/kg	0.046	3.84	0.023	0.427	0.24	1.92	0.549	0.036	0.753	1.47	1.01	-1.63	1.34	-1.47	2.62	L	0.482	0.945	1.21	4.73	--	9810	--	--	4.9E-05
Carbazole	1 / 21	mg/kg	0.003	0.23	0.001	0.022	0.014	0.115	0.03	0.002	0.002	0.002	--	-4.54	1.28	-6.4	--	B	0.029	0.055	0.064	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	5 / 21	mg/kg	0.006	2.3	0.003	0.316	0.149	1.15	0.348	0.088	0.488	1.06	0.385	-1.91	1.51	-1.05	0.997	B	0.291	0.56	0.65	--	--	190	--	--	0.002
Diethyl phthalate	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 21	mg/kg	0.006	2.3	0.003	0.241	0.147	1.15	0.306	0.569	0.569	0.569	--	-2.26	1.5	-0.564	--	L	0.322	0.724	0.978	3.67	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	2 / 21	mg/kg	0.033	2.3	0.013	0.223	0.144	1.15	0.296	0.013	0.032	0.051	0.027	-2.19	1.23	-3.67	0.989	L	0.238	0.427	0.528	2.07	--	--	--	--	--
Phenol	1 / 21	mg/kg	0.006	2.3	0.003	0.338	0.144	2.61	0.599	2.61	2.61	2.61	--	-2.19	1.62	0.959	--	L	0.416	1.05	1.48	5.21	--	3200	--	NSRC	NSRC
Pyridine	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 21	mg/kg	0.006	2.3	0.003	0.221	0.144	1.15	0.297	--	--	--	--	-2.32	1.45	--	--	B	0.288	0.556	0.647	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	2.49	2.49	2.49	2.49	--	2.49	2.49	2.49	--	0.912	--	0.912	--	B	2.49	2.49	2.49	--	--	--	--	--	--
Alpha activity	9 / 21	pCi/g	1.48	9.41	1.48	8.9	5.7	52	11.2	4.87	14.4	52	15.6	1.79	0.828	2.32	0.803	L	8.22	13.1	15.3	42.5	--	--	--	--	--
Americium-241	0 / 4	pCi/g	0.19	0.235	0.19	0.213	0.214	0.235	0.021	--	--	--	--	-1.55	0.097	--	--	B	0.213	0.225	0.227	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	11 / 21	pCi/g	1.22	4.29	1.22	8.03	4.13	45.8	10.1	1.56	12.3	45.8	12.6	1.63	0.899	2.06	1.04	L	7.67	11.0	12.5	43.2	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	1.13	1.55	1.55	1.96	0.587	1.13	1.55	1.96	0.587	0.398	0.389	0.398	0.389	B	1.55	1.76	1.8	--	--	--	--	--	--
Carbon-14	0 / 21	pCi/g	0.397	2.47	0.397	1.47	1.78	2.47	0.85	--	--	--	--	0.177	0.699	--	--	B	1.66	2.15	2.24	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 21	pCi/g	0.028	0.356	0.028	0.115	0.11	0.356	0.072	--	--	--	--	-2.32	0.574	--	--	L	0.116	0.141	0.151	0.383	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 21	pCi/g	0.042	0.28	0.042	0.108	0.101	0.28	0.054	--	--	--	--	-2.33	0.448	--	--	L	0.108	0.125	0.131	0.282	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 21	pCi/g	0.294	1.11	0.294	0.699	0.686	1.11	0.284	--	--	--	--	-0.446	0.443	--	--	B	0.691	0.899	0.947	--	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	0.379	1.02	0.93	1.83	0.726	0.379	1.02	1.83	0.726	-0.213	0.809	-0.213	0.809	B	0.988	1.36	1.46	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	1.12	1.68	1.68	2.23	0.785	1.12	1.68	2.23	0.785	0.458	0.487	0.458	0.487	B	1.68	1.96	2.02	--	--	--	--	--	--

Table G.56. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Neptunium-237	0 / 4	pCi/g	0.204	0.383	0.204	0.303	0.313	0.383	0.078	--	--	--	--	-1.22	0.277	--	--	B	0.306	0.35	0.359	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 21	pCi/g	0.569	1.66	0.569	0.931	0.844	1.66	0.274	--	--	--	--	-0.108	0.268	--	--	L	0.931	1.01	1.04	1.69	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 4	pCi/g	0.174	0.477	0.174	0.299	0.272	0.477	0.14	--	--	--	--	-1.29	0.467	--	--	B	0.29	0.367	0.388	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 4	pCi/g	0.189	0.568	0.189	0.343	0.308	0.568	0.18	--	--	--	--	-1.18	0.531	--	--	B	0.331	0.428	0.454	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 4	pCi/g	13.4	15.4	13.4	14.5	14.6	15.4	0.841	--	--	--	--	2.67	0.059	--	--	B	14.5	15.0	15.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	6 / 6	pCi/g	--	--	5.15	7.96	6.75	15	3.71	5.15	7.96	15	3.71	2.0	0.401	2.0	0.401	L	8.01	10.8	12.4	32.7	--	--	4.2E+06	--	--
Radium-226	7 / 21	pCi/g	0.401	1.02	0.394	0.76	0.588	2.62	0.472	0.394	0.988	2.62	0.77	-0.381	0.423	-0.21	0.642	B	0.894	1.4	1.58	--	--	--	300,000	--	--
Strontium-89	0 / 21	pCi/g	0.504	2	0.504	1.65	1.79	2	0.385	--	--	--	--	0.463	0.33	--	--	B	1.61	1.9	1.94	--	--	--	--	NSRC	NSRC
Strontium-90	2 / 21	pCi/g	0.682	1.95	0.682	1.94	1.59	6.38	1.43	5.87	6.13	6.38	0.361	0.51	0.501	1.81	0.059	B	2.24	3.6	4.05	--	--	--	400,000	--	--
Technetium-99	1 / 21	pCi/g	2.58	7.62	0.113	5.64	6.35	7.62	1.72	0.113	0.113	0.113	--	1.57	0.891	-2.18	--	B	5.52	7.04	7.25	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	1 / 1	pCi/g	--	--	0.542	0.542	0.542	0.542	--	0.542	0.542	0.542	--	-0.612	--	-0.612	--	B	0.542	0.542	0.542	--	--	--	--	--	--
Thorium-228	2 / 21	pCi/g	0.238	0.934	0.238	0.608	0.523	1.56	0.356	1.49	1.53	1.56	0.049	-0.627	0.499	0.422	0.032	L	0.605	0.715	0.755	1.74	--	--	25,000	--	--
Thorium-230	5 / 21	pCi/g	0.254	0.779	0.254	0.587	0.501	1.33	0.291	0.541	0.938	1.33	0.338	-0.636	0.459	-0.122	0.392	L	0.588	0.684	0.719	1.57	--	--	15,000	--	--
Thorium-232	5 / 21	pCi/g	0.189	0.666	0.189	0.519	0.41	1.91	0.428	0.409	0.946	1.91	0.735	-0.848	0.569	-0.306	0.784	B	0.623	1.03	1.16	--	--	--	2500	--	--
Total Uranium	8 / 21	pCi/g	0.654	1.31	0.654	1.27	1.04	3.31	0.799	0.756	1.82	3.31	1.08	0.105	0.484	0.441	0.598	B	1.35	1.98	2.19	--	--	--	--	--	--
Tritium	0 / 21	pCi/g	5.04	14.4	5.04	10.9	11.3	14.4	3.21	--	--	--	--	2.34	0.342	--	--	B	10.8	13.0	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	7 / 21	pCi/g	0.375	0.733	0.316	0.679	0.504	2.27	0.471	0.316	1.01	2.27	0.719	-0.531	0.496	-0.215	0.719	B	0.767	1.21	1.37	--	1700	2.8E+07	100,000	4.5E-04	2.7E-08
Uranium-235/236	0 / 21	pCi/g	0.303	0.85	0.303	0.551	0.523	0.85	0.154	--	--	--	--	-0.633	0.279	--	--	N	0.551	0.596	0.609	0.917	1500	9500	100,000	NSRC	NSRC
Uranium-238	4 / 21	pCi/g	0.221	0.67	0.221	0.552	0.44	1.61	0.32	0.456	0.958	1.61	0.574	-0.7	0.434	-0.193	0.644	B	0.599	0.931	1.04	--	1200	1500	100,000	5.0E-04	4.0E-04
																									SOF =	9.5E-04	0.008

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.57. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 5 (random samples)																											
Metals																											
Antimony	3 / 4	mg/kg	0.174	0.174	0.087	4.94	1.39	16.9	8.03	0.54	6.56	16.9	8.99	0.144	2.23	1.01	1.73	B	3.76	7.52	8.88	--	--	160	--	--	0.023
Arsenic	1 / 4	mg/kg	0.178	0.351	0.089	0.53	0.141	1.75	0.814	1.75	1.75	1.75	--	-1.46	1.38	0.56	--	B	0.4	0.753	0.888	--	--	--	--	--	--
Barium	3 / 4	mg/kg	0.053	0.053	0.026	3.35	0.191	13	6.43	0.179	4.46	13	7.4	-1.1	2.61	-0.25	2.44	B	2.3	4.98	6.04	--	--	150,000	--	--	1.5E-05
Beryllium	1 / 4	mg/kg	0.011	0.021	0.005	0.01	0.008	0.019	0.006	0.019	0.019	0.019	--	-4.71	0.58	-3.95	--	B	0.01	0.013	0.014	--	--	--	--	--	--
Boron	0 / 4	mg/kg	0.422	0.832	0.211	0.314	0.315	0.416	0.099	--	--	--	--	-1.2	0.325	--	--	B	0.315	0.366	0.378	--	--	24,000	--	NSRC	NSRC
Cadmium	2 / 4	mg/kg	0.011	0.013	0.005	0.334	0.036	1.26	0.618	0.066	0.663	1.26	0.845	-3.2	2.56	-1.25	2.09	B	0.235	0.498	0.601	--	--	--	--	--	--
Chromium	4 / 4	mg/kg	--	--	0.596	323	1.54	1290	644	0.596	323	1290	644	1.87	3.56	1.87	3.56	B	216	477	583	--	--	140,000	--	--	0.002
Copper	4 / 4	mg/kg	--	--	0.306	17.5	1.32	67.2	33.1	0.306	17.5	67.2	33.1	0.846	2.36	0.846	2.36	B	12.1	26.0	31.5	--	--	--	--	--	--
Hafnium	0 / 4	mg/kg	0.317	0.624	0.159	0.236	0.236	0.312	0.074	--	--	--	--	-1.48	0.324	--	--	B	0.236	0.275	0.283	--	--	--	--	NSRC	NSRC
Lead	4 / 4	mg/kg	--	--	0.06	67.9	9.79	252	123	0.06	67.9	252	123	1.0	3.92	1.0	3.92	B	48.5	102	123	--	--	1500	--	--	0.032
Manganese	4 / 4	mg/kg	--	--	0.144	15.1	9.19	41.7	19.6	0.144	15.1	41.7	19.6	0.933	2.8	0.933	2.8	B	13.1	23.4	26.5	--	--	360,000	--	--	3.6E-05
Mercury	3 / 4	mg/kg	0.002	0.002	0.001	0.123	0.022	0.448	0.217	0.013	0.164	0.448	0.246	-3.86	2.49	-2.86	1.84	B	0.09	0.187	0.223	--	--	--	--	--	--
Molybdenum	3 / 4	mg/kg	0.05	0.05	0.025	2.63	0.088	10.3	5.12	0.05	3.49	10.3	5.9	-1.61	2.71	-0.912	2.85	B	1.78	3.88	4.72	--	--	3900	--	--	4.6E-04
Nickel	4 / 4	mg/kg	--	--	0.217	71.4	0.765	284	142	0.217	71.4	284	142	0.864	3.25	0.864	3.25	B	47.9	105	129	--	--	--	--	--	--
Selenium	0 / 4	mg/kg	0.19	0.374	0.095	0.141	0.142	0.187	0.044	--	--	--	--	-1.99	0.324	--	--	B	0.142	0.165	0.17	--	--	1600	--	NSRC	NSRC
Silver	1 / 4	mg/kg	0.053	0.097	0.026	0.292	0.04	1.06	0.512	1.06	1.06	1.06	--	-2.52	1.73	0.058	--	B	0.208	0.421	0.506	--	--	--	--	--	--
Strontium	1 / 4	mg/kg	0.317	0.624	0.159	1.18	0.25	4.07	1.93	4.07	4.07	4.07	--	-0.818	1.51	1.4	--	B	0.872	1.69	2.01	--	--	300,000	--	--	2.9E-06
Thallium	0 / 4	mg/kg	0.074	0.146	0.037	0.055	0.055	0.073	0.017	--	--	--	--	-2.94	0.326	--	--	B	0.055	0.064	0.066	--	--	--	--	NSRC	NSRC
Tin	1 / 4	mg/kg	0.158	0.292	0.079	0.792	0.12	2.85	1.37	2.85	2.85	2.85	--	-1.44	1.68	1.05	--	B	0.568	1.14	1.37	--	--	2200	--	--	2.6E-04
Vanadium	2 / 4	mg/kg	0.158	0.188	0.079	0.841	0.727	1.83	0.892	1.36	1.6	1.83	0.332	-0.998	1.68	0.456	0.21	B	0.803	1.25	1.37	--	--	25,000	--	--	3.2E-05
Zinc	4 / 4	mg/kg	--	--	1.33	11.9	10.7	24.9	11.3	1.33	11.9	24.9	11.3	1.92	1.37	1.92	1.37	B	11.5	17.6	19.1	--	--	--	--	--	--
Zirconium	0 / 4	mg/kg	0.211	0.416	0.106	0.157	0.158	0.208	0.049	--	--	--	--	-1.89	0.325	--	--	B	0.157	0.183	0.189	--	--	--	--	NSRC	NSRC
TCLP Metals																											
Arsenic	1 / 3	mg/L	0.017	0.017	0.009	0.014	0.009	0.024	0.009	0.024	0.024	0.024	--	-4.42	0.597	-3.73	--	X	0.014	0.029	0.036	--	--	--	--	--	--
Barium	3 / 3	mg/L	--	--	0.028	0.131	0.103	0.261	0.119	0.028	0.131	0.261	0.119	-2.4	1.13	-2.4	1.13	X	0.131	0.337	0.43	--	--	--	--	--	--
Cadmium	1 / 3	mg/L	0.003	0.003	0.002	0.011	0.002	0.03	0.016	0.03	0.03	0.03	--	-5.51	1.72	-3.52	--	X	0.011	0.039	0.052	--	--	--	--	--	--
Chromium	2 / 3	mg/L	0.03	0.03	0.015	0.333	0.12	0.85	0.367	0.12	0.485	0.85	0.516	-2.16	2.02	-1.14	1.38	X*	0.333	1.23	1.64	--	--	--	--	--	--
Lead	3 / 3	mg/L	--	--	0.007	2.13	0.407	5.97	3.33	0.007	2.13	5.97	3.33	-1.36	3.4	-1.36	3.4	X	2.13	7.9	10.5	--	--	--	--	--	--
Mercury	0 / 2	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.004	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.63	0.463	--	--	B	0.004	0.005	0.005	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.004	0.013	0.002	0.004	0.004	0.006	0.002	--	--	--	--	-5.63	0.463	--	--	B	0.004	0.005	0.005	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.002	0.012	9.2E-04	0.003	0.002	0.006	0.002	--	--	--	--	-6.2	0.84	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	3.7E-04	0.002	1.8E-04	5.4E-04	3.7E-04	0.001	4.7E-04	--	--	--	--	-7.81	0.842	--	--	B	4.8E-04	7.3E-04	8.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	2400	69,000	--	NSRC	NSRC

Table G.57. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 4	mg/kg	0.002	0.012	9.2E-04	0.003	0.002	0.006	0.002	--	--	--	--	-6.2	0.84	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.006	0.04	0.003	0.009	0.006	0.02	0.008	--	--	--	--	-5.0	0.841	--	--	B	0.008	0.012	0.014	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	1.8E-04	0.001	9.2E-05	2.7E-04	1.9E-04	6.1E-04	2.4E-04	--	--	--	--	-8.5	0.84	--	--	B	2.4E-04	3.7E-04	4.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 21	mg/kg	0.003	0.419	0.001	1.57	0.015	31.1	6.77	0.198	10.8	31.1	17.6	-3.69	2.31	0.65	2.57	B	5.19	11.5	14.0	--	--	4000	--	--	0.001
2-Methylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	850	--	NSRC	NSRC
Acenaphthene	3 / 21	mg/kg	0.003	0.419	0.001	0.29	0.015	5.39	1.17	0.048	1.87	5.39	3.05	-3.94	1.86	-1.05	2.45	B	0.908	2.0	2.44	--	--	390,000	--	--	2.3E-06
Acenaphthylene	0 / 21	mg/kg	0.003	0.419	0.001	0.025	0.015	0.21	0.045	--	--	--	--	-4.39	1.18	--	--	B	0.045	0.091	0.108	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 21	mg/kg	0.043	6.98	0.021	0.422	0.245	3.49	0.75	--	--	--	--	-1.58	1.18	--	--	B	0.749	1.51	1.79	--	--	9810	--	NSRC	NSRC
Carbazole	0 / 21	mg/kg	0.003	0.419	0.001	0.025	0.015	0.21	0.045	--	--	--	--	-4.39	1.18	--	--	B	0.045	0.091	0.108	--	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	3 / 21	mg/kg	0.026	4.19	0.013	0.289	0.148	2.1	0.461	0.034	0.334	0.771	0.388	-1.93	1.19	-1.76	1.57	B	0.45	0.91	1.08	--	--	190	--	--	0.002
Diethyl phthalate	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	2800	500	--	NSRC	NSRC
Isophorone	1 / 21	mg/kg	0.026	4.19	0.013	0.263	0.147	2.1	0.45	0.35	0.35	0.35	--	-2.05	1.2	-1.05	--	B	0.449	0.909	1.08	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
Phenol	1 / 21	mg/kg	0.026	4.19	0.013	0.263	0.148	2.1	0.45	0.351	0.351	0.351	--	-2.04	1.2	-1.05	--	B	0.45	0.91	1.08	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 21	mg/kg	0.026	4.19	0.013	0.253	0.147	2.1	0.45	--	--	--	--	-2.09	1.18	--	--	B	0.449	0.909	1.08	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	3 / 3	pCi/g	--	--	0.688	1.51	1.83	2	0.713	0.688	1.51	2	0.713	0.308	0.592	0.308	0.592	B	1.67	1.92	1.95	--	--	--	--	--	--
Alpha activity	9 / 21	pCi/g	2.08	9.54	2.08	10.3	5.94	44.9	11.1	3.15	18.6	44.9	12.9	1.9	0.924	2.69	0.782	B	11.8	21.5	24.9	--	--	--	--	--	--
Americium-241	0 / 6	pCi/g	0.2	0.291	0.2	0.242	0.245	0.291	0.032	--	--	--	--	-1.43	0.132	--	--	N	0.242	0.261	0.268	0.36	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	10 / 21	pCi/g	3.19	5.82	3.19	8.47	4.85	27.8	7.72	4.85	13.4	27.8	8.92	1.85	0.716	2.38	0.715	B	8.4	13.9	15.8	--	--	--	--	--	--
Bismuth-214	3 / 3	pCi/g	--	--	0.834	1.22	1.19	1.64	0.404	0.834	1.22	1.64	0.404	0.162	0.338	0.162	0.338	B	1.21	1.41	1.46	--	--	--	--	--	--
Carbon-14	1 / 21	pCi/g	0.276	2.49	0.276	2.11	0.733	17.2	3.57	17.2	17.2	17.2	--	0.187	0.951	2.84	--	B	3.4	6.97	8.35	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 21	pCi/g	0.049	0.352	0.049	0.11	0.1	0.352	0.062	--	--	--	--	-2.31	0.42	--	--	B	0.133	0.207	0.23	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 21	pCi/g	0.054	0.337	0.054	0.125	0.119	0.337	0.059	--	--	--	--	-2.17	0.407	--	--	L	0.124	0.142	0.148	0.301	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 21	pCi/g	0.129	1.04	0.129	0.53	0.491	1.04	0.203	--	--	--	--	-0.714	0.436	--	--	N	0.53	0.589	0.606	1.01	13	--	1500	NSRC	NSRC
Lead-212	5 / 5	pCi/g	--	--	0.421	1.18	1.38	2.06	0.674	0.421	1.18	2.06	0.674	0.008	0.67	0.008	0.67	B	1.33	1.74	1.82	--	--	--	--	--	--

Table G.57. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	4 / 4	pCi/g	--	--	0.492	1.23	1.3	1.82	0.575	0.492	1.23	1.82	0.575	0.095	0.578	0.095	0.578	B	1.25	1.57	1.64	--	--	--	--	--	--
Neptunium-237	0 / 6	pCi/g	0.131	0.47	0.131	0.225	0.186	0.47	0.122	--	--	--	--	-1.58	0.433	--	--	B	0.224	0.306	0.332	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 21	pCi/g	0.642	8.99	0.642	1.39	0.987	8.99	1.76	--	--	--	--	0.091	0.533	--	--	B	2.26	4.06	4.73	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 6	pCi/g	0.172	0.413	0.172	0.247	0.221	0.413	0.087	--	--	--	--	-1.44	0.307	--	--	L	0.248	0.307	0.337	0.739	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 6	pCi/g	0.161	0.492	0.161	0.241	0.192	0.492	0.124	--	--	--	--	-1.5	0.402	--	--	B	0.237	0.312	0.339	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 6	pCi/g	8.61	14	8.61	12.8	13.6	14	2.07	--	--	--	--	2.54	0.188	--	--	B	12.8	13.8	13.9	--	--	--	790,000	NSRC	NSRC
Potassium-40	7 / 7	pCi/g	--	--	3.58	13.5	11.4	28.3	9.07	3.58	13.5	28.3	9.07	2.39	0.723	2.39	0.723	N	13.5	18.5	20.2	44.4	--	--	4.2E+06	--	--
Radium-226	3 / 21	pCi/g	0.262	0.894	0.262	0.762	0.637	2.66	0.527	0.529	1.63	2.66	1.07	-0.418	0.513	0.291	0.834	L	0.746	1.01	1.12	2.22	--	--	300,000	--	--
Strontium-89	0 / 21	pCi/g	0.667	1.95	0.667	1.57	1.71	1.95	0.376	--	--	--	--	0.413	0.307	--	--	B	1.58	1.84	1.88	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 21	pCi/g	1.03	1.98	1.03	1.56	1.54	1.98	0.249	--	--	--	--	0.429	0.167	--	--	N	1.56	1.63	1.65	2.15	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 21	pCi/g	3	7.55	3	5.69	5.73	7.55	1.01	--	--	--	--	1.72	0.196	--	--	N	5.69	5.98	6.07	8.08	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.407	0.522	0.522	0.637	0.163	0.407	0.522	0.637	0.163	-0.675	0.317	-0.675	0.317	B	0.522	0.58	0.593	--	--	--	--	--	--
Thorium-228	5 / 21	pCi/g	0.299	1.05	0.299	0.689	0.616	1.53	0.339	0.409	0.995	1.53	0.497	-0.475	0.458	-0.13	0.59	L	0.69	0.803	0.843	1.84	--	--	25,000	--	--
Thorium-230	7 / 21	pCi/g	0.311	0.865	0.311	0.691	0.657	2.08	0.404	0.394	0.961	2.08	0.583	-0.491	0.477	-0.186	0.577	L	0.686	0.804	0.847	1.9	--	--	15,000	--	--
Thorium-232	5 / 21	pCi/g	0.239	0.748	0.239	0.571	0.493	1.5	0.352	0.383	1.0	1.5	0.476	-0.704	0.527	-0.116	0.579	L	0.568	0.679	0.72	1.72	--	--	2500	--	--
Total Uranium	10 / 21	pCi/g	0.563	2.02	0.563	1.47	1.12	5.18	1.12	0.925	2.03	5.18	1.34	0.182	0.612	0.557	0.554	L	1.45	1.79	1.93	5.12	--	--	--	--	--
Tritium	0 / 21	pCi/g	3.46	14.3	3.46	9.97	11.2	14.3	2.98	--	--	--	--	2.24	0.362	--	--	N	9.97	10.8	11.1	17.0	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	10 / 21	pCi/g	0.323	1.08	0.323	0.797	0.547	3.28	0.684	0.453	1.09	3.28	0.877	-0.443	0.608	-0.123	0.633	B	0.965	1.63	1.86	--	1700	2.8E+07	100,000	5.7E-04	3.4E-08
Uranium-235/236	0 / 21	pCi/g	0.308	1.38	0.308	0.549	0.454	1.38	0.298	--	--	--	--	-0.694	0.404	--	--	B	0.584	0.837	0.921	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	8 / 21	pCi/g	0.295	1.01	0.295	0.622	0.467	1.58	0.366	0.467	0.868	1.58	0.407	-0.613	0.514	-0.233	0.453	B	0.624	0.926	1.03	--	1200	1500	100,000	5.2E-04	4.2E-04
																									SOF =	0.001	0.062

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.58. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 6 (random samples)																											
Metals																											
Antimony	1 / 2	mg/kg	0.316	0.316	0.158	0.369	0.369	0.579	0.298	0.579	0.579	0.579	--	-1.2	0.918	-0.546	--	B	0.369	0.475	0.499	--	--	160	--	--	0.002
Arsenic	2 / 2	mg/kg	--	--	8.2	19.7	19.7	31.2	16.3	8.2	19.7	31.2	16.3	2.77	0.945	2.77	0.945	B	19.7	25.5	26.8	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	3.44	35.2	35.2	67	44.9	3.44	35.2	67	44.9	2.72	2.1	2.72	2.1	B	35.2	51.3	55.0	--	--	150,000	--	--	2.3E-04
Beryllium	1 / 2	mg/kg	0.014	0.014	0.007	0.252	0.252	0.497	0.347	0.497	0.497	0.497	--	-2.85	3.04	-0.699	--	B	0.252	0.376	0.404	--	--	--	--	--	--
Boron	1 / 2	mg/kg	0.539	0.539	0.27	13.5	13.5	26.8	18.8	26.8	26.8	26.8	--	0.989	3.25	3.29	--	B	13.5	20.3	21.8	--	--	24,000	--	--	5.6E-04
Cadmium	2 / 2	mg/kg	--	--	0.24	5.42	5.42	10.6	7.33	0.24	5.42	10.6	7.33	0.467	2.68	0.467	2.68	B	5.42	8.04	8.64	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	81.9	112	112	143	43.2	81.9	112	143	43.2	4.68	0.394	4.68	0.394	B	112	128	131	--	--	140,000	--	--	8.0E-04
Copper	2 / 2	mg/kg	--	--	20.9	61.5	61.5	102	57.3	20.9	61.5	102	57.3	3.83	1.12	3.83	1.12	B	61.5	82.0	86.7	--	--	--	--	--	--
Hafnium	1 / 2	mg/kg	0.404	0.404	0.202	0.816	0.816	1.43	0.868	1.43	1.43	1.43	--	-0.621	1.38	0.358	--	B	0.816	1.13	1.2	--	--	--	--	--	--
Lead	2 / 2	mg/kg	--	--	6.99	643	643	1280	900	6.99	643	1280	900	4.55	3.68	4.55	3.68	B	643	966	1039	--	--	1500	--	--	0.429
Manganese	2 / 2	mg/kg	--	--	172	516	516	860	486	172	516	860	486	5.95	1.14	5.95	1.14	B	516	690	730	--	--	360,000	--	--	0.001
Mercury	2 / 2	mg/kg	--	--	0.016	0.023	0.023	0.031	0.01	0.016	0.023	0.031	0.01	-3.8	0.439	-3.8	0.439	B	0.023	0.027	0.028	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	1.72	7.91	7.91	14.1	8.75	1.72	7.91	14.1	8.75	1.59	1.49	1.59	1.49	B	7.91	11.0	11.8	--	--	3900	--	--	0.002
Nickel	2 / 2	mg/kg	--	--	27.4	63.6	63.6	99.7	51.1	27.4	63.6	99.7	51.1	3.96	0.913	3.96	0.913	B	63.6	81.9	86.0	--	--	--	--	--	--
Selenium	1 / 2	mg/kg	0.243	0.243	0.122	0.631	0.631	1.14	0.72	1.14	1.14	1.14	--	-0.988	1.58	0.131	--	B	0.631	0.889	0.947	--	--	1600	--	--	3.9E-04
Silver	0 / 2	mg/kg	0.479	0.674	0.24	0.288	0.288	0.337	0.069	--	--	--	--	-1.26	0.241	--	--	B	0.288	0.313	0.319	--	--	--	--	NSRC	NSRC
Strontium	2 / 2	mg/kg	--	--	0.631	144	144	288	203	0.631	144	288	203	2.6	4.33	2.6	4.33	B	144	217	234	--	--	300,000	--	--	4.8E-04
Thallium	0 / 2	mg/kg	0.094	0.138	0.047	0.058	0.058	0.069	0.015	--	--	--	--	-2.86	0.269	--	--	B	0.058	0.064	0.065	--	--	--	--	NSRC	NSRC
Tin	1 / 2	mg/kg	0.287	0.287	0.144	3.05	3.05	5.96	4.11	5.96	5.96	5.96	--	-0.078	2.64	1.79	--	B	3.05	4.53	4.86	--	--	2200	--	--	0.001
Vanadium	2 / 2	mg/kg	--	--	0.554	22.2	22.2	43.8	30.6	0.554	22.2	43.8	30.6	1.59	3.09	1.59	3.09	B	22.2	33.1	35.6	--	--	25,000	--	--	8.9E-04
Zinc	2 / 2	mg/kg	--	--	103	612	612	1120	719	103	612	1120	719	5.83	1.69	5.83	1.69	B	612	869	928	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.27	0.27	0.135	22.8	22.8	45.5	32.1	45.5	45.5	45.5	--	0.908	4.12	3.82	--	B	22.8	34.3	36.9	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.348	0.348	0.348	0.348	--	0.348	0.348	0.348	--	-1.06	--	-1.06	--	D	0.348	--	--	--	--	--	--	--	--
Cadmium	1 / 1	mg/L	--	--	0.014	0.014	0.014	0.014	--	0.014	0.014	0.014	--	-4.28	--	-4.28	--	D	0.014	--	--	--	--	--	--	--	--
Chromium	1 / 1	mg/L	--	--	0.066	0.066	0.066	0.066	--	0.066	0.066	0.066	--	-2.72	--	-2.72	--	D	0.066	--	--	--	--	--	--	--	--
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 2	mg/kg	7.0E-04	0.008	3.5E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.73	1.75	--	--	B	0.002	0.003	0.003	--	--	119	--	NSRC	NSRC
Silvex	0 / 2	mg/kg	7.0E-04	0.008	3.5E-04	0.002	0.002	0.004	0.003	--	--	--	--	-6.73	1.75	--	--	B	0.002	0.003	0.003	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.0	--	--	--	B	0.002	0.005	0.005	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	9.9E-04	9.9E-04	4.9E-04	4.9E-04	4.9E-04	4.9E-04	--	--	--	--	--	-7.61	--	--	--	B	4.9E-04	9.9E-04	9.9E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	1000	1500	--	NSRC	NSRC

Table G.58. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lindane	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.005	0.005	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.0	--	--	--	B	0.002	0.005	0.005	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.8	--	--	--	B	0.008	0.017	0.017	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.3	--	--	--	B	2.5E-04	5.0E-04	5.0E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	2 / 14	mg/kg	0.002	0.299	8.9E-04	0.028	0.015	0.15	0.037	0.032	0.036	0.04	0.005	-4.1	1.12	-3.34	0.153	B	0.035	0.069	0.08	--	--	4000	--	--	8.7E-06
2-Methylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	850	--	NSRC	NSRC
Acenaphthene	1 / 14	mg/kg	0.002	0.299	8.9E-04	0.03	0.015	0.15	0.04	0.085	0.085	0.085	--	-4.1	1.17	-2.46	--	B	0.035	0.069	0.08	--	--	390,000	--	--	8.9E-08
Acenaphthylene	0 / 14	mg/kg	0.002	0.299	8.9E-04	0.025	0.015	0.15	0.037	--	--	--	--	-4.22	1.07	--	--	B	0.035	0.069	0.08	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 14	mg/kg	0.018	2.99	0.009	0.269	0.147	1.5	0.371	0.405	0.405	0.405	--	-1.84	1.1	-0.904	--	B	0.348	0.687	0.805	--	--	330	--	--	0.001
Benzenemethanol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 14	mg/kg	0.03	4.98	0.015	0.417	0.243	2.49	0.617	--	--	--	--	-1.41	1.07	--	--	B	0.579	1.14	1.34	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 14	mg/kg	0.002	0.299	8.9E-04	0.044	0.015	0.237	0.067	0.053	0.145	0.237	0.13	-3.93	1.33	-2.19	1.06	B	0.049	0.101	0.12	--	110,000	--	--	4.5E-07	--
Di-n-butyl phthalate	2 / 14	mg/kg	0.164	2.99	0.028	0.454	0.146	3.29	0.894	0.028	1.66	3.29	2.31	-1.69	1.16	-1.2	3.38	B	0.65	1.35	1.61	--	--	190	--	--	0.003
Diethyl phthalate	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	2800	500	--	NSRC	NSRC
Isophorone	3 / 14	mg/kg	0.018	0.901	0.009	0.537	0.147	3.54	0.939	1.06	1.94	3.54	1.39	-1.56	1.42	0.504	0.661	B	0.689	1.45	1.73	--	6100	15,000	--	1.1E-04	4.6E-05
N-Nitroso-di-n-propylamine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	1 / 14	mg/kg	0.164	2.99	0.05	0.253	0.146	1.5	0.369	0.05	0.05	0.05	--	-1.79	0.782	-3.01	--	B	0.355	0.675	0.791	--	--	--	--	--	--
Phenol	1 / 14	mg/kg	0.018	2.99	0.009	0.369	0.147	1.81	0.555	1.81	1.81	1.81	--	-1.74	1.26	0.593	--	B	0.401	0.804	0.949	--	--	3200	--	--	1.3E-04
Pyridine	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 14	mg/kg	0.018	2.99	0.009	0.25	0.146	1.5	0.37	--	--	--	--	-1.92	1.07	--	--	B	0.348	0.686	0.804	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	1 / 1	pCi/g	--	--	1.54	1.54	1.54	1.54	--	1.54	1.54	1.54	--	0.432	--	0.432	--	B	1.54	1.54	1.54	--	--	--	--	--	--
Alpha activity	7 / 14	pCi/g	2.11	9.66	2.11	14.8	9.63	42.2	12.5	9.61	23.5	42.2	12.4	2.35	0.886	3.02	0.59	L	15.6	24.7	29.5	107	--	--	--	--	--
Beta activity	10 / 14	pCi/g	2.73	4.86	2.73	9.41	8.63	23.5	5.98	3.83	11.7	23.5	5.58	2.05	0.66	2.35	0.5	N	9.41	11.6	12.2	25.0	--	--	--	--	--
Bismuth-214	2 / 2	pCi/g	--	--	1.54	1.58	1.58	1.61	0.049	1.54	1.58	1.61	0.049	0.454	0.031	0.454	0.031	B	1.58	1.59	1.6	--	--	--	--	--	--
Carbon-14	0 / 14	pCi/g	0.417	2.49	0.417	1.91	2.25	2.49	0.788	--	--	--	--	0.492	0.687	--	--	B	1.98	2.37	2.42	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 14	pCi/g	0.034	0.32	0.034	0.112	0.092	0.32	0.069	--	--	--	--	-2.32	0.522	--	--	L	0.113	0.141	0.153	0.385	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 14	pCi/g	0.046	0.321	0.046	0.124	0.1	0.321	0.073	--	--	--	--	-2.22	0.508	--	--	L	0.124	0.154	0.166	0.41	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 14	pCi/g	0.375	1.14	0.375	0.657	0.541	1.14	0.243	--	--	--	--	-0.477	0.342	--	--	L	0.658	0.754	0.79	1.52	13	--	1500	NSRC	NSRC
Lead-212	4 / 4	pCi/g	--	--	0.464	1.49	1.62	2.25	0.842	0.464	1.49	2.25	0.842	0.229	0.731	0.229	0.731	B	1.53	1.96	2.04	--	--	--	--	--	--
Lead-214	2 / 2	pCi/g	--	--	1.7	1.91	1.91	2.11	0.29	1.7	1.91	2.11	0.29	0.639	0.153	0.639	0.153	B	1.91	2.01	2.03	--	--	--	--	--	--
Nickel-63	1 / 14	pCi/g	0.604	1.44	0.604	0.898	0.89	1.44	0.214	0.834	0.834	0.834	--	-0.132	0.228	-0.182	--	N	0.898	0.975	0.999	1.46	--	--	1.3E+08	--	--

Table G.58. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Potassium-40	6 / 6	pCi/g	--	--	5.63	10.9	11.1	16.5	4.84	5.63	10.9	16.5	4.84	2.3	0.476	2.3	0.476	N	10.9	13.9	14.9	28.9	--	--	4.2E+06	--	--
Radium-226	10 / 14	pCi/g	0.201	0.655	0.201	1.12	0.939	3.15	0.784	0.743	1.38	3.15	0.775	-0.099	0.69	0.214	0.467	L	1.15	1.59	1.79	5.5	--	--	300,000	--	--
Strontium-89	0 / 14	pCi/g	0.795	1.98	0.795	1.7	1.87	1.98	0.342	--	--	--	--	0.504	0.25	--	--	B	1.71	1.92	1.95	--	--	--	--	NSRC	NSRC
Strontium-90	0 / 14	pCi/g	1.26	2	1.26	1.62	1.59	2	0.222	--	--	--	--	0.475	0.136	--	--	N	1.62	1.7	1.73	2.2	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 14	pCi/g	3.37	7.72	3.37	6.16	6.36	7.72	1.08	--	--	--	--	1.8	0.203	--	--	N	6.16	6.55	6.67	8.97	172	--	4.2E+07	NSRC	NSRC
Thallium-208	2 / 2	pCi/g	--	--	0.547	0.62	0.62	0.692	0.103	0.547	0.62	0.692	0.103	-0.486	0.166	-0.486	0.166	B	0.62	0.656	0.665	--	--	--	--	--	--
Thorium-228	5 / 14	pCi/g	0.258	0.753	0.258	0.712	0.391	2.4	0.662	0.304	1.23	2.4	0.908	-0.639	0.748	-0.091	0.935	B	0.704	1.18	1.35	--	--	--	25,000	--	--
Thorium-230	11 / 14	pCi/g	0.532	0.641	0.387	0.728	0.561	1.73	0.432	0.387	0.763	1.73	0.485	-0.438	0.47	-0.416	0.532	B	0.727	1.04	1.15	--	--	--	15,000	--	--
Thorium-232	6 / 14	pCi/g	0.216	0.537	0.216	0.601	0.29	1.86	0.585	0.24	0.946	1.86	0.786	-0.834	0.767	-0.438	1.01	B	0.539	0.894	1.03	--	--	--	2500	--	--
Total Uranium	11 / 14	pCi/g	0.611	0.917	0.611	2.71	1.14	17.8	4.47	0.765	3.25	17.8	4.95	0.429	0.929	0.632	0.949	B	3.83	7.47	8.87	--	--	--	--	--	--
Tritium	0 / 14	pCi/g	2.56	13	2.56	11.0	12.4	13	3.18	--	--	--	--	2.32	0.462	--	--	B	10.9	12.6	12.8	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	9 / 14	pCi/g	0.326	0.526	0.326	1.63	0.571	12.7	3.22	0.403	2.3	12.7	3.93	-0.212	0.975	0.156	1.05	B	2.55	5.13	6.14	--	1700	2.8E+07	100,000	0.002	9.1E-08
Uranium-235/236	2 / 14	pCi/g	0.299	0.578	0.299	0.405	0.381	0.633	0.095	0.414	0.524	0.633	0.155	-0.925	0.212	-0.67	0.3	L	0.405	0.44	0.452	0.691	1500	9500	100,000	2.7E-04	4.3E-05
Uranium-238	8 / 14	pCi/g	0.3	0.48	0.3	0.954	0.544	4.49	1.11	0.438	1.39	4.49	1.34	-0.404	0.773	0.032	0.759	B	1.16	2.08	2.42	--	1200	1500	100,000	9.7E-04	7.7E-04
																									SOF =	0.003	0.445

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.59. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 1 (random samples)																											
Metals																											
Antimony	4 / 5	mg/kg	0.156	0.156	0.078	1.64	1.05	5.05	1.99	0.433	2.04	5.05	2.07	-0.249	1.56	0.327	1.02	B	1.55	2.77	3.15	--	--	160	--	--	0.01
Arsenic	3 / 5	mg/kg	0.16	1.6	0.08	4.13	1.54	14.7	6.05	1.54	6.59	14.7	7.09	0.327	1.93	1.46	1.14	B	3.49	6.84	8.0	--	--	--	--	--	--
Barium	5 / 5	mg/kg	--	--	21.6	375	144	947	430	21.6	375	947	430	5.02	1.7	5.02	1.7	B	257	475	548	--	--	150,000	--	--	0.002
Beryllium	3 / 5	mg/kg	0.009	0.016	0.005	0.099	0.107	0.192	0.091	0.107	0.161	0.192	0.047	-3.15	1.79	-1.86	0.327	B	0.104	0.151	0.161	--	--	--	--	--	--
Boron	3 / 5	mg/kg	0.379	0.65	0.19	5.65	2.83	17.5	7.24	2.83	9.25	17.5	7.51	0.624	1.96	1.97	0.911	B	4.83	8.97	10.3	--	--	24,000	--	--	2.0E-04
Cadmium	5 / 5	mg/kg	--	--	0.054	2.15	0.548	8.09	3.42	0.054	2.15	8.09	3.42	-0.722	2.2	-0.722	2.2	B	1.72	3.49	4.14	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	4.72	13.4	13.8	23.4	8.01	4.72	13.4	23.4	8.01	2.42	0.698	2.42	0.698	B	13.9	18.6	19.7	--	--	140,000	--	--	9.9E-05
Copper	5 / 5	mg/kg	--	--	0.67	28.8	4.98	74.2	35.9	0.67	28.8	74.2	35.9	2.12	2.04	2.12	2.04	B	15.8	31.9	37.9	--	--	--	--	--	--
Hafnium	0 / 5	mg/kg	0.284	0.595	0.142	0.248	0.272	0.298	0.062	--	--	--	--	-1.43	0.302	--	--	B	0.255	0.286	0.29	--	--	--	--	NSRC	NSRC
Lead	5 / 5	mg/kg	--	--	1.32	111	39.4	294	136	1.32	111	294	136	3.25	2.43	3.25	2.43	B	75.5	144	167	--	--	1500	--	--	0.05
Manganese	5 / 5	mg/kg	--	--	7.05	295	148	673	295	7.05	295	673	295	4.88	1.83	4.88	1.83	B	212	376	427	--	--	360,000	--	--	5.9E-04
Mercury	5 / 5	mg/kg	--	--	0.006	0.148	0.046	0.59	0.248	0.006	0.148	0.59	0.248	-2.96	1.64	-2.96	1.64	B	0.13	0.259	0.306	--	--	--	--	--	--
Molybdenum	5 / 5	mg/kg	--	--	0.097	3.66	0.652	16.1	6.97	0.097	3.66	16.1	6.97	-0.338	2.05	-0.338	2.05	B	3.13	6.54	7.84	--	--	3900	--	--	8.0E-04
Nickel	5 / 5	mg/kg	--	--	2.45	25.0	6.27	101	42.6	2.45	25.0	101	42.6	2.22	1.45	2.22	1.45	B	21.4	42.5	50.5	--	--	--	--	--	--
Selenium	1 / 5	mg/kg	0.17	1.7	0.085	0.339	0.164	0.85	0.318	0.448	0.448	0.448	--	-1.43	0.93	-0.803	--	B	0.265	0.44	0.501	--	--	1600	--	--	1.7E-04
Silver	3 / 5	mg/kg	0.047	0.919	0.024	7.67	5.86	25.4	10.4	5.86	12.6	25.4	11.1	0.474	2.77	2.3	0.814	B	8.14	14.5	16.3	--	--	--	--	--	--
Strontium	5 / 5	mg/kg	--	--	1.1	172	181	478	193	1.1	172	478	193	3.85	2.49	3.85	2.49	B	201	323	354	--	--	300,000	--	--	6.7E-04
Thallium	0 / 5	mg/kg	0.066	0.139	0.033	0.058	0.064	0.07	0.015	--	--	--	--	-2.88	0.302	--	--	B	0.059	0.067	0.068	--	--	--	--	NSRC	NSRC
Tin	5 / 5	mg/kg	--	--	0.361	5.67	5.19	10.2	3.69	0.361	5.67	10.2	3.69	1.31	1.34	1.31	1.34	B	5.22	7.72	8.29	--	--	2200	--	--	0.002
Vanadium	3 / 5	mg/kg	0.142	0.244	0.071	5.25	6.08	10.5	4.99	6.08	8.69	10.5	2.32	0.332	2.49	2.14	0.291	B	5.82	8.39	8.93	--	--	25,000	--	--	2.3E-04
Zinc	5 / 5	mg/kg	--	--	15	2525	63.5	9590	4144	15	2525	9590	4144	5.46	2.92	5.46	2.92	B	1643	3597	4379	--	--	--	--	--	--
Zirconium	5 / 5	mg/kg	--	--	0.379	4.95	2.9	15.9	6.42	0.379	4.95	15.9	6.42	0.747	1.59	0.747	1.59	B	4.65	8.37	9.58	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 4	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	4 / 4	mg/L	--	--	0.133	0.36	0.364	0.579	0.183	0.133	0.36	0.579	0.183	-1.15	0.622	-1.15	0.622	X	0.36	0.634	0.758	--	--	--	--	--	--
Cadmium	2 / 4	mg/L	0.003	0.003	0.002	0.01	0.004	0.03	0.011	0.004	0.017	0.03	0.018	-5.53	1.41	-4.56	1.47	X*	0.01	0.034	0.045	--	--	--	--	--	--
Chromium	1 / 4	mg/L	0.03	0.03	0.015	0.031	0.015	0.078	0.032	0.078	0.078	0.078	--	-3.79	0.826	-2.55	--	X	0.031	0.078	0.1	--	--	--	--	--	--
Lead	1 / 4	mg/L	0.005	0.005	0.003	0.104	0.003	0.41	0.204	0.41	0.41	0.41	--	-4.72	2.55	-0.892	--	X	0.104	0.41	0.548	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 4	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 4	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 4	mg/kg	0.002	0.008	8.3E-04	0.003	0.003	0.004	0.002	--	--	--	--	-6.13	0.787	--	--	B	0.003	0.004	0.004	--	--	119	--	NSRC	NSRC
Silvex	0 / 4	mg/kg	0.002	0.008	8.3E-04	0.003	0.003	0.004	0.002	--	--	--	--	-6.13	0.787	--	--	B	0.003	0.004	0.004	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 4	mg/kg	9.7E-04	0.001	4.8E-04	0.004	4.9E-04	0.014	0.007	0.014	0.014	0.014	--	-6.78	1.68	-4.27	--	B	0.003	0.005	0.007	--	77,000	--	--	3.6E-08	--
4,4'-DDE	3 / 4	mg/kg	9.7E-04	9.7E-04	4.8E-04	0.016	0.008	0.049	0.022	0.002	0.022	0.049	0.024	-5.34	2.1	-4.58	1.76	B	0.014	0.025	0.029	--	130,000	--	--	1.0E-07	--
4,4'-DDT	2 / 4	mg/kg	9.7E-04	9.8E-04	4.8E-04	0.087	0.01	0.326	0.16	0.02	0.173	0.326	0.216	-5.07	3.16	-2.51	1.97	B	0.061	0.13	0.157	--	--	--	--	--	--
Aldrin	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 4	mg/kg	0.005	0.01	0.002	0.003	0.002	0.005	0.001	--	--	--	--	-5.84	0.332	--	--	B	0.003	0.003	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 4	mg/kg	9.7E-04	0.002	4.8E-04	6.1E-04	4.9E-04	9.6E-04	2.3E-04	--	--	--	--	-7.45	0.333	--	--	B	5.7E-04	6.7E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.59. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 4	mg/kg	4.8E-04	5.0E-04	2.4E-04	7.5E-04	2.5E-04	0.002	0.001	0.002	0.002	0.002	--	-7.75	1.11	-6.08	--	B	5.9E-04	1.0E-03	0.001	--	180	940	--	3.3E-06	6.2E-07
Methoxychlor	0 / 4	mg/kg	0.005	0.01	0.002	0.003	0.002	0.005	0.001	--	--	--	--	-5.84	0.332	--	--	B	0.003	0.003	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 4	mg/kg	0.016	0.032	0.008	0.01	0.008	0.016	0.004	--	--	--	--	-4.64	0.333	--	--	B	0.009	0.011	0.012	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 4	mg/kg	4.8E-04	9.5E-04	2.4E-04	3.0E-04	2.5E-04	4.8E-04	1.2E-04	--	--	--	--	-8.15	0.332	--	--	B	2.8E-04	3.3E-04	3.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 43	mg/kg	0.034	29.4	0.017	0.555	0.145	14.7	2.23	0.406	0.406	0.406	--	-1.98	1.2	-0.901	--	B	2.55	5.56	6.76	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	1 / 43	mg/kg	0.003	2.94	0.002	0.104	0.014	2.12	0.386	2.12	2.12	2.12	--	-4.21	1.42	0.751	--	B	0.363	0.795	0.968	--	--	4000	--	NSRC	NSRC
2-Methylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 43	mg/kg	0.003	2.94	0.002	0.086	0.014	1.47	0.294	0.078	0.694	1.31	0.872	-4.19	1.41	-1.14	2.0	B	0.254	0.555	0.675	--	--	390,000	--	NSRC	NSRC
Acenaphthylene	0 / 43	mg/kg	0.003	2.94	0.002	0.055	0.014	1.47	0.223	--	--	--	--	-4.33	1.19	--	--	B	0.254	0.555	0.675	--	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 43	mg/kg	0.034	29.4	0.017	0.551	0.137	14.7	2.23	0.305	0.305	0.305	--	-2.01	1.2	-1.19	--	B	2.54	5.55	6.75	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 43	mg/kg	0.057	49	0.028	0.912	0.228	24.5	3.72	--	--	--	--	-1.52	1.19	--	--	B	4.24	9.26	11.3	--	--	9810	--	NSRC	NSRC
Carbazole	6 / 43	mg/kg	0.003	2.94	0.002	0.066	0.015	1.47	0.225	0.015	0.096	0.239	0.086	-4.11	1.34	-2.8	1.14	B	0.255	0.557	0.676	--	110,000	--	--	2.3E-06	--
Di-n-butyl phthalate	7 / 43	mg/kg	0.034	29.4	0.017	0.605	0.15	14.7	2.23	0.223	0.425	0.864	0.223	-1.73	1.2	-0.956	0.465	B	2.55	5.57	6.77	--	--	190	--	--	0.013
Diethyl phthalate	1 / 43	mg/kg	0.034	29.4	0.017	0.551	0.145	14.7	2.23	0.215	0.215	0.215	--	-1.98	1.18	-1.54	--	B	2.55	5.56	6.76	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	--	--	NSRC	NSRC
Phenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 43	mg/kg	0.034	29.4	0.017	0.547	0.137	14.7	2.23	--	--	--	--	-2.03	1.19	--	--	B	2.54	5.55	6.75	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	4 / 4	pCi/g	--	--	1.35	2.15	2.08	3.08	0.795	1.35	2.15	3.08	0.795	0.71	0.379	0.71	0.379	B	2.12	2.57	2.67	--	--	--	--	--	--
Alpha activity	15 / 43	pCi/g	2.23	9.97	2.23	9.53	7.39	38.8	7.51	4.3	16.3	38.8	9.11	2.02	0.676	2.65	0.574	L	9.48	11.1	11.7	31.3	--	--	--	--	--
Americium-241	0 / 14	pCi/g	0.19	0.581	0.19	0.303	0.265	0.581	0.128	--	--	--	--	-1.26	0.367	--	--	B	0.305	0.4	0.43	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	23 / 43	pCi/g	1.38	5.99	1.38	10.7	5.39	46.6	10.3	1.78	16.5	46.6	11.3	1.98	0.868	2.54	0.815	B	11.6	21.8	25.5	--	--	--	--	--	--
Bismuth-214	8 / 8	pCi/g	--	--	0.353	1.25	1.15	2.16	0.651	0.353	1.25	2.16	0.651	0.074	0.616	0.074	0.616	N	1.25	1.57	1.68	3.32	--	--	--	--	--
Carbon-14	3 / 43	pCi/g	0.281	2.4	0.281	10.8	0.663	416	63.3	0.661	139	416	240	-0.013	1.18	1.74	3.72	B	69.8	154	188	--	165	--	1.0E+07	0.423	--
Cesium-137	1 / 43	pCi/g	0.025	0.544	0.025	0.161	0.144	0.544	0.104	0.211	0.211	0.211	--	-2.0	0.61	-1.56	--	L	0.162	0.187	0.196	0.487	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 43	pCi/g	0.025	0.514	0.025	0.169	0.149	0.514	0.106	--	--	--	--	-1.97	0.637	--	--	L	0.172	0.199	0.209	0.536	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 43	pCi/g	0.142	1.2	0.142	0.635	0.622	1.2	0.283	--	--	--	--	-0.57	0.52	--	--	N	0.635	0.691	0.708	1.23	13	--	1500	NSRC	NSRC
Lead-212	12 / 12	pCi/g	--	--	0.294	1.12	1.29	2.32	0.735	0.294	1.12	2.32	0.735	-0.157	0.816	-0.157	0.816	B	1.29	1.81	1.92	--	--	--	--	--	--

Table G.59. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	9 / 9	pCi/g	--	--	0.394	1.23	1.06	2.17	0.696	0.394	1.23	2.17	0.696	0.037	0.646	0.037	0.646	N	1.23	1.55	1.66	3.34	--	--	--	--	--
Neptunium-237	0 / 14	pCi/g	0.243	0.935	0.243	0.522	0.564	0.935	0.21	--	--	--	--	-0.733	0.433	--	--	N	0.522	0.597	0.621	1.07	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 43	pCi/g	0.41	22.2	0.41	1.65	0.912	22.2	3.53	--	--	--	--	0.013	0.695	--	--	B	4.38	8.94	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 14	pCi/g	0.156	0.483	0.156	0.239	0.216	0.483	0.088	--	--	--	--	-1.48	0.313	--	--	L	0.239	0.27	0.282	0.515	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 14	pCi/g	0.219	0.575	0.219	0.303	0.29	0.575	0.086	--	--	--	--	-1.22	0.235	--	--	B	0.325	0.413	0.44	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 14	pCi/g	8.04	16.4	8.04	10.0	9.53	16.4	2.1	--	--	--	--	2.29	0.181	--	--	B	10.4	12.4	13.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	15 / 15	pCi/g	--	--	1.88	12.0	10	32.5	7.72	1.88	12.0	32.5	7.72	2.28	0.701	2.28	0.701	N	12.0	14.7	15.5	31.8	--	--	4.2E+06	--	--
Radium-226	22 / 43	pCi/g	0.3	0.938	0.3	0.726	0.56	2.92	0.568	0.32	0.916	2.92	0.728	-0.505	0.558	-0.313	0.645	B	0.91	1.51	1.72	--	--	--	300,000	--	--
Strontium-89	4 / 43	pCi/g	0.973	1.98	0.973	1.79	1.76	4.2	0.492	1.57	2.81	4.2	1.11	0.557	0.224	0.97	0.414	B	2.04	2.84	3.08	--	--	--	--	--	--
Strontium-90	1 / 43	pCi/g	0.823	1.99	0.823	1.64	1.75	1.99	0.317	1.79	1.79	1.79	--	0.474	0.22	0.582	--	B	1.64	1.88	1.92	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 43	pCi/g	2.58	8.47	2.58	5.18	5.12	8.47	1.22	--	--	--	--	1.62	0.246	--	--	N	5.18	5.42	5.49	7.74	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.192	0.482	0.519	0.737	0.208	0.192	0.482	0.737	0.208	-0.824	0.521	-0.824	0.521	B	0.501	0.634	0.661	--	--	--	--	--	--
Thorium-228	10 / 43	pCi/g	0.155	1.33	0.155	0.734	0.594	2.82	0.529	0.223	1.28	2.82	0.782	-0.518	0.643	1.1E-04	0.841	L	0.733	0.852	0.893	2.31	--	--	25,000	--	--
Thorium-230	20 / 43	pCi/g	0.189	1.03	0.189	0.748	0.567	2.91	0.578	0.267	1.07	2.91	0.689	-0.522	0.669	-0.134	0.668	L	0.742	0.869	0.914	2.42	--	--	15,000	--	--
Thorium-232	12 / 43	pCi/g	0.181	0.969	0.181	0.594	0.436	2.28	0.474	0.199	1.01	2.28	0.701	-0.752	0.653	-0.299	0.9	B	0.701	1.19	1.36	--	--	--	2500	--	--
Total Uranium	20 / 43	pCi/g	0.636	1.5	0.636	1.55	1.15	7.52	1.35	0.712	2.22	7.52	1.75	0.229	0.591	0.561	0.686	B	2.13	3.66	4.22	--	--	--	--	--	--
Tritium	0 / 43	pCi/g	2.63	15.3	2.63	11.2	12.3	15.3	2.77	--	--	--	--	2.37	0.326	--	--	B	11.2	14.0	14.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	16 / 43	pCi/g	0.286	0.841	0.286	0.845	0.562	6.13	0.952	0.392	1.4	6.13	1.41	-0.421	0.607	0.046	0.717	B	1.44	2.71	3.18	--	1700	2.8E+07	100,000	8.5E-04	5.2E-08
Uranium-235/236	0 / 43	pCi/g	0.366	0.974	0.366	0.578	0.567	0.974	0.152	--	--	--	--	-0.58	0.251	--	--	L	0.578	0.609	0.619	0.951	1500	9500	100,000	NSRC	NSRC
Uranium-238	15 / 43	pCi/g	0.268	0.77	0.268	0.643	0.521	2.27	0.411	0.361	0.957	2.27	0.553	-0.577	0.487	-0.185	0.54	B	0.77	1.24	1.4	--	1200	1500	100,000	6.4E-04	5.1E-04
																									SOF =	0.425	0.081

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.60. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 2 (random samples)																											
Metals																											
Antimony	2 / 2	mg/kg	--	--	0.375	0.509	0.509	0.643	0.19	0.375	0.509	0.643	0.19	-0.711	0.381	-0.711	0.381	B	0.509	0.577	0.592	--	--	160	--	--	0.003
Arsenic	1 / 2	mg/kg	0.268	0.268	0.134	0.358	0.358	0.582	0.317	0.582	0.582	0.582	--	-1.28	1.04	-0.541	--	B	0.358	0.472	0.497	--	--	--	--	--	--
Barium	2 / 2	mg/kg	--	--	0.179	0.493	0.493	0.807	0.444	0.179	0.493	0.807	0.444	-0.967	1.06	-0.967	1.06	B	0.493	0.652	0.688	--	--	150,000	--	--	3.3E-06
Beryllium	0 / 2	mg/kg	0.012	0.016	0.006	0.007	0.007	0.008	0.001	--	--	--	--	-4.98	0.2	--	--	B	0.007	0.007	0.008	--	--	--	--	NSRC	NSRC
Boron	1 / 2	mg/kg	0.476	0.476	0.238	2.47	2.47	4.71	3.16	4.71	4.71	4.71	--	0.057	2.11	1.55	--	B	2.47	3.61	3.86	--	--	24,000	--	--	1.0E-04
Cadmium	1 / 2	mg/kg	0.012	0.012	0.006	0.1	0.1	0.194	0.133	0.194	0.194	0.194	--	-3.38	2.46	-1.64	--	B	0.1	0.148	0.158	--	--	--	--	--	--
Chromium	2 / 2	mg/kg	--	--	14.6	20.1	20.1	25.6	7.78	14.6	20.1	25.6	7.78	2.96	0.397	2.96	0.397	B	20.1	22.9	23.5	--	--	140,000	--	--	1.4E-04
Copper	2 / 2	mg/kg	--	--	9.77	36.2	36.2	62.6	37.4	9.77	36.2	62.6	37.4	3.21	1.31	3.21	1.31	B	36.2	49.6	52.6	--	--	--	--	--	--
Hafnium	0 / 2	mg/kg	0.357	0.475	0.179	0.208	0.208	0.238	0.042	--	--	--	--	-1.58	0.202	--	--	B	0.208	0.223	0.226	--	--	--	--	NSRC	NSRC
Lead	2 / 2	mg/kg	--	--	5.68	6.95	6.95	8.22	1.8	5.68	6.95	8.22	1.8	1.92	0.261	1.92	0.261	B	6.95	7.59	7.74	--	--	1500	--	--	0.005
Manganese	2 / 2	mg/kg	--	--	12.4	13.5	13.5	14.6	1.56	12.4	13.5	14.6	1.56	2.6	0.115	2.6	0.115	B	13.5	14.1	14.2	--	--	360,000	--	--	3.8E-05
Mercury	1 / 2	mg/kg	0.002	0.002	0.001	0.011	0.011	0.021	0.014	0.021	0.021	0.021	--	-5.31	2.01	-3.88	--	B	0.011	0.016	0.017	--	--	--	--	--	--
Molybdenum	2 / 2	mg/kg	--	--	0.206	3.37	3.37	6.54	4.48	0.206	3.37	6.54	4.48	0.149	2.45	0.149	2.45	B	3.37	4.98	5.34	--	--	3900	--	--	8.6E-04
Nickel	2 / 2	mg/kg	--	--	0.587	10.8	10.8	21.1	14.5	0.587	10.8	21.1	14.5	1.26	2.53	1.26	2.53	B	10.8	16.0	17.2	--	--	--	--	--	--
Selenium	0 / 2	mg/kg	0.214	0.285	0.107	0.125	0.125	0.143	0.025	--	--	--	--	-2.09	0.203	--	--	B	0.125	0.134	0.136	--	--	1600	--	NSRC	NSRC
Silver	1 / 2	mg/kg	0.079	0.079	0.04	0.065	0.065	0.09	0.036	0.09	0.09	0.09	--	-2.82	0.584	-2.4	--	B	0.065	0.078	0.081	--	--	--	--	--	--
Strontium	0 / 2	mg/kg	0.357	0.475	0.179	0.208	0.208	0.238	0.042	--	--	--	--	-1.58	0.202	--	--	B	0.208	0.223	0.226	--	--	300,000	--	NSRC	NSRC
Thallium	0 / 2	mg/kg	0.083	0.111	0.042	0.049	0.049	0.056	0.01	--	--	--	--	-3.03	0.203	--	--	B	0.049	0.052	0.053	--	--	--	--	NSRC	NSRC
Tin	2 / 2	mg/kg	--	--	0.745	1.2	1.2	1.65	0.64	0.745	1.2	1.65	0.64	0.103	0.562	0.103	0.562	B	1.2	1.43	1.48	--	--	2200	--	--	5.4E-04
Vanadium	1 / 2	mg/kg	0.238	0.238	0.119	0.517	0.517	0.914	0.562	0.914	0.914	0.914	--	-1.11	1.44	-0.09	--	B	0.517	0.718	0.764	--	--	25,000	--	--	2.1E-05
Zinc	2 / 2	mg/kg	--	--	6.35	14.6	14.6	22.8	11.6	6.35	14.6	22.8	11.6	2.49	0.904	2.49	0.904	B	14.6	18.7	19.7	--	--	--	--	--	--
Zirconium	1 / 2	mg/kg	0.238	0.238	0.119	0.439	0.439	0.759	0.453	0.759	0.759	0.759	--	-1.2	1.31	-0.276	--	B	0.439	0.601	0.638	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 1	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.77	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	1 / 1	mg/L	--	--	0.021	0.021	0.021	0.021	--	0.021	0.021	0.021	--	-3.88	--	-3.88	--	D	0.021	--	--	--	--	--	--	--	--
Cadmium	0 / 1	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.5	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	1 / 1	mg/L	--	--	0.235	0.235	0.235	0.235	--	0.235	0.235	0.235	--	-1.45	--	-1.45	--	D	0.235	--	--	--	--	--	--	--	--
Lead	1 / 1	mg/L	--	--	0.024	0.024	0.024	0.024	--	0.024	0.024	0.024	--	-3.72	--	-3.72	--	D	0.024	--	--	--	--	--	--	--	--
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	119	--	NSRC	NSRC
Silvex	0 / 1	mg/kg	0.006	0.006	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.83	--	--	--	B	0.003	0.006	0.006	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	--	--	NSRC	NSRC
Aldrin	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 1	mg/kg	7.1E-04	7.1E-04	3.5E-04	3.5E-04	3.5E-04	3.5E-04	--	--	--	--	--	-7.95	--	--	--	B	3.5E-04	7.1E-04	7.1E-04	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	2400	69,000	--	NSRC	NSRC

Table G.60. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/kg	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.34	--	--	--	B	0.002	0.004	0.004	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/kg	0.012	0.012	0.006	0.006	0.006	0.006	--	--	--	--	--	-5.13	--	--	--	B	0.006	0.012	0.012	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 1	mg/kg	3.5E-04	3.5E-04	1.8E-04	1.8E-04	1.8E-04	1.8E-04	--	--	--	--	--	-8.64	--	--	--	B	1.8E-04	3.5E-04	3.5E-04	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	2 / 27	mg/kg	0.001	0.299	7.0E-04	0.922	0.011	14.1	3.31	10.4	12.3	14.1	2.62	-4.53	2.44	2.49	0.215	B	2.36	5.21	6.37	--	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 27	mg/kg	0.001	0.299	7.0E-04	1.3	0.011	23.7	4.94	10.9	17.3	23.7	9.05	-4.51	2.5	2.78	0.549	B	3.96	8.76	10.7	--	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 27	mg/kg	0.001	0.299	7.0E-04	0.043	0.011	0.455	0.104	0.309	0.382	0.455	0.103	-4.79	1.75	-0.981	0.274	B	0.083	0.179	0.216	--	--	93,200	--	--	8.9E-07
Acetophenone	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	330	--	NSRC	NSRC
Benzenemethanol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 27	mg/kg	0.023	4.99	0.012	0.35	0.185	2.5	0.644	0.092	0.092	0.092	--	-2.07	1.45	-2.38	--	L	0.362	0.69	0.868	3.35	--	9810	--	NSRC	NSRC
Carbazole	3 / 27	mg/kg	0.002	0.299	7.6E-04	0.52	0.011	8.86	1.9	0.004	4.55	8.86	4.43	-4.51	2.25	-0.613	4.32	B	1.48	3.28	4.0	--	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	5 / 27	mg/kg	0.015	2.99	0.008	0.294	0.122	1.5	0.432	0.109	0.558	1.02	0.397	-2.24	1.55	-0.886	0.962	L	0.354	0.727	0.941	3.53	--	190	--	--	0.002
Diethyl phthalate	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 27	mg/kg	0.014	2.99	0.007	0.209	0.111	1.5	0.386	0.031	0.031	0.031	--	-2.59	1.44	-3.49	--	L	0.212	0.401	0.503	1.95	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
Phenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 27	mg/kg	0.014	2.99	0.007	0.208	0.111	1.5	0.387	--	--	--	--	-2.64	1.5	--	--	B	0.324	0.655	0.775	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 27	pCi/g	1.87	9.15	1.49	4.28	3.01	9.15	2.68	1.49	5.57	8.15	3.58	1.27	0.601	1.48	0.943	B	3.78	5.66	6.24	--	--	--	--	--	--
Americium-241	0 / 4	pCi/g	0.169	0.213	0.169	0.186	0.181	0.213	0.019	--	--	--	--	-1.69	0.101	--	--	B	0.184	0.195	0.198	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	5 / 27	pCi/g	0.528	4.72	0.528	3.82	3.44	9.57	1.8	4.69	6.64	9.57	1.92	1.23	0.523	1.86	0.28	B	3.98	6.28	6.91	--	--	--	--	--	--
Carbon-14	1 / 27	pCi/g	0.198	2.27	0.198	1.03	0.685	2.27	0.696	1.32	1.32	1.32	--	-0.208	0.721	0.278	--	B	0.868	1.38	1.54	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 27	pCi/g	0.026	0.501	0.026	0.103	0.075	0.501	0.091	--	--	--	--	-2.48	0.596	--	--	L	0.1	0.136	0.152	0.323	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 27	pCi/g	0.024	0.47	0.024	0.118	0.097	0.47	0.086	--	--	--	--	-2.32	0.611	--	--	L	0.118	0.142	0.151	0.391	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 27	pCi/g	0.083	1.2	0.083	0.581	0.558	1.2	0.275	--	--	--	--	-0.684	0.6	--	--	N	0.581	0.65	0.671	1.2	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	0.43	0.43	0.43	0.43	--	0.43	0.43	0.43	--	-0.844	--	-0.844	--	B	0.43	0.43	0.43	--	--	--	--	--	--
Neptunium-237	0 / 4	pCi/g	0.21	0.654	0.21	0.516	0.6	0.654	0.209	--	--	--	--	-0.754	0.543	--	--	B	0.544	0.628	0.638	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 27	pCi/g	0.415	1.88	0.415	0.841	0.772	1.88	0.282	--	--	--	--	-0.22	0.306	--	--	L	0.841	0.913	0.937	1.6	--	--	1.3E+08	NSRC	NSRC

Table G.60. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 4	pCi/g	0.157	0.239	0.157	0.186	0.175	0.239	0.038	--	--	--	--	-1.7	0.197	--	--	B	0.182	0.203	0.209	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 4	pCi/g	0.22	0.284	0.22	0.249	0.246	0.284	0.032	--	--	--	--	-1.4	0.127	--	--	B	0.248	0.264	0.268	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 4	pCi/g	8.29	14.3	8.29	9.92	8.54	14.3	2.92	--	--	--	--	2.27	0.263	--	--	B	9.46	10.8	11.2	--	--	--	790,000	NSRC	NSRC
Potassium-40	2 / 2	pCi/g	--	--	3.27	5.02	5.02	6.77	2.47	3.27	5.02	6.77	2.47	1.55	0.515	1.55	0.515	B	5.02	5.91	6.11	--	--	--	4.2E+06	--	--
Radium-226	11 / 27	pCi/g	0.064	0.546	0.064	0.446	0.475	0.874	0.186	0.254	0.552	0.874	0.193	-0.916	0.531	-0.653	0.372	N	0.446	0.493	0.507	0.867	--	--	300,000	--	--
Strontium-89	0 / 27	pCi/g	1.06	1.99	1.06	1.56	1.57	1.99	0.265	--	--	--	--	0.428	0.175	--	--	N	1.56	1.62	1.64	2.15	--	--	--	NSRC	NSRC
Strontium-90	0 / 27	pCi/g	1.21	2	1.21	1.59	1.58	2	0.235	--	--	--	--	0.454	0.148	--	--	N	1.59	1.65	1.67	2.12	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 27	pCi/g	2.96	7.93	2.96	4.54	4.39	7.93	1.22	--	--	--	--	1.48	0.249	--	--	L	4.54	4.85	4.95	7.73	172	--	4.2E+07	NSRC	NSRC
Thorium-228	3 / 27	pCi/g	0.192	0.955	0.192	0.502	0.497	0.955	0.206	0.225	0.304	0.455	0.131	-0.781	0.458	-1.25	0.398	N	0.502	0.555	0.57	0.969	--	--	25,000	--	--
Thorium-230	5 / 27	pCi/g	0.165	0.726	0.165	0.466	0.458	0.726	0.143	0.291	0.382	0.458	0.068	-0.817	0.348	-0.974	0.183	N	0.466	0.502	0.512	0.789	--	--	15,000	--	--
Thorium-232	3 / 27	pCi/g	0.139	0.698	0.139	0.39	0.412	0.698	0.143	0.184	0.211	0.262	0.044	-1.02	0.416	-1.57	0.201	N	0.39	0.426	0.436	0.712	--	--	2500	--	--
Total Uranium	5 / 27	pCi/g	0.722	2.13	0.722	1.28	1.15	2.13	0.42	1.06	1.18	1.48	0.173	0.194	0.322	0.159	0.137	L	1.28	1.4	1.43	2.51	--	--	--	--	--
Tritium	0 / 27	pCi/g	1.66	14.4	1.66	7.54	7.22	14.4	3.46	--	--	--	--	1.9	0.528	--	--	N	7.54	8.42	8.68	15.4	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	5 / 27	pCi/g	0.429	1.19	0.427	0.712	0.623	1.39	0.269	0.427	0.676	1.39	0.402	-0.403	0.354	-0.497	0.473	B	0.718	0.955	1.03	--	1700	2.8E+07	100,000	4.2E-04	2.6E-08
Uranium-235/236	0 / 27	pCi/g	0.364	1.38	0.364	0.76	0.683	1.38	0.342	--	--	--	--	-0.37	0.446	--	--	B	0.746	1.0	1.08	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	4 / 27	pCi/g	0.288	1.09	0.288	0.623	0.538	1.09	0.224	0.43	0.467	0.502	0.032	-0.534	0.349	-0.763	0.069	L	0.623	0.686	0.707	1.29	1200	1500	100,000	5.2E-04	4.2E-04
																									SOF =	9.6E-04	0.012

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.61. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 3 (random samples)																											
Metals																											
Antimony	2 / 3	mg/kg	0.272	0.272	0.136	27.7	0.595	82.5	47.4	0.595	41.5	82.5	57.9	0.633	3.36	1.95	3.49	B	14.2	31.0	37.7	--	--	160	--	--	0.089
Arsenic	2 / 3	mg/kg	0.278	0.278	0.139	4.01	4	7.9	3.88	4	5.95	7.9	2.76	0.493	2.16	1.73	0.481	B	4.01	5.97	6.42	--	--	--	--	--	--
Barium	3 / 3	mg/kg	--	--	0.16	19.9	0.165	59.5	34.3	0.16	19.9	59.5	34.3	0.151	3.41	0.151	3.41	B	10.1	22.1	26.9	--	--	150,000	--	--	6.7E-05
Beryllium	1 / 3	mg/kg	0.017	0.018	0.008	0.112	0.009	0.32	0.18	0.32	0.32	0.32	--	-3.54	2.08	-1.14	--	B	0.061	0.124	0.15	--	--	--	--	--	--
Boron	2 / 3	mg/kg	0.659	0.659	0.33	7.49	6.75	15.4	7.56	6.75	11.1	15.4	6.12	1.18	2.02	2.32	0.583	B	7.12	11.0	11.9	--	--	24,000	--	--	3.0E-04
Cadmium	1 / 3	mg/kg	0.017	0.019	0.008	1.88	0.009	5.61	3.23	5.61	5.61	5.61	--	-2.58	3.73	1.72	--	B	0.943	2.08	2.53	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	7.59	15.9	12.3	27.9	10.6	7.59	15.9	27.9	10.6	2.62	0.658	2.62	0.658	B	14.1	19.2	20.7	--	--	140,000	--	--	1.0E-04
Copper	3 / 3	mg/kg	--	--	4.76	18.4	8.4	41.9	20.5	4.76	18.4	41.9	20.5	2.47	1.13	2.47	1.13	B	13.4	21.9	24.8	--	--	--	--	--	--
Hafnium	1 / 3	mg/kg	0.494	0.55	0.247	0.687	0.275	1.54	0.739	1.54	1.54	1.54	--	-0.753	1.03	0.432	--	B	0.481	0.752	0.857	--	--	--	--	--	--
Lead	3 / 3	mg/kg	--	--	0.543	96.9	2.06	288	166	0.543	96.9	288	166	1.93	3.31	1.93	3.31	B	49.5	108	132	--	--	1500	--	--	0.033
Manganese	3 / 3	mg/kg	--	--	1.05	290	95.1	774	422	1.05	290	774	422	3.75	3.37	3.75	3.37	B	193	373	434	--	--	360,000	--	--	5.3E-04
Mercury	1 / 3	mg/kg	0.003	0.004	0.002	0.004	0.002	0.007	0.003	0.007	0.007	0.007	--	-5.86	0.831	-4.9	--	B	0.003	0.004	0.004	--	--	--	--	--	--
Molybdenum	3 / 3	mg/kg	--	--	0.086	3.71	0.437	10.6	5.97	0.086	3.71	10.6	5.97	-0.306	2.45	-0.306	2.45	B	2.07	4.31	5.16	--	--	3900	--	--	5.3E-04
Nickel	3 / 3	mg/kg	--	--	4.7	18.2	4.89	45.1	23.3	4.7	18.2	45.1	23.3	2.31	1.29	2.31	1.29	B	11.6	19.8	23.1	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.297	0.33	0.149	0.241	0.165	0.409	0.146	0.409	0.409	0.409	--	-1.53	0.557	-0.894	--	B	0.203	0.26	0.281	--	--	1600	--	--	1.3E-04
Silver	1 / 3	mg/kg	0.082	0.909	0.041	1.18	0.455	3.03	1.62	3.03	3.03	3.03	--	-0.956	2.15	1.11	--	B	0.815	1.52	1.76	--	--	--	--	--	--
Strontium	1 / 3	mg/kg	0.494	0.55	0.247	97.8	0.275	293	169	293	293	293	--	0.997	4.06	5.68	--	B	49.1	108	132	--	--	300,000	--	--	1.6E-04
Thallium	0 / 3	mg/kg	0.115	0.13	0.058	0.062	0.064	0.065	0.004	--	--	--	--	-2.78	0.067	--	--	B	0.063	0.065	0.065	--	--	--	--	NSRC	NSRC
Tin	2 / 3	mg/kg	0.247	0.247	0.124	3.71	4.11	6.91	3.41	4.11	5.51	6.91	1.98	0.418	2.19	1.67	0.367	B	3.91	5.58	5.92	--	--	2200	--	--	0.002
Vanadium	1 / 3	mg/kg	0.247	0.275	0.124	4.65	0.138	13.7	7.83	13.7	13.7	13.7	--	-0.486	2.69	2.62	--	B	2.4	5.15	6.26	--	--	25,000	--	--	9.6E-05
Zinc	3 / 3	mg/kg	--	--	5.9	14,240	15	42,700	24,647	5.9	14,240	42,700	24,647	5.05	4.88	5.05	4.88	B	7128	15,771	19,258	--	--	--	--	--	--
Zirconium	1 / 3	mg/kg	0.329	0.367	0.165	18.3	0.184	54.7	31.5	54.7	54.7	54.7	--	0.167	3.32	4.0	--	B	9.27	20.3	24.8	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 2	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	2 / 2	mg/L	--	--	0.021	0.145	0.145	0.268	0.175	0.021	0.145	0.268	0.175	-2.59	1.8	-2.59	1.8	X	0.145	0.515	0.683	--	--	--	--	--	--
Cadmium	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.5	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chromium	2 / 2	mg/L	--	--	0.065	0.09	0.09	0.114	0.034	0.065	0.09	0.114	0.034	-2.45	0.394	-2.45	0.394	X	0.09	0.163	0.196	--	--	--	--	--	--
Lead	0 / 2	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	0	--	--	--	--	-5.99	0	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 2	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 2	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 3	mg/kg	0.003	0.005	0.002	0.004	0.002	0.009	0.004	0.009	0.009	0.009	--	-5.72	0.874	-4.73	--	B	0.003	0.005	0.005	--	--	119	--	--	2.8E-05
Silvex	0 / 3	mg/kg	0.002	0.005	8.3E-04	0.002	0.002	0.002	7.6E-04	--	--	--	--	-6.51	0.53	--	--	B	0.002	0.002	0.002	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	130,000	--	--	NSRC	NSRC
4,4'-DDT	1 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	0.002	0.005	0.002	0.002	0.002	0.002	--	-6.76	1.64	-6.44	--	B	0.002	0.003	0.003	--	--	--	--	--	--
Aldrin	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 3	mg/kg	0.002	0.049	9.8E-04	0.009	0.001	0.025	0.014	--	--	--	--	-5.73	1.77	--	--	B	0.005	0.01	0.012	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	0.001	0.005	0.003	0.001	0.001	0.001	--	-6.91	1.61	-6.88	--	B	0.002	0.003	0.003	--	--	30,000	--	--	5.1E-08
Endrin ketone	0 / 3	mg/kg	3.9E-04	0.01	2.0E-04	0.002	2.9E-04	0.005	0.003	--	--	--	--	-7.34	1.76	--	--	B	0.001	0.002	0.002	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	2400	69,000	--	NSRC	NSRC

Table G.61. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	1000	1500	--	NSRC	NSRC
Lindane	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/kg	0.002	0.049	9.8E-04	0.009	0.001	0.025	0.014	--	--	--	--	-5.73	1.77	--	--	B	0.005	0.01	0.012	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/kg	0.007	0.164	0.003	0.03	0.005	0.082	0.045	--	--	--	--	-4.53	1.76	--	--	B	0.017	0.034	0.04	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 3	mg/kg	2.0E-04	0.005	9.8E-05	9.0E-04	1.4E-04	0.002	0.001	--	--	--	--	-8.03	1.77	--	--	B	5.2E-04	0.001	0.001	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	3 / 22	mg/kg	0.003	0.418	0.001	0.061	0.015	0.209	0.071	0.066	0.094	0.137	0.038	-3.91	1.76	-2.42	0.384	B	0.045	0.091	0.108	--	--	4000	--	--	1.1E-05
2-Methylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	850	--	NSRC	NSRC
Acenaphthene	2 / 22	mg/kg	0.003	0.418	0.001	0.054	0.015	0.209	0.069	0.034	0.053	0.072	0.027	-4.04	1.69	-3.01	0.539	B	0.045	0.091	0.107	--	--	390,000	--	--	1.1E-07
Acenaphthylene	0 / 22	mg/kg	0.003	0.418	0.001	0.05	0.015	0.209	0.07	--	--	--	--	-4.15	1.65	--	--	B	0.045	0.091	0.107	--	--	93,200	--	NSRC	NSRC
Acetophenone	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 22	mg/kg	0.028	4.18	0.014	0.525	0.147	2.09	0.696	0.623	0.623	0.623	--	-1.78	1.68	-0.473	--	B	0.449	0.907	1.07	--	--	1200	--	NSRC	NSRC
Benzidine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.161	1.2	--	NSRC	NSRC
Benzoic acid	0 / 22	mg/kg	0.046	6.97	0.023	0.838	0.244	3.49	1.17	--	--	--	--	-1.34	1.65	--	--	B	0.748	1.51	1.79	--	--	9810	--	NSRC	NSRC
Carbazole	2 / 22	mg/kg	0.003	0.418	0.001	0.057	0.015	0.209	0.071	0.044	0.084	0.125	0.057	-4.01	1.72	-2.6	0.742	B	0.045	0.091	0.107	--	110,000	--	--	4.1E-07	--
Di-n-butyl phthalate	2 / 22	mg/kg	0.028	4.18	0.014	0.921	0.149	7.67	1.67	1.69	4.68	7.67	4.23	-1.47	1.83	1.28	1.07	B	1.38	2.97	3.6	--	--	190	--	--	0.007
Diethyl phthalate	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	6180	--	NSRC	NSRC
Dimethyl phthalate	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	2800	500	--	NSRC	NSRC
Isophorone	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
Phenol	1 / 22	mg/kg	0.028	4.18	0.014	0.512	0.147	2.09	0.697	0.349	0.349	0.349	--	-1.81	1.66	-1.05	--	B	0.448	0.907	1.07	--	--	3200	--	NSRC	NSRC
Pyridine	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 22	mg/kg	0.028	4.18	0.014	0.503	0.147	2.09	0.7	--	--	--	--	-1.85	1.65	--	--	B	0.448	0.907	1.07	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 22	pCi/g	2.2	9.27	2.2	6.38	7.61	14.7	3.26	7.8	10.7	14.7	3.56	1.72	0.548	2.34	0.322	B	7.89	11.1	11.9	--	--	--	--	--	--
Americium-241	0 / 9	pCi/g	0.152	0.611	0.152	0.405	0.495	0.611	0.179	--	--	--	--	-1.02	0.56	--	--	B	0.457	0.559	0.575	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	9 / 22	pCi/g	2.32	5.74	2.32	8.04	5.25	30.9	6.71	6.31	13.5	30.9	7.77	1.86	0.639	2.48	0.492	B	9.04	15.6	17.9	--	--	--	--	--	--
Carbon-14	1 / 22	pCi/g	0.463	2.33	0.463	0.89	0.732	2.33	0.526	0.959	0.959	0.959	--	-0.227	0.436	-0.042	--	B	0.954	1.4	1.54	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	0 / 22	pCi/g	0.033	0.321	0.033	0.112	0.094	0.321	0.079	--	--	--	--	-2.38	0.607	--	--	L	0.111	0.136	0.146	0.384	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 22	pCi/g	0.014	0.334	0.014	0.12	0.114	0.334	0.09	--	--	--	--	-2.39	0.795	--	--	L	0.126	0.169	0.187	0.594	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 22	pCi/g	0.21	0.875	0.21	0.558	0.576	0.875	0.217	--	--	--	--	-0.671	0.455	--	--	N	0.558	0.619	0.638	1.07	13	--	1500	NSRC	NSRC
Lead-212	1 / 1	pCi/g	--	--	0.364	0.364	0.364	0.364	--	0.364	0.364	0.364	--	-1.01	--	-1.01	--	B	0.364	0.364	0.364	--	--	--	--	--	--
Neptunium-237	0 / 9	pCi/g	0.189	0.509	0.189	0.356	0.348	0.509	0.102	--	--	--	--	-1.07	0.299	--	--	N	0.356	0.403	0.419	0.664	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 22	pCi/g	0.529	1.32	0.529	0.821	0.825	1.32	0.216	--	--	--	--	-0.23	0.257	--	--	N	0.821	0.882	0.9	1.33	--	--	1.3E+08	NSRC	NSRC

Table G.61. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (random samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Plutonium-238	0 / 9	pCi/g	0.147	0.966	0.147	0.51	0.515	0.966	0.335	--	--	--	--	-0.918	0.786	--	--	N	0.51	0.666	0.718	1.53	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 9	pCi/g	0.207	1.15	0.207	0.614	0.613	1.15	0.39	--	--	--	--	-0.707	0.736	--	--	B	0.635	0.876	0.935	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 9	pCi/g	7.61	23.4	7.61	13.2	14.3	23.4	5.42	--	--	--	--	2.5	0.412	--	--	N	13.2	15.7	16.5	29.6	--	--	790,000	NSRC	NSRC
Potassium-40	4 / 4	pCi/g	--	--	4.63	6.41	5.75	9.5	2.14	4.63	6.41	9.5	2.14	1.82	0.307	1.82	0.307	B	6.19	7.4	7.76	--	--	--	4.2E+06	--	--
Radium-226	8 / 22	pCi/g	0.039	0.995	0.039	0.51	0.512	1.08	0.298	0.137	0.634	1.08	0.343	-0.94	0.903	-0.642	0.728	N	0.51	0.594	0.619	1.21	--	--	300,000	--	--
Strontium-89	0 / 22	pCi/g	1.14	1.88	1.14	1.47	1.51	1.88	0.19	--	--	--	--	0.378	0.13	--	--	N	1.47	1.53	1.54	1.92	--	--	--	NSRC	NSRC
Strontium-90	0 / 22	pCi/g	0.994	1.99	0.994	1.67	1.7	1.99	0.267	--	--	--	--	0.5	0.175	--	--	B	1.63	1.86	1.9	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 22	pCi/g	3.73	7.5	3.73	5.5	5.53	7.5	1.04	--	--	--	--	1.69	0.192	--	--	N	5.5	5.79	5.88	7.93	172	--	4.2E+07	NSRC	NSRC
Thorium-228	1 / 22	pCi/g	0.082	1.31	0.082	0.509	0.477	1.31	0.279	0.298	0.298	0.298	--	-0.845	0.655	-1.21	--	N	0.509	0.587	0.611	1.16	--	--	25,000	NSRC	NSRC
Thorium-230	4 / 22	pCi/g	0.063	0.995	0.063	0.454	0.425	0.995	0.232	0.406	0.452	0.552	0.069	-0.96	0.684	-0.802	0.144	N	0.454	0.52	0.539	1.0	--	--	15,000	--	--
Thorium-232	2 / 22	pCi/g	0.06	0.956	0.06	0.398	0.365	0.956	0.216	0.258	0.483	0.707	0.317	-1.1	0.67	-0.851	0.713	N	0.398	0.459	0.477	0.904	--	--	2500	--	--
Total Uranium	4 / 22	pCi/g	0.12	1.8	0.12	0.97	0.98	1.8	0.409	0.7	0.901	1.08	0.192	-0.17	0.645	-0.121	0.217	N	0.97	1.09	1.12	1.93	--	--	--	--	--
Tritium	0 / 22	pCi/g	6.57	14	6.57	9.62	9.31	14	1.92	--	--	--	--	2.25	0.192	--	--	L	9.62	10.2	10.4	14.8	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	1 / 22	pCi/g	0.067	0.96	0.067	0.532	0.536	0.96	0.227	0.283	0.283	0.283	--	-0.773	0.646	-1.26	--	N	0.532	0.595	0.615	1.06	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 22	pCi/g	0.078	1.22	0.078	0.619	0.643	1.22	0.284	--	--	--	--	-0.633	0.664	--	--	N	0.619	0.699	0.724	1.29	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 22	pCi/g	0.061	0.899	0.061	0.49	0.496	0.899	0.21	--	--	--	--	-0.856	0.651	--	--	N	0.49	0.549	0.567	0.983	1200	1500	100,000	NSRC	NSRC
																									SOF =	4.1E-07	0.133

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.62. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex biased data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
All Y-12 Biology Complex biased data combined																											
Metals																											
Arsenic	5 / 5	mg/kg	--	--	0.753	8.72	4.17	29.7	12.0	0.753	8.72	29.7	12.0	1.37	1.46	1.37	1.46	B	7.86	14.6	16.9	--	--	--	--	--	--
Barium	3 / 5	mg/kg	0.042	0.174	0.021	15.7	13	38.9	17.0	13	26.1	38.9	13.0	0.639	3.52	3.17	0.556	B	15.2	25.1	27.8	--	--	150,000	--	--	1.0E-04
Cadmium	4 / 5	mg/kg	0.035	0.035	0.011	0.739	0.017	1.98	0.997	0.011	0.92	1.98	1.05	-2.29	2.64	-1.85	2.83	B	0.343	0.744	0.905	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	10.3	40.7	13	92.4	39.8	10.3	40.7	92.4	39.8	3.26	1.07	3.26	1.07	B	25.8	43.2	49.9	--	--	140,000	--	--	1.8E-04
Lead	5 / 5	mg/kg	--	--	0.67	26.7	4.66	107	45.4	0.67	26.7	107	45.4	1.99	1.89	1.99	1.89	B	21.1	43.8	52.4	--	--	1500	--	--	0.014
Mercury	4 / 5	mg/kg	0.002	0.002	8.4E-04	0.108	0.056	0.412	0.172	0.005	0.135	0.412	0.187	-3.77	2.42	-2.95	1.8	B	0.106	0.203	0.236	--	--	--	--	--	--
Selenium	2 / 5	mg/kg	0.15	0.627	0.075	0.78	0.314	2.71	1.1	0.651	1.68	2.71	1.46	-1.02	1.39	0.284	1.01	B	0.673	1.27	1.48	--	--	1600	--	--	4.2E-04
Silver	5 / 5	mg/kg	--	--	0.372	2.85	0.846	8.78	3.54	0.372	2.85	8.78	3.54	0.399	1.28	0.399	1.28	B	2.09	3.93	4.61	--	--	--	--	--	--
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
TCLP Metals																											
Arsenic	3 / 11	mg/L	0.017	0.05	0.009	0.027	0.017	0.07	0.018	0.026	0.052	0.07	0.023	-3.91	0.77	-3.05	0.529	G*	0.027	0.037	0.042	0.124	--	--	--	--	--
Barium	11 / 11	mg/L	--	--	0.012	0.171	0.203	0.324	0.097	0.012	0.171	0.324	0.097	-2.13	1.15	-2.13	1.15	N	0.171	0.211	0.223	0.442	--	--	--	--	--
Cadmium	6 / 11	mg/L	0.003	0.01	0.002	0.026	0.014	0.071	0.026	0.014	0.046	0.071	0.022	-4.38	1.47	-3.22	0.634	L*	0.031	0.095	0.154	0.784	--	--	--	--	--
Chromium	10 / 11	mg/L	0.03	0.03	0.015	0.088	0.064	0.235	0.076	0.02	0.094	0.235	0.081	-2.84	0.949	-2.71	0.881	L*	0.087	0.146	0.18	0.843	--	--	--	--	--
Lead	8 / 11	mg/L	0.005	0.033	0.003	0.551	0.11	3.18	0.984	0.078	0.756	3.18	1.16	-2.37	2.31	-1.25	1.41	L*	0.906	1.72	2.24	61.5	--	--	--	--	--
Mercury	1 / 11	mg/L	6.7E-04	6.7E-04	3.4E-04	4.8E-04	3.4E-04	0.002	4.7E-04	0.002	0.002	0.002	--	-7.84	0.522	-6.27	--	X	4.8E-04	9.0E-04	0.001	--	--	--	--	--	--
Selenium	3 / 11	mg/L	0.02	0.06	0.01	0.038	0.02	0.099	0.03	0.063	0.086	0.099	0.019	-3.73	0.939	-2.48	0.246	G*	0.038	0.056	0.064	0.214	--	--	--	--	--
Silver	0 / 11	mg/L	0.004	0.01	0.002	0.004	0.005	0.005	0.002	--	--	--	--	-5.71	0.479	--	--	O	0.004	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC

Table G.62. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex biased data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	10 / 23	pCi/g	2.92	6	2.92	45.9	4.4	575	123	4.01	100	575	177	2.28	1.49	3.43	1.67	B	99.3	216	262	--	--	--	--	--	--
Beta activity	12 / 23	pCi/g	1.59	4.34	1.59	47.0	4.13	370	100	1.87	87.1	370	129	2.34	1.64	3.42	1.64	B	64.7	140	170	--	--	--	--	--	--
Technetium-99	1 / 32	pCi/g	4.69	9.58	4.69	27.5	6.38	678	119	678	678	678	--	2.0	0.844	6.52	--	B	118	255	310	--	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thorium-228	0 / 9	pCi/g	0.286	3.76	0.286	0.84	0.381	3.76	1.11	--	--	--	--	-0.591	0.823	--	--	B	0.928	1.66	1.94	--	--	--	25,000	NSRC	NSRC
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	2 / 9	pCi/g	0.315	3.09	0.315	0.81	0.487	3.09	0.873	0.482	0.485	0.487	0.004	-0.49	0.679	-0.725	0.007	B	0.892	1.5	1.73	--	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	1 / 9	pCi/g	0.228	2.68	0.228	0.654	0.433	2.68	0.775	0.483	0.483	0.483	--	-0.768	0.759	-0.728	--	B	0.773	1.33	1.52	--	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	19 / 32	pCi/g	0.292	0.587	0.292	33.6	0.771	679	125	0.561	56.3	679	160	0.621	2.02	1.64	2.07	B	114	251	307	--	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	5 / 32	pCi/g	0.321	211	0.321	7.85	0.6	211	37.2	0.985	5.08	15.2	5.96	-0.167	1.3	1.1	1.13	B	35.6	78.3	95.6	--	1500	9500	100,000	0.024	0.004
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	19 / 32	pCi/g	0.266	0.536	0.106	187	0.522	5660	999	0.106	314	5660	1295	0.327	2.23	1.19	2.57	B	944	2089	2552	--	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.967	0.649

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

Table G.62. Y-12 Biology Complex summary statistics for All Y-12 Biology Complex biased data combined

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.63. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from biased samples																											
Radionuclides																											
Alpha activity	6 / 12	pCi/g	3.07	4.97	3.07	77.7	4.85	575	167	4.73	152	575	220	2.66	1.82	4.0	1.71	B	99.6	216	263	--	--	--	--	--	--
Beta activity	6 / 12	pCi/g	2.65	4.34	2.65	79.9	11.0	370	132	17.6	156	370	157	2.85	1.91	4.48	1.28	B	69.4	146	176	--	--	--	--	--	--
Technetium-99	1 / 12	pCi/g	4.69	6.09	4.69	61.4	5.39	678	194	678	678	678	--	2.08	1.4	6.52	--	B	117	254	309	--	172	--	4.2E+07	0.682	--
Uranium-233/234	9 / 12	pCi/g	0.338	0.587	0.338	29.8	1.46	223	65.2	0.761	39.6	223	73.6	1.29	2.17	1.97	2.08	L	23.8	71.7	93.4	1354	1700	2.8E+07	100,000	0.014	8.5E-07
Uranium-235/236	3 / 12	pCi/g	0.372	0.843	0.372	2.39	0.704	15.2	4.3	2.35	7.73	15.2	6.68	0.054	1.13	1.77	0.934	B	3.06	6.17	7.38	--	1500	9500	100,000	0.002	3.2E-04
Uranium-238	8 / 12	pCi/g	0.309	0.536	0.309	24.3	0.922	204	59.0	0.542	36.2	204	70.6	0.865	2.15	1.72	2.18	B	34.7	76.1	92.7	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.727	0.023

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.64. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from biased samples																											
Radionuclides																											
Alpha activity	1 / 5	pCi/g	2.92	4.82	2.92	4.05	4.12	4.82	0.707	4.01	4.01	4.01	--	1.39	0.19	1.39	--	B	4.04	4.49	4.58	--	--	--	--	--	--
Beta activity	3 / 5	pCi/g	3.6	3.8	3.6	11.8	3.8	41.1	16.4	3.67	17.3	41.1	20.7	1.92	1.04	2.32	1.25	B	9.98	17.6	20.7	--	--	--	--	--	--
Technetium-99	0 / 5	pCi/g	6.19	8.91	6.19	7.51	7.72	8.91	1.03	--	--	--	--	2.01	0.138	--	--	B	7.66	8.34	8.48	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	0 / 5	pCi/g	0.292	0.554	0.292	0.43	0.447	0.554	0.12	--	--	--	--	-0.877	0.294	--	--	B	0.439	0.503	0.516	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 5	pCi/g	0.321	0.609	0.321	0.473	0.491	0.609	0.132	--	--	--	--	-0.782	0.293	--	--	B	0.482	0.553	0.568	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 5	pCi/g	0.266	0.505	0.266	0.392	0.408	0.505	0.11	--	--	--	--	-0.969	0.293	--	--	B	0.401	0.459	0.471	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	--

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.65. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9401-1 all media from biased samples																											
Metals																											
Arsenic	5 / 5	mg/kg	--	--	0.753	8.72	4.17	29.7	12.0	0.753	8.72	29.7	12.0	1.37	1.46	1.37	1.46	B	7.86	14.6	16.9	--	--	--	--	--	--
Barium	3 / 5	mg/kg	0.042	0.174	0.021	15.7	13	38.9	17.0	13	26.1	38.9	13.0	0.639	3.52	3.17	0.556	B	15.2	25.1	27.8	--	--	150,000	--	--	1.0E-04
Cadmium	4 / 5	mg/kg	0.035	0.035	0.011	0.739	0.017	1.98	0.997	0.011	0.92	1.98	1.05	-2.29	2.64	-1.85	2.83	B	0.343	0.744	0.905	--	--	--	--	--	--
Chromium	5 / 5	mg/kg	--	--	10.3	40.7	13	92.4	39.8	10.3	40.7	92.4	39.8	3.26	1.07	3.26	1.07	B	25.8	43.2	49.9	--	--	140,000	--	--	1.8E-04
Lead	5 / 5	mg/kg	--	--	0.67	26.7	4.66	107	45.4	0.67	26.7	107	45.4	1.99	1.89	1.99	1.89	B	21.1	43.8	52.4	--	--	1500	--	--	0.014
Mercury	4 / 5	mg/kg	0.002	0.002	8.4E-04	0.108	0.056	0.412	0.172	0.005	0.135	0.412	0.187	-3.77	2.42	-2.95	1.80	B	0.106	0.203	0.236	--	--	--	--	--	--
Selenium	2 / 5	mg/kg	0.15	0.627	0.075	0.78	0.314	2.71	1.10	0.651	1.68	2.71	1.46	-1.02	1.39	0.284	1.01	B	0.673	1.27	1.48	--	--	1600	--	--	4.2E-04
Silver	5 / 5	mg/kg	--	--	0.372	2.85	0.846	8.78	3.54	0.372	2.85	8.78	3.54	0.399	1.28	0.399	1.28	B	2.09	3.93	4.61	--	--	--	--	--	--
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 5	mg/L	0.017	0.017	0.009	0.012	0.009	0.026	0.008	0.026	0.026	0.026	--	-4.54	0.5	-3.65	--	X	0.012	0.023	0.027	--	--	--	--	--	--
Barium	5 / 5	mg/L	--	--	0.012	0.128	0.105	0.324	0.131	0.012	0.128	0.324	0.131	-2.76	1.52	-2.76	1.52	X	0.128	0.304	0.384	--	--	--	--	--	--
Cadmium	3 / 5	mg/L	0.003	0.003	0.002	0.027	0.026	0.055	0.022	0.026	0.042	0.055	0.015	-4.53	1.83	-3.21	0.399	X*	0.027	0.062	0.078	--	--	--	--	--	--
Chromium	4 / 5	mg/L	0.03	0.03	0.015	0.094	0.072	0.233	0.074	0.035	0.11	0.233	0.086	-2.79	1.04	-2.44	0.784	X*	0.094	0.208	0.26	--	--	--	--	--	--
Lead	3 / 5	mg/L	0.005	0.005	0.003	0.066	0.078	0.132	0.053	0.078	0.107	0.132	0.027	-3.75	2.05	-2.26	0.264	X*	0.066	0.153	0.192	--	--	--	--	--	--
Mercury	0 / 5	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 5	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 5	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC

Table G.65. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Technetium-99	0 / 9	pCi/g	5.44	9.58	5.44	7.31	7.6	9.58	1.33	--	--	--	--	1.97	0.186	--	--	N	7.31	7.93	8.14	11.4	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thorium-228	0 / 9	pCi/g	0.286	3.76	0.286	0.84	0.381	3.76	1.11	--	--	--	--	-0.591	0.823	--	--	B	0.928	1.66	1.94	--	--	--	25,000	NSRC	NSRC
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	2 / 9	pCi/g	0.315	3.09	0.315	0.81	0.487	3.09	0.873	0.482	0.485	0.487	0.004	-0.49	0.679	-0.725	0.007	B	0.892	1.5	1.73	--	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	1 / 9	pCi/g	0.228	2.68	0.228	0.654	0.433	2.68	0.775	0.483	0.483	0.483	--	-0.768	0.759	-0.728	--	B	0.773	1.33	1.52	--	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	6 / 9	pCi/g	0.321	0.542	0.321	76.2	0.582	679	226	0.561	114	679	277	0.38	2.38	1.03	2.74	B	114	251	306	--	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	0 / 9	pCi/g	0.339	211	0.339	23.9	0.47	211	70.2	--	--	--	--	-0.055	2.07	--	--	B	35.5	78.2	95.4	--	1500	9500	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.030	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	7 / 9	pCi/g	0.292	0.507	0.106	630	0.403	5660	1886	0.106	810	5660	2139	0.434	3.28	0.830	3.67	B	944	2089	2551	--	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.943	0.645

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

Table G.65. Y-12 Biology Complex summary statistics for Y-12 Building 9401-1 all media from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.66. Y-12 Biology Complex summary statistics for Ducts from all buildings combined from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts from all buildings combined from biased samples																											
Metals																											
Total Uranium	3 / 3	mg/kg	--	--	0.322	0.544	0.606	0.704	0.198	0.322	0.544	0.704	0.198	-0.662	0.415	-0.662	0.415	B	0.575	0.66	0.674	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 6	mg/L	0.05	0.05	0.025	0.055	0.05	0.07	0.008	0.059	0.064	0.07	0.008	-3.37	0.49	-2.75	0.13	G*	0.055	0.06	0.062	0.165	--	--	--	--	--
Barium	6 / 6	mg/L	--	--	0.131	0.206	0.219	0.243	0.039	0.131	0.206	0.243	0.039	-1.6	0.221	-1.6	0.221	G	0.206	0.25	0.268	0.418	--	--	--	--	--
Cadmium	3 / 6	mg/L	0.01	0.01	0.005	0.03	0.014	0.071	0.027	0.014	0.049	0.071	0.031	-4.26	1.27	-3.23	0.92	X*	0.03	0.07	0.088	--	--	--	--	--	--
Chromium	6 / 6	mg/L	--	--	0.02	0.083	0.046	0.235	0.084	0.02	0.083	0.235	0.084	-2.88	0.965	-2.88	0.965	L	0.089	0.271	0.503	2.0	--	--	--	--	--
Lead	5 / 6	mg/L	0.033	0.033	0.017	0.961	0.339	3.18	1.19	0.097	1.15	3.18	1.36	-1.22	1.94	-0.649	1.5	L*	1.18	2.38	3.08	398	--	--	--	--	--
Mercury	1 / 6	mg/L	6.7E-04	6.7E-04	3.4E-04	5.9E-04	3.4E-04	0.002	6.3E-04	0.002	0.002	0.002	--	-7.71	0.706	-6.27	--	X	5.9E-04	0.001	0.002	--	--	--	--	--	--
Selenium	3 / 6	mg/L	0.06	0.06	0.03	0.073	0.063	0.099	0.017	0.063	0.086	0.099	0.019	-2.99	0.585	-2.48	0.246	X*	0.073	0.098	0.11	--	--	--	--	--	--
Silver	0 / 6	mg/L	0.01	0.01	0.005	0.005	0.005	0.005	0	--	--	--	--	-5.3	0	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	4 / 11	pCi/g	3.07	6	3.07	11.3	4.33	45.7	15.6	4.01	23.5	45.7	22.2	1.86	0.951	2.61	1.32	B	11.0	20.0	23.5	--	--	--	--	--	--
Beta activity	3 / 11	pCi/g	1.59	4.34	1.59	7.29	3.39	29.7	9.57	1.87	18.2	29.7	14.5	1.47	0.934	2.38	1.53	B	7.48	13.7	16.0	--	--	--	--	--	--
Technetium-99	0 / 14	pCi/g	4.69	8.35	4.69	6.56	6.64	8.35	1.07	--	--	--	--	1.87	0.171	--	--	N	6.56	6.94	7.06	9.35	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thorium-228	0 / 3	pCi/g	0.286	0.373	0.286	0.318	0.295	0.373	0.048	--	--	--	--	-1.15	0.145	--	--	B	0.307	0.326	0.333	--	--	--	25,000	NSRC	NSRC
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	1 / 3	pCi/g	0.315	0.399	0.315	0.399	0.399	0.482	0.084	0.482	0.482	0.482	--	-0.935	0.213	-0.73	--	B	0.399	0.441	0.451	--	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	0 / 3	pCi/g	0.228	0.297	0.228	0.253	0.235	0.297	0.038	--	--	--	--	-1.38	0.145	--	--	B	0.244	0.26	0.265	--	--	--	2500	NSRC	NSRC
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Uranium-233	0 / 3	pCi/g	2.86	3.22	2.86	3.01	2.96	3.22	0.186	--	--	--	--	1.1	0.061	--	--	B	2.99	3.08	3.1	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	9 / 14	pCi/g	0.321	0.587	0.321	2.57	0.821	11.9	3.68	0.582	3.76	11.9	4.18	0.152	1.23	0.749	1.13	B	2.58	5.08	6.02	--	1700	2.8E+07	100,000	0.002	9.2E-08
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	0 / 3	pCi/g	1.75	1.97	1.75	1.84	1.81	1.97	0.114	--	--	--	--	0.61	0.061	--	--	B	1.83	1.88	1.9	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235	3 / 3	pCi/g	--	--	0.014	0.024	0.024	0.034	0.01	0.014	0.024	0.034	0.01	-3.79	0.43	-3.79	0.43	B	0.024	0.029	0.03	--	1500	9500	100,000	1.6E-05	2.5E-06
Uranium-235/236	2 / 14	pCi/g	0.339	0.997	0.339	0.63	0.511	1.22	0.295	0.985	1.1	1.22	0.166	-0.559	0.453	0.092	0.151	L	0.633	0.766	0.818	1.87	1500	9500	100,000	4.2E-04	6.7E-05
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	3 / 3	pCi/g	--	--	0.009	0.017	0.019	0.023	0.007	0.009	0.017	0.023	0.007	-4.14	0.504	-4.14	0.504	B	0.018	0.021	0.022	--	1700	280,000	100,000	1.1E-05	6.5E-08
Uranium-238	8 / 14	pCi/g	0.293	0.536	0.106	0.98	0.42	2.86	1.01	0.106	1.43	2.86	1.17	-0.49	0.999	-0.12	1.2	L	1.01	1.76	2.19	8.35	1200	1500	100,000	8.4E-04	6.7E-04
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.003	7.4E-04

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

Table G.66. Y-12 Biology Complex summary statistics for Ducts from all buildings combined from biased samples

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected							Analytic WAC		ASA	E(X) divided by Analytic WAC	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Carc.	HI	WAC	Carc.	HI

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.67. Y-12 Biology Complex summary statistics for Floors from all buildings combined from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Floors from all buildings combined from biased samples																											
Radionuclides																											
Alpha activity	3 / 5	pCi/g	4.12	4.4	4.12	64.2	44.9	208	84.1	44.9	104	208	90.2	3.23	1.72	4.41	0.816	B	65.3	115	131	--	--	--	--	--	--
Beta activity	5 / 5	pCi/g	--	--	3.67	102	24.1	370	155	3.67	102	370	155	3.4	1.9	3.4	1.9	B	78.3	158	188	--	--	--	--	--	--
Technetium-99	0 / 5	pCi/g	5.19	8.91	5.19	6.34	5.37	8.91	1.59	--	--	--	--	1.82	0.233	--	--	B	5.93	6.74	7.04	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	3 / 5	pCi/g	0.537	0.554	0.537	24.7	9.14	81.5	34.2	9.14	40.8	81.5	37.0	1.77	2.31	3.36	1.1	B	19.8	38.4	44.9	--	1700	2.8E+07	100,000	0.012	7.1E-07
Uranium-235/236	2 / 5	pCi/g	0.59	0.762	0.59	1.99	0.762	5.64	2.17	2.35	4.0	5.64	2.33	0.258	0.999	1.29	0.619	B	1.55	2.62	3.03	--	1500	9500	100,000	0.001	1.6E-04
Uranium-238	3 / 5	pCi/g	0.489	0.505	0.489	16.4	4.25	57.9	24.4	4.25	27.0	57.9	27.7	1.41	2.14	2.81	1.31	B	12.6	25.3	29.9	--	1200	1500	100,000	0.01	0.008
																									SOF =	0.023	0.009

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.68. Y-12 Biology Complex summary statistics for Hoods from all buildings combined from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Hoods from all buildings combined from biased samples																											
Radionuclides																											
Alpha activity	0 / 2	pCi/g	2.92	4.97	2.92	3.95	3.95	4.97	1.45	--	--	--	--	1.34	0.376	--	--	B	3.95	4.46	4.58	--	--	--	--	NSRC	NSRC
Beta activity	0 / 2	pCi/g	2.65	3.8	2.65	3.23	3.23	3.8	0.813	--	--	--	--	1.15	0.255	--	--	B	3.23	3.52	3.58	--	--	--	--	NSRC	NSRC
Technetium-99	0 / 2	pCi/g	5.53	7.83	5.53	6.68	6.68	7.83	1.63	--	--	--	--	1.88	0.246	--	--	B	6.68	7.26	7.39	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	1 / 2	pCi/g	0.292	0.292	0.292	0.946	0.946	1.6	0.925	1.6	1.6	1.6	--	-0.38	1.2	0.47	--	B	0.946	1.28	1.35	--	1700	2.8E+07	100,000	5.6E-04	3.4E-08
Uranium-235/236	0 / 2	pCi/g	0.321	0.424	0.321	0.373	0.373	0.424	0.073	--	--	--	--	-0.997	0.197	--	--	B	0.373	0.399	0.405	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 2	pCi/g	0.266	0.266	0.266	0.43	0.43	0.594	0.232	0.594	0.594	0.594	--	-0.923	0.568	-0.521	--	B	0.43	0.513	0.532	--	1200	1500	100,000	3.6E-04	2.9E-04
																									SOF =	9.1E-04	2.9E-04

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.69. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Interior Walls from all buildings combined from biased samples																											
Metals																											
Arsenic	1 / 1	mg/kg	--	--	7.68	7.68	7.68	7.68	--	7.68	7.68	7.68	--	2.04	--	2.04	--	B	7.68	7.68	7.68	--	--	--	--	--	--
Barium	1 / 1	mg/kg	--	--	26.5	26.5	26.5	26.5	--	26.5	26.5	26.5	--	3.28	--	3.28	--	B	26.5	26.5	26.5	--	--	150,000	--	--	1.8E-04
Cadmium	1 / 1	mg/kg	--	--	0.017	0.017	0.017	0.017	--	0.017	0.017	0.017	--	-4.09	--	-4.09	--	B	0.017	0.017	0.017	--	--	--	--	--	--
Chromium	1 / 1	mg/kg	--	--	12.7	12.7	12.7	12.7	--	12.7	12.7	12.7	--	2.54	--	2.54	--	B	12.7	12.7	12.7	--	--	140,000	--	--	9.1E-05
Lead	1 / 1	mg/kg	--	--	0.67	0.67	0.67	0.67	--	0.67	0.67	0.67	--	-0.4	--	-0.4	--	B	0.67	0.67	0.67	--	--	1500	--	--	4.5E-04
Mercury	1 / 1	mg/kg	--	--	0.056	0.056	0.056	0.056	--	0.056	0.056	0.056	--	-2.88	--	-2.88	--	B	0.056	0.056	0.056	--	--	--	--	--	--
Selenium	0 / 1	mg/kg	0.297	0.297	0.149	0.149	0.149	0.149	--	--	--	--	--	-1.91	--	--	--	B	0.149	0.297	0.297	--	--	1600	--	NSRC	NSRC
Silver	1 / 1	mg/kg	--	--	3.47	3.47	3.47	3.47	--	3.47	3.47	3.47	--	1.24	--	1.24	--	B	3.47	3.47	3.47	--	--	--	--	--	--
Total Uranium	1 / 1	mg/kg	--	--	16,900	16,900	16,900	16,900	--	16,900	16,900	16,900	--	9.74	--	9.74	--	B	16,900	16,900	16,900	--	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 1	mg/L	--	--	0.026	0.026	0.026	0.026	--	0.026	0.026	0.026	--	-3.65	--	-3.65	--	D	0.026	--	--	--	--	--	--	--	--
Barium	1 / 1	mg/L	--	--	0.324	0.324	0.324	0.324	--	0.324	0.324	0.324	--	-1.13	--	-1.13	--	D	0.324	--	--	--	--	--	--	--	--
Cadmium	1 / 1	mg/L	--	--	0.046	0.046	0.046	0.046	--	0.046	0.046	0.046	--	-3.08	--	-3.08	--	D	0.046	--	--	--	--	--	--	--	--
Chromium	1 / 1	mg/L	--	--	0.072	0.072	0.072	0.072	--	0.072	0.072	0.072	--	-2.64	--	-2.64	--	D	0.072	--	--	--	--	--	--	--	--
Lead	0 / 1	mg/L	0.005	0.005	0.003	0.003	0.003	0.003	--	--	--	--	--	-5.99	--	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Mercury	0 / 1	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	--	--	--	--	--	-8.0	--	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 1	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	--	--	--	--	--	-4.61	--	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 1	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	--	--	--	--	--	-6.21	--	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Silvex	0 / 1	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.79	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 1	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	--	--	--	--	--	-7.87	--	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 1	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	--	--	--	--	--	-9.9	--	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 1	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	--	--	--	--	--	-10.3	--	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 1	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	--	--	--	--	--	-8.29	--	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 1	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	--	--	--	--	--	-7.2	--	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1254	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
PCB-1260	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1262	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 1	mg/kg	3.07	3.07	1.54	1.54	1.54	1.54	--	--	--	--	--	0.429	--	--	--	B	1.54	3.07	3.07	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	1 / 1	mg/kg	--	--	176	176	176	176	--	176	176	176	--	5.17	--	5.17	--	B	176	176	176	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC

Table G.69. Y-12 Biology Complex summary statistics for Interior Walls from all buildings combined from biased samples

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nitrobenzene	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 1	mg/L	0.015	0.015	0.008	0.008	0.008	0.008	--	--	--	--	--	-4.89	--	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 1	mg/L	0.019	0.019	0.009	0.009	0.009	0.009	--	--	--	--	--	-4.68	--	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Technetium-99	0 / 2	pCi/g	5.6	7.95	5.6	6.78	6.78	7.95	1.66	--	--	--	--	1.9	0.248	--	--	B	6.78	7.37	7.51	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 2	pCi/g	0.541	3.76	0.541	2.15	2.15	3.76	2.28	--	--	--	--	0.355	1.37	--	--	B	2.15	2.97	3.15	--	--	--	25,000	NSRC	NSRC
Thorium-230	0 / 2	pCi/g	0.577	3.09	0.577	1.83	1.83	3.09	1.78	--	--	--	--	0.289	1.19	--	--	B	1.83	2.47	2.61	--	--	--	15,000	NSRC	NSRC
Thorium-232	0 / 2	pCi/g	0.433	2.68	0.433	1.56	1.56	2.68	1.59	--	--	--	--	0.074	1.29	--	--	B	1.56	2.13	2.25	--	--	--	2500	NSRC	NSRC
Uranium-233	0 / 1	pCi/g	37.3	37.3	37.3	37.3	37.3	37.3	--	--	--	--	--	3.62	--	--	--	B	37.3	37.3	37.3	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	1 / 2	pCi/g	0.542	0.542	0.542	340	340	679	480	679	679	679	--	2.95	5.04	6.52	--	B	340	512	551	--	1700	2.8E+07	100,000	0.2	1.2E-05
Uranium-234	1 / 1	pCi/g	--	--	796	796	796	796	--	796	796	796	--	6.68	--	6.68	--	B	796	796	796	--	1700	2.8E+07	100,000	0.468	2.8E-05
Uranium-235	1 / 1	pCi/g	--	--	75.3	75.3	75.3	75.3	--	75.3	75.3	75.3	--	4.32	--	4.32	--	B	75.3	75.3	75.3	--	1500	9500	100,000	0.05	0.008
Uranium-235/236	0 / 2	pCi/g	0.692	211	0.692	106	106	211	149	--	--	--	--	2.49	4.04	--	--	B	106	159	171	--	1500	9500	100,000	NSRC	NSRC
Uranium-236	1 / 1	pCi/g	--	--	34.5	34.5	34.5	34.5	--	34.5	34.5	34.5	--	3.54	--	3.54	--	B	34.5	34.5	34.5	--	1700	280,000	100,000	0.02	1.2E-04
Uranium-238	1 / 2	pCi/g	0.507	0.507	0.507	2830	2830	5660	4002	5660	5660	5660	--	3.98	6.59	8.64	--	B	2830	4264	4589	--	1200	1500	100,000	**2.36**	**1.89**
																									SOF =	**3.1**	**1.9**

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

D = 95% UCL was not calculated with fewer than 2 samples.

O = no detected results to calculate some summary statistics.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.70. Y-12 Biology Complex summary statistics for Ducts in Y-12 Building 9767-7 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Ducts in Y-12 Building 9767-7 (all biased samples)																											
TCLP Metals																											
Arsenic	2 / 6	mg/L	0.05	0.05	0.025	0.055	0.05	0.07	0.008	0.059	0.064	0.07	0.008	-3.37	0.49	-2.75	0.13	G*	0.055	0.06	0.062	0.165	--	--	--	--	--
Barium	6 / 6	mg/L	--	--	0.131	0.206	0.219	0.243	0.039	0.131	0.206	0.243	0.039	-1.6	0.221	-1.6	0.221	G	0.206	0.25	0.268	0.418	--	--	--	--	--
Cadmium	3 / 6	mg/L	0.01	0.01	0.005	0.03	0.014	0.071	0.027	0.014	0.049	0.071	0.031	-4.26	1.27	-3.23	0.92	X*	0.03	0.07	0.088	--	--	--	--	--	--
Chromium	6 / 6	mg/L	--	--	0.02	0.083	0.046	0.235	0.084	0.02	0.083	0.235	0.084	-2.88	0.965	-2.88	0.965	L	0.089	0.271	0.503	2.0	--	--	--	--	--
Lead	5 / 6	mg/L	0.033	0.033	0.017	0.961	0.339	3.18	1.19	0.097	1.15	3.18	1.36	-1.22	1.94	-0.649	1.5	L*	1.18	2.38	3.08	398	--	--	--	--	--
Mercury	1 / 6	mg/L	6.7E-04	6.7E-04	3.4E-04	5.9E-04	3.4E-04	0.002	6.3E-04	0.002	0.002	0.002	--	-7.71	0.706	-6.27	--	X	5.9E-04	0.001	0.002	--	--	--	--	--	--
Selenium	3 / 6	mg/L	0.06	0.06	0.03	0.073	0.063	0.099	0.017	0.063	0.086	0.099	0.019	-2.99	0.585	-2.48	0.246	X*	0.073	0.098	0.11	--	--	--	--	--	--
Silver	0 / 6	mg/L	0.01	0.01	0.005	0.005	0.005	0.005	0	--	--	--	--	-5.3	0	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Alpha activity	3 / 6	pCi/g	4.31	6	4.01	17.3	5.17	45.7	19.7	4.01	29.7	45.7	22.5	2.27	1.16	2.96	1.36	B	11.7	20.5	23.9	--	--	--	--	--	--
Beta activity	3 / 6	pCi/g	1.59	3.39	1.59	10.5	3.3	29.7	12.5	1.87	18.2	29.7	14.5	1.67	1.27	2.38	1.53	L	9.86	24.7	31.4	596	--	--	--	--	--
Technetium-99	0 / 6	pCi/g	5.83	7.25	5.83	6.57	6.64	7.25	0.483	--	--	--	--	1.88	0.074	--	--	N	6.57	6.86	6.96	8.36	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	4 / 6	pCi/g	0.351	0.442	0.351	5.0	4.37	11.9	4.76	2.14	7.3	11.9	4.08	0.901	1.53	1.82	0.745	N	5.0	7.87	8.91	22.6	1700	2.8E+07	100,000	0.003	1.8E-07
Uranium-235/236	2 / 6	pCi/g	0.385	0.997	0.385	0.832	0.952	1.22	0.325	0.985	1.1	1.22	0.166	-0.263	0.461	0.092	0.151	N	0.832	1.03	1.1	2.04	1500	9500	100,000	5.5E-04	8.8E-05
Uranium-238	4 / 6	pCi/g	0.32	0.403	0.32	1.68	1.82	2.86	1.22	1.05	2.34	2.86	0.866	0.174	1.0	0.774	0.486	B	1.74	2.36	2.49	--	1200	1500	100,000	0.001	0.001
																									SOF =	0.005	0.001

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.71. Y-12 Biology Complex summary statistics for Equipment in Y-12 Building 9207 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Equipment in Y-12 Building 9207 (all biased samples)																											
Radionuclides																											
Alpha activity	2 / 4	pCi/g	3.24	4.08	3.24	150	10.8	575	283	17.5	296	575	394	2.95	2.39	4.61	2.47	B	104	222	268	--	--	--	--	--	--
Beta activity	3 / 4	pCi/g	4.13	4.13	4.13	111	52.2	337	155	17.6	147	337	168	3.64	1.91	4.38	1.48	B	91.7	171	197	--	--	--	--	--	--
Technetium-99	1 / 4	pCi/g	5.11	5.64	5.11	174	5.52	678	336	678	678	678	--	2.89	2.42	6.52	--	B	118	254	309	--	172	--	4.2E+07	0.683	--
Uranium-233/234	3 / 4	pCi/g	0.512	0.512	0.512	57.8	3.77	223	110	0.761	76.8	223	127	1.59	2.78	2.35	2.87	B	39.8	85.8	104	--	1700	2.8E+07	100,000	0.023	1.4E-06
Uranium-235/236	1 / 4	pCi/g	0.562	0.843	0.562	4.31	0.737	15.2	7.26	15.2	15.2	15.2	--	0.378	1.57	2.72	--	B	3.12	6.14	7.33	--	1500	9500	100,000	0.002	3.3E-04
Uranium-238	3 / 4	pCi/g	0.467	0.467	0.467	51.9	1.52	204	101	0.542	69.0	204	117	1.21	2.84	1.87	3.08	B	35.1	76.6	93.2	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.738	0.024

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.72. Y-12 Biology Complex summary statistics for Equipment in Y-12 Building 9401-1 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Equipment in Y-12 Building 9401-1 (all biased samples)																											
Metals																											
Arsenic	3 / 3	mg/kg	--	--	0.753	10.6	1.3	29.7	16.6	0.753	10.6	29.7	16.6	1.12	1.98	1.12	1.98	B	5.94	12.0	14.3	--	--	--	--	--	--
Barium	1 / 3	mg/kg	0.042	0.174	0.021	13.0	0.087	38.9	22.4	38.9	38.9	38.9	--	-0.883	4.0	3.66	--	B	6.54	14.4	17.6	--	--	150,000	--	--	4.4E-05
Cadmium	2 / 3	mg/kg	0.035	0.035	0.011	0.67	0.017	1.98	1.13	0.011	0.996	1.98	1.39	-2.62	2.87	-1.9	3.66	B	0.343	0.744	0.905	--	--	--	--	--	--
Chromium	3 / 3	mg/kg	--	--	10.3	38.6	13	92.4	46.6	10.3	38.6	92.4	46.6	3.14	1.21	3.14	1.21	B	25.8	43.2	49.9	--	--	140,000	--	--	1.8E-04
Lead	3 / 3	mg/kg	--	--	3.69	8.55	4.66	17.3	7.59	3.69	8.55	17.3	7.59	1.9	0.833	1.9	0.833	B	6.61	9.63	10.7	--	--	1500	--	--	0.004
Mercury	2 / 3	mg/kg	0.002	0.002	8.4E-04	0.024	0.005	0.065	0.036	0.005	0.035	0.065	0.042	-5.03	2.19	-4.01	1.81	B	0.014	0.029	0.034	--	--	--	--	--	--
Selenium	1 / 3	mg/kg	0.15	0.627	0.075	1.03	0.314	2.71	1.46	2.71	2.71	2.71	--	-0.918	1.81	0.997	--	B	0.673	1.27	1.48	--	--	1600	--	--	4.2E-04
Silver	3 / 3	mg/kg	--	--	0.372	3.31	0.766	8.78	4.74	0.372	3.31	8.78	4.74	0.306	1.66	0.306	1.66	B	2.04	3.86	4.54	--	--	--	--	--	--
Total Uranium	2 / 3	mg/kg	0.007	0.007	0.003	2.17	0.272	6.23	3.52	0.272	3.25	6.23	4.21	-1.73	3.79	0.264	2.21	B	1.22	2.56	3.07	--	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 3	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	3 / 3	mg/L	--	--	0.012	0.07	0.014	0.186	0.1	0.012	0.07	0.186	0.1	-3.47	1.55	-3.47	1.55	X	0.07	0.244	0.322	--	--	--	--	--	--
Cadmium	1 / 3	mg/L	0.003	0.003	0.002	0.01	0.002	0.026	0.014	0.026	0.026	0.026	--	-5.55	1.64	-3.66	--	X	0.01	0.034	0.045	--	--	--	--	--	--
Chromium	2 / 3	mg/L	0.03	0.03	0.015	0.099	0.035	0.233	0.094	0.035	0.134	0.233	0.14	-3.0	1.4	-2.4	1.34	X*	0.099	0.331	0.436	--	--	--	--	--	--
Lead	2 / 3	mg/L	0.005	0.005	0.003	0.072	0.078	0.132	0.052	0.078	0.105	0.132	0.038	-3.52	2.16	-2.29	0.368	X*	0.072	0.199	0.257	--	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 3	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 3	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 3	mg/L	0.017	0.017	0.008	0.012	0.008	0.019	0.006	0.019	0.019	0.019	--	-4.51	0.469	-3.97	--	X	0.012	0.022	0.027	--	--	--	--	--	--
Silvex	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 3	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 3	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 3	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 3	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 3	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1254	3 / 3	mg/kg	--	--	0.012	0.092	0.114	0.149	0.071	0.012	0.092	0.149	0.071	-2.83	1.38	-2.83	1.38	B	0.103	0.133	0.138	--	--	--	--	--	--
PCB-1260	1 / 3	mg/kg	0.002	0.011	0.001	0.03	0.006	0.083	0.046	0.083	0.083	0.083	--	-4.85	2.21	-2.49	--	B	0.018	0.036	0.042	--	--	--	--	--	--
PCB-1262	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 3	mg/kg	0.002	0.033	0.001	0.008	0.006	0.016	0.008	--	--	--	--	-5.39	1.4	--	--	B	0.007	0.011	0.012	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	3 / 3	mg/kg	--	--	0.012	0.119	0.114	0.231	0.11	0.012	0.119	0.231	0.11	-2.69	1.54	-2.69	1.54	B	0.117	0.172	0.185	--	--	--	--	--	--
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC

Table G.72. Y-12 Biology Complex summary statistics for Equipment in Y-12 Building 9401-1 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nitrobenzene	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 3	mg/L	0.003	0.015	0.002	0.006	0.008	0.008	0.003	--	--	--	--	-5.43	0.929	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 3	mg/L	0.004	0.019	0.002	0.007	0.009	0.009	0.004	--	--	--	--	-5.22	0.929	--	--	O	0.007	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 2	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Carbon tetrachloride	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Trichloroethene	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Vinyl chloride	0 / 2	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Technetium-99	0 / 3	pCi/g	5.44	9.58	5.44	7.17	6.5	9.58	2.15	--	--	--	--	1.94	0.289	--	--	B	6.84	7.88	8.18	--	172	--	4.2E+07	NSRC	NSRC
Thorium-228	0 / 3	pCi/g	0.311	0.743	0.311	0.478	0.381	0.743	0.232	--	--	--	--	-0.81	0.456	--	--	B	0.43	0.533	0.567	--	--	--	25,000	NSRC	NSRC
Thorium-230	1 / 3	pCi/g	0.408	0.611	0.408	0.502	0.487	0.611	0.102	0.487	0.487	0.487	--	-0.703	0.202	-0.719	--	B	0.495	0.547	0.56	--	--	--	15,000	--	--
Thorium-232	1 / 3	pCi/g	0.304	0.529	0.304	0.439	0.483	0.529	0.119	0.483	0.483	0.483	--	-0.852	0.297	-0.728	--	B	0.461	0.508	0.515	--	--	--	2500	--	--
Uranium-233	0 / 3	pCi/g	1.9	3.32	1.9	2.63	2.67	3.32	0.711	--	--	--	--	0.941	0.281	--	--	B	2.65	3.01	3.08	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	1 / 3	pCi/g	0.321	0.369	0.321	0.417	0.369	0.561	0.127	0.561	0.561	0.561	--	-0.904	0.291	-0.578	--	B	0.393	0.452	0.47	--	1700	2.8E+07	100,000	2.3E-04	1.4E-08
Uranium-234	0 / 3	pCi/g	1.19	2.04	1.19	1.62	1.64	2.04	0.425	--	--	--	--	0.461	0.271	--	--	B	1.63	1.85	1.89	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235	2 / 3	pCi/g	1.4E-04	1.4E-04	1.4E-04	0.023	0.001	0.066	0.038	0.001	0.034	0.066	0.046	-6.03	3.1	-4.61	2.69	B	0.012	0.026	0.031	--	1500	9500	100,000	8.0E-06	1.3E-06
Uranium-235/236	0 / 3	pCi/g	0.353	0.472	0.353	0.408	0.398	0.472	0.06	--	--	--	--	-0.904	0.146	--	--	B	0.403	0.433	0.441	--	1500	9500	100,000	NSRC	NSRC
Uranium-236	1 / 3	pCi/g	0.005	0.007	0.005	0.014	0.007	0.03	0.014	0.03	0.03	0.03	--	-4.6	0.941	-3.52	--	B	0.01	0.016	0.018	--	1700	280,000	100,000	6.0E-06	3.7E-08
Uranium-238	2 / 3	pCi/g	0.292	0.292	0.292	0.925	0.403	2.08	1.0	0.403	1.24	2.08	1.19	-0.469	1.05	-0.088	1.16	B	0.664	1.06	1.2	--	1200	1500	100,000	5.5E-04	4.4E-04
																									SOF =	8.0E-04	0.005

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

Table G.72. Y-12 Biology Complex summary statistics for Equipment in Y-12 Building 9401-1 (all biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.73. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 1 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 1 (biased samples)																											
Radionuclides																											
Alpha activity	4 / 7	pCi/g	3.24	4.97	3.24	125	17.5	575	212	17.5	215	575	254	3.26	2.05	4.66	1.52	L	119	373	488	27,877	--	--	--	--	--
Beta activity	5 / 7	pCi/g	2.65	4.13	2.65	82.2	24.1	337	119	17.6	114	337	130	3.34	1.76	4.19	1.19	L	90.2	261	339	11,236	--	--	--	--	--
Technetium-99	1 / 7	pCi/g	5.11	5.64	5.11	101	5.4	678	254	678	678	678	--	2.38	1.83	6.52	--	B	117	254	309	--	172	--	4.2E+07	0.683	--
Uranium-233/234	6 / 7	pCi/g	0.512	0.512	0.512	49.4	6.78	223	82.0	0.761	57.6	223	86.7	2.1	2.38	2.56	2.24	L	58.4	195	257	26,919	1700	2.8E+07	100,000	0.034	2.1E-06
Uranium-235/236	3 / 7	pCi/g	0.424	0.843	0.424	3.66	0.843	15.2	5.42	2.35	7.73	15.2	6.68	0.463	1.35	1.77	0.934	L	3.26	8.18	10.4	156	1500	9500	100,000	0.002	3.4E-04
Uranium-238	6 / 7	pCi/g	0.467	0.467	0.467	40.7	2.49	204	75.0	0.542	47.4	204	79.8	1.62	2.49	2.02	2.47	L	41.7	142	187	23,686	1200	1500	100,000	0.035	0.028
																									SOF =	0.754	0.028

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.74. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 4 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 4 (biased samples)																											
Radionuclides																											
Alpha activity	0 / 2	pCi/g	3.34	4.08	3.34	3.71	3.71	4.08	0.523	--	--	--	--	1.31	0.142	--	--	B	3.71	3.9	3.94	--	--	--	--	NSRC	NSRC
Beta activity	0 / 2	pCi/g	2.74	3.19	2.74	2.97	2.97	3.19	0.318	--	--	--	--	1.08	0.108	--	--	B	2.97	3.08	3.1	--	--	--	--	NSRC	NSRC
Technetium-99	0 / 2	pCi/g	6	6.09	6	6.05	6.05	6.09	0.064	--	--	--	--	1.8	0.011	--	--	B	6.05	6.07	6.07	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	1 / 2	pCi/g	0.587	0.587	0.587	0.949	0.949	1.31	0.511	1.31	1.31	1.31	--	-0.131	0.568	0.27	--	B	0.949	1.13	1.17	--	1700	2.8E+07	100,000	5.6E-04	3.4E-08
Uranium-235/236	0 / 2	pCi/g	0.645	0.768	0.645	0.707	0.707	0.768	0.087	--	--	--	--	-0.351	0.123	--	--	B	0.707	0.738	0.745	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 2	pCi/g	0.536	0.536	0.536	0.893	0.893	1.25	0.505	1.25	1.25	1.25	--	-0.2	0.599	0.223	--	B	0.893	1.07	1.11	--	1200	1500	100,000	7.4E-04	6.0E-04
																									SOF =	0.001	6.0E-04

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.75. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 5 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 5 (biased samples)																											
Radionuclides																											
Alpha activity	1 / 2	pCi/g	3.07	3.07	3.07	24.0	24.0	44.9	29.6	44.9	44.9	44.9	--	2.46	1.9	3.8	--	B	24.0	34.6	37.0	--	--	--	--	--	--
Beta activity	1 / 2	pCi/g	3.62	3.62	3.62	187	187	370	259	370	370	370	--	3.6	3.27	5.91	--	B	187	280	301	--	--	--	--	--	--
Technetium-99	0 / 2	pCi/g	4.73	5.19	4.73	4.96	4.96	5.19	0.325	--	--	--	--	1.6	0.066	--	--	B	4.96	5.08	5.1	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	1 / 2	pCi/g	0.338	0.338	0.338	4.74	4.74	9.14	6.22	9.14	9.14	9.14	--	0.564	2.33	2.21	--	B	4.74	6.97	7.47	--	1700	2.8E+07	100,000	0.003	1.7E-07
Uranium-235/236	0 / 2	pCi/g	0.372	0.762	0.372	0.567	0.567	0.762	0.276	--	--	--	--	-0.63	0.507	--	--	B	0.567	0.666	0.688	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	1 / 2	pCi/g	0.309	0.309	0.309	2.28	2.28	4.25	2.79	4.25	4.25	4.25	--	0.136	1.85	1.45	--	B	2.28	3.28	3.5	--	1200	1500	100,000	0.002	0.002
																									SOF =	0.005	0.002

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.76. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media from floor 6 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media from floor 6 (biased samples)																											
Radionuclides																											
Alpha activity	1 / 1	pCi/g	--	--	4.73	4.73	4.73	4.73	--	4.73	4.73	4.73	--	1.55	--	1.55	--	B	4.73	4.73	4.73	--	--	--	--	--	--
Beta activity	0 / 1	pCi/g	4.34	4.34	4.34	4.34	4.34	4.34	--	--	--	--	--	1.47	--	--	--	B	4.34	4.34	4.34	--	--	--	--	NSRC	NSRC
Technetium-99	0 / 1	pCi/g	4.69	4.69	4.69	4.69	4.69	4.69	--	--	--	--	--	1.55	--	--	--	B	4.69	4.69	4.69	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	1 / 1	pCi/g	--	--	0.861	0.861	0.861	0.861	--	0.861	0.861	0.861	--	-0.15	--	-0.15	--	B	0.861	0.861	0.861	--	1700	2.8E+07	100,000	5.1E-04	3.1E-08
Uranium-235/236	0 / 1	pCi/g	0.536	0.536	0.536	0.536	0.536	0.536	--	--	--	--	--	-0.624	--	--	--	B	0.536	0.536	0.536	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 1	pCi/g	0.437	0.437	0.437	0.437	0.437	0.437	--	--	--	--	--	-0.828	--	--	--	B	0.437	0.437	0.437	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	5.1E-04	3.1E-08

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.77. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 1 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 1 (biased samples)																											
Radionuclides																											
Alpha activity	0 / 1	pCi/g	4.12	4.12	4.12	4.12	4.12	4.12	--	--	--	--	--	1.42	--	--	--	B	4.12	4.12	4.12	--	--	--	--	NSRC	NSRC
Beta activity	1 / 1	pCi/g	--	--	7.02	7.02	7.02	7.02	--	7.02	7.02	7.02	--	1.95	--	1.95	--	B	7.02	7.02	7.02	--	--	--	--	--	--
Technetium-99	0 / 1	pCi/g	6.9	6.9	6.9	6.9	6.9	6.9	--	--	--	--	--	1.93	--	--	--	B	6.9	6.9	6.9	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	0 / 1	pCi/g	0.554	0.554	0.554	0.554	0.554	0.554	--	--	--	--	--	-0.591	--	--	--	B	0.554	0.554	0.554	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 1	pCi/g	0.609	0.609	0.609	0.609	0.609	0.609	--	--	--	--	--	-0.496	--	--	--	B	0.609	0.609	0.609	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 1	pCi/g	0.505	0.505	0.505	0.505	0.505	0.505	--	--	--	--	--	-0.683	--	--	--	B	0.505	0.505	0.505	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	--

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.78. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 2 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 2 (biased samples)																											
Radionuclides																											
Alpha activity	0 / 1	pCi/g	4.4	4.4	4.4	4.4	4.4	4.4	--	--	--	--	--	1.48	--	--	--	B	4.4	4.4	4.4	--	--	--	--	NSRC	NSRC
Beta activity	1 / 1	pCi/g	--	--	3.67	3.67	3.67	3.67	--	3.67	3.67	3.67	--	1.3	--	1.3	--	B	3.67	3.67	3.67	--	--	--	--	--	--
Technetium-99	0 / 1	pCi/g	8.91	8.91	8.91	8.91	8.91	8.91	--	--	--	--	--	2.19	--	--	--	B	8.91	8.91	8.91	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	0 / 1	pCi/g	0.537	0.537	0.537	0.537	0.537	0.537	--	--	--	--	--	-0.622	--	--	--	B	0.537	0.537	0.537	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 1	pCi/g	0.59	0.59	0.59	0.59	0.59	0.59	--	--	--	--	--	-0.528	--	--	--	B	0.59	0.59	0.59	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 1	pCi/g	0.489	0.489	0.489	0.489	0.489	0.489	--	--	--	--	--	-0.715	--	--	--	B	0.489	0.489	0.489	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	--

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.79. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media from floor 3 (biased samples)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media from floor 3 (biased samples)																											
Radionuclides																											
Alpha activity	0 / 2	pCi/g	2.92	4.82	2.92	3.87	3.87	4.82	1.34	--	--	--	--	1.32	0.354	--	--	B	3.87	4.35	4.46	--	--	--	--	NSRC	NSRC
Beta activity	0 / 2	pCi/g	3.6	3.8	3.6	3.7	3.7	3.8	0.141	--	--	--	--	1.31	0.038	--	--	B	3.7	3.75	3.76	--	--	--	--	NSRC	NSRC
Technetium-99	0 / 2	pCi/g	7.72	7.83	7.72	7.78	7.78	7.83	0.078	--	--	--	--	2.05	0.01	--	--	B	7.78	7.8	7.81	--	172	--	4.2E+07	NSRC	NSRC
Uranium-233/234	0 / 2	pCi/g	0.292	0.321	0.292	0.307	0.307	0.321	0.021	--	--	--	--	-1.18	0.067	--	--	B	0.307	0.314	0.316	--	1700	2.8E+07	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/g	0.321	0.353	0.321	0.337	0.337	0.353	0.023	--	--	--	--	-1.09	0.067	--	--	B	0.337	0.345	0.347	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	0 / 2	pCi/g	0.266	0.293	0.266	0.28	0.28	0.293	0.019	--	--	--	--	-1.28	0.068	--	--	B	0.28	0.286	0.288	--	1200	1500	100,000	NSRC	NSRC
																									SOF =	--	--

[a] The detection limits shown are used as proxy values for non-detect radionuclides.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table G.80. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9207 all media (random and biased) with samples 9210H1S005 and 9210W2B006																											
Metals																											
Antimony	14 / 21	mg/kg	0.174	0.326	0.087	2.24	0.528	16.9	4.65	0.381	3.28	16.9	5.46	-0.481	1.48	0.242	1.28	B	3.18	6.72	8.09	--	--	160	--	--	0.02
Arsenic	13 / 21	mg/kg	0.178	0.351	0.089	3.99	1.86	31.2	6.88	1.68	6.36	31.2	7.93	0.133	1.83	1.44	0.854	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	18 / 21	mg/kg	0.053	0.099	0.026	393	13.5	7410	1610	0.117	459	7410	1737	1.97	3.31	2.83	2.71	B	1244	2748	3353	--	--	150,000	--	--	0.008
Beryllium	11 / 21	mg/kg	0.005	0.082	0.002	0.126	0.024	0.545	0.177	0.019	0.23	0.545	0.194	-3.33	1.75	-1.99	1.23	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	10 / 21	mg/kg	0.187	3.26	0.094	194	1.18	3990	870	1.18	408	3990	1259	0.623	2.43	2.5	2.27	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	15 / 21	mg/kg	0.011	0.02	0.005	1.44	0.24	10.9	3.15	0.05	2.02	10.9	3.59	-1.74	2.43	-0.514	1.66	L	2.19	6.53	8.5	55.2	--	--	--	--	--
Chromium	21 / 21	mg/kg	--	--	0.405	83.2	10	1290	279	0.405	83.2	1290	279	2.25	1.97	2.25	1.97	L	65.9	243	397	1010	--	140,000	--	--	4.7E-04
Copper	21 / 21	mg/kg	--	--	0.306	25.8	15	184	43.9	0.306	25.8	184	43.9	2.02	1.84	2.02	1.84	L	40.5	128	198	584	--	--	--	--	--
Hafnium	4 / 21	mg/kg	0.14	2.93	0.07	0.482	0.292	1.47	0.431	0.568	0.927	1.43	0.418	-1.04	0.774	-0.154	0.457	B	0.451	0.785	0.893	--	--	--	--	--	--
Lead	21 / 21	mg/kg	--	--	0.06	253	12.3	2210	562	0.06	253	2210	562	2.87	2.91	2.87	2.91	L	584	1931	2541	17,385	--	1500	--	--	0.389
Manganese	21 / 21	mg/kg	--	--	0.144	220	42.7	1530	384	0.144	220	1530	384	3.29	2.91	3.29	2.91	B	283	606	731	--	--	360,000	--	--	7.9E-04
Mercury	19 / 21	mg/kg	0.002	0.004	0.001	0.778	0.031	13	2.84	0.005	0.86	13	2.98	-3.32	2.22	-2.98	2.05	L	0.423	2.14	3.97	6.95	--	--	--	--	--
Molybdenum	16 / 21	mg/kg	0.05	0.079	0.025	4.1	0.558	27.9	8.11	0.05	5.37	27.9	8.96	-0.626	2.26	0.248	1.84	L	6.87	36.9	69.8	114	--	3900	--	--	0.002
Nickel	21 / 21	mg/kg	--	--	0.217	30.6	5.91	284	65.7	0.217	30.6	284	65.7	1.68	2.03	1.68	2.03	L	42.3	168	284	664	--	--	--	--	--
Selenium	5 / 21	mg/kg	0.084	1.75	0.042	0.571	0.178	3.25	0.724	0.552	1.4	3.25	1.07	-1.15	1.11	0.149	0.657	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	10 / 21	mg/kg	0.053	1.17	0.026	2.75	0.338	15	4.52	0.147	5.58	15	5.32	-0.81	2.19	0.946	1.61	B	2.73	5.86	7.08	--	--	--	--	--	--
Strontium	14 / 21	mg/kg	0.317	2.45	0.159	64.7	2.69	288	104	0.631	96.8	288	115	1.63	2.79	3.03	2.32	B	49.8	109	132	--	--	300,000	--	--	1.7E-04
Thallium	1 / 21	mg/kg	0.033	0.684	0.016	0.106	0.068	0.342	0.102	0.257	0.257	0.257	--	-2.56	0.759	-1.36	--	B	0.105	0.183	0.208	--	--	--	--	NSRC	NSRC
Tin	11 / 21	mg/kg	0.158	3.5	0.079	8.47	1.36	132	28.4	0.582	15.8	132	38.7	0.025	1.98	1.46	1.42	B	22.9	50.0	60.8	--	--	2200	--	--	0.01
Vanadium	14 / 21	mg/kg	0.158	1.22	0.079	16.9	1.36	173	38.9	0.113	25.3	173	45.9	0.583	2.47	1.84	2.01	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	21 / 21	mg/kg	--	--	1.33	477	32.6	5600	1233	1.33	477	5600	1233	4.05	2.23	4.05	2.23	L	692	3588	6704	11,415	--	--	--	--	--
Zirconium	10 / 21	mg/kg	0.094	1.63	0.047	8.05	0.618	45.5	13.8	0.618	16.7	45.5	16.3	0.025	2.28	2.0	1.64	B	8.0	17.4	21.1	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 15	mg/L	0.017	0.017	0.009	0.019	0.017	0.041	0.006	0.024	0.033	0.041	0.012	-4.59	0.471	-3.46	0.387	X*	0.019	0.026	0.029	--	--	--	--	--	--
Barium	15 / 15	mg/L	--	--	0.021	0.251	0.261	0.929	0.223	0.021	0.251	0.929	0.223	-1.8	1.08	-1.8	1.08	G	0.251	0.371	0.421	1.19	--	--	--	--	--
Cadmium	5 / 15	mg/L	0.003	0.003	0.002	0.008	0.003	0.039	0.011	0.004	0.019	0.039	0.015	-5.77	1.19	-4.3	0.95	X*	0.008	0.017	0.022	--	--	--	--	--	--
Chromium	10 / 15	mg/L	0.03	0.03	0.015	0.125	0.062	0.85	0.201	0.033	0.173	0.85	0.244	-2.91	1.21	-2.26	0.951	G*	0.125	0.209	0.251	0.775	--	--	--	--	--
Lead	10 / 15	mg/L	0.005	0.005	0.003	0.798	0.101	5.97	1.68	0.007	1.19	5.97	2.04	-2.9	2.83	-1.35	2.11	G*	0.798	1.89	2.52	8.82	--	--	--	--	--
Mercury	0 / 5	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 15	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 15	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 20	mg/kg	7.0E-04	0.824	3.5E-04	0.044	0.004	0.412	0.125	--	--	--	--	-5.54	1.8	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.007	5.0E-04	0.05	0.015	0.001	0.004	0.011	0.004	-6.77	1.74	-6.05	1.03	B	0.009	0.019	0.023	--	130,000	--	--	6.6E-08	--
4,4'-DDT	2 / 19	mg/kg	1.8E-04	0.099	9.1E-05	0.006	4.9E-04	0.05	0.015	0.001	0.002	0.002	1.7E-04	-7.16	1.6	-6.51	0.113	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.015	0.003	0.004	0.005	0.002	-7.31	1.91	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 19	mg/kg	9.0E-05	0.099	4.5E-05	0.006	4.9E-04	0.05	0.016	--	--	--	--	-7.53	1.81	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.80. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased) with samples 9210H1S005 and 9210W2B006

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected							Analytic WAC			E(X) divided by Analytic WAC	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Carc.	HI	ASA WAC	Carc.	HI
Heptachlor epoxide	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.9E-05	7.9E-05	7.9E-05	--	-8.16	1.74	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	4.3E-06	2.9E-06
Lindane	1 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	7.1E-04	7.1E-04	7.1E-04	--	-8.04	1.72	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 19	mg/kg	4.5E-04	0.497	2.3E-04	0.028	0.002	0.249	0.078	--	--	--	--	-5.92	1.81	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 19	mg/kg	0.002	1.65	7.5E-04	0.093	0.008	0.825	0.258	--	--	--	--	-4.72	1.81	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 19	mg/kg	4.5E-05	0.05	2.3E-05	0.003	2.5E-04	0.025	0.008	--	--	--	--	-8.22	1.81	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	9 / 144	mg/kg	5.9E-04	1.13	3.0E-04	0.268	0.015	31.1	2.59	0.032	3.73	31.1	10.3	-4.02	1.54	-1.61	2.36	B	5.19	11.5	14.0	0.91	--	4000	--	--	0.001
2-Methylphenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	850	--	NSRC	NSRC
Acenaphthene	5 / 144	mg/kg	5.9E-04	1.13	3.0E-04	0.084	0.015	5.39	0.461	0.048	1.37	5.39	2.29	-4.07	1.45	-1.09	1.97	B	0.908	2.0	2.44	0.166	--	390,000	--	NSRC	NSRC
Acenaphthylene	1 / 144	mg/kg	5.9E-04	1.13	3.0E-04	0.037	0.015	0.565	0.07	0.08	0.08	0.08	--	-4.17	1.3	-2.53	--	B	0.104	0.223	0.269	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	3 / 144	mg/kg	0.006	11.3	0.003	0.367	0.149	5.65	0.694	0.23	0.331	0.405	0.091	-1.86	1.3	-1.13	0.298	B	1.04	2.23	2.69	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 144	mg/kg	0.006	11.3	0.003	0.387	0.148	5.65	0.705	0.41	1.01	1.54	0.478	-1.83	1.33	-0.099	0.573	B	1.04	2.23	2.69	0.894	--	1200	--	NSRC	NSRC
Benzidine	1 / 144	mg/kg	0.006	11.3	0.003	0.37	0.148	5.65	0.698	1.17	1.17	1.17	--	-1.86	1.31	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	5 / 144	mg/kg	0.03	18.9	0.015	0.638	0.247	9.45	1.17	0.036	1.09	2.73	1.11	-1.3	1.28	-0.794	1.84	B	1.74	3.72	4.49	1.09	--	9810	--	NSRC	NSRC
Carbazole	6 / 144	mg/kg	0.002	1.13	8.9E-04	0.051	0.015	1.79	0.162	0.002	0.359	1.79	0.706	-4.1	1.35	-2.81	2.32	B	0.308	0.675	0.821	0.053	110,000	--	--	NSRC	NSRC
Di-n-butyl phthalate	17 / 144	mg/kg	0.006	11.3	0.003	0.579	0.149	22.4	1.98	0.028	1.99	22.4	5.32	-1.68	1.37	-0.762	1.66	B	3.83	8.41	10.2	1.25	--	190	--	--	0.02
Diethyl phthalate	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 144	mg/kg	0.006	11.3	0.003	0.368	0.149	5.65	0.695	0.432	0.501	0.569	0.097	-1.86	1.3	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 144	mg/kg	0.006	11.3	0.003	0.419	0.148	5.65	0.753	0.35	1.33	3.54	0.984	-1.78	1.37	0.079	0.678	B	1.04	2.23	2.69	1.21	6100	15,000	--	1.7E-04	6.9E-05
N-Nitroso-di-n-propylamine	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 144	mg/kg	0.019	11.3	0.01	0.436	0.148	6.21	0.964	0.013	1.8	6.21	2.97	-1.8	1.29	-1.72	2.51	B	1.14	2.43	2.94	0.129	--	--	--	NSRC	NSRC
Phenol	3 / 144	mg/kg	0.006	11.3	0.003	0.393	0.149	5.65	0.729	0.351	1.59	2.61	1.15	-1.83	1.34	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 144	mg/kg	0.006	11.3	0.003	0.363	0.148	5.65	0.695	--	--	--	--	-1.88	1.3	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	11 / 11	pCi/g	--	--	0.688	1.75	1.83	2.49	0.525	0.688	1.75	2.49	0.525	0.509	0.364	0.509	0.364	N	1.75	1.97	2.04	3.23	--	--	--	--	--
Alpha activity	80 / 176	pCi/g	1.48	9.99	1.48	16.7	8.47	575	46.8	3.09	30.4	575	67.0	2.11	1.0	2.83	0.953	B	102	220	267	--	--	--	--	--	--
Americium-241	0 / 41	pCi/g	0.142	0.374	0.142	0.223	0.227	0.374	0.05	--	--	--	--	-1.52	0.22	--	--	N	0.223	0.234	0.236	0.328	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	101 / 176	pCi/g	1.22	5.82	1.22	16.7	5.36	370	39.5	1.56	26.4	370	50.0	2.08	1.04	2.7	0.97	B	65.4	141	172	--	--	--	--	--	--
Bismuth-214	21 / 21	pCi/g	--	--	0.484	1.18	1.13	1.96	0.393	0.484	1.18	1.96	0.393	0.111	0.363	0.111	0.363	N	1.18	1.3	1.33	2.12	--	--	--	--	--
Carbon-14	5 / 163	pCi/g	0.082	2.52	0.082	4.19	1.88	416	32.5	0.549	88.2	416	183	0.277	0.884	2.17	2.48	B	70.6	155	189	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 163	pCi/g	0.015	0.648	0.015	0.124	0.113	0.648	0.075	0.093	0.167	0.218	0.055	-2.24	0.558	-1.84	0.371	B	0.186	0.337	0.386	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 163	pCi/g	0.011	0.606	0.011	0.132	0.123	0.606	0.074	--	--	--	--	-2.16	0.563	--	--	B	0.185	0.33	0.375	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 163	pCi/g	0.078	1.37	0.078	0.686	0.641	1.37	0.292	--	--	--	--	-0.486	0.508	--	--	B	0.669	0.999	1.08	--	13	--	1500	NSRC	NSRC
Lead-212	32 / 32	pCi/g	--	--	0.332	1.15	1.26	2.25	0.591	0.332	1.15	2.25	0.591	-0.02	0.623	-0.02	0.623	B	1.27	1.76	1.87	--	--	--	--	--	--

Table G.80. Y-12 Biology Complex summary statistics for Y-12 Building 9207 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	21 / 21	pCi/g	--	--	0.43	1.34	1.15	2.29	0.56	0.43	1.34	2.29	0.56	0.194	0.489	0.194	0.489	N	1.34	1.5	1.55	2.67	--	--	--	--	--
Neptunium-237	0 / 41	pCi/g	0.131	0.586	0.131	0.303	0.29	0.586	0.116	--	--	--	--	-1.26	0.378	--	--	L	0.303	0.329	0.338	0.628	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 163	pCi/g	0.533	8.99	0.533	0.988	0.896	8.99	0.714	0.834	0.834	0.834	--	-0.095	0.339	-0.182	--	B	2.18	4.01	4.69	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 41	pCi/g	0.159	0.503	0.159	0.265	0.231	0.503	0.103	--	--	--	--	-1.39	0.346	--	--	B	0.264	0.349	0.375	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 41	pCi/g	0.149	0.568	0.149	0.279	0.224	0.568	0.126	--	--	--	--	-1.36	0.403	--	--	B	0.269	0.37	0.403	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 41	pCi/g	7.95	23.5	7.95	12.9	13.4	23.5	2.97	--	--	--	--	2.53	0.233	--	--	B	14.2	18.2	19.2	--	--	--	790,000	NSRC	NSRC
Potassium-40	43 / 43	pCi/g	--	--	2.75	15.9	11.4	47.3	12.4	2.75	15.9	47.3	12.4	2.48	0.774	2.48	0.774	B	15.9	26.8	30.2	--	--	--	4.2E+06	--	--
Radium-226	50 / 163	pCi/g	0.197	1.05	0.197	0.785	0.672	3.15	0.481	0.372	1.18	3.15	0.679	-0.369	0.48	0.025	0.519	B	1.01	1.71	1.94	--	--	--	300,000	--	--
Strontium-89	1 / 163	pCi/g	0.448	2	0.448	1.61	1.76	2.92	0.376	2.92	2.92	2.92	--	0.442	0.296	1.07	--	B	1.73	2.36	2.49	--	--	--	--	NSRC	NSRC
Strontium-90	16 / 163	pCi/g	0.38	2	0.38	1.73	1.64	14.4	1.26	1.03	3.9	14.4	3.15	0.432	0.441	1.16	0.606	B	3.56	6.74	7.86	--	--	--	400,000	--	--
Technetium-99	14 / 176	pCi/g	2.22	9.69	0.113	9.94	5.92	678	50.7	0.113	58.2	678	178	1.77	0.569	2.26	1.83	B	117	256	311	--	172	--	4.2E+07	0.68	--
Thallium-208	15 / 15	pCi/g	--	--	0.212	0.511	0.53	0.692	0.117	0.212	0.511	0.692	0.117	-0.703	0.28	-0.703	0.28	N	0.511	0.551	0.564	0.81	--	--	--	--	--
Thorium-228	25 / 163	pCi/g	0.203	1.38	0.203	0.687	0.594	2.4	0.377	0.256	1.18	2.4	0.579	-0.5	0.489	0.015	0.619	L	0.683	0.766	0.804	1.51	--	--	25,000	--	--
Thorium-230	47 / 163	pCi/g	0.217	1.13	0.217	0.663	0.543	2.08	0.355	0.387	0.92	2.08	0.498	-0.52	0.448	-0.216	0.513	B	0.745	1.2	1.34	--	--	--	15,000	--	--
Thorium-232	37 / 163	pCi/g	0.162	0.98	0.162	0.563	0.448	2.36	0.373	0.231	0.928	2.36	0.593	-0.727	0.52	-0.296	0.697	B	0.719	1.24	1.41	--	--	--	2500	--	--
Total Uranium	95 / 163	pCi/g	0.421	2.03	0.421	3.8	1.22	82.4	8.9	0.471	5.86	82.4	11.2	0.498	1.03	0.955	1.11	B	14.6	31.5	38.2	--	--	--	--	--	--
Tritium	0 / 163	pCi/g	1.42	14.7	1.42	10.9	11.7	14.7	3.06	--	--	--	--	2.33	0.379	--	--	B	10.5	13.4	13.8	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	94 / 176	pCi/g	0.228	1.16	0.221	4.18	0.635	223	18.6	0.221	7.38	223	25.1	-0.025	1.24	0.604	1.39	B	37.6	82.8	101	--	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	17 / 176	pCi/g	0.266	1.38	0.266	0.724	0.529	15.2	1.23	0.376	2.39	15.2	3.59	-0.57	0.521	0.29	0.997	B	2.93	6.04	7.25	--	1500	9500	100,000	0.002	3.1E-04
Uranium-238	84 / 176	pCi/g	0.204	1.06	0.204	2.89	0.542	204	16.1	0.323	5.54	204	23.1	-0.284	1.06	0.314	1.25	B	34.4	75.8	92.4	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.733	0.505

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.81. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased) without samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Building 9210 all media (random and biased) without samples 9210H1S005 and 9210W2B006																											
Metals																											
Antimony	9 / 12	mg/kg	0.156	0.325	0.078	7.75	0.514	82.5	23.6	0.375	10.3	82.5	27.1	-0.291	1.86	0.319	1.74	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	8 / 12	mg/kg	0.16	1.6	0.08	3.61	2.54	14.7	4.3	0.582	5.27	14.7	4.42	0.313	1.75	1.31	0.989	L	4.94	13.1	16.8	165	--	--	--	--	--
Barium	12 / 12	mg/kg	--	--	0.16	164	23.6	947	319	0.16	164	947	319	2.44	3.15	2.44	3.15	L	421	1507	1999	62,657	--	150,000	--	--	0.003
Beryllium	6 / 12	mg/kg	0.009	0.018	0.005	0.086	0.035	0.32	0.102	0.06	0.165	0.32	0.091	-3.43	1.62	-1.93	0.574	B	0.077	0.149	0.174	--	--	--	--	--	--
Boron	8 / 12	mg/kg	0.379	0.659	0.19	5.21	3.59	17.5	5.83	2.45	7.67	17.5	5.7	0.761	1.66	1.81	0.719	B	5.34	9.58	10.9	--	--	24,000	--	--	2.2E-04
Cadmium	9 / 12	mg/kg	0.012	0.019	0.006	1.56	0.371	8.09	2.6	0.054	2.07	8.09	2.85	-1.51	2.55	-0.39	1.82	L	2.75	9.0	11.8	238	--	--	--	--	--
Chromium	12 / 12	mg/kg	--	--	4.72	20.3	14.2	77.7	19.6	4.72	20.3	77.7	19.6	2.72	0.761	2.72	0.761	L	20.2	30.6	35.9	121	--	140,000	--	--	1.4E-04
Copper	12 / 12	mg/kg	--	--	0.67	24.1	9.09	74.2	27.6	0.67	24.1	74.2	27.6	2.4	1.44	2.4	1.44	L	31.0	97.9	159	565	--	--	--	--	--
Hafnium	1 / 12	mg/kg	0.284	0.595	0.142	0.356	0.274	1.54	0.376	1.54	1.54	1.54	--	-1.26	0.575	0.432	--	B	0.463	0.781	0.893	--	--	--	--	--	--
Lead	12 / 12	mg/kg	--	--	0.543	76.7	17.0	294	117	0.543	76.7	294	117	2.72	2.15	2.72	2.15	L	98.6	296	385	5529	--	1500	--	--	0.066
Manganese	12 / 12	mg/kg	--	--	1.05	213	98.1	774	280	1.05	213	774	280	4.16	2.01	4.16	2.01	L	331	955	1237	15,526	--	360,000	--	--	9.2E-04
Mercury	8 / 12	mg/kg	0.002	0.004	0.001	0.068	0.014	0.59	0.166	0.006	0.101	0.59	0.198	-4.36	1.9	-3.34	1.43	L	0.077	0.506	1.15	2.27	--	--	--	--	--
Molybdenum	12 / 12	mg/kg	--	--	0.086	11.2	0.986	91.1	25.7	0.086	11.2	91.1	25.7	0.352	2.31	0.352	2.31	L	11.8	36.7	47.9	787	--	3900	--	--	0.003
Nickel	12 / 12	mg/kg	--	--	0.587	17.7	5.58	101	29.0	0.587	17.7	101	29.0	1.98	1.37	1.98	1.37	L	18.5	52.9	82.3	306	--	--	--	--	--
Selenium	4 / 12	mg/kg	0.17	1.7	0.085	0.421	0.164	1.65	0.464	0.409	0.81	1.65	0.578	-1.31	0.946	-0.377	0.639	L	0.421	0.746	0.94	3.58	--	1600	--	--	2.6E-04
Silver	5 / 12	mg/kg	0.047	0.984	0.024	3.58	0.471	25.4	7.26	0.09	8.2	25.4	9.95	-0.631	2.26	1.12	2.12	L	4.09	12.6	16.4	259	--	--	--	--	--
Strontium	8 / 12	mg/kg	0.357	0.55	0.179	104	23.8	478	153	1.1	156	478	166	2.23	3.16	4.07	2.0	B	95.6	199	238	--	--	300,000	--	--	3.2E-04
Thallium	2 / 12	mg/kg	0.066	0.139	0.033	0.09	0.064	0.263	0.078	0.249	0.256	0.263	0.01	-2.63	0.628	-1.36	0.039	B	0.092	0.146	0.164	--	--	--	--	--	--
Tin	11 / 12	mg/kg	0.247	0.247	0.124	4.4	4.98	10.2	3.17	0.361	4.78	10.2	3.01	0.951	1.39	1.23	1.05	N	4.4	5.64	6.04	--	--	2200	--	--	0.002
Vanadium	7 / 12	mg/kg	0.142	0.275	0.071	5.62	2.28	22.5	7.18	0.914	9.55	22.5	7.16	0.199	2.25	1.91	1.05	B	5.28	10.4	12.2	--	--	25,000	--	--	2.1E-04
Zinc	12 / 12	mg/kg	--	--	5.9	4656	45.1	42,700	12,299	5.9	4656	42,700	12,299	4.87	2.96	4.87	2.96	B	7148	15,801	19,288	--	--	--	--	--	--
Zirconium	9 / 12	mg/kg	0.238	0.367	0.119	7.24	1.09	54.7	15.6	0.379	9.6	54.7	17.6	0.312	1.93	1.04	1.65	L	8.85	62.7	146	271	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 9	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	9 / 9	mg/L	--	--	0.021	0.216	0.133	0.579	0.191	0.021	0.216	0.579	0.191	-2.04	1.22	-2.04	1.22	N	0.216	0.305	0.334	0.794	--	--	--	--	--
Cadmium	2 / 9	mg/L	0.003	0.003	0.002	0.006	0.003	0.03	0.008	0.004	0.017	0.03	0.018	-6.07	1.0	-4.56	1.47	X*	0.006	0.018	0.023	--	--	--	--	--	--
Chromium	6 / 9	mg/L	0.03	0.03	0.015	0.101	0.078	0.235	0.073	0.065	0.136	0.235	0.071	-2.8	1.12	-2.11	0.518	N*	0.101	0.138	0.15	0.302	--	--	--	--	--
Lead	4 / 9	mg/L	0.005	0.005	0.003	0.071	0.005	0.41	0.125	0.024	0.154	0.41	0.174	-4.38	2.04	-2.36	1.16	G*	0.071	0.236	0.365	1.08	--	--	--	--	--
Mercury	0 / 3	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 9	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 9	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 10	mg/kg	0.002	0.066	8.3E-04	0.007	0.004	0.033	0.01	0.009	0.009	0.009	--	-5.57	1.06	-4.73	--	L	0.007	0.015	0.021	0.082	--	119	--	--	5.6E-05
Silvex	0 / 10	mg/kg	0.002	0.066	8.3E-04	0.006	0.003	0.033	0.01	--	--	--	--	-5.81	1.11	--	--	B	0.007	0.014	0.017	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.005	4.9E-04	0.014	0.006	0.014	0.014	0.014	--	-6.59	1.76	-4.27	--	B	0.003	0.006	0.007	--	77,000	--	--	3.5E-08	--
4,4'-DDE	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.01	0.003	0.049	0.015	0.002	0.022	0.049	0.024	-6.01	1.98	-4.58	1.76	L	0.012	0.034	0.044	0.785	130,000	--	--	8.9E-08	--
4,4'-DDT	3 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.038	0.003	0.326	0.101	0.002	0.116	0.326	0.182	-5.73	2.33	-3.82	2.66	L	0.026	0.082	0.107	2.83	--	--	--	--	--
Aldrin	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	7.3E-04	0.012	0.005	0.001	0.001	0.001	--	-6.73	1.49	-6.88	--	B	0.003	0.005	0.006	--	--	30,000	--	--	8.5E-08
Endrin ketone	0 / 10	mg/kg	3.9E-04	0.025	2.0E-04	0.003	4.9E-04	0.012	0.005	--	--	--	--	-6.86	1.56	--	--	B	0.002	0.005	0.006	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	2400	69,000	--	NSRC	NSRC

Table G.81. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased) without samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	0.002	0.002	0.002	--	-7.4	1.63	-6.08	--	B	0.001	0.002	0.003	--	180	940	--	6.7E-06	1.3E-06
Methoxychlor	0 / 10	mg/kg	0.002	0.123	9.8E-04	0.016	0.002	0.062	0.025	--	--	--	--	-5.25	1.56	--	--	B	0.012	0.025	0.03	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 10	mg/kg	0.007	0.408	0.003	0.054	0.008	0.204	0.082	--	--	--	--	-4.05	1.56	--	--	B	0.04	0.082	0.099	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 10	mg/kg	2.0E-04	0.012	9.8E-05	0.002	2.5E-04	0.006	0.002	--	--	--	--	-7.55	1.56	--	--	B	0.001	0.002	0.003	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 91	mg/kg	0.014	29.4	0.007	0.444	0.144	14.7	1.58	0.406	0.406	0.406	--	-2.14	1.44	-0.901	--	B	2.55	5.57	6.76	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	6 / 91	mg/kg	0.001	2.94	7.0E-04	0.337	0.014	14.1	1.84	0.066	4.48	14.1	6.18	-4.23	1.85	-0.253	2.47	B	2.36	5.22	6.37	14.1	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	850	--	NSRC	NSRC
Acenaphthene	6 / 91	mg/kg	0.001	2.94	7.0E-04	0.438	0.014	23.7	2.72	0.034	6.02	23.7	9.64	-4.25	1.85	-0.458	2.81	B	3.96	8.76	10.7	23.7	--	390,000	--	--	1.0E-05
Acenaphthylene	2 / 91	mg/kg	0.001	2.94	7.0E-04	0.051	0.014	1.47	0.166	0.309	0.382	0.455	0.103	-4.42	1.5	-0.981	0.274	B	0.254	0.556	0.676	0.455	--	93,200	--	NSRC	NSRC
Acetophenone	1 / 91	mg/kg	0.014	29.4	0.007	0.442	0.137	14.7	1.58	0.305	0.305	0.305	--	-2.16	1.43	-1.19	--	B	2.54	5.56	6.76	0.305	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 91	mg/kg	0.014	29.4	0.007	0.445	0.137	14.7	1.58	0.623	0.623	0.623	--	-2.15	1.44	-0.473	--	B	2.54	5.56	6.76	0.623	--	1200	--	NSRC	NSRC
Benzidine	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	0.161	1.2	--	NSRC	NSRC
Benzoic acid	1 / 91	mg/kg	0.023	49	0.012	0.735	0.228	24.5	2.64	0.092	0.092	0.092	--	-1.64	1.41	-2.38	--	B	4.24	9.26	11.3	0.092	--	9810	--	NSRC	NSRC
Carbazole	11 / 91	mg/kg	0.002	2.94	7.6E-04	0.199	0.015	8.86	1.06	0.004	1.31	8.86	2.88	-4.2	1.74	-2.17	2.33	B	1.49	3.28	4.01	8.86	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	14 / 91	mg/kg	0.015	29.4	0.008	0.594	0.149	14.7	1.75	0.109	1.08	7.67	1.94	-1.82	1.49	-0.612	1.06	B	2.55	5.57	6.77	7.67	--	190	--	--	0.013
Diethyl phthalate	1 / 91	mg/kg	0.014	29.4	0.007	0.442	0.144	14.7	1.58	0.215	0.215	0.215	--	-2.15	1.43	-1.54	--	B	2.55	5.57	6.76	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 91	mg/kg	0.014	29.4	0.007	0.441	0.137	14.7	1.58	0.031	0.031	0.031	--	-2.15	1.41	-3.49	--	B	2.54	5.56	6.76	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	2800	500	--	NSRC	NSRC
Isophorone	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Phenol	1 / 91	mg/kg	0.014	29.4	0.007	0.442	0.137	14.7	1.58	0.349	0.349	0.349	--	-2.16	1.44	-1.05	--	B	2.54	5.56	6.76	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 91	mg/kg	0.014	29.4	0.007	0.44	0.137	14.7	1.58	--	--	--	--	-2.17	1.43	--	--	B	2.54	5.56	6.76	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	4 / 4	pCi/g	--	--	1.35	2.15	2.08	3.08	0.795	1.35	2.15	3.08	0.795	0.71	0.379	0.71	0.379	B	2.12	2.57	2.67	--	--	--	--	--	--
Alpha activity	34 / 109	pCi/g	1.87	9.97	1.49	10.4	7.39	201	20.0	1.49	21.9	201	33.1	1.88	0.831	2.71	0.788	B	38.7	80.9	97.1	--	--	--	--	--	--
Americium-241	0 / 26	pCi/g	0.152	0.611	0.152	0.32	0.244	0.611	0.157	--	--	--	--	-1.25	0.47	--	--	B	0.29	0.402	0.437	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	52 / 109	pCi/g	0.528	5.99	0.528	17.9	4.76	757	76.3	1.78	33.5	757	109	1.89	0.985	2.59	0.98	B	129	284	346	--	--	--	--	--	--
Bismuth-214	9 / 9	pCi/g	--	--	0.353	1.15	1.11	2.16	0.671	0.353	1.15	2.16	0.671	-0.036	0.664	-0.036	0.664	N	1.15	1.46	1.57	3.19	--	--	--	--	--
Carbon-14	4 / 105	pCi/g	0.198	2.4	0.198	1.16	0.738	2.4	0.736	0.661	0.902	1.32	0.312	-0.072	0.682	-0.146	0.331	B	0.925	1.48	1.64	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	15 / 105	pCi/g	0.025	0.544	0.025	0.184	0.118	1.01	0.187	0.098	0.5	1.01	0.27	-2.05	0.801	-0.852	0.624	B	0.251	0.476	0.554	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 105	pCi/g	0.014	0.514	0.014	0.137	0.113	0.514	0.095	--	--	--	--	-2.2	0.669	--	--	L	0.139	0.153	0.158	0.401	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 105	pCi/g	0.083	1.26	0.083	0.578	0.545	1.26	0.269	--	--	--	--	-0.674	0.538	--	--	N	0.578	0.612	0.621	1.09	13	--	1500	NSRC	NSRC
Lead-212	14 / 14	pCi/g	--	--	0.294	1.01	0.826	2.32	0.725	0.294	1.01	2.32	0.725	-0.267	0.802	-0.267	0.802	B	0.986	1.5	1.64	--	--	--	--	--	--

Table G.81. Y-12 Biology Complex summary statistics for Y-12 Building 9210 all media (random and biased) without samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	9 / 9	pCi/g	--	--	0.394	1.23	1.06	2.17	0.696	0.394	1.23	2.17	0.696	0.037	0.646	0.037	0.646	N	1.23	1.55	1.66	3.34	--	--	--	--	--
Neptunium-237	0 / 26	pCi/g	0.189	0.935	0.189	0.474	0.471	0.935	0.189	--	--	--	--	-0.827	0.418	--	--	N	0.474	0.523	0.538	0.905	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 105	pCi/g	0.41	22.2	0.41	1.19	0.832	22.2	2.28	--	--	--	--	-0.108	0.51	--	--	B	4.32	8.87	10.6	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 26	pCi/g	0.147	0.966	0.147	0.322	0.216	0.966	0.244	--	--	--	--	-1.33	0.589	--	--	B	0.33	0.514	0.58	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 26	pCi/g	0.207	1.15	0.207	0.403	0.285	1.15	0.279	--	--	--	--	-1.07	0.53	--	--	B	0.416	0.629	0.704	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 26	pCi/g	7.61	23.4	7.61	11.2	9.53	23.4	3.84	--	--	--	--	2.37	0.297	--	--	B	11.5	15.2	16.4	--	--	--	790,000	NSRC	NSRC
Potassium-40	26 / 26	pCi/g	--	--	1.83	8.89	6.38	32.5	7.02	1.83	8.89	32.5	7.02	1.92	0.741	1.92	0.741	L	8.99	11.5	12.4	36.9	--	--	4.2E+06	--	--
Radium-226	48 / 105	pCi/g	0.039	0.995	0.039	0.585	0.506	2.92	0.417	0.137	0.724	2.92	0.547	-0.721	0.639	-0.509	0.584	B	0.83	1.52	1.75	--	--	--	300,000	--	--
Strontium-89	4 / 105	pCi/g	0.973	1.99	0.973	1.67	1.64	4.2	0.378	1.57	2.81	4.2	1.11	0.493	0.194	0.97	0.414	B	1.96	2.75	2.99	--	--	--	--	NSRC	NSRC
Strontium-90	1 / 105	pCi/g	0.823	2	0.823	1.61	1.63	2	0.29	1.79	1.79	1.79	--	0.459	0.194	0.582	--	B	1.56	1.83	1.88	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 109	pCi/g	2.58	8.91	2.58	5.27	5.12	8.91	1.39	--	--	--	--	1.63	0.266	--	--	N	5.27	5.45	5.49	7.93	172	--	4.2E+07	NSRC	NSRC
Thallium-208	5 / 5	pCi/g	--	--	0.192	0.482	0.519	0.737	0.208	0.192	0.482	0.737	0.208	-0.824	0.521	-0.824	0.521	B	0.501	0.634	0.661	--	--	--	--	--	--
Thorium-228	14 / 105	pCi/g	0.082	1.33	0.082	0.602	0.534	2.82	0.394	0.223	1.0	2.82	0.797	-0.678	0.592	-0.354	0.923	L	0.605	0.658	0.675	1.58	--	--	25,000	--	--
Thorium-230	32 / 105	pCi/g	0.063	1.01	0.063	0.587	0.488	2.91	0.421	0.267	0.858	2.91	0.631	-0.714	0.596	-0.375	0.656	B	0.821	1.5	1.72	--	--	--	15,000	--	--
Thorium-232	18 / 105	pCi/g	0.06	0.969	0.06	0.475	0.412	2.28	0.342	0.162	0.773	2.28	0.673	-0.925	0.593	-0.657	0.939	B	0.665	1.2	1.37	--	--	--	2500	--	--
Total Uranium	42 / 105	pCi/g	0.12	2.13	0.12	3.06	1.17	31.8	5.2	0.7	6.02	31.8	7.3	0.442	0.991	1.11	1.18	B	6.1	12.8	15.4	--	--	--	--	--	--
Tritium	0 / 105	pCi/g	1.66	15.3	1.66	9.9	9.76	15.3	3.12	--	--	--	--	2.23	0.406	--	--	B	9.33	12.7	13.4	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	36 / 109	pCi/g	0.067	1.19	0.067	1.66	0.625	17.2	2.89	0.283	3.83	17.2	4.29	-0.202	1.0	0.656	1.23	B	3.29	6.93	8.33	--	1700	2.8E+07	100,000	0.002	1.2E-07
Uranium-235/236	4 / 109	pCi/g	0.078	1.38	0.078	0.674	0.61	1.4	0.279	0.585	0.823	1.4	0.387	-0.484	0.451	-0.264	0.405	L	0.682	0.725	0.738	1.46	1500	9500	100,000	NSRC	NSRC
Uranium-238	32 / 109	pCi/g	0.061	1.09	0.061	1.25	0.538	13.2	2.08	0.43	2.99	13.2	3.26	-0.362	0.908	0.521	1.1	B	2.57	5.37	6.44	--	1200	1500	100,000	0.002	0.002
																									SOF =	0.004	0.18

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.82. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207 and 9210 all media (random and biased)																											
Metals																											
Antimony	23 / 33	mg/kg	0.156	0.326	0.078	4.24	0.528	82.5	14.6	0.375	6.02	82.5	17.2	-0.412	1.6	0.272	1.44	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	21 / 33	mg/kg	0.16	1.6	0.08	3.85	1.86	31.2	6.0	0.582	5.94	31.2	6.7	0.199	1.78	1.39	0.885	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	30 / 33	mg/kg	0.053	0.099	0.026	310	18.4	7410	1291	0.117	341	7410	1353	2.14	3.21	2.67	2.84	B	1247	2753	3358	--	--	150,000	--	--	0.008
Beryllium	17 / 33	mg/kg	0.005	0.082	0.002	0.111	0.024	0.545	0.154	0.019	0.207	0.545	0.165	-3.37	1.68	-1.97	1.03	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	18 / 33	mg/kg	0.187	3.26	0.094	126	1.63	3990	694	1.18	230	3990	938	0.673	2.15	2.19	1.75	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	24 / 33	mg/kg	0.011	0.02	0.005	1.48	0.24	10.9	2.92	0.05	2.04	10.9	3.27	-1.66	2.43	-0.468	1.68	B	1.98	4.26	5.14	--	--	--	--	--	--
Chromium	33 / 33	mg/kg	--	--	0.405	60.3	10.6	1290	223	0.405	60.3	1290	223	2.42	1.63	2.42	1.63	L	60.3	177	229	401	--	140,000	--	--	4.3E-04
Copper	33 / 33	mg/kg	--	--	0.306	25.2	9.77	184	38.3	0.306	25.2	184	38.3	2.16	1.69	2.16	1.69	L	36.0	74.9	96.7	347	--	--	--	--	--
Hafnium	5 / 33	mg/kg	0.14	2.93	0.07	0.436	0.284	1.54	0.41	0.568	1.05	1.54	0.454	-1.12	0.707	-0.037	0.475	B	0.458	0.807	0.922	--	--	--	--	--	--
Lead	33 / 33	mg/kg	--	--	0.06	189	12.3	2210	458	0.06	189	2210	458	2.82	2.62	2.82	2.62	L	522	2629	4665	5175	--	1500	--	--	0.348
Manganese	33 / 33	mg/kg	--	--	0.144	218	84.2	1530	345	0.144	218	1530	345	3.61	2.62	3.61	2.62	B	311	645	769	--	--	360,000	--	--	8.6E-04
Mercury	27 / 33	mg/kg	0.002	0.004	0.001	0.52	0.024	13	2.27	0.005	0.635	13	2.51	-3.7	2.14	-3.09	1.86	B	2.18	4.82	5.88	--	--	--	--	--	--
Molybdenum	28 / 33	mg/kg	0.05	0.079	0.025	6.7	0.624	91.1	16.7	0.05	7.89	91.1	17.9	-0.27	2.29	0.293	2.01	L	10.5	37.2	58.1	114	--	3900	--	--	0.003
Nickel	33 / 33	mg/kg	--	--	0.217	25.9	5.91	284	55.0	0.217	25.9	284	55.0	1.79	1.8	1.79	1.8	L	30.3	68.9	91.8	307	--	--	--	--	--
Selenium	9 / 33	mg/kg	0.084	1.75	0.042	0.516	0.177	3.25	0.638	0.409	1.14	3.25	0.89	-1.21	1.04	-0.084	0.668	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	15 / 33	mg/kg	0.047	1.17	0.024	3.05	0.458	25.4	5.57	0.09	6.45	25.4	6.94	-0.745	2.18	1.0	1.72	B	4.54	9.82	11.9	--	--	--	--	--	--
Strontium	22 / 33	mg/kg	0.317	2.45	0.159	79.0	4.07	478	123	0.631	118	478	135	1.85	2.89	3.41	2.22	B	82.4	180	219	--	--	300,000	--	--	2.7E-04
Thallium	3 / 33	mg/kg	0.033	0.684	0.016	0.1	0.066	0.342	0.093	0.249	0.256	0.263	0.007	-2.59	0.705	-1.36	0.027	B	0.104	0.181	0.207	--	--	--	--	--	--
Tin	22 / 33	mg/kg	0.158	3.5	0.079	6.99	1.75	132	22.6	0.361	10.3	132	27.3	0.362	1.82	1.35	1.22	B	23.2	50.4	61.2	--	--	2200	--	--	0.011
Vanadium	21 / 33	mg/kg	0.142	1.22	0.071	12.8	1.36	173	31.6	0.113	20.0	173	38.0	0.443	2.36	1.86	1.72	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	33 / 33	mg/kg	--	--	1.33	1997	32.6	42,700	7557	1.33	1997	42,700	7557	4.35	2.51	4.35	2.51	L	1801	7996	13,552	18,645	--	--	--	--	--
Zirconium	19 / 33	mg/kg	0.094	1.63	0.047	7.75	0.699	54.7	14.3	0.379	13.3	54.7	16.9	0.13	2.13	1.55	1.68	B	9.59	20.9	25.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 24	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.005	0.024	0.033	0.041	0.012	-4.66	0.378	-3.46	0.387	X*	0.018	0.023	0.025	--	--	--	--	--	--
Barium	24 / 24	mg/L	--	--	0.021	0.238	0.236	0.929	0.208	0.021	0.238	0.929	0.208	-1.89	1.11	-1.89	1.11	G	0.238	0.318	0.347	0.998	--	--	--	--	--
Cadmium	7 / 24	mg/L	0.003	0.003	0.002	0.007	0.003	0.039	0.01	0.004	0.018	0.039	0.014	-5.88	1.11	-4.38	0.989	X*	0.007	0.014	0.017	--	--	--	--	--	--
Chromium	16 / 24	mg/L	0.03	0.03	0.015	0.116	0.065	0.85	0.165	0.033	0.159	0.85	0.194	-2.87	1.16	-2.2	0.798	G*	0.116	0.159	0.179	0.56	--	--	--	--	--
Lead	14 / 24	mg/L	0.005	0.005	0.003	0.526	0.017	5.97	1.38	0.007	0.897	5.97	1.77	-3.45	2.62	-1.64	1.9	G*	0.526	0.974	1.18	3.81	--	--	--	--	--
Mercury	0 / 8	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 24	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 24	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	0.009	0.009	0.009	--	-5.55	1.57	-4.73	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	--	--	--	--	-5.63	1.59	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.014	0.014	0.014	--	-7.2	1.82	-4.27	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	9 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.01	0.049	0.015	-6.51	1.83	-5.56	1.41	B	0.009	0.019	0.023	--	130,000	--	--	6.9E-08	--
4,4'-DDT	5 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.017	5.0E-04	0.326	0.061	0.001	0.07	0.326	0.143	-6.67	1.97	-4.9	2.39	B	0.055	0.121	0.147	--	--	--	--	--	--
Aldrin	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.003	0.004	0.005	0.002	-7.15	1.78	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.001	0.001	0.001	--	-7.25	1.72	-6.88	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.82. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.9E-05	7.9E-05	7.9E-05	--	-7.95	1.68	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	2 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.1E-04	0.001	0.002	0.001	-7.82	1.69	-6.66	0.821	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 29	mg/kg	0.002	1.65	7.5E-04	0.08	0.008	0.825	0.213	--	--	--	--	-4.49	1.73	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 235	mg/kg	0.006	29.4	0.003	0.395	0.148	14.7	1.12	0.406	0.406	0.406	--	-1.98	1.36	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	15 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.295	0.015	31.1	2.32	0.032	4.03	31.1	8.61	-4.1	1.67	-1.07	2.42	B	5.19	11.5	14.0	0.198	--	4000	--	--	0.001
2-Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	850	--	NSRC	NSRC
Acenaphthene	11 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.221	0.015	23.7	1.74	0.034	3.91	23.7	7.38	-4.14	1.62	-0.746	2.37	B	3.96	8.76	10.7	0.085	--	390,000	--	NSRC	NSRC
Acenaphthylene	3 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.042	0.015	1.47	0.117	0.08	0.281	0.455	0.189	-4.27	1.39	-1.5	0.915	B	0.255	0.557	0.677	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	4 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.23	0.325	0.405	0.075	-1.98	1.36	-1.15	0.244	B	2.55	5.57	6.77	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	5 / 235	mg/kg	0.006	29.4	0.003	0.41	0.148	14.7	1.13	0.41	0.931	1.54	0.449	-1.95	1.38	-0.174	0.524	B	2.55	5.57	6.77	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 235	mg/kg	0.006	29.4	0.003	0.397	0.148	14.7	1.12	1.17	1.17	1.17	--	-1.98	1.36	0.157	--	B	2.55	5.57	6.77	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 235	mg/kg	0.023	49	0.012	0.675	0.246	24.5	1.88	0.036	0.923	2.73	1.07	-1.43	1.34	-1.06	1.77	B	4.25	9.28	11.3	0.036	--	9810	--	NSRC	NSRC
Carbazole	17 / 235	mg/kg	0.002	2.94	7.6E-04	0.108	0.015	8.86	0.671	0.002	0.974	8.86	2.35	-4.14	1.51	-2.39	2.28	B	1.49	3.28	4.01	0.125	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	31 / 235	mg/kg	0.006	29.4	0.003	0.585	0.149	22.4	1.89	0.028	1.58	22.4	4.11	-1.73	1.42	-0.694	1.4	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02
Diethyl phthalate	1 / 235	mg/kg	0.006	29.4	0.003	0.394	0.148	14.7	1.12	0.215	0.215	0.215	--	-1.98	1.35	-1.54	--	B	2.55	5.57	6.77	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	3 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.031	0.344	0.569	0.28	-1.97	1.35	-1.63	1.62	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	8 / 235	mg/kg	0.006	29.4	0.003	0.428	0.148	14.7	1.15	0.35	1.33	3.54	0.984	-1.93	1.4	0.079	0.678	B	2.55	5.57	6.77	0.672	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 235	mg/kg	0.014	29.4	0.007	0.438	0.148	14.7	1.24	0.013	1.8	6.21	2.97	-1.94	1.35	-1.72	2.51	B	2.55	5.57	6.77	0.013	--	--	--	NSRC	NSRC
Phenol	4 / 235	mg/kg	0.006	29.4	0.003	0.412	0.148	14.7	1.14	0.349	1.28	2.61	1.12	-1.96	1.38	-0.137	1.06	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	15 / 15	pCi/g	--	--	0.688	1.86	1.83	3.08	0.604	0.688	1.86	3.08	0.604	0.563	0.366	0.563	0.366	N	1.86	2.07	2.13	3.41	--	--	--	--	--
Alpha activity	114 / 285	pCi/g	1.48	9.99	1.48	14.3	7.57	575	38.9	1.49	27.9	575	58.9	2.02	0.945	2.79	0.905	B	101	219	266	--	--	--	--	--	--
Americium-241	0 / 67	pCi/g	0.142	0.611	0.142	0.261	0.227	0.611	0.114	--	--	--	--	-1.42	0.362	--	--	B	0.277	0.391	0.427	0.127	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	153 / 285	pCi/g	0.528	5.99	0.528	17.2	5.15	757	56.3	1.56	28.8	757	75.0	2.01	1.02	2.66	0.972	B	130	284	346	--	--	--	--	--	--
Bismuth-214	30 / 30	pCi/g	--	--	0.353	1.17	1.12	2.16	0.481	0.353	1.17	2.16	0.481	0.067	0.466	0.067	0.466	N	1.17	1.29	1.32	2.24	--	--	--	--	--
Carbon-14	9 / 268	pCi/g	0.082	2.52	0.082	3.0	1.75	416	25.4	0.549	49.4	416	138	0.14	0.827	1.14	2.15	B	70.5	155	189	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	22 / 268	pCi/g	0.015	0.648	0.015	0.147	0.115	1.01	0.134	0.093	0.394	1.01	0.273	-2.16	0.669	-1.17	0.723	B	0.247	0.475	0.554	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 268	pCi/g	0.011	0.606	0.011	0.134	0.121	0.606	0.083	--	--	--	--	-2.18	0.606	--	--	B	0.183	0.328	0.374	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 268	pCi/g	0.078	1.37	0.078	0.644	0.598	1.37	0.287	--	--	--	--	-0.56	0.527	--	--	B	0.64	0.971	1.05	--	13	--	1500	NSRC	NSRC
Lead-212	46 / 46	pCi/g	--	--	0.294	1.11	1.2	2.32	0.63	0.294	1.11	2.32	0.63	-0.095	0.683	-0.095	0.683	B	1.23	1.75	1.88	--	--	--	--	--	--

Table G.82. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	30 / 30	pCi/g	--	--	0.394	1.31	1.15	2.29	0.594	0.394	1.31	2.29	0.594	0.147	0.534	0.147	0.534	B	1.21	1.7	1.82	--	--	--	--	--	--
Neptunium-237	0 / 67	pCi/g	0.131	0.935	0.131	0.369	0.322	0.935	0.17	--	--	--	--	-1.09	0.446	--	--	L	0.37	0.399	0.409	0.816	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 268	pCi/g	0.41	22.2	0.41	1.07	0.872	22.2	1.53	0.834	0.834	0.834	--	-0.1	0.413	-0.182	--	B	4.35	8.91	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 67	pCi/g	0.147	0.966	0.147	0.287	0.225	0.966	0.173	--	--	--	--	-1.37	0.453	--	--	B	0.336	0.522	0.588	0.092	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 67	pCi/g	0.149	1.15	0.149	0.327	0.263	1.15	0.207	--	--	--	--	-1.25	0.474	--	--	B	0.392	0.624	0.703	0.087	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 67	pCi/g	7.61	23.5	7.61	12.2	12.4	23.5	3.41	--	--	--	--	2.47	0.269	--	--	B	13.5	17.5	18.6	8.6	--	--	790,000	NSRC	NSRC
Potassium-40	69 / 69	pCi/g	--	--	1.83	13.2	7.97	47.3	11.2	1.83	13.2	47.3	11.2	2.27	0.803	2.27	0.803	B	13.5	24.2	27.8	47.3	--	--	4.2E+06	--	--
Radium-226	98 / 268	pCi/g	0.039	1.05	0.039	0.707	0.608	3.15	0.466	0.137	0.956	3.15	0.656	-0.507	0.573	-0.237	0.611	B	0.937	1.69	1.93	--	--	--	300,000	--	--
Strontium-89	5 / 268	pCi/g	0.448	2	0.448	1.64	1.71	4.2	0.377	1.57	2.83	4.2	0.96	0.462	0.262	0.991	0.361	B	1.91	2.87	3.13	--	--	--	--	NSRC	NSRC
Strontium-90	17 / 268	pCi/g	0.38	2	0.38	1.68	1.64	14.4	0.997	1.03	3.78	14.4	3.09	0.443	0.365	1.13	0.604	B	3.56	6.74	7.86	--	--	--	400,000	--	--
Technetium-99	14 / 285	pCi/g	2.22	9.69	0.113	8.16	5.67	678	39.9	0.113	58.2	678	178	1.71	0.481	2.26	1.83	B	117	256	311	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	20 / 20	pCi/g	--	--	0.192	0.504	0.525	0.737	0.139	0.192	0.504	0.737	0.139	-0.734	0.343	-0.734	0.343	N	0.504	0.545	0.557	0.836	--	--	--	--	--
Thorium-228	39 / 268	pCi/g	0.082	1.38	0.082	0.654	0.581	2.82	0.385	0.223	1.12	2.82	0.661	-0.569	0.538	-0.117	0.752	B	0.871	1.54	1.75	--	--	--	25,000	--	--
Thorium-230	79 / 268	pCi/g	0.063	1.13	0.063	0.633	0.534	2.91	0.383	0.267	0.895	2.91	0.553	-0.596	0.519	-0.28	0.576	B	0.851	1.54	1.76	--	--	--	15,000	--	--
Thorium-232	55 / 268	pCi/g	0.06	0.98	0.06	0.529	0.436	2.36	0.363	0.162	0.877	2.36	0.618	-0.804	0.557	-0.414	0.794	B	0.694	1.25	1.43	--	--	--	2500	--	--
Total Uranium	137 / 268	pCi/g	0.12	2.13	0.12	3.51	1.22	82.4	7.67	0.471	5.9	82.4	10.2	0.476	1.01	1.0	1.13	B	14.6	31.6	38.3	--	--	--	--	--	--
Tritium	0 / 268	pCi/g	1.42	15.3	1.42	10.5	11.3	15.3	3.11	--	--	--	--	2.29	0.392	--	--	B	10.3	13.5	14.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	130 / 285	pCi/g	0.067	1.19	0.067	3.21	0.632	223	14.8	0.221	6.4	223	21.5	-0.092	1.15	0.618	1.34	B	37.6	82.9	101	--	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	21 / 285	pCi/g	0.078	1.38	0.078	0.705	0.562	15.2	0.982	0.376	2.09	15.2	3.28	-0.537	0.496	0.185	0.932	B	2.92	6.13	7.36	--	1500	9500	100,000	0.002	3.1E-04
Uranium-238	116 / 285	pCi/g	0.061	1.09	0.061	2.26	0.542	204	12.7	0.323	4.84	204	19.7	-0.314	1.0	0.371	1.2	B	34.4	75.8	92.5	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.053	0.533

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.83. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9210 and 9401-1 all media (random and biased)																											
Metals																											
Antimony	14 / 20	mg/kg	0.156	0.332	0.078	6.5	0.514	82.5	18.4	0.313	9.22	82.5	21.7	-0.151	1.89	0.635	1.72	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	19 / 25	mg/kg	0.16	1.6	0.08	6.19	3.1	38.4	9.61	0.582	8.04	38.4	10.4	0.723	1.69	1.42	1.2	L	8.62	20.9	28.8	99.5	--	--	--	--	--
Barium	23 / 25	mg/kg	0.042	0.174	0.021	91.9	18.3	947	229	0.16	99.8	947	238	1.92	2.91	2.36	2.58	L	248	805	1058	5363	--	150,000	--	--	0.002
Beryllium	10 / 20	mg/kg	0.009	0.1	0.005	0.097	0.047	0.462	0.123	0.025	0.178	0.462	0.131	-3.26	1.51	-2.01	0.848	B	0.109	0.213	0.25	--	--	--	--	--	--
Boron	13 / 20	mg/kg	0.379	4	0.19	10.9	2.72	99.2	22.4	1.95	16.3	99.2	26.6	1.08	1.73	2.05	1.16	L	13.1	38.3	57.5	185	--	24,000	--	--	5.5E-04
Cadmium	21 / 25	mg/kg	0.012	0.035	0.006	1.52	0.194	8.09	2.32	0.011	1.8	8.09	2.43	-1.48	2.41	-0.868	2.13	B	1.48	3.17	3.83	--	--	--	--	--	--
Chromium	25 / 25	mg/kg	--	--	1.92	27.7	13.8	134	33.7	1.92	27.7	134	33.7	2.71	1.14	2.71	1.14	L	29.0	46.1	54.2	207	--	140,000	--	--	2.1E-04
Copper	20 / 20	mg/kg	--	--	0.67	79.8	10.9	657	183	0.67	79.8	657	183	2.72	1.82	2.72	1.82	L	80.3	261	409	1203	--	--	--	--	--
Hafnium	2 / 20	mg/kg	0.284	3	0.142	1.4	0.283	19.4	4.26	1.54	10.5	19.4	12.6	-0.881	1.12	1.7	1.79	B	3.45	7.39	8.96	--	--	--	--	--	--
Lead	25 / 25	mg/kg	--	--	0.543	61.2	8.22	319	103	0.543	61.2	319	103	2.48	1.98	2.48	1.98	L	84.5	270	414	1111	--	1500	--	--	0.056
Manganese	20 / 20	mg/kg	--	--	1.05	397	125	3250	728	1.05	397	3250	728	4.68	1.95	4.68	1.95	L	716	2691	4457	11,407	--	360,000	--	--	0.002
Mercury	16 / 25	mg/kg	0.002	0.016	8.4E-04	0.073	0.021	0.59	0.14	0.005	0.112	0.59	0.164	-4.13	1.93	-3.0	1.36	L	0.103	0.314	0.471	1.34	--	--	--	--	--
Molybdenum	19 / 20	mg/kg	0.079	0.079	0.039	12.7	1.0	91.1	26.2	0.086	13.4	91.1	26.8	0.378	2.33	0.568	2.23	L	15.1	44.1	57.3	390	--	3900	--	--	0.004
Nickel	20 / 20	mg/kg	--	--	0.587	36.5	6.6	302	75.5	0.587	36.5	302	75.5	2.19	1.63	2.19	1.63	L	33.8	89.0	128	445	--	--	--	--	--
Selenium	9 / 25	mg/kg	0.15	1.8	0.075	0.504	0.314	2.71	0.588	0.409	0.895	2.71	0.784	-1.15	0.952	-0.351	0.671	L	0.497	0.707	0.798	2.8	--	1600	--	--	3.1E-04
Silver	14 / 25	mg/kg	0.047	1	0.024	3.72	0.5	25.4	6.44	0.09	6.39	25.4	7.68	-0.147	1.98	1.05	1.56	L	6.13	19.7	30.2	80.6	--	--	--	--	--
Strontium	13 / 20	mg/kg	0.357	0.6	0.179	201	9.8	2470	549	1.1	310	2470	664	2.16	3.21	4.07	2.25	B	418	921	1123	--	--	300,000	--	--	0.001
Thallium	2 / 20	mg/kg	0.066	0.7	0.033	0.107	0.066	0.35	0.097	0.249	0.256	0.263	0.01	-2.5	0.675	-1.36	0.039	B	0.108	0.18	0.205	--	--	--	--	--	--
Tin	19 / 20	mg/kg	0.247	0.247	0.124	7.0	4.47	37.9	9.69	0.361	7.37	37.9	9.81	1.2	1.39	1.38	1.18	L	8.71	18.1	23.8	92.3	--	2200	--	--	0.004
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
Vanadium	12 / 20	mg/kg	0.142	1.5	0.071	5.56	1.67	23.2	7.48	0.881	9.14	23.2	7.85	0.28	2.07	1.74	1.14	B	4.99	10.1	12.0	--	--	25,000	--	--	2.0E-04
Zinc	20 / 20	mg/kg	--	--	5.9	12,113	57.2	108,000	29,681	5.9	12,113	108,000	29,681	5.2	3.19	5.2	3.19	B	18,039	39,912	48,732	--	--	--	--	--	--
Zirconium	16 / 20	mg/kg	0.238	2	0.119	6.39	1.21	54.7	12.5	0.379	7.89	54.7	13.6	0.511	1.73	0.991	1.54	L	7.38	21.5	32.2	104	--	--	--	--	--
TCLP Metals																											
Arsenic	1 / 21	mg/L	0.017	0.017	0.009	0.009	0.009	0.026	0.004	0.026	0.026	0.026	--	-4.71	0.244	-3.65	--	X	0.009	0.012	0.013	--	--	--	--	NSRC	NSRC
Barium	21 / 21	mg/L	--	--	0.012	0.167	0.124	0.579	0.151	0.012	0.167	0.579	0.151	-2.29	1.16	-2.29	1.16	L	0.197	0.335	0.406	1.57	--	--	--	--	--
Cadmium	10 / 21	mg/L	0.003	0.003	0.002	0.011	0.003	0.055	0.015	0.003	0.02	0.055	0.019	-5.51	1.3	-4.41	1.1	X*	0.011	0.021	0.026	--	--	--	--	--	--
Chromium	12 / 21	mg/L	0.03	0.03	0.015	0.086	0.057	0.235	0.073	0.035	0.127	0.235	0.075	-3.08	1.1	-2.23	0.628	G*	0.086	0.113	0.127	0.406	--	--	--	--	--
Lead	11 / 21	mg/L	0.005	0.005	0.003	0.081	0.019	0.41	0.122	0.019	0.15	0.41	0.142	-4.1	2.01	-2.38	1.11	G*	0.081	0.131	0.15	0.654	--	--	--	--	--
Mercury	0 / 13	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 21	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 21	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 19	mg/kg	0.002	0.066	8.3E-04	0.006	0.004	0.033	0.007	0.009	0.009	0.009	--	-5.43	0.869	-4.73	--	L	0.006	0.009	0.011	0.036	--	119	--	--	5.4E-05
Silvex	0 / 19	mg/kg	0.002	0.066	8.3E-04	0.006	0.004	0.033	0.007	--	--	--	--	-5.55	0.931	--	--	B	0.008	0.016	0.018	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.008	0.005	0.046	0.011	0.014	0.014	0.014	--	-5.8	1.62	-4.27	--	B	0.011	0.022	0.025	--	77,000	--	--	1.4E-07	--
4,4'-DDE	3 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.01	0.005	0.049	0.014	0.002	0.022	0.049	0.024	-5.49	1.62	-4.58	1.76	L	0.015	0.041	0.061	0.21	130,000	--	--	1.2E-07	--
4,4'-DDT	4 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.027	0.005	0.326	0.074	0.002	0.097	0.326	0.153	-5.27	1.86	-3.66	2.2	L	0.029	0.103	0.168	0.466	--	--	--	--	--
Aldrin	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 19	mg/kg	0.002	0.465	9.8E-04	0.035	0.024	0.233	0.053	--	--	--	--	-4.33	1.6	--	--	B	0.055	0.108	0.127	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	330,000	--	NSRC	NSRC

Table G.83. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	0.001	0.001	0.001	--	-5.87	1.53	-6.88	--	L	0.009	0.022	0.031	0.114	--	30,000	--	--	3.0E-07
Endrin ketone	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.004	0.002	0.023	0.005	0.002	0.002	0.002	--	-6.55	1.58	-6.08	--	B	0.006	0.011	0.013	--	180	940	--	3.1E-05	5.9E-06
Methoxychlor	0 / 19	mg/kg	0.002	0.465	9.8E-04	0.035	0.024	0.233	0.053	--	--	--	--	-4.33	1.6	--	--	B	0.055	0.108	0.127	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 19	mg/kg	0.007	1.55	0.003	0.116	0.082	0.775	0.176	--	--	--	--	-3.13	1.6	--	--	B	0.184	0.361	0.423	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 152	mg/kg	0.014	29.4	0.007	0.576	0.149	14.7	1.34	0.406	0.406	0.406	--	-1.69	1.5	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	22 / 152	mg/kg	0.001	2.94	7.0E-04	0.356	0.015	14.1	1.53	0.011	2.16	14.1	3.58	-3.67	1.99	-0.678	2.06	B	2.36	5.22	6.37	5.37	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 152	mg/kg	0.014	29.4	0.007	0.602	0.149	14.7	1.4	0.034	1.99	5.9	3.39	-1.68	1.51	-1.65	2.97	B	2.55	5.57	6.77	0.034	--	850	--	NSRC	NSRC
Acenaphthene	20 / 152	mg/kg	0.001	2.94	7.0E-04	0.646	0.015	23.7	2.54	0.034	4.59	23.7	5.67	-3.59	2.19	0.531	1.83	B	3.96	8.76	10.7	9.23	--	390,000	--	--	1.0E-05
Acenaphthylene	4 / 152	mg/kg	0.001	2.94	7.0E-04	0.072	0.015	1.54	0.185	0.309	0.666	1.54	0.586	-3.95	1.58	-0.639	0.731	B	0.267	0.583	0.708	0.359	--	93,200	--	NSRC	NSRC
Acetophenone	3 / 152	mg/kg	0.014	29.4	0.007	0.626	0.149	14.7	1.45	0.305	3.7	6.62	3.18	-1.68	1.54	0.711	1.66	B	2.55	5.57	6.77	0.305	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 152	mg/kg	0.014	29.4	0.007	0.576	0.149	14.7	1.34	0.623	0.623	0.623	--	-1.69	1.51	-0.473	--	B	2.55	5.57	6.77	0.623	--	1200	--	NSRC	NSRC
Benzidine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 152	mg/kg	0.023	49	0.012	0.965	0.249	24.5	2.23	0.092	0.821	1.55	1.03	-1.16	1.5	-0.972	1.99	B	4.25	9.28	11.3	0.092	--	9810	--	NSRC	NSRC
Carbazole	29 / 152	mg/kg	0.002	2.94	7.6E-04	0.84	0.015	16.7	2.84	0.004	4.19	16.7	5.39	-3.42	2.29	-0.297	2.61	B	2.79	6.18	7.54	15.8	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	14 / 152	mg/kg	0.015	29.4	0.008	0.665	0.15	14.7	1.45	0.109	1.08	7.67	1.94	-1.49	1.49	-0.612	1.06	B	2.55	5.57	6.77	1.02	--	190	--	--	0.013

Table G.83. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	2 / 152	mg/kg	0.014	29.4	0.007	0.575	0.149	14.7	1.34	0.104	0.16	0.215	0.078	-1.68	1.5	-1.9	0.514	B	2.55	5.57	6.77	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	0.031	0.031	0.031	--	-1.69	1.49	-3.49	--	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Phenol	1 / 152	mg/kg	0.014	29.4	0.007	0.575	0.149	14.7	1.34	0.349	0.349	0.349	--	-1.69	1.51	-1.05	--	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	9 / 9	pCi/g	--	--	1.05	1.77	1.64	3.08	0.645	1.05	1.77	3.08	0.645	0.518	0.338	0.518	0.338	N	1.77	2.07	2.17	3.73	--	--	--	--	--
Alpha activity	69 / 171	pCi/g	1.87	9.97	1.49	12.9	8.04	234	24.0	1.49	23.6	234	35.1	2.1	0.846	2.8	0.738	B	44.6	93.7	113	--	--	--	--	--	--
Americium-241	0 / 41	pCi/g	0.152	0.611	0.152	0.299	0.228	0.611	0.135	--	--	--	--	-1.29	0.405	--	--	B	0.279	0.39	0.425	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	94 / 171	pCi/g	0.528	6.16	0.528	21.9	5.75	757	67.1	1.78	36.8	757	87.9	2.17	1.13	2.91	1.01	B	130	285	347	--	--	--	--	--	--
Bismuth-214	25 / 25	pCi/g	--	--	0.353	1.1	1.05	2.16	0.438	0.353	1.1	2.16	0.438	0.013	0.423	0.013	0.423	L	1.11	1.25	1.31	2.67	--	--	--	--	--
Carbon-14	6 / 166	pCi/g	0.198	2.4	0.198	3.59	0.724	416	32.2	0.661	70.1	416	169	-0.087	0.804	0.867	2.54	B	69.8	154	188	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	15 / 166	pCi/g	0.025	1.09	0.025	0.188	0.13	1.09	0.18	0.098	0.5	1.01	0.27	-1.98	0.752	-0.852	0.624	B	0.272	0.516	0.601	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 166	pCi/g	0.014	1.07	0.014	0.165	0.133	1.07	0.139	--	--	--	--	-2.05	0.697	--	--	L	0.164	0.194	0.207	0.472	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 166	pCi/g	0.083	1.32	0.083	0.597	0.557	1.32	0.269	--	--	--	--	-0.631	0.511	--	--	B	0.605	0.923	1.0	--	13	--	1500	NSRC	NSRC
Lead-212	42 / 42	pCi/g	--	--	0.294	1.08	1.06	2.32	0.492	0.294	1.08	2.32	0.492	-0.046	0.534	-0.046	0.534	N	1.08	1.18	1.21	2.12	--	--	--	--	--
Lead-214	27 / 27	pCi/g	--	--	0.394	1.11	1.03	2.17	0.448	0.394	1.11	2.17	0.448	0.032	0.403	0.032	0.403	L	1.12	1.25	1.3	2.57	--	--	--	--	--
Neptunium-237	0 / 41	pCi/g	0.189	0.935	0.189	0.406	0.336	0.935	0.183	--	--	--	--	-0.993	0.424	--	--	B	0.411	0.594	0.651	--	320	--	10,000	NSRC	NSRC

Table G.83. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nickel-63	0 / 166	pCi/g	0.323	22.2	0.323	1.15	0.828	22.2	1.87	--	--	--	--	-0.114	0.55	--	--	B	4.31	8.89	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 41	pCi/g	0.125	0.966	0.125	0.301	0.221	0.966	0.205	--	--	--	--	-1.36	0.529	--	--	B	0.329	0.524	0.591	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 41	pCi/g	0.176	1.15	0.176	0.387	0.286	1.15	0.238	--	--	--	--	-1.08	0.485	--	--	B	0.412	0.637	0.715	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 41	pCi/g	7.61	23.4	7.61	11.2	10.3	23.4	3.22	--	--	--	--	2.38	0.255	--	--	B	12.0	15.8	17.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	58 / 58	pCi/g	--	--	1.83	20.5	16	64.5	16.8	1.83	20.5	64.5	16.8	2.66	0.919	2.66	0.919	B	21.7	37.3	42.0	--	--	--	4.2E+06	--	--
Radium-226	84 / 166	pCi/g	0.039	1.39	0.039	0.649	0.533	2.92	0.418	0.137	0.827	2.92	0.486	-0.614	0.634	-0.341	0.558	B	0.848	1.54	1.77	--	--	--	300,000	--	--
Strontium-89	7 / 166	pCi/g	0.973	1.99	0.973	1.69	1.69	4.23	0.386	1.57	2.74	4.23	1.12	0.502	0.192	0.937	0.404	B	1.99	2.8	3.04	--	--	--	--	NSRC	NSRC
Strontium-90	1 / 166	pCi/g	0.823	2.24	0.823	1.65	1.67	2.24	0.28	1.79	1.79	1.79	--	0.482	0.184	0.582	--	B	1.62	1.97	2.04	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 180	pCi/g	0.738	9.58	0.738	5.33	5.19	9.58	1.58	--	--	--	--	1.61	0.385	--	--	N	5.33	5.48	5.52	8.25	172	--	4.2E+07	NSRC	NSRC
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thallium-208	12 / 12	pCi/g	--	--	0.192	0.475	0.524	0.737	0.146	0.192	0.475	0.737	0.146	-0.797	0.361	-0.797	0.361	N	0.475	0.532	0.55	0.874	--	--	--	--	--
Thorium-228	41 / 175	pCi/g	0.082	3.76	0.082	0.691	0.608	3.76	0.438	0.223	1.01	2.82	0.5	-0.529	0.574	-0.136	0.589	B	1.05	1.92	2.21	--	--	--	25,000	--	--
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	69 / 175	pCi/g	0.063	3.09	0.063	0.69	0.552	3.2	0.491	0.267	0.977	3.2	0.569	-0.562	0.611	-0.18	0.57	B	0.912	1.66	1.91	--	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	51 / 175	pCi/g	0.06	2.68	0.06	0.589	0.471	2.68	0.411	0.162	0.941	2.28	0.491	-0.729	0.63	-0.249	0.693	L	0.589	0.631	0.644	1.55	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	78 / 166	pCi/g	0.12	2.13	0.12	3.81	1.27	215	17.0	0.7	6.9	215	24.6	0.439	0.917	0.939	1.06	B	36.7	80.6	98.1	--	--	--	--	--	--
Tritium	0 / 166	pCi/g	1.66	32.1	1.66	10.1	9.99	32.1	3.26	--	--	--	--	2.25	0.36	--	--	B	12.3	20.0	22.2	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	77 / 180	pCi/g	0.067	1.19	0.067	5.23	0.664	679	50.6	0.283	11.5	679	77.2	-0.201	0.996	0.369	1.24	B	114	251	307	--	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	5 / 180	pCi/g	0.078	211	0.078	1.83	0.603	211	15.7	0.585	1.33	3.38	1.19	-0.471	0.599	0.033	0.75	B	35.6	78.4	95.7	--	1500	9500	100,000	NSRC	NSRC
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	71 / 180	pCi/g	0.061	1.09	0.061	33.5	0.576	5660	422	0.106	84.2	5660	672	-0.304	1.12	0.33	1.5	B	944	2089	2552	--	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	0.943	0.803

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

Table G.83. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.84. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207 and 9401-1 all media (random and biased)																											
Metals																											
Antimony	19 / 29	mg/kg	0.174	0.332	0.087	2.89	0.528	17.3	5.21	0.313	4.33	17.3	5.98	-0.332	1.63	0.495	1.43	B	3.25	6.87	8.27	--	--	160	--	--	0.02
Arsenic	24 / 34	mg/kg	0.178	1.49	0.089	5.74	2.05	38.4	9.49	0.753	8.05	38.4	10.5	0.503	1.79	1.46	1.1	B	7.78	16.1	19.2	--	--	--	--	--	--
Barium	29 / 34	mg/kg	0.042	0.174	0.021	252	13.3	7410	1267	0.117	296	7410	1370	1.76	3.06	2.62	2.42	B	1244	2748	3353	--	--	150,000	--	--	0.008
Beryllium	15 / 29	mg/kg	0.005	0.1	0.002	0.122	0.033	0.545	0.169	0.019	0.221	0.545	0.187	-3.24	1.64	-2.02	1.2	B	0.113	0.232	0.275	--	--	--	--	--	--
Boron	15 / 29	mg/kg	0.187	4	0.094	146	1.77	3990	740	1.18	282	3990	1026	0.881	2.29	2.48	2.03	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	27 / 34	mg/kg	0.011	0.035	0.005	1.46	0.229	10.9	2.76	0.011	1.83	10.9	3.0	-1.63	2.38	-0.831	1.98	B	1.97	4.25	5.13	--	--	--	--	--	--
Chromium	34 / 34	mg/kg	--	--	0.405	64.6	10.4	1290	220	0.405	64.6	1290	220	2.43	1.78	2.43	1.78	L	54.9	120	158	541	--	140,000	--	--	3.9E-04
Copper	29 / 29	mg/kg	--	--	0.306	63.7	15	657	156	0.306	63.7	657	156	2.34	2.01	2.34	2.01	L	78.3	231	341	923	--	--	--	--	--
Hafnium	5 / 29	mg/kg	0.14	3	0.07	1.17	0.297	19.4	3.54	0.568	4.62	19.4	8.27	-0.836	1.05	0.47	1.45	B	3.44	7.43	9.0	--	--	--	--	--	--
Lead	34 / 34	mg/kg	--	--	0.06	174	10.7	2210	453	0.06	174	2210	453	2.64	2.54	2.64	2.54	L	354	1581	2680	3539	--	1500	--	--	0.236
Manganese	29 / 29	mg/kg	--	--	0.144	346	85.9	3250	664	0.144	346	3250	664	3.89	2.78	3.89	2.78	B	599	1284	1548	--	--	360,000	--	--	0.002
Mercury	27 / 34	mg/kg	0.002	0.016	8.4E-04	0.51	0.031	13	2.24	0.005	0.642	13	2.5	-3.55	2.13	-2.89	1.84	L	0.278	0.819	1.2	2.96	--	--	--	--	--
Molybdenum	23 / 29	mg/kg	0.05	0.079	0.025	7.09	0.624	79.7	16.6	0.05	8.93	79.7	18.3	-0.339	2.34	0.458	1.94	L	11.0	45.7	76.4	132	--	3900	--	--	0.003
Nickel	29 / 29	mg/kg	--	--	0.217	40.0	6.08	302	80.5	0.217	40.0	302	80.5	1.9	2.03	1.9	2.03	L	52.5	158	235	622	--	--	--	--	--
Selenium	10 / 34	mg/kg	0.084	1.8	0.042	0.575	0.25	3.25	0.702	0.417	1.18	3.25	0.994	-1.1	1.05	-0.09	0.72	L	0.578	0.808	0.903	3.26	--	1600	--	--	3.6E-04
Silver	19 / 34	mg/kg	0.053	1.17	0.026	3.16	0.543	21.1	5.02	0.147	5.49	21.1	5.77	-0.386	2.05	0.981	1.43	B	3.88	8.31	10.0	--	--	--	--	--	--
Strontium	19 / 29	mg/kg	0.317	2.45	0.159	143	2.69	2470	457	0.631	218	2470	555	1.74	2.94	3.3	2.43	B	413	914	1116	--	--	300,000	--	--	0.001
Thallium	1 / 29	mg/kg	0.033	0.7	0.016	0.113	0.068	0.35	0.106	0.257	0.257	0.257	--	-2.49	0.75	-1.36	--	B	0.106	0.186	0.212	--	--	--	--	NSRC	NSRC
Tin	19 / 29	mg/kg	0.158	3.5	0.079	9.14	1.75	132	25.1	0.582	13.7	132	30.3	0.454	1.95	1.51	1.37	L	10.5	29.2	42.1	122	--	2200	--	--	0.005
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
Vanadium	19 / 29	mg/kg	0.158	1.5	0.079	13.7	1.36	173	33.6	0.113	20.9	173	40.0	0.533	2.29	1.75	1.83	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	29 / 29	mg/kg	--	--	1.33	6772	50.9	108,000	24,241	1.33	6772	108,000	24,241	4.5	2.73	4.5	2.73	B	18,034	39,907	48,728	--	--	--	--	--	--
Zirconium	17 / 29	mg/kg	0.094	2	0.047	7.24	0.815	45.5	12.2	0.404	12.2	45.5	14.0	0.241	2.08	1.56	1.63	B	8.13	17.6	21.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	3 / 27	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.005	0.024	0.03	0.041	0.009	-4.63	0.407	-3.52	0.295	X*	0.018	0.022	0.024	--	--	--	--	--	--
Barium	27 / 27	mg/L	--	--	0.012	0.198	0.186	0.929	0.188	0.012	0.198	0.929	0.188	-2.1	1.13	-2.1	1.13	G	0.198	0.26	0.283	0.906	--	--	--	--	--
Cadmium	13 / 27	mg/L	0.003	0.003	0.002	0.011	0.003	0.055	0.015	0.003	0.02	0.055	0.018	-5.47	1.29	-4.35	1.01	X*	0.011	0.02	0.024	--	--	--	--	--	--
Chromium	16 / 27	mg/L	0.03	0.03	0.015	0.103	0.037	0.85	0.159	0.033	0.153	0.85	0.197	-3.07	1.15	-2.3	0.855	G*	0.103	0.136	0.152	0.472	--	--	--	--	--
Lead	17 / 27	mg/L	0.005	0.005	0.003	0.483	0.022	5.97	1.3	0.007	0.764	5.97	1.62	-3.34	2.52	-1.78	1.82	G*	0.483	0.841	0.996	3.23	--	--	--	--	--
Mercury	0 / 15	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 27	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 27	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	119	--	NSRC	NSRC
Silvex	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.004	0.011	0.004	-6.18	1.74	-6.05	1.03	L	0.009	0.022	0.03	0.103	130,000	--	--	7.3E-08	--
4,4'-DDT	3 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.009	8.6E-04	0.05	0.016	0.001	0.015	0.042	0.023	-6.39	1.83	-5.4	1.92	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.008	8.6E-04	0.05	0.015	0.003	0.004	0.005	0.002	-6.54	1.99	-5.62	0.432	L	0.01	0.031	0.046	0.126	--	330,000	--	--	3.2E-08

Table G.84. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.9E-05	7.9E-05	7.9E-05	--	-7.34	1.93	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.1E-04	7.1E-04	7.1E-04	--	-7.26	1.88	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 28	mg/kg	0.002	1.65	7.5E-04	0.123	0.008	0.825	0.248	--	--	--	--	-3.88	1.99	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	25 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.306	0.015	31.1	2.24	0.011	2.16	31.1	6.16	-3.66	1.75	-1.11	2.09	B	5.19	11.5	14.0	2.37	--	4000	--	--	0.001
2-Methylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 203	mg/kg	0.006	11.3	0.003	0.51	0.149	5.9	0.846	0.034	1.99	5.9	3.39	-1.6	1.38	-1.65	2.97	B	1.08	2.32	2.8	0.034	--	850	--	NSRC	NSRC
Acenaphthene	19 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.346	0.015	9.23	1.33	0.048	3.29	9.23	3.12	-3.63	1.88	0.417	1.62	B	1.55	3.42	4.17	5.39	--	390,000	--	--	4.0E-06
Acenaphthylene	3 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.057	0.015	1.54	0.131	0.08	0.66	1.54	0.775	-3.89	1.41	-1.04	1.48	B	0.267	0.583	0.709	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	5 / 203	mg/kg	0.006	11.3	0.003	0.53	0.149	6.62	0.903	0.23	2.36	6.62	2.91	-1.59	1.4	-0.016	1.55	B	1.2	2.59	3.13	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 203	mg/kg	0.006	11.3	0.003	0.505	0.149	5.65	0.763	0.41	1.01	1.54	0.478	-1.58	1.39	-0.099	0.573	B	1.04	2.23	2.69	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 203	mg/kg	0.006	11.3	0.003	0.493	0.149	5.65	0.76	1.17	1.17	1.17	--	-1.6	1.38	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 203	mg/kg	0.03	18.9	0.015	0.843	0.248	9.45	1.27	0.036	1.17	2.73	1.01	-1.05	1.36	-0.588	1.72	B	1.74	3.73	4.49	0.119	--	9810	--	NSRC	NSRC
Carbazole	24 / 203	mg/kg	0.002	1.13	8.9E-04	0.576	0.015	16.7	2.39	0.002	4.55	16.7	5.62	-3.54	1.97	-0.067	2.65	B	2.79	6.18	7.54	6.69	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	17 / 203	mg/kg	0.006	11.3	0.003	0.641	0.149	22.4	1.72	0.028	1.99	22.4	5.32	-1.47	1.4	-0.762	1.66	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02

Table G.84. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	1 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.758	0.104	0.104	0.104	--	-1.61	1.37	-2.26	--	B	1.04	2.23	2.69	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 203	mg/kg	0.006	11.3	0.003	0.492	0.149	5.65	0.758	0.432	0.501	0.569	0.097	-1.6	1.38	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 203	mg/kg	0.006	11.3	0.003	0.528	0.149	5.65	0.791	0.35	1.33	3.54	0.984	-1.55	1.41	0.079	0.678	B	1.04	2.23	2.69	1.06	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 203	mg/kg	0.019	11.3	0.01	0.54	0.149	6.21	0.938	0.013	1.8	6.21	2.97	-1.56	1.36	-1.72	2.51	B	1.14	2.43	2.94	0.05	--	--	--	NSRC	NSRC
Phenol	3 / 203	mg/kg	0.006	11.3	0.003	0.51	0.149	5.65	0.777	0.351	1.59	2.61	1.15	-1.58	1.4	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	16 / 16	pCi/g	--	--	0.688	1.67	1.64	2.49	0.481	0.688	1.67	2.49	0.481	0.464	0.328	0.464	0.328	N	1.67	1.83	1.88	2.88	--	--	--	--	--
Alpha activity	111 / 234	pCi/g	1.48	9.99	1.48	17.1	8.99	575	43.2	3.09	29.7	575	60.3	2.22	0.955	2.9	0.849	B	102	221	267	--	--	--	--	--	--
Americium-241	0 / 54	pCi/g	0.142	0.482	0.142	0.231	0.226	0.482	0.059	--	--	--	--	-1.49	0.234	--	--	L	0.231	0.253	0.263	0.362	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	139 / 234	pCi/g	1.22	6.16	1.22	19.6	5.98	370	41.9	1.56	30.5	370	51.7	2.21	1.11	2.85	0.992	B	65.9	142	172	--	--	--	--	--	--
Bismuth-214	37 / 37	pCi/g	--	--	0.484	1.13	1.08	1.96	0.341	0.484	1.13	1.96	0.341	0.081	0.308	0.081	0.308	N	1.13	1.21	1.23	1.87	--	--	--	--	--
Carbon-14	5 / 222	pCi/g	0.082	2.52	0.082	1.47	1.67	17.2	1.35	0.549	5.18	17.2	6.9	0.118	0.744	0.916	1.39	B	3.99	7.89	9.26	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 222	pCi/g	0.015	1.09	0.015	0.143	0.12	1.09	0.114	0.093	0.167	0.218	0.055	-2.14	0.607	-1.84	0.371	B	0.264	0.509	0.595	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 222	pCi/g	0.011	1.07	0.011	0.154	0.129	1.07	0.12	--	--	--	--	-2.06	0.618	--	--	B	0.266	0.511	0.595	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 222	pCi/g	0.078	1.37	0.078	0.666	0.612	1.37	0.283	--	--	--	--	-0.512	0.492	--	--	B	0.649	0.98	1.06	--	13	--	1500	NSRC	NSRC
Lead-212	60 / 60	pCi/g	--	--	0.332	1.13	1.08	2.25	0.484	0.332	1.13	2.25	0.484	0.019	0.495	0.019	0.495	N	1.13	1.22	1.24	2.11	--	--	--	--	--
Lead-214	39 / 39	pCi/g	--	--	0.43	1.21	1.09	2.29	0.465	0.43	1.21	2.29	0.465	0.118	0.395	0.118	0.395	L	1.22	1.33	1.37	2.61	--	--	--	--	--
Neptunium-237	0 / 54	pCi/g	0.131	0.586	0.131	0.301	0.282	0.586	0.11	--	--	--	--	-1.26	0.351	--	--	N	0.301	0.32	0.326	0.525	320	--	10,000	NSRC	NSRC

Table G.84. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nickel-63	1 / 222	pCi/g	0.323	8.99	0.323	1.01	0.875	8.99	0.723	0.834	0.834	0.834	--	-0.104	0.433	-0.182	--	B	2.14	4.05	4.75	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 54	pCi/g	0.125	0.503	0.125	0.263	0.228	0.503	0.104	--	--	--	--	-1.41	0.367	--	--	B	0.257	0.352	0.379	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 54	pCi/g	0.149	0.596	0.149	0.301	0.236	0.596	0.138	--	--	--	--	-1.29	0.426	--	--	B	0.282	0.391	0.425	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 54	pCi/g	7.95	23.5	7.95	12.6	12.9	23.5	2.7	--	--	--	--	2.51	0.211	--	--	B	13.8	17.8	18.9	--	--	--	790,000	NSRC	NSRC
Potassium-40	75 / 75	pCi/g	--	--	2.75	21.9	16.6	64.5	15.8	2.75	21.9	64.5	15.8	2.81	0.781	2.81	0.781	B	22.3	37.6	42.2	64.5	--	--	4.2E+06	--	--
Radium-226	84 / 222	pCi/g	0.189	1.39	0.189	0.779	0.679	3.15	0.461	0.26	1.1	3.15	0.577	-0.386	0.513	-0.026	0.491	L	0.775	0.86	0.898	1.74	--	--	300,000	--	--
Strontium-89	4 / 222	pCi/g	0.448	2	0.448	1.64	1.76	4.23	0.384	1.81	2.72	4.23	1.13	0.465	0.273	0.937	0.399	B	1.95	2.92	3.18	--	--	--	--	NSRC	NSRC
Strontium-90	16 / 222	pCi/g	0.38	2.24	0.38	1.72	1.67	14.4	1.08	1.03	3.9	14.4	3.15	0.455	0.388	1.16	0.606	B	3.58	6.76	7.88	--	--	--	400,000	--	--
Technetium-99	14 / 243	pCi/g	0.738	9.69	0.113	8.68	5.78	678	43.2	0.113	58.2	678	178	1.72	0.564	2.26	1.83	B	117	256	311	--	172	--	4.2E+07	0.679	--
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thallium-208	22 / 22	pCi/g	--	--	0.212	0.498	0.529	0.692	0.111	0.212	0.498	0.692	0.111	-0.727	0.264	-0.727	0.264	N	0.498	0.529	0.538	0.759	--	--	--	--	--
Thorium-228	52 / 231	pCi/g	0.203	3.76	0.203	0.724	0.62	3.76	0.409	0.256	1.09	2.4	0.447	-0.447	0.488	-0.005	0.464	L	0.72	0.793	0.826	1.56	--	--	25,000	--	--
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	84 / 231	pCi/g	0.205	3.09	0.205	0.715	0.577	3.2	0.43	0.331	0.99	3.2	0.501	-0.468	0.492	-0.126	0.484	B	0.952	1.65	1.89	--	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	70 / 231	pCi/g	0.162	2.68	0.162	0.62	0.483	2.68	0.408	0.231	0.977	2.36	0.488	-0.643	0.551	-0.169	0.579	B	0.796	1.39	1.58	--	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	129 / 222	pCi/g	0.421	2.03	0.421	4.18	1.27	215	16.2	0.471	6.51	215	20.9	0.486	0.971	0.913	1.05	B	36.7	80.5	98.0	--	--	--	--	--	--
Tritium	0 / 222	pCi/g	1.42	32.1	1.42	10.7	11.2	32.1	3.19	--	--	--	--	2.32	0.352	--	--	B	13.1	20.9	23.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	135 / 243	pCi/g	0.228	1.16	0.221	6.15	0.664	679	46.2	0.221	10.7	679	61.7	-0.062	1.18	0.456	1.35	B	114	251	307	--	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	18 / 243	pCi/g	0.266	211	0.266	1.57	0.554	211	13.5	0.376	2.44	15.2	3.5	-0.532	0.61	0.342	0.991	B	35.6	78.3	95.5	--	1500	9500	100,000	0.024	0.004
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	121 / 243	pCi/g	0.204	1.06	0.106	26.4	0.566	5660	363	0.106	52.5	5660	515	-0.252	1.17	0.29	1.43	B	944	2089	2552	--	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	**1.65**	0.961

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

Table G.84. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased)

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected											E(X) divided by
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	Analytic WAC Carc.	Analytic WAC HI

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.85. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207 and 9210 all media (random)																											
Metals																											
Antimony	23 / 33	mg/kg	0.156	0.326	0.078	4.24	0.528	82.5	14.6	0.375	6.02	82.5	17.2	-0.412	1.6	0.272	1.44	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	21 / 33	mg/kg	0.16	1.6	0.08	3.85	1.86	31.2	6.0	0.582	5.94	31.2	6.7	0.199	1.78	1.39	0.885	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	30 / 33	mg/kg	0.053	0.099	0.026	310	18.4	7410	1291	0.117	341	7410	1353	2.14	3.21	2.67	2.84	B	1247	2753	3358	--	--	150,000	--	--	0.008
Beryllium	17 / 33	mg/kg	0.005	0.082	0.002	0.111	0.024	0.545	0.154	0.019	0.207	0.545	0.165	-3.37	1.68	-1.97	1.03	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	18 / 33	mg/kg	0.187	3.26	0.094	126	1.63	3990	694	1.18	230	3990	938	0.673	2.15	2.19	1.75	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	24 / 33	mg/kg	0.011	0.02	0.005	1.48	0.24	10.9	2.92	0.05	2.04	10.9	3.27	-1.66	2.43	-0.468	1.68	B	1.98	4.26	5.14	--	--	--	--	--	--
Chromium	33 / 33	mg/kg	--	--	0.405	60.3	10.6	1290	223	0.405	60.3	1290	223	2.42	1.63	2.42	1.63	L	60.3	177	229	401	--	140,000	--	--	4.3E-04
Copper	33 / 33	mg/kg	--	--	0.306	25.2	9.77	184	38.3	0.306	25.2	184	38.3	2.16	1.69	2.16	1.69	L	36.0	74.9	96.7	347	--	--	--	--	--
Hafnium	5 / 33	mg/kg	0.14	2.93	0.07	0.436	0.284	1.54	0.41	0.568	1.05	1.54	0.454	-1.12	0.707	-0.037	0.475	B	0.458	0.807	0.922	--	--	--	--	--	--
Lead	33 / 33	mg/kg	--	--	0.06	189	12.3	2210	458	0.06	189	2210	458	2.82	2.62	2.82	2.62	L	522	2629	4665	5175	--	1500	--	--	0.348
Manganese	33 / 33	mg/kg	--	--	0.144	218	84.2	1530	345	0.144	218	1530	345	3.61	2.62	3.61	2.62	B	311	645	769	--	--	360,000	--	--	8.6E-04
Mercury	27 / 33	mg/kg	0.002	0.004	0.001	0.52	0.024	13	2.27	0.005	0.635	13	2.51	-3.7	2.14	-3.09	1.86	B	2.18	4.82	5.88	--	--	--	--	--	--
Molybdenum	28 / 33	mg/kg	0.05	0.079	0.025	6.7	0.624	91.1	16.7	0.05	7.89	91.1	17.9	-0.27	2.29	0.293	2.01	L	10.5	37.2	58.1	114	--	3900	--	--	0.003
Nickel	33 / 33	mg/kg	--	--	0.217	25.9	5.91	284	55.0	0.217	25.9	284	55.0	1.79	1.8	1.79	1.8	L	30.3	68.9	91.8	307	--	--	--	--	--
Selenium	9 / 33	mg/kg	0.084	1.75	0.042	0.516	0.177	3.25	0.638	0.409	1.14	3.25	0.89	-1.21	1.04	-0.084	0.668	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	15 / 33	mg/kg	0.047	1.17	0.024	3.05	0.458	25.4	5.57	0.09	6.45	25.4	6.94	-0.745	2.18	1.0	1.72	B	4.54	9.82	11.9	--	--	--	--	--	--
Strontium	22 / 33	mg/kg	0.317	2.45	0.159	79.0	4.07	478	123	0.631	118	478	135	1.85	2.89	3.41	2.22	B	82.4	180	219	--	--	300,000	--	--	2.7E-04
Thallium	3 / 33	mg/kg	0.033	0.684	0.016	0.1	0.066	0.342	0.093	0.249	0.256	0.263	0.007	-2.59	0.705	-1.36	0.027	B	0.104	0.181	0.207	--	--	--	--	--	--
Tin	22 / 33	mg/kg	0.158	3.5	0.079	6.99	1.75	132	22.6	0.361	10.3	132	27.3	0.362	1.82	1.35	1.22	B	23.2	50.4	61.2	--	--	2200	--	--	0.011
Vanadium	21 / 33	mg/kg	0.142	1.22	0.071	12.8	1.36	173	31.6	0.113	20.0	173	38.0	0.443	2.36	1.86	1.72	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	33 / 33	mg/kg	--	--	1.33	1997	32.6	42,700	7557	1.33	1997	42,700	7557	4.35	2.51	4.35	2.51	L	1801	7996	13,552	18,645	--	--	--	--	--
Zirconium	19 / 33	mg/kg	0.094	1.63	0.047	7.75	0.699	54.7	14.3	0.379	13.3	54.7	16.9	0.13	2.13	1.55	1.68	B	9.59	20.9	25.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 24	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.005	0.024	0.033	0.041	0.012	-4.66	0.378	-3.46	0.387	X*	0.018	0.023	0.025	--	--	--	--	--	--
Barium	24 / 24	mg/L	--	--	0.021	0.238	0.236	0.929	0.208	0.021	0.238	0.929	0.208	-1.89	1.11	-1.89	1.11	G	0.238	0.318	0.347	0.998	--	--	--	--	--
Cadmium	7 / 24	mg/L	0.003	0.003	0.002	0.007	0.003	0.039	0.01	0.004	0.018	0.039	0.014	-5.88	1.11	-4.38	0.989	X*	0.007	0.014	0.017	--	--	--	--	--	--
Chromium	16 / 24	mg/L	0.03	0.03	0.015	0.116	0.065	0.85	0.165	0.033	0.159	0.85	0.194	-2.87	1.16	-2.2	0.798	G*	0.116	0.159	0.179	0.56	--	--	--	--	--
Lead	14 / 24	mg/L	0.005	0.005	0.003	0.526	0.017	5.97	1.38	0.007	0.897	5.97	1.77	-3.45	2.62	-1.64	1.9	G*	0.526	0.974	1.18	3.81	--	--	--	--	--
Mercury	0 / 8	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 24	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 24	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	0.009	0.009	0.009	--	-5.55	1.57	-4.73	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	--	--	--	--	-5.63	1.59	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.014	0.014	0.014	--	-7.2	1.82	-4.27	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	9 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.01	0.049	0.015	-6.51	1.83	-5.56	1.41	B	0.009	0.019	0.023	--	130,000	--	--	6.9E-08	--
4,4'-DDT	5 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.017	5.0E-04	0.326	0.061	0.001	0.07	0.326	0.143	-6.67	1.97	-4.9	2.39	B	0.055	0.121	0.147	--	--	--	--	--	--
Aldrin	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.003	0.004	0.005	0.002	-7.15	1.78	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.001	0.001	0.001	--	-7.25	1.72	-6.88	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.85. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.9E-05	7.9E-05	7.9E-05	--	-7.95	1.68	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	2 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.1E-04	0.001	0.002	0.001	-7.82	1.69	-6.66	0.821	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 29	mg/kg	0.002	1.65	7.5E-04	0.08	0.008	0.825	0.213	--	--	--	--	-4.49	1.73	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 235	mg/kg	0.006	29.4	0.003	0.395	0.148	14.7	1.12	0.406	0.406	0.406	--	-1.98	1.36	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	15 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.295	0.015	31.1	2.32	0.032	4.03	31.1	8.61	-4.1	1.67	-1.07	2.42	B	5.19	11.5	14.0	0.198	--	4000	--	--	0.001
2-Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	850	--	NSRC	NSRC
Acenaphthene	11 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.221	0.015	23.7	1.74	0.034	3.91	23.7	7.38	-4.14	1.62	-0.746	2.37	B	3.96	8.76	10.7	0.085	--	390,000	--	NSRC	NSRC
Acenaphthylene	3 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.042	0.015	1.47	0.117	0.08	0.281	0.455	0.189	-4.27	1.39	-1.5	0.915	B	0.255	0.557	0.677	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	4 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.23	0.325	0.405	0.075	-1.98	1.36	-1.15	0.244	B	2.55	5.57	6.77	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	5 / 235	mg/kg	0.006	29.4	0.003	0.41	0.148	14.7	1.13	0.41	0.931	1.54	0.449	-1.95	1.38	-0.174	0.524	B	2.55	5.57	6.77	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 235	mg/kg	0.006	29.4	0.003	0.397	0.148	14.7	1.12	1.17	1.17	1.17	--	-1.98	1.36	0.157	--	B	2.55	5.57	6.77	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 235	mg/kg	0.023	49	0.012	0.675	0.246	24.5	1.88	0.036	0.923	2.73	1.07	-1.43	1.34	-1.06	1.77	B	4.25	9.28	11.3	0.036	--	9810	--	NSRC	NSRC
Carbazole	17 / 235	mg/kg	0.002	2.94	7.6E-04	0.108	0.015	8.86	0.671	0.002	0.974	8.86	2.35	-4.14	1.51	-2.39	2.28	B	1.49	3.28	4.01	0.125	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	31 / 235	mg/kg	0.006	29.4	0.003	0.585	0.149	22.4	1.89	0.028	1.58	22.4	4.11	-1.73	1.42	-0.694	1.4	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02
Diethyl phthalate	1 / 235	mg/kg	0.006	29.4	0.003	0.394	0.148	14.7	1.12	0.215	0.215	0.215	--	-1.98	1.35	-1.54	--	B	2.55	5.57	6.77	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	3 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.031	0.344	0.569	0.28	-1.97	1.35	-1.63	1.62	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	8 / 235	mg/kg	0.006	29.4	0.003	0.428	0.148	14.7	1.15	0.35	1.33	3.54	0.984	-1.93	1.4	0.079	0.678	B	2.55	5.57	6.77	0.672	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 235	mg/kg	0.014	29.4	0.007	0.438	0.148	14.7	1.24	0.013	1.8	6.21	2.97	-1.94	1.35	-1.72	2.51	B	2.55	5.57	6.77	0.013	--	--	--	NSRC	NSRC
Phenol	4 / 235	mg/kg	0.006	29.4	0.003	0.412	0.148	14.7	1.14	0.349	1.28	2.61	1.12	-1.96	1.38	-0.137	1.06	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	15 / 15	pCi/g	--	--	0.688	1.86	1.83	3.08	0.604	0.688	1.86	3.08	0.604	0.563	0.366	0.563	0.366	N	1.86	2.07	2.13	3.41	--	--	--	--	--
Alpha activity	107 / 268	pCi/g	1.48	9.99	1.48	11.6	7.72	201	16.3	1.49	21.2	201	22.4	2.01	0.887	2.74	0.794	B	38.9	81.2	97.4	--	--	--	--	--	--
Americium-241	0 / 67	pCi/g	0.142	0.611	0.142	0.261	0.227	0.611	0.114	--	--	--	--	-1.42	0.362	--	--	B	0.277	0.391	0.427	0.127	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	144 / 268	pCi/g	0.528	5.99	0.528	14.5	5.19	757	49.6	1.56	23.8	757	66.4	1.97	0.954	2.59	0.882	B	130	284	346	--	--	--	--	--	--
Bismuth-214	30 / 30	pCi/g	--	--	0.353	1.17	1.12	2.16	0.481	0.353	1.17	2.16	0.481	0.067	0.466	0.067	0.466	N	1.17	1.29	1.32	2.24	--	--	--	--	--
Carbon-14	9 / 268	pCi/g	0.082	2.52	0.082	3.0	1.75	416	25.4	0.549	49.4	416	138	0.14	0.827	1.14	2.15	B	70.5	155	189	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	22 / 268	pCi/g	0.015	0.648	0.015	0.147	0.115	1.01	0.134	0.093	0.394	1.01	0.273	-2.16	0.669	-1.17	0.723	B	0.247	0.475	0.554	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 268	pCi/g	0.011	0.606	0.011	0.134	0.121	0.606	0.083	--	--	--	--	-2.18	0.606	--	--	B	0.183	0.328	0.374	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 268	pCi/g	0.078	1.37	0.078	0.644	0.598	1.37	0.287	--	--	--	--	-0.56	0.527	--	--	B	0.64	0.971	1.05	--	13	--	1500	NSRC	NSRC
Lead-212	46 / 46	pCi/g	--	--	0.294	1.11	1.2	2.32	0.63	0.294	1.11	2.32	0.63	-0.095	0.683	-0.095	0.683	B	1.23	1.75	1.88	--	--	--	--	--	--

Table G.85. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9210 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	30 / 30	pCi/g	--	--	0.394	1.31	1.15	2.29	0.594	0.394	1.31	2.29	0.594	0.147	0.534	0.147	0.534	B	1.21	1.7	1.82	--	--	--	--	--	--
Neptunium-237	0 / 67	pCi/g	0.131	0.935	0.131	0.369	0.322	0.935	0.17	--	--	--	--	-1.09	0.446	--	--	L	0.37	0.399	0.409	0.816	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 268	pCi/g	0.41	22.2	0.41	1.07	0.872	22.2	1.53	0.834	0.834	0.834	--	-0.1	0.413	-0.182	--	B	4.35	8.91	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 67	pCi/g	0.147	0.966	0.147	0.287	0.225	0.966	0.173	--	--	--	--	-1.37	0.453	--	--	B	0.336	0.522	0.588	0.092	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 67	pCi/g	0.149	1.15	0.149	0.327	0.263	1.15	0.207	--	--	--	--	-1.25	0.474	--	--	B	0.392	0.624	0.703	0.087	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 67	pCi/g	7.61	23.5	7.61	12.2	12.4	23.5	3.41	--	--	--	--	2.47	0.269	--	--	B	13.5	17.5	18.6	8.6	--	--	790,000	NSRC	NSRC
Potassium-40	69 / 69	pCi/g	--	--	1.83	13.2	7.97	47.3	11.2	1.83	13.2	47.3	11.2	2.27	0.803	2.27	0.803	B	13.5	24.2	27.8	47.3	--	--	4.2E+06	--	--
Radium-226	98 / 268	pCi/g	0.039	1.05	0.039	0.707	0.608	3.15	0.466	0.137	0.956	3.15	0.656	-0.507	0.573	-0.237	0.611	B	0.937	1.69	1.93	--	--	--	300,000	--	--
Strontium-89	5 / 268	pCi/g	0.448	2	0.448	1.64	1.71	4.2	0.377	1.57	2.83	4.2	0.96	0.462	0.262	0.991	0.361	B	1.91	2.87	3.13	--	--	--	--	NSRC	NSRC
Strontium-90	17 / 268	pCi/g	0.38	2	0.38	1.68	1.64	14.4	0.997	1.03	3.78	14.4	3.09	0.443	0.365	1.13	0.604	B	3.56	6.74	7.86	--	--	--	400,000	--	--
Technetium-99	13 / 268	pCi/g	2.22	9.69	0.113	5.78	5.69	22.5	2.12	0.113	10.5	22.5	6.03	1.69	0.396	1.93	1.41	B	7.56	13.2	14.8	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	20 / 20	pCi/g	--	--	0.192	0.504	0.525	0.737	0.139	0.192	0.504	0.737	0.139	-0.734	0.343	-0.734	0.343	N	0.504	0.545	0.557	0.836	--	--	--	--	--
Thorium-228	39 / 268	pCi/g	0.082	1.38	0.082	0.654	0.581	2.82	0.385	0.223	1.12	2.82	0.661	-0.569	0.538	-0.117	0.752	B	0.871	1.54	1.75	--	--	--	25,000	--	--
Thorium-230	79 / 268	pCi/g	0.063	1.13	0.063	0.633	0.534	2.91	0.383	0.267	0.895	2.91	0.553	-0.596	0.519	-0.28	0.576	B	0.851	1.54	1.76	--	--	--	15,000	--	--
Thorium-232	55 / 268	pCi/g	0.06	0.98	0.06	0.529	0.436	2.36	0.363	0.162	0.877	2.36	0.618	-0.804	0.557	-0.414	0.794	B	0.694	1.25	1.43	--	--	--	2500	--	--
Total Uranium	137 / 268	pCi/g	0.12	2.13	0.12	3.51	1.22	82.4	7.67	0.471	5.9	82.4	10.2	0.476	1.01	1.0	1.13	B	14.6	31.6	38.3	--	--	--	--	--	--
Tritium	0 / 268	pCi/g	1.42	15.3	1.42	10.5	11.3	15.3	3.11	--	--	--	--	2.29	0.392	--	--	B	10.3	13.5	14.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	121 / 268	pCi/g	0.067	1.19	0.067	2.07	0.629	52.5	4.82	0.221	3.93	52.5	6.74	-0.139	1.06	0.518	1.23	B	9.18	20.0	24.3	--	1700	2.8E+07	100,000	0.005	3.3E-07
Uranium-235/236	18 / 268	pCi/g	0.078	1.38	0.078	0.634	0.556	4.13	0.361	0.376	1.15	4.13	0.928	-0.559	0.436	-0.079	0.635	B	1.07	2.01	2.33	--	1500	9500	100,000	7.1E-04	1.1E-04
Uranium-238	108 / 268	pCi/g	0.061	1.09	0.061	1.31	0.543	25.9	2.55	0.323	2.51	25.9	3.7	-0.355	0.899	0.271	1.05	B	4.69	10.1	12.2	--	1200	1500	100,000	0.004	0.003
																									SOF =	0.01	0.513

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.86. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Detected Min[b]	Detected Mean[b]	Detected Median[b]	Detected Max[b]	Detected S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9210 and 9401-1 all media (random)																											
Metals																											
Antimony	14 / 20	mg/kg	0.156	0.332	0.078	6.5	0.514	82.5	18.4	0.313	9.22	82.5	21.7	-0.151	1.89	0.635	1.72	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	14 / 20	mg/kg	0.16	1.6	0.08	5.56	2.65	38.4	9.16	0.582	7.79	38.4	10.2	0.561	1.74	1.43	1.16	L	7.99	23.7	35.7	114	--	--	--	--	--
Barium	20 / 20	mg/kg	--	--	0.16	111	20.0	947	254	0.16	111	947	254	2.24	2.75	2.24	2.75	L	217	699	918	6771	--	150,000	--	--	0.001
Beryllium	10 / 20	mg/kg	0.009	0.1	0.005	0.097	0.047	0.462	0.123	0.025	0.178	0.462	0.131	-3.26	1.51	-2.01	0.848	B	0.109	0.213	0.25	--	--	--	--	--	--
Boron	13 / 20	mg/kg	0.379	4	0.19	10.9	2.72	99.2	22.4	1.95	16.3	99.2	26.6	1.08	1.73	2.05	1.16	L	13.1	38.3	57.5	185	--	24,000	--	--	5.5E-04
Cadmium	17 / 20	mg/kg	0.012	0.019	0.006	1.71	0.323	8.09	2.52	0.037	2.01	8.09	2.63	-1.27	2.38	-0.639	1.97	L	3.15	9.34	12.1	83.6	--	--	--	--	--
Chromium	20 / 20	mg/kg	--	--	1.92	24.4	14.2	134	32.3	1.92	24.4	134	32.3	2.58	1.15	2.58	1.15	L	25.4	43.5	52.9	205	--	140,000	--	--	1.8E-04
Copper	20 / 20	mg/kg	--	--	0.67	79.8	10.9	657	183	0.67	79.8	657	183	2.72	1.82	2.72	1.82	L	80.3	261	409	1203	--	--	--	--	--
Hafnium	2 / 20	mg/kg	0.284	3	0.142	1.4	0.283	19.4	4.26	1.54	10.5	19.4	12.6	-0.881	1.12	1.7	1.79	B	3.45	7.39	8.96	--	--	--	--	--	--
Lead	20 / 20	mg/kg	--	--	0.543	69.8	9.76	319	112	0.543	69.8	319	112	2.61	2.02	2.61	2.02	L	105	438	754	1734	--	1500	--	--	0.07
Manganese	20 / 20	mg/kg	--	--	1.05	397	125	3250	728	1.05	397	3250	728	4.68	1.95	4.68	1.95	L	716	2691	4457	11,407	--	360,000	--	--	0.002
Mercury	12 / 20	mg/kg	0.002	0.016	0.001	0.064	0.014	0.59	0.135	0.006	0.105	0.59	0.164	-4.22	1.85	-3.01	1.28	L	0.081	0.272	0.431	1.24	--	--	--	--	--
Molybdenum	19 / 20	mg/kg	0.079	0.079	0.039	12.7	1.0	91.1	26.2	0.086	13.4	91.1	26.8	0.378	2.33	0.568	2.23	L	15.1	44.1	57.3	390	--	3900	--	--	0.004
Nickel	20 / 20	mg/kg	--	--	0.587	36.5	6.6	302	75.5	0.587	36.5	302	75.5	2.19	1.63	2.19	1.63	L	33.8	89.0	128	445	--	--	--	--	--
Selenium	7 / 20	mg/kg	0.17	1.8	0.085	0.435	0.293	1.65	0.395	0.409	0.671	1.65	0.449	-1.19	0.857	-0.532	0.507	B	0.485	0.853	0.976	--	--	1600	--	--	3.0E-04
Silver	9 / 20	mg/kg	0.047	1	0.024	3.93	0.487	25.4	7.03	0.09	8.36	25.4	8.8	-0.284	2.12	1.42	1.64	L	7.17	33.9	61.4	122	--	--	--	--	--
Strontium	13 / 20	mg/kg	0.357	0.6	0.179	201	9.8	2470	549	1.1	310	2470	664	2.16	3.21	4.07	2.25	B	418	921	1123	--	--	300,000	--	--	0.001
Thallium	2 / 20	mg/kg	0.066	0.7	0.033	0.107	0.066	0.35	0.097	0.249	0.256	0.263	0.01	-2.5	0.675	-1.36	0.039	B	0.108	0.18	0.205	--	--	--	--	--	--
Tin	19 / 20	mg/kg	0.247	0.247	0.124	7.0	4.47	37.9	9.69	0.361	7.37	37.9	9.81	1.2	1.39	1.38	1.18	L	8.71	18.1	23.8	92.3	--	2200	--	--	0.004
Vanadium	12 / 20	mg/kg	0.142	1.5	0.071	5.56	1.67	23.2	7.48	0.881	9.14	23.2	7.85	0.28	2.07	1.74	1.14	B	4.99	10.1	12.0	--	--	25,000	--	--	2.0E-04
Zinc	20 / 20	mg/kg	--	--	5.9	12,113	57.2	108,000	29,681	5.9	12,113	108,000	29,681	5.2	3.19	5.2	3.19	B	18,039	39,912	48,732	--	--	--	--	--	--
Zirconium	16 / 20	mg/kg	0.238	2	0.119	6.39	1.21	54.7	12.5	0.379	7.89	54.7	13.6	0.511	1.73	0.991	1.54	L	7.38	21.5	32.2	104	--	--	--	--	--
TCLP Metals																											
Arsenic	0 / 16	mg/L	0.017	0.017	0.009	0.009	0.009	0.009	0	--	--	--	--	-4.77	0	--	--	O	0.009	--	--	--	--	--	--	NSRC	NSRC
Barium	16 / 16	mg/L	--	--	0.021	0.18	0.129	0.579	0.158	0.021	0.18	0.579	0.158	-2.15	1.04	-2.15	1.04	L	0.2	0.341	0.418	1.6	--	--	--	--	--
Cadmium	7 / 16	mg/L	0.003	0.003	0.002	0.006	0.003	0.03	0.007	0.003	0.01	0.03	0.01	-5.81	0.966	-4.93	0.844	X*	0.006	0.012	0.014	--	--	--	--	--	--
Chromium	8 / 16	mg/L	0.03	0.03	0.015	0.083	0.057	0.235	0.072	0.057	0.136	0.235	0.073	-3.16	1.14	-2.13	0.565	G*	0.083	0.119	0.139	0.449	--	--	--	--	--
Lead	8 / 16	mg/L	0.005	0.005	0.003	0.086	0.019	0.41	0.136	0.019	0.166	0.41	0.166	-4.21	2.05	-2.43	1.31	G*	0.086	0.159	0.191	0.811	--	--	--	--	--
Mercury	0 / 8	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 16	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 16	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 19	mg/kg	0.002	0.066	8.3E-04	0.006	0.004	0.033	0.007	0.009	0.009	0.009	--	-5.43	0.869	-4.73	--	L	0.006	0.009	0.011	0.036	--	119	--	--	5.4E-05
Silvex	0 / 19	mg/kg	0.002	0.066	8.3E-04	0.006	0.004	0.033	0.007	--	--	--	--	-5.55	0.931	--	--	B	0.008	0.016	0.018	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.008	0.005	0.046	0.011	0.014	0.014	0.014	--	-5.8	1.62	-4.27	--	B	0.011	0.022	0.025	--	77,000	--	--	1.4E-07	--
4,4'-DDE	3 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.01	0.005	0.049	0.014	0.002	0.022	0.049	0.024	-5.49	1.62	-4.58	1.76	L	0.015	0.041	0.061	0.21	130,000	--	--	1.2E-07	--
4,4'-DDT	4 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.027	0.005	0.326	0.074	0.002	0.097	0.326	0.153	-5.27	1.86	-3.66	2.2	L	0.029	0.103	0.168	0.466	--	--	--	--	--
Aldrin	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 19	mg/kg	0.002	0.465	9.8E-04	0.035	0.024	0.233	0.053	--	--	--	--	-4.33	1.6	--	--	B	0.055	0.108	0.127	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	330,000	--	NSRC	NSRC
Endrin	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	0.001	0.001	0.001	--	-5.87	1.53	-6.88	--	L	0.009	0.022	0.031	0.114	--	30,000	--	--	3.0E-07
Endrin ketone	0 / 19	mg/kg	3.9E-04	0.093	2.0E-04	0.007	0.005	0.046	0.011	--	--	--	--	-5.94	1.6	--	--	B	0.011	0.022	0.025	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	2400	69,000	--	NSRC	NSRC

Table G.86. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.004	0.002	0.023	0.005	0.002	0.002	0.002	--	-6.55	1.58	-6.08	--	B	0.006	0.011	0.013	--	180	940	--	3.1E-05	5.9E-06
Methoxychlor	0 / 19	mg/kg	0.002	0.465	9.8E-04	0.035	0.024	0.233	0.053	--	--	--	--	-4.33	1.6	--	--	B	0.055	0.108	0.127	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 19	mg/kg	0.007	1.55	0.003	0.116	0.082	0.775	0.176	--	--	--	--	-3.13	1.6	--	--	B	0.184	0.361	0.423	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 19	mg/kg	2.0E-04	0.047	9.8E-05	0.003	0.002	0.023	0.005	--	--	--	--	-6.63	1.6	--	--	B	0.006	0.011	0.013	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 152	mg/kg	0.014	29.4	0.007	0.576	0.149	14.7	1.34	0.406	0.406	0.406	--	-1.69	1.5	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	22 / 152	mg/kg	0.001	2.94	7.0E-04	0.356	0.015	14.1	1.53	0.011	2.16	14.1	3.58	-3.67	1.99	-0.678	2.06	B	2.36	5.22	6.37	5.37	--	4000	--	--	5.9E-04
2-Methylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 152	mg/kg	0.014	29.4	0.007	0.602	0.149	14.7	1.4	0.034	1.99	5.9	3.39	-1.68	1.51	-1.65	2.97	B	2.55	5.57	6.77	0.034	--	850	--	NSRC	NSRC
Acenaphthene	20 / 152	mg/kg	0.001	2.94	7.0E-04	0.646	0.015	23.7	2.54	0.034	4.59	23.7	5.67	-3.59	2.19	0.531	1.83	B	3.96	8.76	10.7	9.23	--	390,000	--	--	1.0E-05
Acenaphthylene	4 / 152	mg/kg	0.001	2.94	7.0E-04	0.072	0.015	1.54	0.185	0.309	0.666	1.54	0.586	-3.95	1.58	-0.639	0.731	B	0.267	0.583	0.708	0.359	--	93,200	--	NSRC	NSRC
Acetophenone	3 / 152	mg/kg	0.014	29.4	0.007	0.626	0.149	14.7	1.45	0.305	3.7	6.62	3.18	-1.68	1.54	0.711	1.66	B	2.55	5.57	6.77	0.305	--	330	--	NSRC	NSRC
Benzenemethanol	1 / 152	mg/kg	0.014	29.4	0.007	0.576	0.149	14.7	1.34	0.623	0.623	0.623	--	-1.69	1.51	-0.473	--	B	2.55	5.57	6.77	0.623	--	1200	--	NSRC	NSRC
Benzidine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.161	1.2	--	NSRC	NSRC
Benzoic acid	2 / 152	mg/kg	0.023	49	0.012	0.965	0.249	24.5	2.23	0.092	0.821	1.55	1.03	-1.16	1.5	-0.972	1.99	B	4.25	9.28	11.3	0.092	--	9810	--	NSRC	NSRC
Carbazole	29 / 152	mg/kg	0.002	2.94	7.6E-04	0.84	0.015	16.7	2.84	0.004	4.19	16.7	5.39	-3.42	2.29	-0.297	2.61	B	2.79	6.18	7.54	15.8	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	14 / 152	mg/kg	0.015	29.4	0.008	0.665	0.15	14.7	1.45	0.109	1.08	7.67	1.94	-1.49	1.49	-0.612	1.06	B	2.55	5.57	6.77	1.02	--	190	--	--	0.013
Diethyl phthalate	2 / 152	mg/kg	0.014	29.4	0.007	0.575	0.149	14.7	1.34	0.104	0.16	0.215	0.078	-1.68	1.5	-1.9	0.514	B	2.55	5.57	6.77	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	1 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	0.031	0.031	0.031	--	-1.69	1.49	-3.49	--	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Phenol	1 / 152	mg/kg	0.014	29.4	0.007	0.575	0.149	14.7	1.34	0.349	0.349	0.349	--	-1.69	1.51	-1.05	--	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 152	mg/kg	0.014	29.4	0.007	0.573	0.149	14.7	1.34	--	--	--	--	-1.7	1.51	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	9 / 9	pCi/g	--	--	1.05	1.77	1.64	3.08	0.645	1.05	1.77	3.08	0.645	0.518	0.338	0.518	0.338	N	1.77	2.07	2.17	3.73	--	--	--	--	--
Alpha activity	68 / 166	pCi/g	1.87	9.97	1.49	13.2	8.12	234	24.3	1.49	23.9	234	35.3	2.12	0.849	2.83	0.723	B	44.7	93.8	113	--	--	--	--	--	--
Americium-241	0 / 41	pCi/g	0.152	0.611	0.152	0.299	0.228	0.611	0.135	--	--	--	--	-1.29	0.405	--	--	B	0.279	0.39	0.425	--	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	91 / 166	pCi/g	0.528	6.16	0.528	22.2	5.76	757	68.0	1.78	37.4	757	89.2	2.18	1.13	2.92	1.0	B	130	285	347	--	--	--	--	--	--
Bismuth-214	25 / 25	pCi/g	--	--	0.353	1.1	1.05	2.16	0.438	0.353	1.1	2.16	0.438	0.013	0.423	0.013	0.423	L	1.11	1.25	1.31	2.67	--	--	--	--	--
Carbon-14	6 / 166	pCi/g	0.198	2.4	0.198	3.59	0.724	416	32.2	0.661	70.1	416	169	-0.087	0.804	0.867	2.54	B	69.8	154	188	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	15 / 166	pCi/g	0.025	1.09	0.025	0.188	0.13	1.09	0.18	0.098	0.5	1.01	0.27	-1.98	0.752	-0.852	0.624	B	0.272	0.516	0.601	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 166	pCi/g	0.014	1.07	0.014	0.165	0.133	1.07	0.139	--	--	--	--	-2.05	0.697	--	--	L	0.164	0.194	0.207	0.472	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 166	pCi/g	0.083	1.32	0.083	0.597	0.557	1.32	0.269	--	--	--	--	-0.631	0.511	--	--	B	0.605	0.923	1.0	--	13	--	1500	NSRC	NSRC
Lead-212	42 / 42	pCi/g	--	--	0.294	1.08	1.06	2.32	0.492	0.294	1.08	2.32	0.492	-0.046	0.534	-0.046	0.534	N	1.08	1.18	1.21	2.12	--	--	--	--	--

Table G.86. Y-12 Biology Complex summary statistics for Y-12 Buildings 9210 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	27 / 27	pCi/g	--	--	0.394	1.11	1.03	2.17	0.448	0.394	1.11	2.17	0.448	0.032	0.403	0.032	0.403	L	1.12	1.25	1.3	2.57	--	--	--	--	--
Neptunium-237	0 / 41	pCi/g	0.189	0.935	0.189	0.406	0.336	0.935	0.183	--	--	--	--	-0.993	0.424	--	--	B	0.411	0.594	0.651	--	320	--	10,000	NSRC	NSRC
Nickel-63	0 / 166	pCi/g	0.323	22.2	0.323	1.15	0.828	22.2	1.87	--	--	--	--	-0.114	0.55	--	--	B	4.31	8.89	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 41	pCi/g	0.125	0.966	0.125	0.301	0.221	0.966	0.205	--	--	--	--	-1.36	0.529	--	--	B	0.329	0.524	0.591	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 41	pCi/g	0.176	1.15	0.176	0.387	0.286	1.15	0.238	--	--	--	--	-1.08	0.485	--	--	B	0.412	0.637	0.715	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 41	pCi/g	7.61	23.4	7.61	11.2	10.3	23.4	3.22	--	--	--	--	2.38	0.255	--	--	B	12.0	15.8	17.1	--	--	--	790,000	NSRC	NSRC
Potassium-40	58 / 58	pCi/g	--	--	1.83	20.5	16	64.5	16.8	1.83	20.5	64.5	16.8	2.66	0.919	2.66	0.919	B	21.7	37.3	42.0	--	--	--	4.2E+06	--	--
Radium-226	84 / 166	pCi/g	0.039	1.39	0.039	0.649	0.533	2.92	0.418	0.137	0.827	2.92	0.486	-0.614	0.634	-0.341	0.558	B	0.848	1.54	1.77	--	--	--	300,000	--	--
Strontium-89	7 / 166	pCi/g	0.973	1.99	0.973	1.69	1.69	4.23	0.386	1.57	2.74	4.23	1.12	0.502	0.192	0.937	0.404	B	1.99	2.8	3.04	--	--	--	--	NSRC	NSRC
Strontium-90	1 / 166	pCi/g	0.823	2.24	0.823	1.65	1.67	2.24	0.28	1.79	1.79	1.79	--	0.482	0.184	0.582	--	B	1.62	1.97	2.04	--	--	--	400,000	NSRC	NSRC
Technetium-99	0 / 166	pCi/g	0.738	8.92	0.738	5.15	5	8.92	1.49	--	--	--	--	1.58	0.382	--	--	N	5.15	5.3	5.35	7.92	172	--	4.2E+07	NSRC	NSRC
Thallium-208	12 / 12	pCi/g	--	--	0.192	0.475	0.524	0.737	0.146	0.192	0.475	0.737	0.146	-0.797	0.361	-0.797	0.361	N	0.475	0.532	0.55	0.874	--	--	--	--	--
Thorium-228	41 / 166	pCi/g	0.082	1.33	0.082	0.683	0.613	2.82	0.375	0.223	1.01	2.82	0.5	-0.526	0.561	-0.136	0.589	B	0.892	1.56	1.77	--	--	--	25,000	--	--
Thorium-230	67 / 166	pCi/g	0.063	1.03	0.063	0.683	0.553	3.2	0.465	0.267	0.991	3.2	0.571	-0.566	0.609	-0.163	0.571	B	0.912	1.66	1.91	--	--	--	15,000	--	--
Thorium-232	50 / 166	pCi/g	0.06	0.969	0.06	0.586	0.472	2.28	0.386	0.162	0.95	2.28	0.491	-0.727	0.625	-0.24	0.697	L	0.588	0.631	0.644	1.54	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	78 / 166	pCi/g	0.12	2.13	0.12	3.81	1.27	215	17.0	0.7	6.9	215	24.6	0.439	0.917	0.939	1.06	B	36.7	80.6	98.1	--	--	--	--	--	--
Tritium	0 / 166	pCi/g	1.66	32.1	1.66	10.1	9.99	32.1	3.26	--	--	--	--	2.25	0.36	--	--	B	12.3	20.0	22.2	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	71 / 166	pCi/g	0.067	1.19	0.067	1.53	0.682	30.3	3.27	0.283	2.8	30.3	4.73	-0.212	0.876	0.314	1.04	B	5.52	11.8	14.3	--	1700	2.8E+07	100,000	0.003	2.0E-07
Uranium-235/236	5 / 166	pCi/g	0.078	1.38	0.078	0.67	0.609	3.38	0.322	0.585	1.33	3.38	1.19	-0.484	0.41	0.033	0.75	B	0.982	1.77	2.03	--	1500	9500	100,000	NSRC	NSRC
Uranium-238	64 / 166	pCi/g	0.061	1.09	0.061	2.19	0.591	182	14.2	0.361	4.83	182	22.6	-0.324	0.886	0.275	1.09	B	30.7	67.7	82.6	--	1200	1500	100,000	0.026	0.02
																									SOF =	0.029	0.207

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.87. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207 and 9401-1 all media (random)																											
Metals																											
Antimony	19 / 29	mg/kg	0.174	0.332	0.087	2.89	0.528	17.3	5.21	0.313	4.33	17.3	5.98	-0.332	1.63	0.495	1.43	B	3.25	6.87	8.27	--	--	160	--	--	0.02
Arsenic	19 / 29	mg/kg	0.178	1.49	0.089	5.23	1.89	38.4	9.14	0.76	7.88	38.4	10.4	0.354	1.82	1.49	1.03	B	7.67	16.0	19.1	--	--	--	--	--	--
Barium	26 / 29	mg/kg	0.053	0.099	0.026	293	13.5	7410	1371	0.117	327	7410	1447	1.96	3.0	2.56	2.55	L	641	6236	14,220	5761	--	150,000	--	--	0.004
Beryllium	15 / 29	mg/kg	0.005	0.1	0.002	0.122	0.033	0.545	0.169	0.019	0.221	0.545	0.187	-3.24	1.64	-2.02	1.2	B	0.113	0.232	0.275	--	--	--	--	--	--
Boron	15 / 29	mg/kg	0.187	4	0.094	146	1.77	3990	740	1.18	282	3990	1026	0.881	2.29	2.48	2.03	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	23 / 29	mg/kg	0.011	0.02	0.005	1.58	0.24	10.9	2.96	0.037	1.99	10.9	3.21	-1.51	2.36	-0.654	1.83	L	3.56	15.1	25.5	42.6	--	--	--	--	--
Chromium	29 / 29	mg/kg	--	--	0.405	68.7	10	1290	238	0.405	68.7	1290	238	2.29	1.85	2.29	1.85	L	54.1	137	192	607	--	140,000	--	--	3.9E-04
Copper	29 / 29	mg/kg	--	--	0.306	63.7	15	657	156	0.306	63.7	657	156	2.34	2.01	2.34	2.01	L	78.3	231	341	923	--	--	--	--	--
Hafnium	5 / 29	mg/kg	0.14	3	0.07	1.17	0.297	19.4	3.54	0.568	4.62	19.4	8.27	-0.836	1.05	0.47	1.45	B	3.44	7.43	9.0	--	--	--	--	--	--
Lead	29 / 29	mg/kg	--	--	0.06	200	11.3	2210	486	0.06	200	2210	486	2.75	2.65	2.75	2.65	L	523	3154	6041	5793	--	1500	--	--	0.349
Manganese	29 / 29	mg/kg	--	--	0.144	346	85.9	3250	664	0.144	346	3250	664	3.89	2.78	3.89	2.78	B	599	1284	1548	--	--	360,000	--	--	0.002
Mercury	23 / 29	mg/kg	0.002	0.016	0.001	0.58	0.031	13	2.42	0.005	0.73	13	2.71	-3.51	2.12	-2.87	1.88	L	0.283	0.933	1.43	3.4	--	--	--	--	--
Molybdenum	23 / 29	mg/kg	0.05	0.079	0.025	7.09	0.624	79.7	16.6	0.05	8.93	79.7	18.3	-0.339	2.34	0.458	1.94	L	11.0	45.7	76.4	132	--	3900	--	--	0.003
Nickel	29 / 29	mg/kg	--	--	0.217	40.0	6.08	302	80.5	0.217	40.0	302	80.5	1.9	2.03	1.9	2.03	L	52.5	158	235	622	--	--	--	--	--
Selenium	8 / 29	mg/kg	0.084	1.8	0.042	0.539	0.187	3.25	0.631	0.417	1.06	3.25	0.938	-1.11	1.01	-0.184	0.687	B	0.673	1.37	1.63	--	--	1600	--	--	4.2E-04
Silver	14 / 29	mg/kg	0.053	1.17	0.026	3.22	0.468	21.1	5.29	0.147	6.43	21.1	6.22	-0.521	2.14	1.19	1.47	B	3.83	8.24	9.95	--	--	--	--	--	--
Strontium	19 / 29	mg/kg	0.317	2.45	0.159	143	2.69	2470	457	0.631	218	2470	555	1.74	2.94	3.3	2.43	B	413	914	1116	--	--	300,000	--	--	0.001
Thallium	1 / 29	mg/kg	0.033	0.7	0.016	0.113	0.068	0.35	0.106	0.257	0.257	0.257	--	-2.49	0.75	-1.36	--	B	0.106	0.186	0.212	--	--	--	--	NSRC	NSRC
Tin	19 / 29	mg/kg	0.158	3.5	0.079	9.14	1.75	132	25.1	0.582	13.7	132	30.3	0.454	1.95	1.51	1.37	L	10.5	29.2	42.1	122	--	2200	--	--	0.005
Vanadium	19 / 29	mg/kg	0.158	1.5	0.079	13.7	1.36	173	33.6	0.113	20.9	173	40.0	0.533	2.29	1.75	1.83	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	29 / 29	mg/kg	--	--	1.33	6772	50.9	108,000	24,241	1.33	6772	108,000	24,241	4.5	2.73	4.5	2.73	B	18,034	39,907	48,728	--	--	--	--	--	--
Zirconium	17 / 29	mg/kg	0.094	2	0.047	7.24	0.815	45.5	12.2	0.404	12.2	45.5	14.0	0.241	2.08	1.56	1.63	B	8.13	17.6	21.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	2 / 22	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.005	0.024	0.033	0.041	0.012	-4.65	0.394	-3.46	0.387	X*	0.018	0.023	0.025	--	--	--	--	--	--
Barium	22 / 22	mg/L	--	--	0.021	0.214	0.2	0.929	0.198	0.021	0.214	0.929	0.198	-1.96	1.01	-1.96	1.01	L	0.235	0.355	0.411	1.51	--	--	--	--	--
Cadmium	10 / 22	mg/L	0.003	0.003	0.002	0.008	0.003	0.039	0.009	0.003	0.013	0.039	0.012	-5.68	1.09	-4.69	0.871	X*	0.008	0.014	0.017	--	--	--	--	--	--
Chromium	12 / 22	mg/L	0.03	0.03	0.015	0.105	0.033	0.85	0.172	0.033	0.167	0.85	0.224	-3.14	1.19	-2.25	0.906	G*	0.105	0.148	0.17	0.527	--	--	--	--	--
Lead	14 / 22	mg/L	0.005	0.005	0.003	0.577	0.019	5.97	1.43	0.007	0.904	5.97	1.77	-3.25	2.64	-1.68	2.0	G*	0.577	1.1	1.35	4.56	--	--	--	--	--
Mercury	0 / 10	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 22	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 22	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	119	--	NSRC	NSRC
Silvex	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.004	0.011	0.004	-6.18	1.74	-6.05	1.03	L	0.009	0.022	0.03	0.103	130,000	--	--	7.3E-08	--
4,4'-DDT	3 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.009	8.6E-04	0.05	0.016	0.001	0.015	0.042	0.023	-6.39	1.83	-5.4	1.92	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.008	8.6E-04	0.05	0.015	0.003	0.004	0.005	0.002	-6.54	1.99	-5.62	0.432	L	0.01	0.031	0.046	0.126	--	330,000	--	--	3.2E-08
Endrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.87. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.9E-05	7.9E-05	7.9E-05	--	-7.34	1.93	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.1E-04	7.1E-04	7.1E-04	--	-7.26	1.88	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 28	mg/kg	0.002	1.65	7.5E-04	0.123	0.008	0.825	0.248	--	--	--	--	-3.88	1.99	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	25 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.306	0.015	31.1	2.24	0.011	2.16	31.1	6.16	-3.66	1.75	-1.11	2.09	B	5.19	11.5	14.0	2.37	--	4000	--	--	0.001
2-Methylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 203	mg/kg	0.006	11.3	0.003	0.51	0.149	5.9	0.846	0.034	1.99	5.9	3.39	-1.6	1.38	-1.65	2.97	B	1.08	2.32	2.8	0.034	--	850	--	NSRC	NSRC
Acenaphthene	19 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.346	0.015	9.23	1.33	0.048	3.29	9.23	3.12	-3.63	1.88	0.417	1.62	B	1.55	3.42	4.17	5.39	--	390,000	--	--	4.0E-06
Acenaphthylene	3 / 203	mg/kg	5.9E-04	1.13	3.0E-04	0.057	0.015	1.54	0.131	0.08	0.66	1.54	0.775	-3.89	1.41	-1.04	1.48	B	0.267	0.583	0.709	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	5 / 203	mg/kg	0.006	11.3	0.003	0.53	0.149	6.62	0.903	0.23	2.36	6.62	2.91	-1.59	1.4	-0.016	1.55	B	1.2	2.59	3.13	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 203	mg/kg	0.006	11.3	0.003	0.505	0.149	5.65	0.763	0.41	1.01	1.54	0.478	-1.58	1.39	-0.099	0.573	B	1.04	2.23	2.69	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 203	mg/kg	0.006	11.3	0.003	0.493	0.149	5.65	0.76	1.17	1.17	1.17	--	-1.6	1.38	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 203	mg/kg	0.03	18.9	0.015	0.843	0.248	9.45	1.27	0.036	1.17	2.73	1.01	-1.05	1.36	-0.588	1.72	B	1.74	3.73	4.49	0.119	--	9810	--	NSRC	NSRC
Carbazole	24 / 203	mg/kg	0.002	1.13	8.9E-04	0.576	0.015	16.7	2.39	0.002	4.55	16.7	5.62	-3.54	1.97	-0.067	2.65	B	2.79	6.18	7.54	6.69	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	17 / 203	mg/kg	0.006	11.3	0.003	0.641	0.149	22.4	1.72	0.028	1.99	22.4	5.32	-1.47	1.4	-0.762	1.66	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02
Diethyl phthalate	1 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.758	0.104	0.104	0.104	--	-1.61	1.37	-2.26	--	B	1.04	2.23	2.69	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 203	mg/kg	0.006	11.3	0.003	0.492	0.149	5.65	0.758	0.432	0.501	0.569	0.097	-1.6	1.38	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 203	mg/kg	0.006	11.3	0.003	0.528	0.149	5.65	0.791	0.35	1.33	3.54	0.984	-1.55	1.41	0.079	0.678	B	1.04	2.23	2.69	1.06	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 203	mg/kg	0.019	11.3	0.01	0.54	0.149	6.21	0.938	0.013	1.8	6.21	2.97	-1.56	1.36	-1.72	2.51	B	1.14	2.43	2.94	0.05	--	--	--	NSRC	NSRC
Phenol	3 / 203	mg/kg	0.006	11.3	0.003	0.51	0.149	5.65	0.777	0.351	1.59	2.61	1.15	-1.58	1.4	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 203	mg/kg	0.006	11.3	0.003	0.488	0.149	5.65	0.759	--	--	--	--	-1.61	1.38	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	16 / 16	pCi/g	--	--	0.688	1.67	1.64	2.49	0.481	0.688	1.67	2.49	0.481	0.464	0.328	0.464	0.328	N	1.67	1.83	1.88	2.88	--	--	--	--	--
Alpha activity	105 / 222	pCi/g	1.48	9.99	1.48	13.8	9.03	234	19.1	3.09	22.8	234	24.8	2.19	0.886	2.84	0.741	B	45.3	94.7	114	--	--	--	--	--	--
Americium-241	0 / 54	pCi/g	0.142	0.482	0.142	0.231	0.226	0.482	0.059	--	--	--	--	-1.49	0.234	--	--	L	0.231	0.253	0.263	0.362	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	133 / 222	pCi/g	1.22	6.16	1.22	16.3	5.98	338	27.8	1.56	24.8	338	33.4	2.18	1.04	2.78	0.917	B	60.5	130	158	--	--	--	--	--	--
Bismuth-214	37 / 37	pCi/g	--	--	0.484	1.13	1.08	1.96	0.341	0.484	1.13	1.96	0.341	0.081	0.308	0.081	0.308	N	1.13	1.21	1.23	1.87	--	--	--	--	--
Carbon-14	5 / 222	pCi/g	0.082	2.52	0.082	1.47	1.67	17.2	1.35	0.549	5.18	17.2	6.9	0.118	0.744	0.916	1.39	B	3.99	7.89	9.26	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 222	pCi/g	0.015	1.09	0.015	0.143	0.12	1.09	0.114	0.093	0.167	0.218	0.055	-2.14	0.607	-1.84	0.371	B	0.264	0.509	0.595	--	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 222	pCi/g	0.011	1.07	0.011	0.154	0.129	1.07	0.12	--	--	--	--	-2.06	0.618	--	--	B	0.266	0.511	0.595	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 222	pCi/g	0.078	1.37	0.078	0.666	0.612	1.37	0.283	--	--	--	--	-0.512	0.492	--	--	B	0.649	0.98	1.06	--	13	--	1500	NSRC	NSRC
Lead-212	60 / 60	pCi/g	--	--	0.332	1.13	1.08	2.25	0.484	0.332	1.13	2.25	0.484	0.019	0.495	0.019	0.495	N	1.13	1.22	1.24	2.11	--	--	--	--	--

Table G.87. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	39 / 39	pCi/g	--	--	0.43	1.21	1.09	2.29	0.465	0.43	1.21	2.29	0.465	0.118	0.395	0.118	0.395	L	1.22	1.33	1.37	2.61	--	--	--	--	--
Neptunium-237	0 / 54	pCi/g	0.131	0.586	0.131	0.301	0.282	0.586	0.11	--	--	--	--	-1.26	0.351	--	--	N	0.301	0.32	0.326	0.525	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 222	pCi/g	0.323	8.99	0.323	1.01	0.875	8.99	0.723	0.834	0.834	0.834	--	-0.104	0.433	-0.182	--	B	2.14	4.05	4.75	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 54	pCi/g	0.125	0.503	0.125	0.263	0.228	0.503	0.104	--	--	--	--	-1.41	0.367	--	--	B	0.257	0.352	0.379	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 54	pCi/g	0.149	0.596	0.149	0.301	0.236	0.596	0.138	--	--	--	--	-1.29	0.426	--	--	B	0.282	0.391	0.425	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 54	pCi/g	7.95	23.5	7.95	12.6	12.9	23.5	2.7	--	--	--	--	2.51	0.211	--	--	B	13.8	17.8	18.9	--	--	--	790,000	NSRC	NSRC
Potassium-40	75 / 75	pCi/g	--	--	2.75	21.9	16.6	64.5	15.8	2.75	21.9	64.5	15.8	2.81	0.781	2.81	0.781	B	22.3	37.6	42.2	64.5	--	--	4.2E+06	--	--
Radium-226	84 / 222	pCi/g	0.189	1.39	0.189	0.779	0.679	3.15	0.461	0.26	1.1	3.15	0.577	-0.386	0.513	-0.026	0.491	L	0.775	0.86	0.898	1.74	--	--	300,000	--	--
Strontium-89	4 / 222	pCi/g	0.448	2	0.448	1.64	1.76	4.23	0.384	1.81	2.72	4.23	1.13	0.465	0.273	0.937	0.399	B	1.95	2.92	3.18	--	--	--	--	NSRC	NSRC
Strontium-90	16 / 222	pCi/g	0.38	2.24	0.38	1.72	1.67	14.4	1.08	1.03	3.9	14.4	3.15	0.455	0.388	1.16	0.606	B	3.58	6.76	7.88	--	--	--	400,000	--	--
Technetium-99	13 / 222	pCi/g	0.738	9.69	0.113	5.88	5.8	22.5	2.32	0.113	10.5	22.5	6.03	1.69	0.489	1.93	1.41	B	7.64	13.3	14.9	--	172	--	4.2E+07	0.044	--
Thallium-208	22 / 22	pCi/g	--	--	0.212	0.498	0.529	0.692	0.111	0.212	0.498	0.692	0.111	-0.727	0.264	-0.727	0.264	N	0.498	0.529	0.538	0.759	--	--	--	--	--
Thorium-228	52 / 222	pCi/g	0.203	1.38	0.203	0.719	0.625	2.4	0.359	0.256	1.09	2.4	0.447	-0.441	0.472	-0.005	0.464	L	0.719	0.751	0.761	1.52	--	--	25,000	--	--
Thorium-230	82 / 222	pCi/g	0.205	1.13	0.205	0.711	0.59	3.2	0.406	0.331	1.0	3.2	0.5	-0.467	0.485	-0.111	0.481	B	0.961	1.66	1.9	--	--	--	15,000	--	--
Thorium-232	69 / 222	pCi/g	0.162	0.98	0.162	0.618	0.487	2.36	0.389	0.231	0.984	2.36	0.487	-0.638	0.543	-0.161	0.579	B	0.745	1.27	1.44	--	--	--	2500	--	--
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	129 / 222	pCi/g	0.421	2.03	0.421	4.18	1.27	215	16.2	0.471	6.51	215	20.9	0.486	0.971	0.913	1.05	B	36.7	80.5	98.0	--	--	--	--	--	--
Tritium	0 / 222	pCi/g	1.42	32.1	1.42	10.7	11.2	32.1	3.19	--	--	--	--	2.32	0.352	--	--	B	13.1	20.9	23.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	120 / 222	pCi/g	0.228	1.16	0.221	2.03	0.663	52.5	5.3	0.221	3.32	52.5	6.96	-0.153	0.985	0.314	1.11	B	9.23	20.0	24.2	--	1700	2.8E+07	100,000	0.005	3.3E-07
Uranium-235/236	15 / 222	pCi/g	0.266	1.38	0.266	0.617	0.552	4.13	0.398	0.376	1.38	4.13	1.13	-0.583	0.399	0.056	0.738	B	1.1	1.96	2.27	--	1500	9500	100,000	7.3E-04	1.2E-04
Uranium-238	106 / 222	pCi/g	0.204	1.06	0.204	2.0	0.566	182	12.4	0.323	3.67	182	17.8	-0.341	0.878	0.147	1.02	B	30.7	67.7	82.5	--	1200	1500	100,000	0.026	0.02
																									SOF =	0.076	0.456

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.88. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207, 9210 and 9767-7 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207, 9210 and 9767-7 all media (random and biased)																											
Metals																											
Antimony	23 / 33	mg/kg	0.156	0.326	0.078	4.24	0.528	82.5	14.6	0.375	6.02	82.5	17.2	-0.412	1.6	0.272	1.44	B	14.1	30.9	37.7	--	--	160	--	--	0.088
Arsenic	21 / 33	mg/kg	0.16	1.6	0.08	3.85	1.86	31.2	6.0	0.582	5.94	31.2	6.7	0.199	1.78	1.39	0.885	B	6.45	13.3	15.8	--	--	--	--	--	--
Barium	30 / 33	mg/kg	0.053	0.099	0.026	310	18.4	7410	1291	0.117	341	7410	1353	2.14	3.21	2.67	2.84	B	1247	2753	3358	--	--	150,000	--	--	0.008
Beryllium	17 / 33	mg/kg	0.005	0.082	0.002	0.111	0.024	0.545	0.154	0.019	0.207	0.545	0.165	-3.37	1.68	-1.97	1.03	B	0.107	0.223	0.267	--	--	--	--	--	--
Boron	18 / 33	mg/kg	0.187	3.26	0.094	126	1.63	3990	694	1.18	230	3990	938	0.673	2.15	2.19	1.75	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	24 / 33	mg/kg	0.011	0.02	0.005	1.48	0.24	10.9	2.92	0.05	2.04	10.9	3.27	-1.66	2.43	-0.468	1.68	B	1.98	4.26	5.14	--	--	--	--	--	--
Chromium	33 / 33	mg/kg	--	--	0.405	60.3	10.6	1290	223	0.405	60.3	1290	223	2.42	1.63	2.42	1.63	L	60.3	177	229	401	--	140,000	--	--	4.3E-04
Copper	33 / 33	mg/kg	--	--	0.306	25.2	9.77	184	38.3	0.306	25.2	184	38.3	2.16	1.69	2.16	1.69	L	36.0	74.9	96.7	347	--	--	--	--	--
Hafnium	5 / 33	mg/kg	0.14	2.93	0.07	0.436	0.284	1.54	0.41	0.568	1.05	1.54	0.454	-1.12	0.707	-0.037	0.475	B	0.458	0.807	0.922	--	--	--	--	--	--
Lead	33 / 33	mg/kg	--	--	0.06	189	12.3	2210	458	0.06	189	2210	458	2.82	2.62	2.82	2.62	L	522	2629	4665	5175	--	1500	--	--	0.348
Manganese	33 / 33	mg/kg	--	--	0.144	218	84.2	1530	345	0.144	218	1530	345	3.61	2.62	3.61	2.62	B	311	645	769	--	--	360,000	--	--	8.6E-04
Mercury	27 / 33	mg/kg	0.002	0.004	0.001	0.52	0.024	13	2.27	0.005	0.635	13	2.51	-3.7	2.14	-3.09	1.86	B	2.18	4.82	5.88	--	--	--	--	--	--
Molybdenum	28 / 33	mg/kg	0.05	0.079	0.025	6.7	0.624	91.1	16.7	0.05	7.89	91.1	17.9	-0.27	2.29	0.293	2.01	L	10.5	37.2	58.1	114	--	3900	--	--	0.003
Nickel	33 / 33	mg/kg	--	--	0.217	25.9	5.91	284	55.0	0.217	25.9	284	55.0	1.79	1.8	1.79	1.8	L	30.3	68.9	91.8	307	--	--	--	--	--
Selenium	9 / 33	mg/kg	0.084	1.75	0.042	0.516	0.177	3.25	0.638	0.409	1.14	3.25	0.89	-1.21	1.04	-0.084	0.668	B	0.667	1.36	1.62	--	--	1600	--	--	4.2E-04
Silver	15 / 33	mg/kg	0.047	1.17	0.024	3.05	0.458	25.4	5.57	0.09	6.45	25.4	6.94	-0.745	2.18	1.0	1.72	B	4.54	9.82	11.9	--	--	--	--	--	--
Strontium	22 / 33	mg/kg	0.317	2.45	0.159	79.0	4.07	478	123	0.631	118	478	135	1.85	2.89	3.41	2.22	B	82.4	180	219	--	--	300,000	--	--	2.7E-04
Thallium	3 / 33	mg/kg	0.033	0.684	0.016	0.1	0.066	0.342	0.093	0.249	0.256	0.263	0.007	-2.59	0.705	-1.36	0.027	B	0.104	0.181	0.207	--	--	--	--	--	--
Tin	22 / 33	mg/kg	0.158	3.5	0.079	6.99	1.75	132	22.6	0.361	10.3	132	27.3	0.362	1.82	1.35	1.22	B	23.2	50.4	61.2	--	--	2200	--	--	0.011
Vanadium	21 / 33	mg/kg	0.142	1.22	0.071	12.8	1.36	173	31.6	0.113	20.0	173	38.0	0.443	2.36	1.86	1.72	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	33 / 33	mg/kg	--	--	1.33	1997	32.6	42,700	7557	1.33	1997	42,700	7557	4.35	2.51	4.35	2.51	L	1801	7996	13,552	18,645	--	--	--	--	--
Zirconium	19 / 33	mg/kg	0.094	1.63	0.047	7.75	0.699	54.7	14.3	0.379	13.3	54.7	16.9	0.13	2.13	1.55	1.68	B	9.59	20.9	25.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	4 / 30	mg/L	0.017	0.05	0.009	0.021	0.017	0.07	0.013	0.024	0.049	0.07	0.02	-4.4	0.654	-3.1	0.475	X*	0.021	0.029	0.033	--	--	--	--	--	--
Barium	30 / 30	mg/L	--	--	0.021	0.232	0.219	0.929	0.187	0.021	0.232	0.929	0.187	-1.83	1.0	-1.83	1.0	G	0.232	0.29	0.311	0.842	--	--	--	--	--
Cadmium	10 / 30	mg/L	0.003	0.01	0.002	0.011	0.003	0.071	0.018	0.004	0.028	0.071	0.024	-5.56	1.3	-4.03	1.07	X*	0.011	0.021	0.026	--	--	--	--	--	--
Chromium	22 / 30	mg/L	0.03	0.03	0.015	0.108	0.064	0.85	0.153	0.02	0.138	0.85	0.173	-2.87	1.11	-2.39	0.88	G*	0.108	0.142	0.156	0.481	--	--	--	--	--
Lead	19 / 30	mg/L	0.005	0.033	0.003	0.612	0.078	5.97	1.35	0.007	0.963	5.97	1.64	-3.01	2.63	-1.38	1.82	G*	0.612	1.02	1.2	4.35	--	--	--	--	--
Mercury	1 / 14	mg/L	6.7E-04	6.7E-04	3.4E-04	4.5E-04	3.4E-04	0.002	4.2E-04	0.002	0.002	0.002	--	-7.88	0.462	-6.27	--	X	4.5E-04	7.8E-04	9.3E-04	--	--	--	--	--	--
Selenium	3 / 30	mg/L	0.02	0.06	0.01	0.027	0.02	0.099	0.02	0.063	0.086	0.099	0.019	-4.28	0.7	-2.48	0.246	X*	0.027	0.04	0.046	--	--	--	--	--	--
Silver	0 / 30	mg/L	0.004	0.01	0.002	0.003	0.002	0.005	0.001	--	--	--	--	-6.03	0.373	--	--	O	0.003	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	1 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	0.009	0.009	0.009	--	-5.55	1.57	-4.73	--	B	0.071	0.156	0.189	--	--	119	--	NSRC	NSRC
Silvex	0 / 30	mg/kg	7.0E-04	0.824	3.5E-04	0.031	0.004	0.412	0.103	--	--	--	--	-5.63	1.59	--	--	B	0.071	0.156	0.189	--	--	330	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.014	0.014	0.014	--	-7.2	1.82	-4.27	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	9 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.01	0.049	0.015	-6.51	1.83	-5.56	1.41	B	0.009	0.019	0.023	--	130,000	--	--	6.9E-08	--
4,4'-DDT	5 / 29	mg/kg	1.8E-04	0.099	9.1E-05	0.017	5.0E-04	0.326	0.061	0.001	0.07	0.326	0.143	-6.67	1.97	-4.9	2.39	B	0.055	0.121	0.147	--	--	--	--	--	--
Aldrin	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.003	0.004	0.005	0.002	-7.15	1.78	-5.62	0.432	B	0.009	0.019	0.023	--	--	330,000	--	--	2.6E-08
Endrin	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	1 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	0.001	0.001	0.001	--	-7.25	1.72	-6.88	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 29	mg/kg	9.0E-05	0.099	4.5E-05	0.005	4.9E-04	0.05	0.013	--	--	--	--	-7.3	1.73	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC

Table G.88. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207, 9210 and 9767-7 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Heptachlor epoxide	1 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.9E-05	7.9E-05	7.9E-05	--	-7.95	1.68	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	2 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	7.1E-04	0.001	0.002	0.001	-7.82	1.69	-6.66	0.821	B	0.004	0.009	0.011	--	180	940	--	2.4E-05	4.6E-06
Methoxychlor	0 / 29	mg/kg	4.5E-04	0.497	2.3E-04	0.024	0.002	0.249	0.064	--	--	--	--	-5.69	1.73	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 29	mg/kg	0.002	1.65	7.5E-04	0.08	0.008	0.825	0.213	--	--	--	--	-4.49	1.73	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 29	mg/kg	4.5E-05	0.05	2.3E-05	0.002	2.5E-04	0.025	0.006	--	--	--	--	-7.99	1.73	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	1 / 235	mg/kg	0.006	29.4	0.003	0.395	0.148	14.7	1.12	0.406	0.406	0.406	--	-1.98	1.36	-0.901	--	B	2.55	5.57	6.77	0.406	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	15 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.295	0.015	31.1	2.32	0.032	4.03	31.1	8.61	-4.1	1.67	-1.07	2.42	B	5.19	11.5	14.0	0.198	--	4000	--	--	0.001
2-Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	850	--	NSRC	NSRC
Acenaphthene	11 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.221	0.015	23.7	1.74	0.034	3.91	23.7	7.38	-4.14	1.62	-0.746	2.37	B	3.96	8.76	10.7	0.085	--	390,000	--	NSRC	NSRC
Acenaphthylene	3 / 235	mg/kg	5.9E-04	2.94	3.0E-04	0.042	0.015	1.47	0.117	0.08	0.281	0.455	0.189	-4.27	1.39	-1.5	0.915	B	0.255	0.557	0.677	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	4 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.23	0.325	0.405	0.075	-1.98	1.36	-1.15	0.244	B	2.55	5.57	6.77	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	5 / 235	mg/kg	0.006	29.4	0.003	0.41	0.148	14.7	1.13	0.41	0.931	1.54	0.449	-1.95	1.38	-0.174	0.524	B	2.55	5.57	6.77	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 235	mg/kg	0.006	29.4	0.003	0.397	0.148	14.7	1.12	1.17	1.17	1.17	--	-1.98	1.36	0.157	--	B	2.55	5.57	6.77	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 235	mg/kg	0.023	49	0.012	0.675	0.246	24.5	1.88	0.036	0.923	2.73	1.07	-1.43	1.34	-1.06	1.77	B	4.25	9.28	11.3	0.036	--	9810	--	NSRC	NSRC
Carbazole	17 / 235	mg/kg	0.002	2.94	7.6E-04	0.108	0.015	8.86	0.671	0.002	0.974	8.86	2.35	-4.14	1.51	-2.39	2.28	B	1.49	3.28	4.01	0.125	110,000	--	--	1.4E-05	--
Di-n-butyl phthalate	31 / 235	mg/kg	0.006	29.4	0.003	0.585	0.149	22.4	1.89	0.028	1.58	22.4	4.11	-1.73	1.42	-0.694	1.4	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02
Diethyl phthalate	1 / 235	mg/kg	0.006	29.4	0.003	0.394	0.148	14.7	1.12	0.215	0.215	0.215	--	-1.98	1.35	-1.54	--	B	2.55	5.57	6.77	0.215	--	6180	--	NSRC	NSRC
Dimethyl phthalate	3 / 235	mg/kg	0.006	29.4	0.003	0.396	0.148	14.7	1.12	0.031	0.344	0.569	0.28	-1.97	1.35	-1.63	1.62	B	2.55	5.57	6.77	0.031	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	2800	500	--	NSRC	NSRC
Isophorone	8 / 235	mg/kg	0.006	29.4	0.003	0.428	0.148	14.7	1.15	0.35	1.33	3.54	0.984	-1.93	1.4	0.079	0.678	B	2.55	5.57	6.77	0.672	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 235	mg/kg	0.014	29.4	0.007	0.438	0.148	14.7	1.24	0.013	1.8	6.21	2.97	-1.94	1.35	-1.72	2.51	B	2.55	5.57	6.77	0.013	--	--	--	NSRC	NSRC
Phenol	4 / 235	mg/kg	0.006	29.4	0.003	0.412	0.148	14.7	1.14	0.349	1.28	2.61	1.12	-1.96	1.38	-0.137	1.06	B	2.55	5.57	6.77	0.349	--	3200	--	NSRC	NSRC
Pyridine	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 235	mg/kg	0.006	29.4	0.003	0.393	0.148	14.7	1.12	--	--	--	--	-1.99	1.36	--	--	B	2.55	5.57	6.77	98	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	15 / 15	pCi/g	--	--	0.688	1.86	1.83	3.08	0.604	0.688	1.86	3.08	0.604	0.563	0.366	0.563	0.366	N	1.86	2.07	2.13	3.41	--	--	--	--	--
Alpha activity	117 / 291	pCi/g	1.48	9.99	1.48	14.3	7.54	575	38.5	1.49	28.0	575	58.2	2.03	0.948	2.8	0.911	B	101	219	266	--	--	--	--	--	--
Americium-241	0 / 67	pCi/g	0.142	0.611	0.142	0.261	0.227	0.611	0.114	--	--	--	--	-1.42	0.362	--	--	B	0.277	0.391	0.427	0.127	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	156 / 291	pCi/g	0.528	5.99	0.528	17.0	5.14	757	55.8	1.56	28.6	757	74.3	2.0	1.03	2.65	0.979	B	130	284	346	--	--	--	--	--	--
Bismuth-214	30 / 30	pCi/g	--	--	0.353	1.17	1.12	2.16	0.481	0.353	1.17	2.16	0.481	0.067	0.466	0.067	0.466	N	1.17	1.29	1.32	2.24	--	--	--	--	--
Carbon-14	9 / 268	pCi/g	0.082	2.52	0.082	3.0	1.75	416	25.4	0.549	49.4	416	138	0.14	0.827	1.14	2.15	B	70.5	155	189	--	165	--	1.0E+07	NSRC	NSRC
Cesium-137	22 / 268	pCi/g	0.015	0.648	0.015	0.147	0.115	1.01	0.134	0.093	0.394	1.01	0.273	-2.16	0.669	-1.17	0.723	B	0.247	0.475	0.554	--	--	--	1.5E+06	--	--
Cobalt-60	0 / 268	pCi/g	0.011	0.606	0.011	0.134	0.121	0.606	0.083	--	--	--	--	-2.18	0.606	--	--	B	0.183	0.328	0.374	--	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 268	pCi/g	0.078	1.37	0.078	0.644	0.598	1.37	0.287	--	--	--	--	-0.56	0.527	--	--	B	0.64	0.971	1.05	--	13	--	1500	NSRC	NSRC
Lead-212	46 / 46	pCi/g	--	--	0.294	1.11	1.2	2.32	0.63	0.294	1.11	2.32	0.63	-0.095	0.683	-0.095	0.683	B	1.23	1.75	1.88	--	--	--	--	--	--

Table G.88. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207, 9210 and 9767-7 all media (random and biased)

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Lead-214	30 / 30	pCi/g	--	--	0.394	1.31	1.15	2.29	0.594	0.394	1.31	2.29	0.594	0.147	0.534	0.147	0.534	B	1.21	1.7	1.82	--	--	--	--	--	--
Neptunium-237	0 / 67	pCi/g	0.131	0.935	0.131	0.369	0.322	0.935	0.17	--	--	--	--	-1.09	0.446	--	--	L	0.37	0.399	0.409	0.816	320	--	10,000	NSRC	NSRC
Nickel-63	1 / 268	pCi/g	0.41	22.2	0.41	1.07	0.872	22.2	1.53	0.834	0.834	0.834	--	-0.1	0.413	-0.182	--	B	4.35	8.91	10.7	--	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 67	pCi/g	0.147	0.966	0.147	0.287	0.225	0.966	0.173	--	--	--	--	-1.37	0.453	--	--	B	0.336	0.522	0.588	0.092	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 67	pCi/g	0.149	1.15	0.149	0.327	0.263	1.15	0.207	--	--	--	--	-1.25	0.474	--	--	B	0.392	0.624	0.703	0.087	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 67	pCi/g	7.61	23.5	7.61	12.2	12.4	23.5	3.41	--	--	--	--	2.47	0.269	--	--	B	13.5	17.5	18.6	8.6	--	--	790,000	NSRC	NSRC
Potassium-40	69 / 69	pCi/g	--	--	1.83	13.2	7.97	47.3	11.2	1.83	13.2	47.3	11.2	2.27	0.803	2.27	0.803	B	13.5	24.2	27.8	47.3	--	--	4.2E+06	--	--
Radium-226	98 / 268	pCi/g	0.039	1.05	0.039	0.707	0.608	3.15	0.466	0.137	0.956	3.15	0.656	-0.507	0.573	-0.237	0.611	B	0.937	1.69	1.93	--	--	--	300,000	--	--
Strontium-89	5 / 268	pCi/g	0.448	2	0.448	1.64	1.71	4.2	0.377	1.57	2.83	4.2	0.96	0.462	0.262	0.991	0.361	B	1.91	2.87	3.13	--	--	--	--	NSRC	NSRC
Strontium-90	17 / 268	pCi/g	0.38	2	0.38	1.68	1.64	14.4	0.997	1.03	3.78	14.4	3.09	0.443	0.365	1.13	0.604	B	3.56	6.74	7.86	--	--	--	400,000	--	--
Technetium-99	14 / 291	pCi/g	2.22	9.69	0.113	8.12	5.72	678	39.5	0.113	58.2	678	178	1.72	0.476	2.26	1.83	B	117	256	311	--	172	--	4.2E+07	NSRC	NSRC
Thallium-208	20 / 20	pCi/g	--	--	0.192	0.504	0.525	0.737	0.139	0.192	0.504	0.737	0.139	-0.734	0.343	-0.734	0.343	N	0.504	0.545	0.557	0.836	--	--	--	--	--
Thorium-228	39 / 268	pCi/g	0.082	1.38	0.082	0.654	0.581	2.82	0.385	0.223	1.12	2.82	0.661	-0.569	0.538	-0.117	0.752	B	0.871	1.54	1.75	--	--	--	25,000	--	--
Thorium-230	79 / 268	pCi/g	0.063	1.13	0.063	0.633	0.534	2.91	0.383	0.267	0.895	2.91	0.553	-0.596	0.519	-0.28	0.576	B	0.851	1.54	1.76	--	--	--	15,000	--	--
Thorium-232	55 / 268	pCi/g	0.06	0.98	0.06	0.529	0.436	2.36	0.363	0.162	0.877	2.36	0.618	-0.804	0.557	-0.414	0.794	B	0.694	1.25	1.43	--	--	--	2500	--	--
Total Uranium	137 / 268	pCi/g	0.12	2.13	0.12	3.51	1.22	82.4	7.67	0.471	5.9	82.4	10.2	0.476	1.01	1.0	1.13	B	14.6	31.6	38.3	--	--	--	--	--	--
Tritium	0 / 268	pCi/g	1.42	15.3	1.42	10.5	11.3	15.3	3.11	--	--	--	--	2.29	0.392	--	--	B	10.3	13.5	14.0	--	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233/234	134 / 291	pCi/g	0.067	1.19	0.067	3.25	0.632	223	14.6	0.221	6.42	223	21.2	-0.072	1.17	0.654	1.34	B	37.6	82.9	101	--	1700	2.8E+07	100,000	0.022	1.3E-06
Uranium-235/236	23 / 291	pCi/g	0.078	1.38	0.078	0.708	0.562	15.2	0.973	0.376	2.0	15.2	3.14	-0.532	0.496	0.177	0.89	B	2.92	6.13	7.36	--	1500	9500	100,000	0.002	3.1E-04
Uranium-238	120 / 291	pCi/g	0.061	1.09	0.061	2.25	0.542	204	12.6	0.323	4.75	204	19.4	-0.304	1.01	0.384	1.19	B	34.4	75.8	92.5	--	1200	1500	100,000	0.029	0.023
																									SOF =	0.053	0.533

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.89. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006																											
Metals																											
Antimony	19 / 29	mg/kg	0.174	0.332	0.087	2.89	0.528	17.3	5.21	0.313	4.33	17.3	5.98	-0.332	1.63	0.495	1.43	B	3.25	6.87	8.27	--	--	160	--	--	0.02
Arsenic	24 / 34	mg/kg	0.178	1.49	0.089	5.74	2.05	38.4	9.49	0.753	8.05	38.4	10.5	0.503	1.79	1.46	1.1	B	7.78	16.1	19.2	--	--	--	--	--	--
Barium	29 / 34	mg/kg	0.042	0.174	0.021	252	13.3	7410	1267	0.117	296	7410	1370	1.76	3.06	2.62	2.42	B	1244	2748	3353	--	--	150,000	--	--	0.008
Beryllium	15 / 29	mg/kg	0.005	0.1	0.002	0.122	0.033	0.545	0.169	0.019	0.221	0.545	0.187	-3.24	1.64	-2.02	1.2	B	0.113	0.232	0.275	--	--	--	--	--	--
Boron	15 / 29	mg/kg	0.187	4	0.094	146	1.77	3990	740	1.18	282	3990	1026	0.881	2.29	2.48	2.03	B	666	1474	1800	--	--	24,000	--	--	0.028
Cadmium	27 / 34	mg/kg	0.011	0.035	0.005	1.46	0.229	10.9	2.76	0.011	1.83	10.9	3.0	-1.63	2.38	-0.831	1.98	B	1.97	4.25	5.13	--	--	--	--	--	--
Chromium	34 / 34	mg/kg	--	--	0.405	64.6	10.4	1290	220	0.405	64.6	1290	220	2.43	1.78	2.43	1.78	L	54.9	120	158	541	--	140,000	--	--	3.9E-04
Copper	29 / 29	mg/kg	--	--	0.306	63.7	15	657	156	0.306	63.7	657	156	2.34	2.01	2.34	2.01	L	78.3	231	341	923	--	--	--	--	--
Hafnium	5 / 29	mg/kg	0.14	3	0.07	1.17	0.297	19.4	3.54	0.568	4.62	19.4	8.27	-0.836	1.05	0.47	1.45	B	3.44	7.43	9.0	--	--	--	--	--	--
Lead	34 / 34	mg/kg	--	--	0.06	174	10.7	2210	453	0.06	174	2210	453	2.64	2.54	2.64	2.54	L	354	1581	2680	3539	--	1500	--	--	0.236
Manganese	29 / 29	mg/kg	--	--	0.144	346	85.9	3250	664	0.144	346	3250	664	3.89	2.78	3.89	2.78	B	599	1284	1548	--	--	360,000	--	--	0.002
Mercury	27 / 34	mg/kg	0.002	0.016	8.4E-04	0.51	0.031	13	2.24	0.005	0.642	13	2.5	-3.55	2.13	-2.89	1.84	L	0.278	0.819	1.2	2.96	--	--	--	--	--
Molybdenum	23 / 29	mg/kg	0.05	0.079	0.025	7.09	0.624	79.7	16.6	0.05	8.93	79.7	18.3	-0.339	2.34	0.458	1.94	L	11.0	45.7	76.4	132	--	3900	--	--	0.003
Nickel	29 / 29	mg/kg	--	--	0.217	40.0	6.08	302	80.5	0.217	40.0	302	80.5	1.9	2.03	1.9	2.03	L	52.5	158	235	622	--	--	--	--	--
Selenium	10 / 34	mg/kg	0.084	1.8	0.042	0.575	0.25	3.25	0.702	0.417	1.18	3.25	0.994	-1.1	1.05	-0.09	0.72	L	0.578	0.808	0.903	3.26	--	1600	--	--	3.6E-04
Silver	19 / 34	mg/kg	0.053	1.17	0.026	3.16	0.543	21.1	5.02	0.147	5.49	21.1	5.77	-0.386	2.05	0.981	1.43	B	3.88	8.31	10.0	--	--	--	--	--	--
Strontium	19 / 29	mg/kg	0.317	2.45	0.159	143	2.69	2470	457	0.631	218	2470	555	1.74	2.94	3.3	2.43	B	413	914	1116	--	--	300,000	--	--	0.001
Thallium	1 / 29	mg/kg	0.033	0.7	0.016	0.113	0.068	0.35	0.106	0.257	0.257	0.257	--	-2.49	0.75	-1.36	--	B	0.106	0.186	0.212	--	--	--	--	NSRC	NSRC
Tin	19 / 29	mg/kg	0.158	3.5	0.079	9.14	1.75	132	25.1	0.582	13.7	132	30.3	0.454	1.95	1.51	1.37	L	10.5	29.2	42.1	122	--	2200	--	--	0.005
Total Uranium	6 / 7	mg/kg	0.007	0.007	0.003	2415	0.606	16,900	6387	0.272	2818	16,900	6899	0.365	4.71	1.38	4.24	L	2415	9658	12,938	1.3E+07	--	--	--	--	--
Vanadium	19 / 29	mg/kg	0.158	1.5	0.079	13.7	1.36	173	33.6	0.113	20.9	173	40.0	0.533	2.29	1.75	1.83	B	29.8	65.2	79.3	--	--	25,000	--	--	0.001
Zinc	29 / 29	mg/kg	--	--	1.33	6772	50.9	108,000	24,241	1.33	6772	108,000	24,241	4.5	2.73	4.5	2.73	B	18,034	39,907	48,728	--	--	--	--	--	--
Zirconium	17 / 29	mg/kg	0.094	2	0.047	7.24	0.815	45.5	12.2	0.404	12.2	45.5	14.0	0.241	2.08	1.56	1.63	B	8.13	17.6	21.3	--	--	--	--	--	--
TCLP Metals																											
Arsenic	3 / 27	mg/L	0.017	0.017	0.009	0.018	0.017	0.041	0.005	0.024	0.03	0.041	0.009	-4.63	0.407	-3.52	0.295	X*	0.018	0.022	0.024	--	--	--	--	--	--
Barium	27 / 27	mg/L	--	--	0.012	0.198	0.186	0.929	0.188	0.012	0.198	0.929	0.188	-2.1	1.13	-2.1	1.13	G	0.198	0.26	0.283	0.906	--	--	--	--	--
Cadmium	13 / 27	mg/L	0.003	0.003	0.002	0.011	0.003	0.055	0.015	0.003	0.02	0.055	0.018	-5.47	1.29	-4.35	1.01	X*	0.011	0.02	0.024	--	--	--	--	--	--
Chromium	16 / 27	mg/L	0.03	0.03	0.015	0.103	0.037	0.85	0.159	0.033	0.153	0.85	0.197	-3.07	1.15	-2.3	0.855	G*	0.103	0.136	0.152	0.472	--	--	--	--	--
Lead	17 / 27	mg/L	0.005	0.005	0.003	0.483	0.022	5.97	1.3	0.007	0.764	5.97	1.62	-3.34	2.52	-1.78	1.82	G*	0.483	0.841	0.996	3.23	--	--	--	--	--
Mercury	0 / 15	mg/L	6.7E-04	6.7E-04	3.4E-04	3.4E-04	3.4E-04	3.4E-04	0	--	--	--	--	-8.0	0	--	--	O	3.4E-04	--	--	--	--	--	--	NSRC	NSRC
Selenium	0 / 27	mg/L	0.02	0.02	0.01	0.01	0.01	0.01	0	--	--	--	--	-4.61	0	--	--	O	0.01	--	--	--	--	--	--	NSRC	NSRC
Silver	0 / 27	mg/L	0.004	0.004	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.21	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Herbicides																											
2,4-D	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	119	--	NSRC	NSRC
Silvex	0 / 29	mg/kg	7.0E-04	0.824	3.5E-04	0.032	0.004	0.412	0.104	--	--	--	--	-5.46	1.52	--	--	B	0.071	0.156	0.19	--	--	330	--	NSRC	NSRC
TCLP Herbicides																											
2,4-D	1 / 5	mg/L	0.017	0.017	0.008	0.01	0.008	0.019	0.005	0.019	0.019	0.019	--	-4.62	0.363	-3.97	--	X	0.01	0.017	0.02	--	--	--	--	--	--
Silvex	0 / 5	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Pesticides																											
4,4'-DDD	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	77,000	--	--	NSRC	NSRC
4,4'-DDE	6 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.008	0.001	0.05	0.015	0.001	0.004	0.011	0.004	-6.18	1.74	-6.05	1.03	L	0.009	0.022	0.03	0.103	130,000	--	--	7.3E-08	--
4,4'-DDT	3 / 28	mg/kg	1.8E-04	0.099	9.1E-05	0.009	8.6E-04	0.05	0.016	0.001	0.015	0.042	0.023	-6.39	1.83	-5.4	1.92	B	0.009	0.019	0.023	--	--	--	--	--	--
Aldrin	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	6600	44,000	--	NSRC	NSRC
Chlordane	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	92,000	210,000	--	NSRC	NSRC
Dieldrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	7.1	60	--	NSRC	NSRC
Endosulfan I	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	--	330,000	--	NSRC	NSRC
Endosulfan II	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	330,000	--	NSRC	NSRC
Endosulfan sulfate	2 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.008	8.6E-04	0.05	0.015	0.003	0.004	0.005	0.002	-6.54	1.99	-5.62	0.432	L	0.01	0.031	0.046	0.126	--	330,000	--	--	3.2E-08

Table G.89. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Endrin	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin aldehyde	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Endrin ketone	0 / 28	mg/kg	9.0E-05	0.099	4.5E-05	0.007	5.0E-04	0.05	0.015	--	--	--	--	-6.69	1.99	--	--	B	0.009	0.019	0.023	--	--	30,000	--	NSRC	NSRC
Heptachlor	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	2400	69,000	--	NSRC	NSRC
Heptachlor epoxide	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.9E-05	7.9E-05	7.9E-05	--	-7.34	1.93	-9.44	--	B	0.004	0.009	0.011	--	1000	1500	--	NSRC	NSRC
Lindane	1 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	7.1E-04	7.1E-04	7.1E-04	--	-7.26	1.88	-7.24	--	B	0.004	0.009	0.011	--	180	940	--	NSRC	NSRC
Methoxychlor	0 / 28	mg/kg	4.5E-04	0.497	2.3E-04	0.037	0.002	0.249	0.075	--	--	--	--	-5.08	1.99	--	--	B	0.043	0.094	0.114	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 28	mg/kg	0.002	1.65	7.5E-04	0.123	0.008	0.825	0.248	--	--	--	--	-3.88	1.99	--	--	B	0.143	0.312	0.38	--	--	--	--	NSRC	NSRC
alpha-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	39	--	--	NSRC	NSRC
beta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
delta-BHC	0 / 28	mg/kg	4.5E-05	0.05	2.3E-05	0.004	2.5E-04	0.025	0.007	--	--	--	--	-7.38	1.99	--	--	B	0.004	0.009	0.011	--	140	--	--	NSRC	NSRC
TCLP Pesticides																											
Chlordane	0 / 5	mg/L	7.7E-04	7.7E-04	3.8E-04	3.8E-04	3.8E-04	3.8E-04	0	--	--	--	--	-7.87	0	--	--	O	3.8E-04	--	--	--	--	--	--	NSRC	NSRC
Endrin	0 / 5	mg/L	1.0E-04	1.0E-04	5.0E-05	5.0E-05	5.0E-05	5.0E-05	0	--	--	--	--	-9.9	0	--	--	O	5.0E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Heptachlor epoxide	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Lindane	0 / 5	mg/L	6.7E-05	6.7E-05	3.3E-05	3.3E-05	3.3E-05	3.3E-05	0	--	--	--	--	-10.3	0	--	--	O	3.3E-05	--	--	--	--	--	--	NSRC	NSRC
Methoxychlor	0 / 5	mg/L	5.0E-04	5.0E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04	0	--	--	--	--	-8.29	0	--	--	O	2.5E-04	--	--	--	--	--	--	NSRC	NSRC
Toxaphene	0 / 5	mg/L	0.002	0.002	7.5E-04	7.5E-04	7.5E-04	7.5E-04	0	--	--	--	--	-7.2	0	--	--	O	7.5E-04	--	--	--	--	--	--	NSRC	NSRC
Polychlorinated Biphenyls																											
PCB-1016	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1221	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	2300	--	--	NSRC	NSRC
PCB-1232	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	1000	--	--	NSRC	NSRC
PCB-1242	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1248	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1254	5 / 5	mg/kg	--	--	0.012	39.6	0.149	176	76.8	0.012	39.6	176	76.8	-0.05	4.0	-0.05	4.0	B	29.4	65.1	79.5	--	--	--	--	--	--
PCB-1260	1 / 5	mg/kg	0.002	3.07	0.001	0.435	0.083	1.54	0.656	0.083	0.083	0.083	--	-2.94	3.06	-2.49	--	B	0.311	0.645	0.77	--	--	--	--	--	--
PCB-1262	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
PCB-1268	0 / 5	mg/kg	0.002	3.07	0.001	0.422	0.016	1.54	0.665	--	--	--	--	-3.27	3.09	--	--	B	0.267	0.582	0.708	--	--	--	--	NSRC	NSRC
Polychlorinated biphenyl	5 / 5	mg/kg	--	--	0.012	39.6	0.231	176	76.8	0.012	39.6	176	76.8	0.038	3.96	0.038	3.96	B	29.5	65.2	79.6	--	--	--	--	--	--
Semivolatile Organics																											
2,3,4,6-Tetrachlorophenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	10,800	--	NSRC	NSRC
2,4,5-Trichlorophenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	22	--	--	NSRC	NSRC
2,4-Dimethylphenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	2150	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	1	62	--	NSRC	NSRC
2,6-Dinitrotoluene	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	0.81	24	--	NSRC	NSRC
2-Methylnaphthalene	25 / 204	mg/kg	5.9E-04	1.13	3.0E-04	0.304	0.015	31.1	2.23	0.011	2.16	31.1	6.16	-3.66	1.75	-1.11	2.09	B	5.19	11.5	14.0	2.37	--	4000	--	--	0.001
2-Methylphenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	232	--	NSRC	NSRC
2-Nitrophenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	1.8	--	NSRC	NSRC
4-Nitrobenzenamine	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	8.7E+08	2.3E+09	--	NSRC	NSRC
4-Nitrophenol	3 / 204	mg/kg	0.006	11.3	0.003	0.508	0.149	5.9	0.844	0.034	1.99	5.9	3.39	-1.6	1.37	-1.65	2.97	B	1.08	2.32	2.8	0.034	--	850	--	NSRC	NSRC
Acenaphthene	19 / 204	mg/kg	5.9E-04	1.13	3.0E-04	0.345	0.015	9.23	1.33	0.048	3.29	9.23	3.12	-3.64	1.88	0.417	1.62	B	1.55	3.42	4.17	5.39	--	390,000	--	--	4.0E-06
Acenaphthylene	3 / 204	mg/kg	5.9E-04	1.13	3.0E-04	0.057	0.015	1.54	0.13	0.08	0.66	1.54	0.775	-3.89	1.41	-1.04	1.48	B	0.267	0.583	0.709	0.08	--	93,200	--	NSRC	NSRC
Acetophenone	5 / 204	mg/kg	0.006	11.3	0.003	0.528	0.149	6.62	0.901	0.23	2.36	6.62	2.91	-1.59	1.4	-0.016	1.55	B	1.2	2.59	3.13	0.23	--	330	--	NSRC	NSRC
Benzenemethanol	4 / 204	mg/kg	0.006	11.3	0.003	0.503	0.149	5.65	0.761	0.41	1.01	1.54	0.478	-1.58	1.39	-0.099	0.573	B	1.04	2.23	2.69	0.41	--	1200	--	NSRC	NSRC
Benzidine	1 / 204	mg/kg	0.006	11.3	0.003	0.492	0.149	5.65	0.758	1.17	1.17	1.17	--	-1.61	1.38	0.157	--	B	1.04	2.23	2.69	1.17	0.161	1.2	--	NSRC	NSRC
Benzoic acid	6 / 204	mg/kg	0.03	18.9	0.015	0.84	0.248	9.45	1.27	0.036	1.17	2.73	1.01	-1.05	1.35	-0.588	1.72	B	1.74	3.73	4.49	0.119	--	9810	--	NSRC	NSRC
Carbazole	24 / 204	mg/kg	0.002	1.13	8.9E-04	0.573	0.015	16.7	2.39	0.002	4.55	16.7	5.62	-3.54	1.97	-0.067	2.65	B	2.79	6.18	7.54	6.69	110,000	--	--	2.5E-05	--
Di-n-butyl phthalate	17 / 204	mg/kg	0.006	11.3	0.003	0.639	0.149	22.4	1.72	0.028	1.99	22.4	5.32	-1.47	1.4	-0.762	1.66	B	3.83	8.41	10.2	1.06	--	190	--	--	0.02

Table G.89. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Diethyl phthalate	1 / 204	mg/kg	0.006	11.3	0.003	0.487	0.149	5.65	0.757	0.104	0.104	0.104	--	-1.61	1.37	-2.26	--	B	1.04	2.23	2.69	0.104	--	6180	--	NSRC	NSRC
Dimethyl phthalate	2 / 204	mg/kg	0.006	11.3	0.003	0.49	0.149	5.65	0.756	0.432	0.501	0.569	0.097	-1.6	1.37	-0.702	0.195	B	1.04	2.23	2.69	0.432	--	30,700	--	NSRC	NSRC
Diphenylamine	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	1100	4800	--	NSRC	NSRC
Hexachlorobenzene	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	4.0E+06	773,000	--	NSRC	NSRC
Hexachloroethane	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	2800	500	--	NSRC	NSRC
Isophorone	8 / 204	mg/kg	0.006	11.3	0.003	0.526	0.149	5.65	0.79	0.35	1.33	3.54	0.984	-1.55	1.41	0.079	0.678	B	1.04	2.23	2.69	1.06	6100	15,000	--	NSRC	NSRC
N-Nitroso-di-n-propylamine	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	0.019	--	--	NSRC	NSRC
Nitrobenzene	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	1.98	--	NSRC	NSRC
Pentachlorophenol	7 / 204	mg/kg	0.019	11.3	0.01	0.538	0.149	6.21	0.936	0.013	1.8	6.21	2.97	-1.56	1.35	-1.72	2.51	B	1.14	2.43	2.94	0.05	--	--	--	NSRC	NSRC
Phenol	3 / 204	mg/kg	0.006	11.3	0.003	0.508	0.149	5.65	0.776	0.351	1.59	2.61	1.15	-1.58	1.39	0.169	1.07	B	1.04	2.23	2.69	0.351	--	3200	--	NSRC	NSRC
Pyridine	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	2.2	--	NSRC	NSRC
m+p Methylphenol	0 / 204	mg/kg	0.006	11.3	0.003	0.486	0.149	5.65	0.757	--	--	--	--	-1.62	1.37	--	--	B	1.04	2.23	2.69	37.7	--	--	--	NSRC	NSRC
TCLP Semivolatile Organics																											
2,4,5-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4,6-Trichlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2,4-Dinitrotoluene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
2-Methylphenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachlorobutadiene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Hexachloroethane	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Nitrobenzene	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pentachlorophenol	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Pyridine	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
Total Cresols	0 / 5	mg/L	0.003	0.015	0.002	0.005	0.008	0.008	0.003	--	--	--	--	-5.54	0.882	--	--	O	0.005	--	--	--	--	--	--	NSRC	NSRC
m+p Methylphenol	0 / 5	mg/L	0.004	0.019	0.002	0.006	0.009	0.009	0.004	--	--	--	--	-5.33	0.882	--	--	O	0.006	--	--	--	--	--	--	NSRC	NSRC
TCLP Volatile Organics																											
1,1-Dichloroethene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,2-Dichloroethane	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
1,4-Dichlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
2-Butanone	0 / 3	mg/L	0.017	0.017	0.008	0.008	0.008	0.008	0	--	--	--	--	-4.79	0	--	--	O	0.008	--	--	--	--	--	--	NSRC	NSRC
Benzene	1 / 3	mg/L	0.003	0.003	0.002	0.226	0.002	0.676	0.389	0.676	0.676	0.676	--	-4.4	3.47	-0.392	--	X	0.226	0.901	1.21	--	--	--	--	--	--
Carbon tetrachloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chlorobenzene	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Chloroform	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Tetrachloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.003	0.002	0.005	0.002	0.005	0.005	0.005	--	-6.02	0.646	-5.28	--	X	0.003	0.006	0.008	--	--	--	--	--	--
Trichloroethene	1 / 3	mg/L	0.003	0.003	0.002	0.009	0.002	0.024	0.013	0.024	0.024	0.024	--	-5.51	1.53	-3.74	--	X	0.009	0.031	0.041	--	--	--	--	--	--
Vinyl chloride	0 / 3	mg/L	0.003	0.003	0.002	0.002	0.002	0.002	0	--	--	--	--	-6.4	0	--	--	O	0.002	--	--	--	--	--	--	NSRC	NSRC
Radionuclides																											
Actinium-228	16 / 16	pCi/g	--	--	0.688	1.67	1.64	2.49	0.481	0.688	1.67	2.49	0.481	0.464	0.328	0.464	0.328	N	1.67	1.83	1.88	2.88	--	--	--	--	--
Alpha activity	113 / 236	pCi/g	1.48	9.99	1.48	17.0	8.96	575	43.0	3.09	29.3	575	59.9	2.21	0.953	2.88	0.864	B	102	221	267	52	--	--	--	--	--
Americium-241	0 / 55	pCi/g	0.142	0.482	0.142	0.233	0.227	0.482	0.059	--	--	--	--	-1.49	0.236	--	--	L	0.232	0.255	0.265	0.366	2.0E+21	--	13,000	NSRC	NSRC
Beta activity	141 / 236	pCi/g	1.22	6.16	1.22	19.8	6.15	370	41.8	1.56	30.6	370	51.4	2.22	1.11	2.86	0.989	B	66.0	142	172	74.5	--	--	--	--	--
Bismuth-214	37 / 37	pCi/g	--	--	0.484	1.13	1.08	1.96	0.341	0.484	1.13	1.96	0.341	0.081	0.308	0.081	0.308	N	1.13	1.21	1.23	1.87	--	--	--	--	--
Carbon-14	6 / 223	pCi/g	0.082	2.52	0.082	3.32	1.68	416	27.8	0.549	73.7	416	168	0.145	0.841	1.77	2.43	B	70.5	155	189	2.49	165	--	1.0E+07	NSRC	NSRC
Cesium-137	7 / 223	pCi/g	0.015	1.09	0.015	0.143	0.12	1.09	0.113	0.093	0.167	0.218	0.055	-2.14	0.607	-1.84	0.371	B	0.264	0.51	0.595	0.433	--	--	1.5E+06	NSRC	NSRC
Cobalt-60	0 / 223	pCi/g	0.011	1.07	0.011	0.154	0.129	1.07	0.12	--	--	--	--	-2.06	0.617	--	--	B	0.266	0.511	0.595	0.419	--	--	6.9E+06	NSRC	NSRC
Iodine-129	0 / 223	pCi/g	0.078	1.37	0.078	0.668	0.614	1.37	0.284	--	--	--	--	-0.509	0.493	--	--	B	0.651	0.982	1.06	1.27	13	--	1500	NSRC	NSRC
Lead-212	60 / 60	pCi/g	--	--	0.332	1.13	1.08	2.25	0.484	0.332	1.13	2.25	0.484	0.019	0.495	0.019	0.495	N	1.13	1.22	1.24	2.11	--	--	--	--	--
Lead-214	39 / 39	pCi/g	--	--	0.43	1.21	1.09	2.29	0.465	0.43	1.21	2.29	0.465	0.118	0.395	0.118	0.395	L	1.22	1.33	1.37	2.61	--	--	--	--	--
Neptunium-237	0 / 55	pCi/g	0.131	0.586	0.131	0.3	0.282	0.586	0.109	--	--	--	--	-1.27	0.348	--	--	N	0.3	0.319	0.324	0.522	320	--	10,000	NSRC	NSRC

Table G.89. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006

Constituent	Freq. of Detection	Units	Non-detect Detection Limits[a] Min	Non-detect Detection Limits[a] Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Detected Min	Detected Mean	Detected Max	Detected S.D.	Ln transformed Mean[b]	Ln transformed S.D.[b]	Ln transformed Detected Mean	Ln transformed Detected S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	E(X) divided by Analytic WAC Carc.	E(X) divided by Analytic WAC HI
Nickel-63	1 / 223	pCi/g	0.323	8.99	0.323	1.01	0.875	8.99	0.721	0.834	0.834	0.834	--	-0.103	0.432	-0.182	--	B	2.14	4.05	4.75	2.72	--	--	1.3E+08	NSRC	NSRC
Plutonium-238	0 / 55	pCi/g	0.125	0.503	0.125	0.264	0.231	0.503	0.103	--	--	--	--	-1.4	0.365	--	--	B	0.259	0.354	0.381	--	--	--	15,000	NSRC	NSRC
Plutonium-239/240	0 / 55	pCi/g	0.149	0.596	0.149	0.301	0.236	0.596	0.137	--	--	--	--	-1.29	0.422	--	--	B	0.282	0.391	0.425	--	720	--	13,000	NSRC	NSRC
Plutonium-241	0 / 55	pCi/g	7.95	23.5	7.95	12.5	12.9	23.5	2.75	--	--	--	--	2.51	0.217	--	--	B	13.8	17.8	18.9	--	--	--	790,000	NSRC	NSRC
Potassium-40	75 / 75	pCi/g	--	--	2.75	21.9	16.6	64.5	15.8	2.75	21.9	64.5	15.8	2.81	0.781	2.81	0.781	B	22.3	37.6	42.2	64.5	--	--	4.2E+06	--	--
Radium-226	85 / 223	pCi/g	0.189	1.39	0.189	0.779	0.678	3.15	0.46	0.26	1.09	3.15	0.575	-0.386	0.512	-0.03	0.49	B	1.01	1.72	1.95	2.36	--	--	300,000	--	--
Strontium-89	4 / 223	pCi/g	0.448	2	0.448	1.64	1.75	4.23	0.385	1.81	2.72	4.23	1.13	0.464	0.273	0.937	0.399	B	1.95	2.91	3.17	1.98	--	--	--	NSRC	NSRC
Strontium-90	16 / 223	pCi/g	0.38	2.24	0.38	1.72	1.68	14.4	1.08	1.03	3.9	14.4	3.15	0.456	0.388	1.16	0.606	B	3.58	6.77	7.89	4.01	--	--	400,000	--	--
Technetium-99	14 / 245	pCi/g	0.738	9.69	0.113	8.66	5.82	678	43.0	0.113	58.2	678	178	1.72	0.562	2.26	1.83	B	117	256	311	11.3	172	--	4.2E+07	0.68	--
Technetium-99	0 / 2	pCi/sample	7.71	9.32	7.71	8.52	8.52	9.32	1.14	--	--	--	--	2.14	0.134	--	--	B	8.52	8.92	9.02	--	--	--	--	NSRC	NSRC
Thallium-208	22 / 22	pCi/g	--	--	0.212	0.498	0.529	0.692	0.111	0.212	0.498	0.692	0.111	-0.727	0.264	-0.727	0.264	N	0.498	0.529	0.538	0.759	--	--	--	--	--
Thorium-228	52 / 232	pCi/g	0.203	3.76	0.203	0.726	0.622	3.76	0.41	0.256	1.09	2.4	0.447	-0.444	0.489	-0.005	0.464	L	0.722	0.796	0.829	1.56	--	--	25,000	--	--
Thorium-228	0 / 2	pCi/sample	0.313	0.33	0.313	0.322	0.322	0.33	0.012	--	--	--	--	-1.14	0.037	--	--	B	0.322	0.326	0.327	--	--	--	--	NSRC	NSRC
Thorium-230	84 / 232	pCi/g	0.205	3.09	0.205	0.716	0.583	3.2	0.43	0.331	0.99	3.2	0.501	-0.466	0.492	-0.126	0.484	B	0.956	1.66	1.89	1.89	--	--	15,000	--	--
Thorium-230	0 / 2	pCi/sample	0.498	0.512	0.498	0.505	0.505	0.512	0.01	--	--	--	--	-0.683	0.02	--	--	B	0.505	0.509	0.509	--	--	--	--	NSRC	NSRC
Thorium-232	70 / 232	pCi/g	0.162	2.68	0.162	0.621	0.483	2.68	0.407	0.231	0.977	2.36	0.488	-0.641	0.551	-0.169	0.579	B	0.796	1.39	1.58	1.8	--	--	2500	--	--
Thorium-232	0 / 2	pCi/sample	0.216	0.314	0.216	0.265	0.265	0.314	0.069	--	--	--	--	-1.35	0.265	--	--	B	0.265	0.29	0.295	--	--	--	--	NSRC	NSRC
Thorium-234	1 / 1	pCi/g	--	--	205	205	205	205	--	205	205	205	--	5.32	--	5.32	--	B	205	205	205	--	--	--	--	--	--
Total Uranium	130 / 223	pCi/g	0.421	2.03	0.421	4.17	1.26	215	16.1	0.471	6.47	215	20.9	0.483	0.97	0.904	1.05	B	36.7	80.4	98.0	28.4	--	--	--	--	--
Tritium	0 / 223	pCi/g	1.42	32.1	1.42	10.7	11.2	32.1	3.19	--	--	--	--	2.32	0.351	--	--	B	13.1	20.9	23.0	14.6	150,000	--	4.0E+08	NSRC	NSRC
Uranium-233	0 / 7	pCi/g	1.9	37.3	1.9	7.75	2.96	37.3	13.0	--	--	--	--	1.39	0.999	--	--	B	8.51	16.0	18.9	--	1700	4.5E+07	100,000	NSRC	NSRC
Uranium-233/234	135 / 245	pCi/g	0.228	1.16	0.221	6.11	0.664	679	46.0	0.221	10.7	679	61.7	-0.069	1.18	0.456	1.35	B	114	251	307	28.8	1700	2.8E+07	100,000	0.067	4.1E-06
Uranium-233/234	2 / 2	pCi/sample	--	--	0.944	1.13	1.13	1.31	0.259	0.944	1.13	1.31	0.259	0.106	0.232	0.106	0.232	B	1.13	1.22	1.24	--	--	--	--	--	--
Uranium-234	1 / 7	pCi/g	1.19	2.04	1.19	115	1.81	796	300	796	796	796	--	1.41	2.33	6.68	--	B	134	295	360	--	1700	2.8E+07	100,000	0.079	4.8E-06
Uranium-235	6 / 7	pCi/g	1.4E-04	1.4E-04	1.4E-04	10.8	0.024	75.3	28.5	0.001	12.6	75.3	30.7	-3.59	4.08	-2.71	3.68	L	10.8	43.0	57.7	29,578	1500	9500	100,000	0.007	0.001
Uranium-235/236	18 / 245	pCi/g	0.266	211	0.266	1.56	0.552	211	13.5	0.376	2.44	15.2	3.5	-0.534	0.608	0.342	0.991	B	35.6	78.3	95.5	2.28	1500	9500	100,000	0.024	0.004
Uranium-235/236	0 / 2	pCi/sample	0.432	0.451	0.432	0.442	0.442	0.451	0.013	--	--	--	--	-0.818	0.03	--	--	B	0.442	0.446	0.447	--	--	--	--	NSRC	NSRC
Uranium-236	5 / 7	pCi/g	0.005	0.007	0.005	4.94	0.019	34.5	13.0	0.009	6.92	34.5	15.4	-3.24	3.06	-2.48	3.4	B	5.76	12.7	15.6	--	1700	280,000	100,000	0.003	2.1E-05
Uranium-238	122 / 245	pCi/g	0.204	1.06	0.106	26.1	0.561	5660	362	0.106	52.0	5660	513	-0.258	1.16	0.279	1.43	B	944	2089	2552	13.7	1200	1500	100,000	0.786	0.629
Uranium-238	2 / 2	pCi/sample	--	--	0.585	1.09	1.09	1.59	0.711	0.585	1.09	1.59	0.711	-0.036	0.707	-0.036	0.707	B	1.09	1.34	1.4	--	--	--	--	--	--
																									SOF =	**1.65**	0.961

[a] The detection limits shown are used as proxy values for non-detect radionuclides. One half of the detection limits shown are used as proxy values for non-detected organics and inorganics.

[b] This summary statistic is calculated using both detects and proxy values for non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = PERT Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

G = 95% UCL was calculated using either the adjusted or unadjusted gamma.

L = lognormal. UCL90 and UCL95 are calculated using Land's statistic, Chebyshev minimum variance unbiased estimator, or nonparametric Chebyshev inequality method.

N = normal. UCL90 and UCL95 are calculated using t statistic.

O = no detected results to calculate some summary statistics.

X = neither normal, lognormal nor gamma. 95% UCL calculated using a nonparametric bootstrap or the nonparametric Chebyshev inequality method.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NSRC = Not a site related contaminant (SRC).

pCi/g = picocuries per gram.

S.D. = standard deviation.

Table G.89. Y-12 Biology Complex summary statistics for Y-12 Buildings 9207 and 9401-1 all media (random and biased) with samples 9210H1S005 and 9210W2B006

			Non-detect Detection Limits[a]							Detected				Ln transformed		Detected										E(X) divided by Analytic WAC	
Constituent	Freq. of Detection	Units	Min	Max	Min[b]	Mean[b]	Median[b]	Max[b]	S.D.[b]	Min	Mean	Max	S.D.	Mean[b]	S.D.[b]	Mean	S.D.	Dist.	E(X)	UCL 90	UCL 95	UTL 95/95	Analytic WAC Carc.	Analytic WAC HI	ASA WAC	Carc.	HI

SOF = Sum of fractions > 1 are shown in **bold**. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

TCLP = Toxicity characteristic leaching procedure.

UCL90 = upper confidence limit on the mean concentration with 90% confidence.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

UTL95/95 = upper tolerance limit on individual concentrations with 95% confidence and 95% coverage. A nonparametric UTL95/95 requires at least 59 samples.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* The mean, median, standard deviation, UCL90 and UCL95 were calculated using Kaplan-Meier since there are non-detects present with at least two distinct detected results.

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S013	9210F2S013B	23.7		XV	0.12	1	23.7	3.17
9210F2S012	9210F2S012B	10.9		XV	0.299	1	10.9	2.39
9401DC1S032	9401DC1S032B	9.23		XV	0.298	1	9.23	2.22
9401DC1S024	9401DC1S024B	9.11		XV	0.295	1	9.11	2.21
9401DC1S022A	9401DC1S022AB	7.66		XV	0.594	1	7.66	2.04
9401DC1S026	9401DC1S026B	7.57		XV	0.299	1	7.57	2.02
9207F5S031	9207F5S031B	5.39		XV	0.03	1	5.39	1.68
9401DC1S054	9401DC1S054B	4.31		XV	0.3	1	4.31	1.46
9401DC1S031	9401DC1S031B	3.84		XV	0.298	1	3.84	1.35
9401DC1S022	9401DC1S022B	3.32		XV	0.291	1	3.32	1.2
9401DC1S023A	9401DC1S023AB	2.67		XV	0.299	1	2.67	0.982
9401DC1S030	9401DC1S030B	2.58		XV	0.298	1	2.58	0.948
9401DC1S034	9401DC1S034B	2.2		XV	0.299	1	2.2	0.788
9401DC1S024A	9401DC1S024AB	1.58		XV	0.297	1	1.58	0.457
9210H1S006	9210H1S006B	9.8	U	XV	2.94	0	1.47	0.385
9210C1S003	9210C1S003B	1.31		=	0.03	1	1.31	0.27
9207W1S023A	9207W1S023AB	1.18		XV	0.03	1	1.18	0.166
9401DC1S037	9401DC1S037B	0.987		XV	0.29	1	0.987	-0.013
9207D1S050	9207D1S050B	3.77	U	XV	1.13	0	0.565	-0.571
9401DC1S036	9401DC1S036B	0.387	J	XV	0.298	1	0.387	-0.949
9207F3S020	9207F3S020B	2.5	U	XV	0.75	0	0.375	-0.981
9401W1S020	9401W1S020B	2.14	U	XV	0.641	0	0.321	-1.14
9207H3S019	9207H3S019B	2	U	XV	0.6	0	0.3	-1.2
9401DC1S055	9401DC1S055BD	1.86	U	XV	0.558	0	0.279	-1.28
9401DC1S033	9401DC1S033B	0.262		XV	0.029	1	0.262	-1.34
9401DC1S053	9401DC1S053B	1.55	U	UJ	0.465	0	0.233	-1.46
9207D5S057	9207D5S057B	1.4	U	XV	0.419	0	0.21	-1.56
9210H3S013	9210H3S013B	1.39	U	XV	0.418	0	0.209	-1.57
9207D1S048	9207D1S048B	1.22	U	XV	0.367	0	0.184	-1.7
9210H3S014	9210H3S014B	1.11	U	XV	0.334	0	0.167	-1.79
9207F5S032	9207F5S032BD	0.166		=	0.029	1	0.166	-1.8
9207D1S047	9207D1S047B	1.02	U	XV	0.307	0	0.154	-1.87
9210C1S002	9210C1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9210C3S008	9210C3S008B	0.999	U	XV	0.3	0	0.15	-1.9
9207F2S012	9207F2S012B	1	U	U	0.3	0	0.15	-1.9
9401W1S002A	9401W1S002AB	0.999	U	U	0.3	0	0.15	-1.9
9401W1S017	9401W1S017B	0.999	U	U	0.3	0	0.15	-1.9
9207F6S040	9207F6S040B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S010	9210F2S010B	0.998	U	XV	0.299	0	0.15	-1.9

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S020	9207H3S020B	0.995	U	XV	0.299	0	0.15	-1.9
9401W1S001	9401W1S001B	0.997	U	U	0.299	0	0.15	-1.9
9401W1S001A	9401W1S001AB	0.997	U	U	0.299	0	0.15	-1.9
9401W1S002	9401W1S002B	0.997	U	U	0.299	0	0.15	-1.9
9207F1S001	9207F1S001BD	0.989	U	U	0.297	0	0.149	-1.91
9210F3S019	9210F3S019B	0.989	U	XV	0.297	0	0.149	-1.91
9210F3S018	9210F3S018B	0.988	U	XV	0.296	0	0.148	-1.91
9401DC1S056	9401DC1S056B	0.924	U	XV	0.277	0	0.139	-1.98
9210H3S015	9210H3S015B	0.912	U	XV	0.274	0	0.137	-1.99
9207H3S018	9207H3S018B	0.911	U	XV	0.273	0	0.137	-1.99
9210D1S046	9210D1S046B	0.901	U	U	0.27	0	0.135	-2.0
9210D1S047	9210D1S047B	0.821	U	U	0.246	0	0.123	-2.1
9401DC1S057A	9401DC1S057AB	0.802	U	U	0.24	0	0.12	-2.12
9207H4S008	9207H4S008B	0.768	U	XV	0.23	0	0.115	-2.16
9401DC1S048	9401DC1S048B	0.668	U	XV	0.2	0	0.1	-2.3
9207C6S018	9207C6S018B	0.085	J	XV	0.03	1	0.085	-2.46
9207H3S022	9207H3S022B	0.54	U	XV	0.162	0	0.081	-2.51
9401W1S011	9401W1S011B	0.52	U	XV	0.156	0	0.078	-2.55
9210W1S010	9210W1S010B	0.078	J	XV	0.03	1	0.078	-2.56
9401DC1S025	9401DC1S025B	0.505	U	XV	0.151	0	0.076	-2.58
9207F3S018	9207F3S018B	0.5	U	U	0.15	0	0.075	-2.59
9207F3S023	9207F3S023B	0.5	U	XV	0.15	0	0.075	-2.59
9207F4S026	9207F4S026B	0.5	U	XV	0.15	0	0.075	-2.59
9207F3S017	9207F3S017B	0.496	U	U	0.149	0	0.075	-2.6
9207F3S022	9207F3S022B	0.498	U	XV	0.149	0	0.075	-2.6
9207W2S025	9207W2S025B	0.497	U	XV	0.149	0	0.075	-2.6
9207W5S033	9207W5S033B	0.496	U	XV	0.149	0	0.075	-2.6
9207F3S013	9207F3S013B	0.493	U	XV	0.148	0	0.074	-2.6
9207W3S028	9207W3S028B	0.492	U	XV	0.148	0	0.074	-2.6
9207H1S002	9207H1S002B	0.485	U	XV	0.146	0	0.073	-2.62
9207H3S024	9207H3S024B	0.488	U	XV	0.146	0	0.073	-2.62
9210C3S007	9210C3S007B	0.072	J	XV	0.03	1	0.072	-2.63
9207H3S023	9207H3S023B	0.48	U	XV	0.144	0	0.072	-2.63
9207D2S034A	9207D2S034AB	0.472	U	XV	0.142	0	0.071	-2.65
9207W4S031	9207W4S031B	0.472	U	XV	0.142	0	0.071	-2.65
9401DC1S027	9401DC1S027B	0.373	U	XV	0.112	0	0.056	-2.88
9210H2S010	9210H2S010B	0.34	U	U	0.102	0	0.051	-2.98
9401W1S014	9401W1S014B	0.33	U	U	0.099	0	0.05	-3.01
9210D1S049	9210D1S049B	0.328	U	XV	0.098	0	0.049	-3.01

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S034	9207F5S034B	0.048	J	XV	0.03	1	0.048	-3.04
9207S6S044	9207S6S044B	0.3	U	XV	0.09	0	0.045	-3.1
9207D4S055	9207D4S055B	0.293	U	XV	0.088	0	0.044	-3.12
9207H5S009	9207H5S009B	0.278	U	XV	0.083	0	0.042	-3.18
9210D1S006A	9210D1S006AB	0.252	U	XV	0.076	0	0.038	-3.28
9207H3S004	9207H3S004B	0.249	U	XV	0.075	0	0.037	-3.29
9210C3S006	9210C3S006B	0.034	J	XV	0.03	1	0.034	-3.39
9210H2S008	9210H2S008BD	0.216	U	XV	0.065	0	0.032	-3.43
9207H1S001A	9207H1S001AB	0.193	U	XV	0.058	0	0.029	-3.54
9207H1S001	9207H1S001B	0.167	U	U	0.05	0	0.025	-3.68
9210S1S020	9210S1S020B	0.154	U	U	0.046	0	0.023	-3.77
9401DC1S029	9401DC1S029B	0.138	U	XV	0.041	0	0.021	-3.88
9207D5S058	9207D5S058B	0.131	U	XV	0.039	0	0.02	-3.93
9210S3S042	9210S3S042B	0.12	U	XV	0.036	0	0.018	-4.02
9210S2S002A	9210S2S002AB	0.113	U	XV	0.034	0	0.017	-4.07
9207H3S007	9207H3S007B	0.111	U	XV	0.033	0	0.017	-4.09
9401DC1S028	9401DC1S028B	0.107	U	XV	0.032	0	0.016	-4.13
9401DC1S043	9401DC1S043B	0.101	U	U	0.03	0	0.015	-4.19
9207C2S004	9207C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9207C2S004A	9207C2S004AB	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S010	9207C3S010B	0.1	U	XV	0.03	0	0.015	-4.2
9210C1S001A	9210C1S001AB	0.1	U	XV	0.03	0	0.015	-4.2
9210C2S004	9210C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S018	9210W1S018B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S019	9210W1S019B	0.1	U	U	0.03	0	0.015	-4.2
9207F1S002	9207F1S002B	0.1	U	XV	0.03	0	0.015	-4.2
9207F1S006	9207F1S006B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S007	9207F2S007B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S009	9207F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S011	9207F2S011BD	0.1	U	U	0.03	0	0.015	-4.2
9210F2S009	9210F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9210F3S015	9210F3S015B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S014	9210W1S014B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S015	9401W1S015B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S018	9401W1S018B	0.1	U	U	0.03	0	0.015	-4.2
9401W1S019	9401W1S019B	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S008	9207C3S008B	0.1	U	XV	0.03	0	0.015	-4.2
9207C6S019	9207C6S019B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S023	9401DC1S023B	0.1	U	XV	0.03	0	0.015	-4.2

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S049	9401DC1S049B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S050	9401DC1S050B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S052	9401DC1S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S017	9210W1S017B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S008	9207F2S008B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S010	9207F2S010B	0.1	U	U	0.03	0	0.015	-4.2
9207F3S016	9207F3S016B	0.1	U	U	0.03	0	0.015	-4.2
9207F5S036	9207F5S036B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S026	9207W3S026B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S027	9207W3S027B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S011	9210W1S011B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S012	9210W1S012B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S007	9401W1S007B	0.1	U	U	0.03	0	0.015	-4.2
9207C2S006	9207C2S006B	0.099	U	XV	0.03	0	0.015	-4.21
9210C2S005	9210C2S005B	0.1	U	XV	0.03	0	0.015	-4.21
9207W1S039	9207W1S039B	0.1	U	XV	0.03	0	0.015	-4.21
9207W3S040	9207W3S040B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S003	9207F1S003B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S005	9207F1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S014	9207F3S014B	0.099	U	U	0.03	0	0.015	-4.21
9207F3S015	9207F3S015B	0.099	U	U	0.03	0	0.015	-4.21
9207F4S025	9207F4S025B	0.099	U	XV	0.03	0	0.015	-4.21
9207F6S042	9207F6S042B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S011	9210F2S011B	0.1	U	XV	0.03	0	0.015	-4.21
9207W1S021	9207W1S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207W4S030	9207W4S030B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S009	9210W1S009B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S015	9210W1S015B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S009	9401W1S009B	0.099	U	U	0.03	0	0.015	-4.21
9401W1S012	9401W1S012B	0.1	U	U	0.03	0	0.015	-4.21
9207C3S009	9207C3S009B	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S010A	9207C4S010AB	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S013	9207C4S013B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S021	9207F3S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S035	9207F5S035B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S007	9210F2S007BD	0.099	U	XV	0.03	0	0.015	-4.21
9207W1S020	9207W1S020B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S013	9210W1S013B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S016	9210W1S016B	0.099	U	XV	0.03	0	0.015	-4.21

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C3S007	9207C3S007B	0.099	U	XV	0.03	0	0.015	-4.21
9207C5S012A	9207C5S012AB	0.099	U	XV	0.03	0	0.015	-4.21
9210F3S014	9210F3S014B	0.099	U	XV	0.03	0	0.015	-4.21
9207W5S034	9207W5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S005	9401W1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F4S030	9207F4S030B	0.098	U	XV	0.03	0	0.015	-4.22
9207W6S037	9207W6S037B	0.098	U	XV	0.03	0	0.015	-4.22
9401W1S016	9401W1S016B	0.098	U	XV	0.03	0	0.015	-4.22
9207W2S024A	9207W2S024AB	0.098	U	XV	0.029	0	0.015	-4.22
9207F3S024	9207F3S024B	0.098	U	XV	0.029	0	0.015	-4.22
9207F4S027	9207F4S027B	0.098	U	XV	0.029	0	0.015	-4.22
9207W5S035	9207W5S035B	0.098	U	XV	0.029	0	0.015	-4.22
9207H3S021	9207H3S021B	0.098	U	XV	0.029	0	0.015	-4.22
9207W1S022	9207W1S022B	0.098	U	XV	0.029	0	0.015	-4.22
9401DC1S035	9401DC1S035BD	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S038	9207F6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9210F2S008	9210F2S008B	0.097	U	XV	0.029	0	0.015	-4.23
9207W3S029	9207W3S029BD	0.097	U	XV	0.029	0	0.015	-4.23
9207W6S038	9207W6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9207F3S019	9207F3S019B	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S041	9207F6S041B	0.097	U	XV	0.029	0	0.015	-4.23
9210F3S016	9210F3S016B	0.097	U	XV	0.029	0	0.015	-4.23
9210H1S005	9210H1S005B	0.097	U	XV	0.029	0	0.015	-4.23
9207C5S015	9207C5S015B	0.096	U	XV	0.029	0	0.014	-4.24
9207W6S036	9207W6S036B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S037	9207F6S037B	0.096	U	XV	0.029	0	0.014	-4.24
9210F3S017	9210F3S017B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S023	9207W2S023B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S024	9207W2S024B	0.096	U	XV	0.029	0	0.014	-4.24
9207W4S032	9207W4S032B	0.096	U	XV	0.029	0	0.014	-4.24
9207F4S028	9207F4S028B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S039	9207F6S039B	0.096	U	XV	0.029	0	0.014	-4.24
9401W1S021	9401W1S021B	0.095	U	XV	0.029	0	0.014	-4.25
9207F4S029	9207F4S029B	0.095	U	XV	0.029	0	0.014	-4.25
9401DC1S039	9401DC1S039B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S040	9401DC1S040B	0.094	U	XV	0.028	0	0.014	-4.26
9207S1S030	9207S1S030B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S042	9401DC1S042B	0.093	U	U	0.028	0	0.014	-4.27
9207D2S053	9207D2S053B	0.091	U	XV	0.027	0	0.014	-4.29

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.091	U	XV	0.027	0	0.014	-4.29
9207D2S051	9207D2S051B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S041	9401DC1S041B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S044	9401DC1S044B	0.086	U	XV	0.026	0	0.013	-4.35
9207H5S010	9207H5S010B	0.086	U	XV	0.026	0	0.013	-4.35
9210D1S050	9210D1S050B	0.085	U	U	0.025	0	0.013	-4.37
9401DC1S038	9401DC1S038B	0.085	U	XV	0.025	0	0.013	-4.37
9401DC1S047	9401DC1S047B	0.084	U	XV	0.025	0	0.013	-4.37
9401DC1S045	9401DC1S045B	0.084	U	XV	0.025	0	0.013	-4.38
9401DC1S046	9401DC1S046B	0.083	U	XV	0.025	0	0.012	-4.39
9207H1S013	9207H1S013B	0.082	U	XV	0.025	0	0.012	-4.39
9207S5S029	9207S5S029B	0.082	U	XV	0.025	0	0.012	-4.4
9210S2S034	9210S2S034B	0.081	U	XV	0.024	0	0.012	-4.41
9207D1S046	9207D1S046B	0.08	U	XV	0.024	0	0.012	-4.43
9207H3S003A	9207H3S003AB	0.08	U	XV	0.024	0	0.012	-4.43
9207H1S012	9207H1S012B	0.076	U	U	0.023	0	0.011	-4.47
9210D1S048	9210D1S048B	0.074	U	XV	0.022	0	0.011	-4.5
9210S2S031	9210S2S031B	0.074	U	XV	0.022	0	0.011	-4.5
9210D1S051	9210D1S051B	0.073	U	U	0.022	0	0.011	-4.52
9210H1S004	9210H1S004B	0.072	U	U	0.022	0	0.011	-4.53
9207C1S003	9207C1S003B	0.071	U	XV	0.021	0	0.011	-4.54
9207S3S036	9207S3S036B	0.07	U	U	0.021	0	0.01	-4.56
9210S1S023	9210S1S023B	0.069	U	XV	0.021	0	0.01	-4.57
9210S3S041	9210S3S041B	0.068	U	XV	0.021	0	0.01	-4.58
9207H3S005	9207H3S005BD	0.064	U	XV	0.019	0	0.01	-4.64
9401W1S004A	9401W1S004AB	0.062	U	U	0.019	0	0.009	-4.68
9207H2S003	9207H2S003B	0.062	U	XV	0.019	0	0.009	-4.68
9210D1S055	9210D1S055B	0.061	U	U	0.018	0	0.009	-4.7
9207F5S033	9207F5S033B	0.06	U	XV	0.018	0	0.009	-4.7
9207F1S004	9207F1S004B	0.059	U	XV	0.018	0	0.009	-4.73
9207D4S054	9207D4S054B	0.059	U	XV	0.018	0	0.009	-4.73
9210D3S057	9210D3S057B	0.058	U	XV	0.017	0	0.009	-4.75
9210D3S059	9210D3S059B	0.057	U	XV	0.017	0	0.009	-4.76
9210S1S019	9210S1S019B	0.057	U	XV	0.017	0	0.009	-4.76
9207S6S045	9207S6S045B	0.055	U	XV	0.016	0	0.008	-4.8
9210S1S021	9210S1S021B	0.051	U	UJ	0.015	0	0.008	-4.87
9207D5S059	9207D5S059B	0.051	U	XV	0.015	0	0.008	-4.88
9207H5S026	9207H5S026BD	0.051	U	XV	0.015	0	0.008	-4.89
9210S2S035	9210S2S035B	0.05	U	XV	0.015	0	0.007	-4.9

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.049	U	XV	0.015	0	0.007	-4.91
9207H3S017	9207H3S017B	0.048	U	XV	0.014	0	0.007	-4.93
9207H2S014	9207H2S014B	0.046	U	XV	0.014	0	0.007	-4.98
9210S1S024	9210S1S024B	0.042	U	XV	0.013	0	0.006	-5.06
9207S1S031	9207S1S031B	0.042	U	XV	0.013	0	0.006	-5.07
9210S2S032	9210S2S032B	0.039	U	XV	0.012	0	0.006	-5.15
9210D1S052	9210D1S052BD	0.038	U	XV	0.011	0	0.006	-5.18
9210D1S053	9210D1S053B	0.037	U	XV	0.011	0	0.006	-5.18
9207H3S006	9207H3S006B	0.037	U	XV	0.011	0	0.006	-5.18
9210S2S037	9210S2S037B	0.037	U	XV	0.011	0	0.006	-5.18
9207H2S015	9207H2S015B	0.036	U	XV	0.011	0	0.005	-5.21
9210S1S018	9210S1S018B	0.035	U	XV	0.011	0	0.005	-5.25
9207S2S032	9207S2S032B	0.034	U	U	0.01	0	0.005	-5.28
9210F1S001	9210F1S001B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S003	9210F1S003B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S004	9210F1S004B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S006	9210F1S006B	0.033	U	XV	0.01	0	0.005	-5.3
9401W1S013	9401W1S013B	0.033	U	U	0.01	0	0.005	-5.3
9401DC1S051	9401DC1S051B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S005	9210F1S005B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S002	9210F1S002B	0.033	U	XV	0.01	0	0.005	-5.31
9207D4S056	9207D4S056B	0.03	U	XV	0.009	0	0.005	-5.4
9207S4S040	9207S4S040B	0.027	U	XV	0.008	0	0.004	-5.53
9207S4S028	9207S4S028B	0.025	U	XV	0.007	0	0.004	-5.6
9210S2S038	9210S2S038B	0.022	U	XV	0.007	0	0.003	-5.69
9210S1S022	9210S1S022B	0.022	U	U	0.007	0	0.003	-5.7
9210H3S012	9210H3S012B	0.021	U	U	0.006	0	0.003	-5.78
9210S2S033	9210S2S033B	0.02	U	XV	0.006	0	0.003	-5.81
9210H3S011	9210H3S011B	0.019	U	XV	0.006	0	0.003	-5.85
9210D1S056	9210D1S056B	0.018	U	XV	0.005	0	0.003	-5.92
9210H2S009	9210H2S009B	0.016	U	XV	0.005	0	0.002	-6.06
9210S3S044	9210S3S044B	0.013	U	XV	0.004	0	0.002	-6.21
9210D3S058	9210D3S058B	0.013	U	XV	0.004	0	0.002	-6.22
9210S3S043	9210S3S043B	0.013	U	XV	0.004	0	0.002	-6.24
9207S4S038	9207S4S038B	0.013	U	XV	0.004	0	0.002	-6.26
9207C1S001	9207C1S001B	0.012	U	XV	0.004	0	0.002	-6.28
9401W1S004	9401W1S004B	0.012	U	U	0.004	0	0.002	-6.35
9210S1S001A	9210S1S001AB	0.011	U	XV	0.003	0	0.002	-6.38
9401W1S003	9401W1S003B	0.011	U	U	0.003	0	0.002	-6.39

Table G.90
Statistical Summary for Acenaphthene (83329) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.011	U	XV	0.003	0	0.002	-6.39
9207C5S016	9207C5S016B	0.011	U	XV	0.003	0	0.002	-6.41
9207D2S052	9207D2S052B	0.01	U	XV	0.003	0	0.001	-6.51
9210S2S029	9210S2S029B	0.01	U	XV	0.003	0	0.001	-6.52
9210S2S027	9210S2S027B	0.01	U	XV	0.003	0	0.001	-6.54
9207S3S037	9207S3S037B	0.01	U	XV	0.003	0	0.001	-6.55
9207C1S002	9207C1S002B	0.009	U	U	0.003	0	0.001	-6.58
9210S3S040	9210S3S040B	0.009	U	XV	0.003	0	0.001	-6.59
9207C4S011	9207C4S011B	0.009	U	XV	0.003	0	0.001	-6.59
9207S3S034	9207S3S034B	0.009	U	XV	0.003	0	0.001	-6.62
9207S5S042	9207S5S042B	0.009	U	XV	0.003	0	0.001	-6.64
9207S5S043	9207S5S043B	0.009	U	XV	0.003	0	0.001	-6.65
9207H3S022A	9207H3S022AB	0.008	U	XV	0.002	0	0.001	-6.71
9210S2S030	9210S2S030B	0.008	U	XV	0.002	0	0.001	-6.76
9207S1S027	9207S1S027B	0.007	U	XV	0.002	0	0.001	-6.79
9210S2S026	9210S2S026B	0.007	U	XV	0.002	0	0.001	-6.83
9210S2S025	9210S2S025B	0.007	U	XV	0.002	0	0.001	-6.84
9207S2S033	9207S2S033B	0.006	U	XV	0.002	0	9.6E-04	-6.95
9207C6S017	9207C6S017B	0.006	U	XV	0.002	0	8.9E-04	-7.03
9210S2S036	9210S2S036B	0.005	U	XV	0.002	0	7.6E-04	-7.18
9210S2S028	9210S2S028B	0.005	U	XV	0.001	0	7.0E-04	-7.26
9207S4S039	9207S4S039B	0.002	U	XV	5.9E-04	0	3.0E-04	-8.13

Number of Samples	295
Number of Detects	25
Minimum	3.0E-04
Median	0.015
Maximum	23.7
Arithmetic Average	0.374
Std Dev	1.87
PERT-Beta Expected Value	3.96
LN Mean	-3.83
LN Std Dev	1.89
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S024	9401DC1S024B	1.54		XV	0.295	1	1.54	0.432
9210H1S006	9210H1S006B	9.8	U	XV	2.94	0	1.47	0.385
9207D1S050	9207D1S050B	3.77	U	XV	1.13	0	0.565	-0.571
9210F2S013	9210F2S013B	0.455		XV	0.03	1	0.455	-0.787
9207F3S020	9207F3S020B	2.5	U	XV	0.75	0	0.375	-0.981
9401DC1S026	9401DC1S026B	0.359	J	XV	0.299	1	0.359	-1.02
9401W1S020	9401W1S020B	2.14	U	XV	0.641	0	0.321	-1.14
9210F2S012	9210F2S012B	0.309	J	XV	0.299	1	0.309	-1.17
9207H3S019	9207H3S019B	2	U	XV	0.6	0	0.3	-1.2
9401DC1S022A	9401DC1S022AB	1.98	U	XV	0.594	0	0.297	-1.21
9401DC1S055	9401DC1S055BD	1.86	U	XV	0.558	0	0.279	-1.28
9401DC1S053	9401DC1S053B	1.55	U	UJ	0.465	0	0.233	-1.46
9207D5S057	9207D5S057B	1.4	U	XV	0.419	0	0.21	-1.56
9210H3S013	9210H3S013B	1.39	U	XV	0.418	0	0.209	-1.57
9207D1S048	9207D1S048B	1.22	U	XV	0.367	0	0.184	-1.7
9210H3S014	9210H3S014B	1.11	U	XV	0.334	0	0.167	-1.79
9207D1S047	9207D1S047B	1.02	U	XV	0.307	0	0.154	-1.87
9210C1S002	9210C1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9210C3S008	9210C3S008B	0.999	U	XV	0.3	0	0.15	-1.9
9401DC1S054	9401DC1S054B	0.999	U	XV	0.3	0	0.15	-1.9
9207F2S012	9207F2S012B	1	U	U	0.3	0	0.15	-1.9
9401W1S002A	9401W1S002AB	0.999	U	U	0.3	0	0.15	-1.9
9401W1S017	9401W1S017B	0.999	U	U	0.3	0	0.15	-1.9
9401DC1S023A	9401DC1S023AB	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S034	9401DC1S034B	0.996	U	XV	0.299	0	0.15	-1.9
9207F6S040	9207F6S040B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S010	9210F2S010B	0.998	U	XV	0.299	0	0.15	-1.9
9207H3S020	9207H3S020B	0.995	U	XV	0.299	0	0.15	-1.9
9401W1S001	9401W1S001B	0.997	U	U	0.299	0	0.15	-1.9
9401W1S001A	9401W1S001AB	0.997	U	U	0.299	0	0.15	-1.9
9401W1S002	9401W1S002B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S030	9401DC1S030B	0.992	U	XV	0.298	0	0.149	-1.9
9401DC1S031	9401DC1S031B	0.992	U	XV	0.298	0	0.149	-1.9
9401DC1S032	9401DC1S032B	0.995	U	XV	0.298	0	0.149	-1.9
9401DC1S036	9401DC1S036B	0.992	U	XV	0.298	0	0.149	-1.9
9401DC1S024A	9401DC1S024AB	0.99	U	XV	0.297	0	0.149	-1.91
9207F1S001	9207F1S001BD	0.989	U	U	0.297	0	0.149	-1.91
9210F3S019	9210F3S019B	0.989	U	XV	0.297	0	0.149	-1.91
9210F3S018	9210F3S018B	0.988	U	XV	0.296	0	0.148	-1.91

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S022	9401DC1S022B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S037	9401DC1S037B	0.968	U	XV	0.29	0	0.145	-1.93
9401DC1S056	9401DC1S056B	0.924	U	XV	0.277	0	0.139	-1.98
9210H3S015	9210H3S015B	0.912	U	XV	0.274	0	0.137	-1.99
9207H3S018	9207H3S018B	0.911	U	XV	0.273	0	0.137	-1.99
9210D1S046	9210D1S046B	0.901	U	U	0.27	0	0.135	-2.0
9210D1S047	9210D1S047B	0.821	U	U	0.246	0	0.123	-2.1
9401DC1S057A	9401DC1S057AB	0.802	U	U	0.24	0	0.12	-2.12
9207H4S008	9207H4S008B	0.768	U	XV	0.23	0	0.115	-2.16
9401DC1S048	9401DC1S048B	0.668	U	XV	0.2	0	0.1	-2.3
9207H3S022	9207H3S022B	0.54	U	XV	0.162	0	0.081	-2.51
9207W1S023A	9207W1S023AB	0.08	J	XV	0.03	1	0.08	-2.53
9401W1S011	9401W1S011B	0.52	U	XV	0.156	0	0.078	-2.55
9401DC1S025	9401DC1S025B	0.505	U	XV	0.151	0	0.076	-2.58
9207F3S018	9207F3S018B	0.5	U	U	0.15	0	0.075	-2.59
9207F3S023	9207F3S023B	0.5	U	XV	0.15	0	0.075	-2.59
9207F4S026	9207F4S026B	0.5	U	XV	0.15	0	0.075	-2.59
9207F3S017	9207F3S017B	0.496	U	U	0.149	0	0.075	-2.6
9207F3S022	9207F3S022B	0.498	U	XV	0.149	0	0.075	-2.6
9207W2S025	9207W2S025B	0.497	U	XV	0.149	0	0.075	-2.6
9207W5S033	9207W5S033B	0.496	U	XV	0.149	0	0.075	-2.6
9207F3S013	9207F3S013B	0.493	U	XV	0.148	0	0.074	-2.6
9207W3S028	9207W3S028B	0.492	U	XV	0.148	0	0.074	-2.6
9207H1S002	9207H1S002B	0.485	U	XV	0.146	0	0.073	-2.62
9207H3S024	9207H3S024B	0.488	U	XV	0.146	0	0.073	-2.62
9207H3S023	9207H3S023B	0.48	U	XV	0.144	0	0.072	-2.63
9207D2S034A	9207D2S034AB	0.472	U	XV	0.142	0	0.071	-2.65
9207W4S031	9207W4S031B	0.472	U	XV	0.142	0	0.071	-2.65
9401DC1S027	9401DC1S027B	0.373	U	XV	0.112	0	0.056	-2.88
9210H2S010	9210H2S010B	0.34	U	U	0.102	0	0.051	-2.98
9401W1S014	9401W1S014B	0.33	U	U	0.099	0	0.05	-3.01
9210D1S049	9210D1S049B	0.328	U	XV	0.098	0	0.049	-3.01
9207S6S044	9207S6S044B	0.3	U	XV	0.09	0	0.045	-3.1
9207D4S055	9207D4S055B	0.293	U	XV	0.088	0	0.044	-3.12
9207H5S009	9207H5S009B	0.278	U	XV	0.083	0	0.042	-3.18
9210D1S006A	9210D1S006AB	0.252	U	XV	0.076	0	0.038	-3.28
9207H3S004	9207H3S004B	0.249	U	XV	0.075	0	0.037	-3.29
9210H2S008	9210H2S008BD	0.216	U	XV	0.065	0	0.032	-3.43
9207H1S001A	9207H1S001AB	0.193	U	XV	0.058	0	0.029	-3.54

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001	9207H1S001B	0.167	U	U	0.05	0	0.025	-3.68
9210S1S020	9210S1S020B	0.154	U	U	0.046	0	0.023	-3.77
9401DC1S029	9401DC1S029B	0.138	U	XV	0.041	0	0.021	-3.88
9207D5S058	9207D5S058B	0.131	U	XV	0.039	0	0.02	-3.93
9210S3S042	9210S3S042B	0.12	U	XV	0.036	0	0.018	-4.02
9210S2S002A	9210S2S002AB	0.113	U	XV	0.034	0	0.017	-4.07
9207H3S007	9207H3S007B	0.111	U	XV	0.033	0	0.017	-4.09
9401DC1S028	9401DC1S028B	0.107	U	XV	0.032	0	0.016	-4.13
9401DC1S043	9401DC1S043B	0.101	U	U	0.03	0	0.015	-4.19
9207C2S004	9207C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9207C2S004A	9207C2S004AB	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S010	9207C3S010B	0.1	U	XV	0.03	0	0.015	-4.2
9210C1S001A	9210C1S001AB	0.1	U	XV	0.03	0	0.015	-4.2
9210C2S004	9210C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S018	9210W1S018B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S019	9210W1S019B	0.1	U	U	0.03	0	0.015	-4.2
9207F1S002	9207F1S002B	0.1	U	XV	0.03	0	0.015	-4.2
9207F1S006	9207F1S006B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S007	9207F2S007B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S009	9207F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S011	9207F2S011BD	0.1	U	U	0.03	0	0.015	-4.2
9210F2S009	9210F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9210F3S015	9210F3S015B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S014	9210W1S014B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S015	9401W1S015B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S018	9401W1S018B	0.1	U	U	0.03	0	0.015	-4.2
9401W1S019	9401W1S019B	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S008	9207C3S008B	0.1	U	XV	0.03	0	0.015	-4.2
9207C6S019	9207C6S019B	0.1	U	XV	0.03	0	0.015	-4.2
9210C1S003	9210C1S003B	0.1	U	U	0.03	0	0.015	-4.2
9401DC1S023	9401DC1S023B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S049	9401DC1S049B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S050	9401DC1S050B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S052	9401DC1S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S017	9210W1S017B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S008	9207F2S008B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S010	9207F2S010B	0.1	U	U	0.03	0	0.015	-4.2
9207F3S016	9207F3S016B	0.1	U	U	0.03	0	0.015	-4.2
9207F5S036	9207F5S036B	0.1	U	XV	0.03	0	0.015	-4.2

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W3S026	9207W3S026B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S027	9207W3S027B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S011	9210W1S011B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S012	9210W1S012B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S007	9401W1S007B	0.1	U	U	0.03	0	0.015	-4.2
9207C2S006	9207C2S006B	0.099	U	XV	0.03	0	0.015	-4.21
9210C2S005	9210C2S005B	0.1	U	XV	0.03	0	0.015	-4.21
9210C3S006	9210C3S006B	0.1	U	XV	0.03	0	0.015	-4.21
9210C3S007	9210C3S007B	0.099	U	XV	0.03	0	0.015	-4.21
9207W1S039	9207W1S039B	0.1	U	XV	0.03	0	0.015	-4.21
9207W3S040	9207W3S040B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S003	9207F1S003B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S005	9207F1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S014	9207F3S014B	0.099	U	U	0.03	0	0.015	-4.21
9207F3S015	9207F3S015B	0.099	U	U	0.03	0	0.015	-4.21
9207F4S025	9207F4S025B	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S034	9207F5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9207F6S042	9207F6S042B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S011	9210F2S011B	0.1	U	XV	0.03	0	0.015	-4.21
9207W1S021	9207W1S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207W4S030	9207W4S030B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S009	9210W1S009B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S010	9210W1S010B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S015	9210W1S015B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S009	9401W1S009B	0.099	U	U	0.03	0	0.015	-4.21
9401W1S012	9401W1S012B	0.1	U	U	0.03	0	0.015	-4.21
9207C3S009	9207C3S009B	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S010A	9207C4S010AB	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S013	9207C4S013B	0.099	U	XV	0.03	0	0.015	-4.21
9207C6S018	9207C6S018B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S021	9207F3S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S035	9207F5S035B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S007	9210F2S007BD	0.099	U	XV	0.03	0	0.015	-4.21
9207W1S020	9207W1S020B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S013	9210W1S013B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S016	9210W1S016B	0.099	U	XV	0.03	0	0.015	-4.21
9207C3S007	9207C3S007B	0.099	U	XV	0.03	0	0.015	-4.21
9207C5S012A	9207C5S012AB	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S031	9207F5S031B	0.099	U	XV	0.03	0	0.015	-4.21

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F3S014	9210F3S014B	0.099	U	XV	0.03	0	0.015	-4.21
9207W5S034	9207W5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S005	9401W1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F4S030	9207F4S030B	0.098	U	XV	0.03	0	0.015	-4.22
9207W6S037	9207W6S037B	0.098	U	XV	0.03	0	0.015	-4.22
9401W1S016	9401W1S016B	0.098	U	XV	0.03	0	0.015	-4.22
9207W2S024A	9207W2S024AB	0.098	U	XV	0.029	0	0.015	-4.22
9207F3S024	9207F3S024B	0.098	U	XV	0.029	0	0.015	-4.22
9207F4S027	9207F4S027B	0.098	U	XV	0.029	0	0.015	-4.22
9207W5S035	9207W5S035B	0.098	U	XV	0.029	0	0.015	-4.22
9207H3S021	9207H3S021B	0.098	U	XV	0.029	0	0.015	-4.22
9207W1S022	9207W1S022B	0.098	U	XV	0.029	0	0.015	-4.22
9401DC1S035	9401DC1S035BD	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S038	9207F6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9210F2S008	9210F2S008B	0.097	U	XV	0.029	0	0.015	-4.23
9207W3S029	9207W3S029BD	0.097	U	XV	0.029	0	0.015	-4.23
9207W6S038	9207W6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9401DC1S033	9401DC1S033B	0.097	U	XV	0.029	0	0.015	-4.23
9207F3S019	9207F3S019B	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S041	9207F6S041B	0.097	U	XV	0.029	0	0.015	-4.23
9210F3S016	9210F3S016B	0.097	U	XV	0.029	0	0.015	-4.23
9210H1S005	9210H1S005B	0.097	U	XV	0.029	0	0.015	-4.23
9207C5S015	9207C5S015B	0.096	U	XV	0.029	0	0.014	-4.24
9207W6S036	9207W6S036B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S037	9207F6S037B	0.096	U	XV	0.029	0	0.014	-4.24
9210F3S017	9210F3S017B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S023	9207W2S023B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S024	9207W2S024B	0.096	U	XV	0.029	0	0.014	-4.24
9207W4S032	9207W4S032B	0.096	U	XV	0.029	0	0.014	-4.24
9207F4S028	9207F4S028B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S039	9207F6S039B	0.096	U	XV	0.029	0	0.014	-4.24
9207F5S032	9207F5S032BD	0.095	U	U	0.029	0	0.014	-4.25
9401W1S021	9401W1S021B	0.095	U	XV	0.029	0	0.014	-4.25
9207F4S029	9207F4S029B	0.095	U	XV	0.029	0	0.014	-4.25
9401DC1S039	9401DC1S039B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S040	9401DC1S040B	0.094	U	XV	0.028	0	0.014	-4.26
9207S1S030	9207S1S030B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S042	9401DC1S042B	0.093	U	U	0.028	0	0.014	-4.27
9207D2S053	9207D2S053B	0.091	U	XV	0.027	0	0.014	-4.29

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.091	U	XV	0.027	0	0.014	-4.29
9207D2S051	9207D2S051B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S041	9401DC1S041B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S044	9401DC1S044B	0.086	U	XV	0.026	0	0.013	-4.35
9207H5S010	9207H5S010B	0.086	U	XV	0.026	0	0.013	-4.35
9210D1S050	9210D1S050B	0.085	U	U	0.025	0	0.013	-4.37
9401DC1S038	9401DC1S038B	0.085	U	XV	0.025	0	0.013	-4.37
9401DC1S047	9401DC1S047B	0.084	U	XV	0.025	0	0.013	-4.37
9401DC1S045	9401DC1S045B	0.084	U	XV	0.025	0	0.013	-4.38
9401DC1S046	9401DC1S046B	0.083	U	XV	0.025	0	0.012	-4.39
9207H1S013	9207H1S013B	0.082	U	XV	0.025	0	0.012	-4.39
9207S5S029	9207S5S029B	0.082	U	XV	0.025	0	0.012	-4.4
9210S2S034	9210S2S034B	0.081	U	XV	0.024	0	0.012	-4.41
9207D1S046	9207D1S046B	0.08	U	XV	0.024	0	0.012	-4.43
9207H3S003A	9207H3S003AB	0.08	U	XV	0.024	0	0.012	-4.43
9207H1S012	9207H1S012B	0.076	U	U	0.023	0	0.011	-4.47
9210D1S048	9210D1S048B	0.074	U	XV	0.022	0	0.011	-4.5
9210S2S031	9210S2S031B	0.074	U	XV	0.022	0	0.011	-4.5
9210D1S051	9210D1S051B	0.073	U	U	0.022	0	0.011	-4.52
9210H1S004	9210H1S004B	0.072	U	U	0.022	0	0.011	-4.53
9207C1S003	9207C1S003B	0.071	U	XV	0.021	0	0.011	-4.54
9207S3S036	9207S3S036B	0.07	U	U	0.021	0	0.01	-4.56
9210S1S023	9210S1S023B	0.069	U	XV	0.021	0	0.01	-4.57
9210S3S041	9210S3S041B	0.068	U	XV	0.021	0	0.01	-4.58
9207H3S005	9207H3S005BD	0.064	U	XV	0.019	0	0.01	-4.64
9401W1S004A	9401W1S004AB	0.062	U	U	0.019	0	0.009	-4.68
9207H2S003	9207H2S003B	0.062	U	XV	0.019	0	0.009	-4.68
9210D1S055	9210D1S055B	0.061	U	U	0.018	0	0.009	-4.7
9207F5S033	9207F5S033B	0.06	U	XV	0.018	0	0.009	-4.7
9207F1S004	9207F1S004B	0.059	U	XV	0.018	0	0.009	-4.73
9207D4S054	9207D4S054B	0.059	U	XV	0.018	0	0.009	-4.73
9210D3S057	9210D3S057B	0.058	U	XV	0.017	0	0.009	-4.75
9210D3S059	9210D3S059B	0.057	U	XV	0.017	0	0.009	-4.76
9210S1S019	9210S1S019B	0.057	U	XV	0.017	0	0.009	-4.76
9207S6S045	9207S6S045B	0.055	U	XV	0.016	0	0.008	-4.8
9210S1S021	9210S1S021B	0.051	U	UJ	0.015	0	0.008	-4.87
9207D5S059	9207D5S059B	0.051	U	XV	0.015	0	0.008	-4.88
9207H5S026	9207H5S026BD	0.051	U	XV	0.015	0	0.008	-4.89
9210S2S035	9210S2S035B	0.05	U	XV	0.015	0	0.007	-4.9

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.049	U	XV	0.015	0	0.007	-4.91
9207H3S017	9207H3S017B	0.048	U	XV	0.014	0	0.007	-4.93
9207H2S014	9207H2S014B	0.046	U	XV	0.014	0	0.007	-4.98
9210S1S024	9210S1S024B	0.042	U	XV	0.013	0	0.006	-5.06
9207S1S031	9207S1S031B	0.042	U	XV	0.013	0	0.006	-5.07
9210S2S032	9210S2S032B	0.039	U	XV	0.012	0	0.006	-5.15
9210D1S052	9210D1S052BD	0.038	U	XV	0.011	0	0.006	-5.18
9210D1S053	9210D1S053B	0.037	U	XV	0.011	0	0.006	-5.18
9207H3S006	9207H3S006B	0.037	U	XV	0.011	0	0.006	-5.18
9210S2S037	9210S2S037B	0.037	U	XV	0.011	0	0.006	-5.18
9207H2S015	9207H2S015B	0.036	U	XV	0.011	0	0.005	-5.21
9210S1S018	9210S1S018B	0.035	U	XV	0.011	0	0.005	-5.25
9207S2S032	9207S2S032B	0.034	U	U	0.01	0	0.005	-5.28
9210F1S001	9210F1S001B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S003	9210F1S003B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S004	9210F1S004B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S006	9210F1S006B	0.033	U	XV	0.01	0	0.005	-5.3
9401W1S013	9401W1S013B	0.033	U	U	0.01	0	0.005	-5.3
9401DC1S051	9401DC1S051B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S005	9210F1S005B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S002	9210F1S002B	0.033	U	XV	0.01	0	0.005	-5.31
9207D4S056	9207D4S056B	0.03	U	XV	0.009	0	0.005	-5.4
9207S4S040	9207S4S040B	0.027	U	XV	0.008	0	0.004	-5.53
9207S4S028	9207S4S028B	0.025	U	XV	0.007	0	0.004	-5.6
9210S2S038	9210S2S038B	0.022	U	XV	0.007	0	0.003	-5.69
9210S1S022	9210S1S022B	0.022	U	U	0.007	0	0.003	-5.7
9210H3S012	9210H3S012B	0.021	U	U	0.006	0	0.003	-5.78
9210S2S033	9210S2S033B	0.02	U	XV	0.006	0	0.003	-5.81
9210H3S011	9210H3S011B	0.019	U	XV	0.006	0	0.003	-5.85
9210D1S056	9210D1S056B	0.018	U	XV	0.005	0	0.003	-5.92
9210H2S009	9210H2S009B	0.016	U	XV	0.005	0	0.002	-6.06
9210S3S044	9210S3S044B	0.013	U	XV	0.004	0	0.002	-6.21
9210D3S058	9210D3S058B	0.013	U	XV	0.004	0	0.002	-6.22
9210S3S043	9210S3S043B	0.013	U	XV	0.004	0	0.002	-6.24
9207S4S038	9207S4S038B	0.013	U	XV	0.004	0	0.002	-6.26
9207C1S001	9207C1S001B	0.012	U	XV	0.004	0	0.002	-6.28
9401W1S004	9401W1S004B	0.012	U	U	0.004	0	0.002	-6.35
9210S1S001A	9210S1S001AB	0.011	U	XV	0.003	0	0.002	-6.38
9401W1S003	9401W1S003B	0.011	U	U	0.003	0	0.002	-6.39

Table G.91
Statistical Summary for Acenaphthylene (208968) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.011	U	XV	0.003	0	0.002	-6.39
9207C5S016	9207C5S016B	0.011	U	XV	0.003	0	0.002	-6.41
9207D2S052	9207D2S052B	0.01	U	XV	0.003	0	0.001	-6.51
9210S2S029	9210S2S029B	0.01	U	XV	0.003	0	0.001	-6.52
9210S2S027	9210S2S027B	0.01	U	XV	0.003	0	0.001	-6.54
9207S3S037	9207S3S037B	0.01	U	XV	0.003	0	0.001	-6.55
9207C1S002	9207C1S002B	0.009	U	U	0.003	0	0.001	-6.58
9210S3S040	9210S3S040B	0.009	U	XV	0.003	0	0.001	-6.59
9207C4S011	9207C4S011B	0.009	U	XV	0.003	0	0.001	-6.59
9207S3S034	9207S3S034B	0.009	U	XV	0.003	0	0.001	-6.62
9207S5S042	9207S5S042B	0.009	U	XV	0.003	0	0.001	-6.64
9207S5S043	9207S5S043B	0.009	U	XV	0.003	0	0.001	-6.65
9207H3S022A	9207H3S022AB	0.008	U	XV	0.002	0	0.001	-6.71
9210S2S030	9210S2S030B	0.008	U	XV	0.002	0	0.001	-6.76
9207S1S027	9207S1S027B	0.007	U	XV	0.002	0	0.001	-6.79
9210S2S026	9210S2S026B	0.007	U	XV	0.002	0	0.001	-6.83
9210S2S025	9210S2S025B	0.007	U	XV	0.002	0	0.001	-6.84
9207S2S033	9207S2S033B	0.006	U	XV	0.002	0	9.6E-04	-6.95
9207C6S017	9207C6S017B	0.006	U	XV	0.002	0	8.9E-04	-7.03
9210S2S036	9210S2S036B	0.005	U	XV	0.002	0	7.6E-04	-7.18
9210S2S028	9210S2S028B	0.005	U	XV	0.001	0	7.0E-04	-7.26
9207S4S039	9207S4S039B	0.002	U	XV	5.9E-04	0	3.0E-04	-8.13

Number of Samples	295
Number of Detects	5
Minimum	3.0E-04
Median	0.015
Maximum	1.54
Arithmetic Average	0.055
Std Dev	0.142
PERT-Beta Expected Value	0.267
LN Mean	-4.06
LN Std Dev	1.46
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9401W1S002	9401W1S002B	6.62	J	J	2.99	1	6.62	1.89
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9401W1S002A	9401W1S002AB	4.18	J	J	3	1	4.18	1.43
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	UJ	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	UJ	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	UJ	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	U	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	UJ	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	UJ	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9207F6S039	9207F6S039B	0.405	J	XV	0.287	1	0.405	-0.904
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9207W4S030	9207W4S030B	0.358	J	XV	0.298	1	0.358	-1.03
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9210W1S014	9210W1S014B	0.305	J	XV	0.3	1	0.305	-1.19

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9207H1S012	9207H1S012B	0.23	J	J	0.229	1	0.23	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	UJ	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	UJ	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	UJ	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	UJ	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	UJ	0.299	0	0.15	-1.9

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S016	9207F3S016B	0.998	U	UJ	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	UJ	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	UJ	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	UJ	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	UJ	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	UJ	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09

Table G.92
Statistical Summary for Acetophenone (98862) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	6
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.501
Std Dev	1.15
PERT-Beta Expected Value	2.55
LN Mean	-1.77
LN Std Dev	1.43
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.93
Statistical Summary for Antimony (7440360) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D3S059	9210D3S059A	82.5		XV	0.303	1	82.5	4.41
9401DC1S045	9401DC1S045A	17.3		XV	0.33	1	17.3	2.85
9207D5S057	9207D5S057A	16.9		XV	0.207	1	16.9	2.83
9207H1S012	9207H1S012A	14.6		XV	0.269	1	14.6	2.68
9401DC1S057A	9401DC1S057AA	10.3		=	0.292	1	10.3	2.33
9401DC1S028	9401DC1S028A	7.5		XV	0.296	1	7.5	2.01
9207H1S001A	9207H1S001AA	5.37	*	XV	0.306	1	5.37	1.68
9210D1S052	9210D1S052A	5.05	*	XV	0.299	1	5.05	1.62
9207H5S009	9207H5S009A	2.24		XV	0.343	1	2.24	0.806
9210F1S006	9210F1S006A	1.61		XV	0.326	1	1.61	0.476
9207RS016	9207RS016A	1.15	*	XV	0.302	1	1.15	0.14
9210C1S003	9210C1S003A	1.05		=	0.306	1	1.05	0.049
9207W3S029	9207W3S029A	1.03		XV	0.315	1	1.03	0.03
9207F2S009	9207F2S009A	1.01	*	XV	0.323	1	1.01	0.01
9401DC1S024A	9401DC1S024AA	0.98		XV	0.308	1	0.98	-0.02
9207F4S027	9207F4S027A	0.705	J	XV	0.329	1	0.705	-0.35
9210H2S008	9210H2S008A	0.643	J	XV	0.287	1	0.643	-0.442
9210F3S014	9210F3S014A	0.595	J N	XV	0.3	1	0.595	-0.519
9207C6S017	9207C6S017A	0.579	J	XV	0.281	1	0.579	-0.546
9207W5S034	9207W5S034A	0.54	J	XV	0.321	1	0.54	-0.616
9207D1S047	9207D1S047AD	0.528	J	XV	0.277	1	0.528	-0.639
9207H3S005	9207H3S005A	0.464	J	XV	0.283	1	0.464	-0.768
9210W1S016	9210W1S016A	0.433	J	XV	0.303	1	0.433	-0.837
9210RS002	9210RS002A	0.405	J	XV	0.318	1	0.405	-0.904
9207C1S001	9207C1S001A	0.404		XV	0.077	1	0.404	-0.906
9207RS002	9207RS002A	0.381	J	XV	0.312	1	0.381	-0.965
9210S2S038	9210S2S038AD	0.375	J	XV	0.196	1	0.375	-0.981
9401W1S012	9401W1S012A	0.313	J	J	0.295	1	0.313	-1.16
9401W1S020	9401W1S020A	0.332	U	XV	0.332	0	0.166	-1.8
9401DC1S032	9401DC1S032A	0.33	U	XV	0.33	0	0.165	-1.8
9207S2S032	9207S2S032A	0.326	U	XV	0.326	0	0.163	-1.81
9210RS014	9210RS014A	0.325	U	XV	0.325	0	0.163	-1.82
9207S4S041	9207S4S041A	0.325	U	XV	0.325	0	0.163	-1.82
9207F3S015	9207F3S015A	0.321	U	XV	0.321	0	0.161	-1.83
9207F6S039	9207F6S039A	0.316	U	XV	0.316	0	0.158	-1.85
9207F1S001	9207F1S001AD	0.31	U	UJ	0.31	0	0.155	-1.86
9207W2S024A	9207W2S024AA	0.308	U	XV	0.308	0	0.154	-1.87
9401W1S001	9401W1S001A	0.286	U	UJ	0.286	0	0.143	-1.94
9210S3S044	9210S3S044A	0.272	U	XV	0.272	0	0.136	-2.0

Table G.93
Statistical Summary for Antimony (7440360) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S026	9207H5S026AD	0.174	U	XV	0.174	0	0.087	-2.44
9210S1S017	9210S1S017A	0.156	U	XV	0.156	0	0.078	-2.55

Number of Samples	41
Number of Detects	28
Minimum	0.078
Median	0.528
Maximum	82.5
Arithmetic Average	4.31
Std Dev	13.3
PERT-Beta Expected Value	14.1
LN Mean	-0.32
LN Std Dev	1.68
S-W p-value for normality	1.9E-12
S-W p-value for lognormality	0.001

Table G.94
Statistical Summary for TCLP Arsenic (7440382) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9767D1B001	9767D1B001	0.07	J	J	0.05	1	0.07	-2.65
9767D1B002	9767D1B002	0.059	J	J	0.05	1	0.059	-2.84
9207W2S024A	9207W2S024AA	0.041	J	J	0.017	1	0.041	-3.19
9401W1B001	9401W1B001B	0.026	J	J	0.017	1	0.026	-3.65
9767D1B003	9767D1B003	0.05	U	UJ	0.05	0	0.025	-3.69
9767D1B004	9767D1B004	0.05	U	UJ	0.05	0	0.025	-3.69
9767D1B005	9767D1B005	0.05	U	UJ	0.05	0	0.025	-3.69
9767D1B006	9767D1B006	0.05	U	UJ	0.05	0	0.025	-3.69
9207W5S034	9207W5S034A	0.024	J	J	0.017	1	0.024	-3.73
9210C1S003	9210C1S003A	0.017	U	UJ	0.017	0	0.009	-4.77
9401DC1S024A	9401DC1S024AA	0.017	U	XV	0.017	0	0.009	-4.77
9401DC1S032	9401DC1S032A	0.017	U	XV	0.017	0	0.009	-4.77
9401DC1S057A	9401DC1S057AA	0.017	U	UJ	0.017	0	0.009	-4.77
9207D1S047	9207D1S047A	0.017	U	XV	0.017	0	0.009	-4.77
9207D5S057	9207D5S057A	0.017	U	XV	0.017	0	0.009	-4.77
9401DC1S028	9401DC1S028A	0.017	U	XV	0.017	0	0.009	-4.77
9401DC1S045	9401DC1S045A	0.017	U	XV	0.017	0	0.009	-4.77
9401E1B002	9401E1B002B	0.017	U	UJ	0.017	0	0.009	-4.77
9401E1B003	9401E1B003B	0.017	U	UJ	0.017	0	0.009	-4.77
9401E1B005	9401E1B005B	0.017	U	UJ	0.017	0	0.009	-4.77
9207F1S001	9207F1S001A	0.017	U	UJ	0.017	0	0.009	-4.77
9207F2S009	9207F2S009A	0.017	U	UJ	0.017	0	0.009	-4.77
9207F3S015	9207F3S015A	0.017	U	UJ	0.017	0	0.009	-4.77
9207F4S027	9207F4S027A	0.017	U	UJ	0.017	0	0.009	-4.77
9207F6S039	9207F6S039A	0.017	U	UJ	0.017	0	0.009	-4.77
9210F1S006	9210F1S006A	0.017	U	UJ	0.017	0	0.009	-4.77
9210F3S014	9210F3S014A	0.017	U	UJ	0.017	0	0.009	-4.77
9207H3S005	9207H3S005A	0.017	U	XV	0.017	0	0.009	-4.77
9207H5S009	9207H5S009A	0.017	U	XV	0.017	0	0.009	-4.77
9207W3S029	9207W3S029A	0.017	U	UJ	0.017	0	0.009	-4.77
9210W1S016	9210W1S016A	0.017	U	UJ	0.017	0	0.009	-4.77
9401W1S001	9401W1S001A	0.017	U	UJ	0.017	0	0.009	-4.77
9401W1S012	9401W1S012A	0.017	U	UJ	0.017	0	0.009	-4.77
9401R1B006	9401R1B006	0.017	U	U	0.017	0	0.009	-4.77
9207RS002	9207RS002A	0.017	U	UJ	0.017	0	0.009	-4.77
9207RS016	9207RS016A	0.017	U	UJ	0.017	0	0.009	-4.77
9210RS002	9210RS002A	0.017	U	UJ	0.017	0	0.009	-4.77
9210RS014	9210RS014A	0.017	U	UJ	0.017	0	0.009	-4.77
9207S2S032	9207S2S032A	0.017	U	XV	0.017	0	0.009	-4.77

Table G.94
Statistical Summary for TCLP Arsenic (7440382) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017A	0.017	U	XV	0.017	0	0.009	-4.77
9210S2S038	9210S2S038A	0.017	U	XV	0.017	0	0.009	-4.77
9210S3S044	9210S3S044A	0.017	U	XV	0.017	0	0.009	-4.77

Number of Samples	42
Number of Detects	5
Minimum	0.009
Median	0.009
Maximum	0.07
Arithmetic Average	0.014
Std Dev	0.014
PERT-Beta Expected Value	0.019
LN Mean	-4.48
LN Std Dev	0.588
S-W p-value for normality	7.7E-11
S-W p-value for lognormality	3.4E-10

Table G.95
Statistical Summary for TCLP Barium (7440393) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S005	9207H3S005A	0.929		XV	0.006	1	0.929	-0.074
9210F1S006	9210F1S006A	0.579		=	0.006	1	0.579	-0.546
9210S1S017	9210S1S017A	0.383		XV	0.006	1	0.383	-0.96
9207F3S015	9207F3S015A	0.354		=	0.006	1	0.354	-1.04
9207F6S039	9207F6S039A	0.348		=	0.006	1	0.348	-1.06
9207F1S001	9207F1S001A	0.345		=	0.006	1	0.345	-1.06
9210C1S003	9210C1S003A	0.344		=	0.006	1	0.344	-1.07
9401W1B001	9401W1B001B	0.324		=	0.006	1	0.324	-1.13
9207F2S009	9207F2S009A	0.311		=	0.006	1	0.311	-1.17
9401DC1S024A	9401DC1S024AA	0.295		XV	0.006	1	0.295	-1.22
9207F4S027	9207F4S027A	0.281		=	0.006	1	0.281	-1.27
9207RS016	9207RS016A	0.271		=	0.006	1	0.271	-1.31
9210F3S014	9210F3S014A	0.268		=	0.006	1	0.268	-1.32
9207D5S057	9207D5S057A	0.261		XV	0.006	1	0.261	-1.34
9767D1B003	9767D1B003	0.243	N	J	0.01	1	0.243	-1.41
9401DC1S032	9401DC1S032A	0.229		XV	0.006	1	0.229	-1.47
9767D1B001	9767D1B001	0.223	N	J	0.01	1	0.223	-1.5
9767D1B004	9767D1B004	0.219	N	J	0.01	1	0.219	-1.52
9767D1B002	9767D1B002	0.218	N	J	0.01	1	0.218	-1.52
9207RS002	9207RS002A	0.211		=	0.006	1	0.211	-1.56
9767D1B005	9767D1B005	0.203	N	J	0.01	1	0.203	-1.59
9207W2S024A	9207W2S024AA	0.188		=	0.006	1	0.188	-1.67
9401E1B005	9401E1B005B	0.186		J	0.006	1	0.186	-1.68
9401W1S001	9401W1S001A	0.143		=	0.006	1	0.143	-1.94
9210W1S016	9210W1S016A	0.133		=	0.006	1	0.133	-2.02
9767D1B006	9767D1B006	0.131	N	J	0.01	1	0.131	-2.03
9401W1S012	9401W1S012A	0.124		=	0.006	1	0.124	-2.09
9210RS014	9210RS014A	0.12		=	0.006	1	0.12	-2.12
9401R1B006	9401R1B006	0.105		=	0.006	1	0.105	-2.25
9207W5S034	9207W5S034A	0.103		=	0.006	1	0.103	-2.27
9207W3S029	9207W3S029A	0.079		=	0.006	1	0.079	-2.54
9210RS002	9210RS002A	0.073		=	0.006	1	0.073	-2.62
9401DC1S045	9401DC1S045A	0.055		XV	0.006	1	0.055	-2.9
9401DC1S028	9401DC1S028A	0.053		XV	0.006	1	0.053	-2.95
9207D1S047	9207D1S047AD	0.039		XV	0.006	1	0.039	-3.24
9401DC1S057A	9401DC1S057AA	0.034		=	0.006	1	0.034	-3.38
9207H5S009	9207H5S009A	0.028		XV	0.006	1	0.028	-3.58
9210S3S044	9210S3S044A	0.021		XV	0.006	1	0.021	-3.86
9210S2S038	9210S2S038A	0.021		XV	0.006	1	0.021	-3.88

Table G.95
Statistical Summary for TCLP Barium (7440393) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S2S032	9207S2S032A	0.021		XV	0.006	1	0.021	-3.89
9401E1B002	9401E1B002B	0.014	J	J	0.006	1	0.014	-4.28
9401E1B003	9401E1B003B	0.012	J	J	0.006	1	0.012	-4.46

Number of Samples	42
Number of Detects	42
Minimum	0.012
Median	0.196
Maximum	0.929
Arithmetic Average	0.203
Std Dev	0.173
PERT-Beta Expected Value	0.287
LN Mean	-2.02
LN Std Dev	1.07
S-W p-value for normality	2.4E-05
S-W p-value for lognormality	0.006

Table G.96
Statistical Summary for Barium (7440393) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001A	9207H1S001AA	7410	*	XV	48.8	1	7410	8.91
9210C1S003	9210C1S003A	947		J	0.907	1	947	6.85
9210D1S052	9210D1S052A	723		XV	0.453	1	723	6.58
9207F1S001	9207F1S001AD	398		=	4.55	1	398	5.99
9210F1S006	9210F1S006A	144		XV	0.095	1	144	4.97
9401DC1S032	9401DC1S032A	136	E	XV	0.099	1	136	4.91
9207F3S015	9207F3S015A	83.8		XV	0.097	1	83.8	4.43
9207F6S039	9207F6S039A	67	*	XV	0.098	1	67	4.2
9207F4S027	9207F4S027A	63.8		XV	0.486	1	63.8	4.16
9210F3S014	9210F3S014A	59.5		XV	0.093	1	59.5	4.09
9401DC1S024A	9401DC1S024AA	55.9	*	XV	0.1	1	55.9	4.02
9207RS016	9207RS016A	50.7		XV	0.099	1	50.7	3.93
9207F2S009	9207F2S009A	49.2		XV	0.093	1	49.2	3.9
9207C1S001	9207C1S001A	45.7		XV	1.17	1	45.7	3.82
9401E1B005	9401E1B005A	38.9		=	0.093	1	38.9	3.66
9210W1S016	9210W1S016A	38	*	XV	0.099	1	38	3.64
9401W1S012	9401W1S012A	30.4		=	0.099	1	30.4	3.41
9401W1B001	9401W1B001A	26.5		=	0.083	1	26.5	3.28
9210RS014	9210RS014A	25.5	N	XV	0.094	1	25.5	3.24
9210S1S017	9210S1S017A	21.6		XV	0.047	1	21.6	3.07
9207W2S024A	9207W2S024AA	19.1	*	XV	0.099	1	19.1	2.95
9207RS002	9207RS002AD	18.4		XV	0.099	1	18.4	2.91
9401W1S001	9401W1S001A	18.3		=	0.442	1	18.3	2.91
9207H3S005	9207H3S005AD	13.5		XV	0.072	1	13.5	2.6
9207W3S029	9207W3S029A	13	* N	XV	0.095	1	13	2.56
9207W5S034	9207W5S034A	13		XV	0.095	1	13	2.56
9401R1B006	9401R1B006	13	* N	J	0.096	1	13	2.56
9210RS002	9210RS002A	10.9	N	XV	0.092	1	10.9	2.39
9207H1S012	9207H1S012A	9.29		XV	0.408	1	9.29	2.23
9401W1S020	9401W1S020A	4.22		XV	0.101	1	4.22	1.44
9207C6S017	9207C6S017AD	3.44		XV	0.067	1	3.44	1.24
9401DC1S045	9401DC1S045A	1.17	J	XV	0.5	1	1.17	0.157
9210H2S008	9210H2S008A	0.807	*	XV	0.087	1	0.807	-0.214
9401DC1S057A	9401DC1S057AA	0.561		=	0.088	1	0.561	-0.578
9401DC1S028	9401DC1S028A	0.469		XV	0.09	1	0.469	-0.757
9207H5S009	9207H5S009A	0.203	J	XV	0.104	1	0.203	-1.59
9207D5S057	9207D5S057A	0.179	J	XV	0.063	1	0.179	-1.72
9210S2S038	9210S2S038AD	0.179	J	XV	0.06	1	0.179	-1.72
9210S3S044	9210S3S044A	0.165	J	XV	0.082	1	0.165	-1.8

Table G.96
Statistical Summary for Barium (7440393) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D3S059	9210D3S059A	0.16	J	XV	0.092	1	0.16	-1.83
9207D1S047	9207D1S047AD	0.117	J	XV	0.084	1	0.117	-2.15
9401E1B003	9401E1B003A	0.174	U	UJ	0.174	0	0.087	-2.44
9207S2S032	9207S2S032A	0.099	U	XV	0.099	0	0.049	-3.01
9207S4S041	9207S4S041A	0.098	U	XV	0.098	0	0.049	-3.01
9207H5S026	9207H5S026AD	0.053	U	XV	0.053	0	0.026	-3.63
9401E1B002	9401E1B002A	0.042	U	UJ	0.042	0	0.021	-3.87

Number of Samples	46
Number of Detects	41
Minimum	0.021
Median	15.9
Maximum	7410
Arithmetic Average	229
Std Dev	1097
PERT-Beta Expected Value	1246
LN Mean	1.94
LN Std Dev	3.06
S-W p-value for normality	2.1E-14
S-W p-value for lognormality	0.032

Table G.97
Statistical Summary for TCLP Benzene (71432) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401R1B006	9401R1B006	0.676		=	0.003	1	0.676	-0.392
9401E1B003	9401E1B003C	0.01	U	U	0.003	0	0.002	-6.4
9401E1B005	9401E1B005C	0.01	U	U	0.003	0	0.002	-6.4

Number of Samples	3
Number of Detects	1
Minimum	0.002
Median	0.002
Maximum	0.676
Arithmetic Average	0.226
Std Dev	0.389
PERT-Beta Expected Value	0.114
LN Mean	-4.4
LN Std Dev	3.47
S-W p-value for normality	--
S-W p-value for lognormality	--

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207F2S010	9207F2S010B	1.54		J	0.299	1	1.54	0.432
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	UJ	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	UJ	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	UJ	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	UJ	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	UJ	2.4	0	1.2	0.182
9207F1S003	9207F1S003B	1.19		XV	0.298	1	1.19	0.174
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207F2S007	9207F2S007B	0.894	J	J	0.3	1	0.894	-0.112
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	UJ	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	UJ	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9210F3S014	9210F3S014B	0.623	J	XV	0.296	1	0.623	-0.473
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9207C4S010A	9207C4S010AB	0.41	J	XV	0.297	1	0.41	-0.892
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	UJ	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	UJ	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	UJ	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	UJ	0.299	0	0.15	-1.9

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S016	9207F3S016B	0.998	U	UJ	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	UJ	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	UJ	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	UJ	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	UJ	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	UJ	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	UJ	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	UJ	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09

Table G.98
Statistical Summary for Benzenemethanol (100516) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	UJ	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	5
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.485
Std Dev	1.08
PERT-Beta Expected Value	2.55
LN Mean	-1.76
LN Std Dev	1.43
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	UJ	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	UJ	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	UJ	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	UJ	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	UJ	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	UJ	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	UJ	2.4	0	1.2	0.182
9207W4S030	9207W4S030B	1.17		XV	0.298	1	1.17	0.157
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	UJ	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	UJ	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	UJ	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S020	9210S1S020B	1.54	U	UJ	0.461	0	0.231	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	UJ	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	UJ	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	UJ	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	UJ	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	UJ	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	UJ	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	UJ	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	UJ	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	UJ	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	UJ	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	UJ	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	UJ	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	UJ	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	UJ	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	U	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	UJ	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	UJ	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	UJ	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	UJ	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	UJ	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	UJ	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	UJ	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	UJ	0.033	0	0.017	-4.09

Table G.99
Statistical Summary for Benzidine (92875) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	1
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.476
Std Dev	1.08
PERT-Beta Expected Value	2.55
LN Mean	-1.78
LN Std Dev	1.42
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	196	U	XV	49	0	24.5	3.2
9207D1S050	9207D1S050B	75.4	U	XV	18.9	0	9.45	2.25
9207F3S020	9207F3S020B	50	U	XV	12.5	0	6.25	1.83
9401W1S020	9401W1S020B	42.7	U	XV	10.7	0	5.35	1.68
9207H3S019	9207H3S019B	40	U	XV	10	0	5	1.61
9401DC1S022A	9401DC1S022AB	39.6	U	XV	9.9	0	4.95	1.6
9401DC1S055	9401DC1S055BD	37.2	U	XV	9.3	0	4.65	1.54
9401DC1S053	9401DC1S053B	31	U	UJ	7.76	0	3.88	1.36
9207D5S057	9207D5S057B	27.9	U	XV	6.98	0	3.49	1.25
9210H3S013	9210H3S013B	27.9	U	XV	6.97	0	3.49	1.25
9207D1S048	9207D1S048B	24.4	U	XV	6.11	0	3.06	1.12
9210H3S014	9210H3S014B	22.3	U	XV	5.57	0	2.79	1.02
9207W3S027	9207W3S027B	2.73		XV	0.499	1	2.73	1.0
9207D1S047	9207D1S047BD	20.4	U	XV	5.09	0	2.55	0.934
9401DC1S054	9401DC1S054B	20	U	XV	5	0	2.5	0.916
9207F2S012	9207F2S012B	20	U	UJ	5	0	2.5	0.916
9401W1S017	9401W1S017B	20	U	UJ	5	0	2.5	0.916
9210C1S002	9210C1S002B	20	U	XV	4.99	0	2.5	0.914
9210C3S008	9210C3S008B	20	U	XV	4.99	0	2.5	0.914
9401DC1S026	9401DC1S026B	20	U	XV	4.99	0	2.5	0.914
9210F2S010	9210F2S010B	20	U	XV	4.99	0	2.5	0.914
9401W1S001	9401W1S001B	19.9	U	UJ	4.99	0	2.5	0.914
9401W1S001A	9401W1S001AB	19.9	U	UJ	4.99	0	2.5	0.914
9401W1S002	9401W1S002B	19.9	U	UJ	4.99	0	2.5	0.914
9401W1S002A	9401W1S002AB	20	U	UJ	4.99	0	2.5	0.914
9401DC1S023A	9401DC1S023AB	19.9	U	XV	4.98	0	2.49	0.912
9401DC1S034	9401DC1S034B	19.9	U	XV	4.98	0	2.49	0.912
9207F6S040	9207F6S040B	19.9	U	XV	4.98	0	2.49	0.912
9210F2S012	9210F2S012B	19.9	U	XV	4.98	0	2.49	0.912
9207H3S020	9207H3S020B	19.9	U	XV	4.98	0	2.49	0.912
9401DC1S032	9401DC1S032B	19.9	U	XV	4.97	0	2.49	0.91
9401DC1S030	9401DC1S030B	19.8	U	XV	4.96	0	2.48	0.908
9401DC1S031	9401DC1S031B	19.8	U	XV	4.96	0	2.48	0.908
9401DC1S036	9401DC1S036B	19.8	U	XV	4.96	0	2.48	0.908
9401DC1S024A	9401DC1S024AB	19.8	U	XV	4.95	0	2.48	0.906
9207F1S001	9207F1S001BD	19.8	U	UJ	4.95	0	2.48	0.906
9210F3S019	9210F3S019B	19.8	U	XV	4.95	0	2.48	0.906
9210F3S018	9210F3S018B	19.8	U	XV	4.94	0	2.47	0.904
9401DC1S024	9401DC1S024B	19.7	U	XV	4.92	0	2.46	0.9

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S022	9401DC1S022B	19.4	U	XV	4.85	0	2.43	0.886
9401DC1S037	9401DC1S037B	19.4	U	XV	4.84	0	2.42	0.884
9401DC1S056	9401DC1S056B	18.5	U	XV	4.62	0	2.31	0.837
9210H3S015	9210H3S015B	18.2	U	XV	4.56	0	2.28	0.824
9207H3S018	9207H3S018B	18.2	U	XV	4.55	0	2.28	0.822
9210D1S046	9210D1S046B	18	U	U	4.5	0	2.25	0.811
9210D1S047	9210D1S047B	16.4	U	U	4.11	0	2.06	0.72
9401DC1S057A	9401DC1S057AB	16	U	UJ	4.01	0	2.01	0.696
9207H4S008	9207H4S008B	15.4	U	XV	3.84	0	1.92	0.652
9401DC1S048	9401DC1S048B	13.4	U	XV	3.34	0	1.67	0.513
9401DC1S042	9401DC1S042B	1.55	J	J	0.467	1	1.55	0.438
9207W4S030	9207W4S030B	1.47	J	XV	0.496	1	1.47	0.385
9207H3S022	9207H3S022B	10.8	U	XV	2.7	0	1.35	0.3
9401W1S011	9401W1S011B	10.4	U	XV	2.6	0	1.3	0.262
9401DC1S025	9401DC1S025B	10.1	U	XV	2.52	0	1.26	0.231
9207F3S018	9207F3S018B	9.99	U	UJ	2.5	0	1.25	0.223
9207F3S023	9207F3S023B	9.99	U	XV	2.5	0	1.25	0.223
9207F4S026	9207F4S026B	10	U	XV	2.5	0	1.25	0.223
9207F3S022	9207F3S022B	9.96	U	XV	2.49	0	1.25	0.219
9207F3S017	9207F3S017B	9.92	U	UJ	2.48	0	1.24	0.215
9207W2S025	9207W2S025B	9.93	U	XV	2.48	0	1.24	0.215
9207W5S033	9207W5S033B	9.92	U	XV	2.48	0	1.24	0.215
9207F3S013	9207F3S013B	9.85	U	XV	2.46	0	1.23	0.207
9207W3S028	9207W3S028B	9.84	U	XV	2.46	0	1.23	0.207
9207H3S024	9207H3S024B	9.75	U	XV	2.44	0	1.22	0.199
9207H1S002	9207H1S002B	9.7	U	XV	2.43	0	1.22	0.195
9207H3S023	9207H3S023B	9.6	U	XV	2.4	0	1.2	0.182
9207D2S034A	9207D2S034AB	9.43	U	XV	2.36	0	1.18	0.166
9207W4S031	9207W4S031B	9.43	U	XV	2.36	0	1.18	0.166
9207W3S040	9207W3S040B	1.09	J	XV	0.497	1	1.09	0.086
9401DC1S027	9401DC1S027B	7.46	U	XV	1.86	0	0.93	-0.073
9210H2S010	9210H2S010B	6.8	U	U	1.7	0	0.85	-0.163
9401W1S014	9401W1S014B	6.6	U	U	1.65	0	0.825	-0.192
9210D1S049	9210D1S049B	6.56	U	XV	1.64	0	0.82	-0.198
9207S6S044	9207S6S044B	6.01	U	XV	1.5	0	0.75	-0.288
9207D4S055	9207D4S055B	5.87	U	XV	1.47	0	0.735	-0.308
9207H5S009	9207H5S009B	5.56	U	XV	1.39	0	0.695	-0.364
9210D1S006A	9210D1S006AB	5.04	U	XV	1.26	0	0.63	-0.462
9207H3S004	9207H3S004B	4.98	U	XV	1.24	0	0.62	-0.478

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H2S008	9210H2S008BD	4.31	U	XV	1.08	0	0.54	-0.616
9207H1S001A	9207H1S001AB	3.86	U	XV	0.965	0	0.483	-0.729
9207H1S001	9207H1S001B	3.34	U	U	0.836	0	0.418	-0.872
9210S1S020	9210S1S020B	3.07	U	U	0.768	0	0.384	-0.957
9401DC1S029	9401DC1S029B	2.76	U	XV	0.69	0	0.345	-1.06
9207D5S058	9207D5S058B	2.62	U	XV	0.654	0	0.327	-1.12
9210S3S042	9210S3S042B	2.39	U	XV	0.598	0	0.299	-1.21
9210S2S002A	9210S2S002AB	2.27	U	XV	0.567	0	0.284	-1.26
9207H3S007	9207H3S007B	2.23	U	XV	0.557	0	0.279	-1.28
9401DC1S028	9401DC1S028B	2.14	U	XV	0.534	0	0.267	-1.32
9401DC1S043	9401DC1S043B	2.03	U	U	0.507	0	0.254	-1.37
9207C2S004	9207C2S004B	2	U	XV	0.5	0	0.25	-1.39
9207C2S004A	9207C2S004AB	2	U	XV	0.5	0	0.25	-1.39
9207C3S010	9207C3S010B	2	U	XV	0.5	0	0.25	-1.39
9210C1S001A	9210C1S001AB	2	U	XV	0.5	0	0.25	-1.39
9210W1S018	9210W1S018B	2	U	XV	0.5	0	0.25	-1.39
9210W1S019	9210W1S019B	2	U	U	0.5	0	0.25	-1.39
9207F1S006	9207F1S006B	2	U	XV	0.5	0	0.25	-1.39
9207F2S009	9207F2S009B	2	U	XV	0.5	0	0.25	-1.39
9207F2S011	9207F2S011B	2	U	UJ	0.5	0	0.25	-1.39
9210F2S009	9210F2S009B	2	U	XV	0.5	0	0.25	-1.39
9210F3S015	9210F3S015B	2	U	XV	0.5	0	0.25	-1.39
9401W1S018	9401W1S018B	2	U	UJ	0.5	0	0.25	-1.39
9401W1S019	9401W1S019B	2	U	XV	0.5	0	0.25	-1.39
9207C3S008	9207C3S008B	2	U	XV	0.499	0	0.25	-1.39
9210C2S004	9210C2S004B	2	U	XV	0.499	0	0.25	-1.39
9401DC1S049	9401DC1S049B	2	U	XV	0.499	0	0.25	-1.39
9207F1S002	9207F1S002B	2	U	XV	0.499	0	0.25	-1.39
9207F2S007	9207F2S007B	2	U	UJ	0.499	0	0.25	-1.39
9207F3S016	9207F3S016B	2	U	UJ	0.499	0	0.25	-1.39
9210F2S013	9210F2S013B	2	U	XV	0.499	0	0.25	-1.39
9210W1S011	9210W1S011B	2	U	XV	0.499	0	0.25	-1.39
9210W1S012	9210W1S012B	2	U	XV	0.499	0	0.25	-1.39
9210W1S014	9210W1S014B	2	U	XV	0.499	0	0.25	-1.39
9401W1S007	9401W1S007B	1.99	U	UJ	0.499	0	0.25	-1.39
9401W1S015	9401W1S015B	2	U	XV	0.499	0	0.25	-1.39
9207C6S019	9207C6S019B	1.99	U	XV	0.498	0	0.249	-1.39
9210C1S003	9210C1S003B	1.99	U	U	0.498	0	0.249	-1.39
9401DC1S023	9401DC1S023B	1.99	U	XV	0.498	0	0.249	-1.39

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S050	9401DC1S050B	1.99	U	XV	0.498	0	0.249	-1.39
9401DC1S052	9401DC1S052B	1.99	U	XV	0.498	0	0.249	-1.39
9207W1S023A	9207W1S023AB	1.99	U	XV	0.498	0	0.249	-1.39
9210W1S017	9210W1S017B	1.99	U	XV	0.498	0	0.249	-1.39
9207F2S008	9207F2S008B	1.99	U	UJ	0.498	0	0.249	-1.39
9207F2S010	9207F2S010B	1.99	U	UJ	0.498	0	0.249	-1.39
9207F5S036	9207F5S036B	1.99	U	XV	0.498	0	0.249	-1.39
9207W3S026	9207W3S026B	1.99	U	XV	0.498	0	0.249	-1.39
9210C2S005	9210C2S005B	1.99	U	XV	0.497	0	0.249	-1.39
9210C3S006	9210C3S006B	1.99	U	XV	0.497	0	0.249	-1.39
9207W1S039	9207W1S039B	1.99	U	XV	0.497	0	0.249	-1.39
9207F1S003	9207F1S003B	1.99	U	XV	0.497	0	0.249	-1.39
9207F3S015	9207F3S015B	1.99	U	UJ	0.497	0	0.249	-1.39
9207F6S042	9207F6S042B	1.99	U	XV	0.497	0	0.249	-1.39
9210F2S011	9210F2S011B	1.99	U	XV	0.497	0	0.249	-1.39
9210W1S009	9210W1S009B	1.99	U	XV	0.497	0	0.249	-1.39
9210W1S010	9210W1S010B	1.99	U	XV	0.497	0	0.249	-1.39
9210W1S015	9210W1S015B	1.99	U	XV	0.497	0	0.249	-1.39
9401W1S012	9401W1S012B	1.99	U	UJ	0.497	0	0.249	-1.39
9207C2S006	9207C2S006B	1.98	U	XV	0.496	0	0.248	-1.39
9207C3S009	9207C3S009B	1.98	U	XV	0.496	0	0.248	-1.39
9210C3S007	9210C3S007B	1.98	U	XV	0.496	0	0.248	-1.39
9207F1S005	9207F1S005B	1.99	U	XV	0.496	0	0.248	-1.39
9207F3S014	9207F3S014B	1.99	U	UJ	0.496	0	0.248	-1.39
9207F4S025	9207F4S025B	1.98	U	XV	0.496	0	0.248	-1.39
9207F5S034	9207F5S034B	1.99	U	XV	0.496	0	0.248	-1.39
9207W1S020	9207W1S020B	1.98	U	XV	0.496	0	0.248	-1.39
9207W1S021	9207W1S021B	1.98	U	XV	0.496	0	0.248	-1.39
9401W1S009	9401W1S009B	1.99	U	UJ	0.496	0	0.248	-1.39
9207C4S010A	9207C4S010AB	1.98	U	XV	0.495	0	0.248	-1.4
9207C4S013	9207C4S013B	1.98	U	XV	0.495	0	0.248	-1.4
9207C6S018	9207C6S018B	1.98	U	XV	0.495	0	0.248	-1.4
9207F3S021	9207F3S021B	1.98	U	XV	0.495	0	0.248	-1.4
9207F5S035	9207F5S035B	1.98	U	XV	0.495	0	0.248	-1.4
9210F2S007	9210F2S007BD	1.98	U	XV	0.495	0	0.248	-1.4
9210W1S013	9210W1S013B	1.98	U	XV	0.495	0	0.248	-1.4
9210W1S016	9210W1S016B	1.98	U	XV	0.495	0	0.248	-1.4
9207C3S007	9207C3S007B	1.98	U	XV	0.494	0	0.247	-1.4
9207C5S012A	9207C5S012AB	1.98	U	XV	0.494	0	0.247	-1.4

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W5S034	9207W5S034B	1.97	U	XV	0.494	0	0.247	-1.4
9401W1S005	9401W1S005B	1.97	U	XV	0.494	0	0.247	-1.4
9207F5S031	9207F5S031B	1.97	U	XV	0.493	0	0.247	-1.4
9210F3S014	9210F3S014B	1.97	U	XV	0.493	0	0.247	-1.4
9207W6S037	9207W6S037B	1.97	U	XV	0.492	0	0.246	-1.4
9401W1S016	9401W1S016B	1.97	U	XV	0.492	0	0.246	-1.4
9207F4S030	9207F4S030B	1.96	U	XV	0.491	0	0.246	-1.4
9207W2S024A	9207W2S024AB	1.96	U	XV	0.49	0	0.245	-1.41
9207F4S027	9207F4S027B	1.96	U	XV	0.49	0	0.245	-1.41
9207W5S035	9207W5S035B	1.96	U	XV	0.49	0	0.245	-1.41
9207F3S024	9207F3S024B	1.96	U	XV	0.489	0	0.245	-1.41
9207H3S021	9207H3S021B	1.96	U	XV	0.489	0	0.245	-1.41
9207W1S022	9207W1S022B	1.96	U	XV	0.489	0	0.245	-1.41
9401DC1S035	9401DC1S035BD	1.95	U	XV	0.486	0	0.243	-1.41
9207F6S038	9207F6S038B	1.94	U	XV	0.486	0	0.243	-1.41
9207W6S038	9207W6S038B	1.94	U	XV	0.486	0	0.243	-1.41
9207W3S029	9207W3S029BD	1.94	U	XV	0.485	0	0.243	-1.42
9207F6S041	9207F6S041B	1.94	U	XV	0.484	0	0.242	-1.42
9210F2S008	9210F2S008B	1.94	U	XV	0.484	0	0.242	-1.42
9210F3S016	9210F3S016B	1.93	U	XV	0.484	0	0.242	-1.42
9401DC1S033	9401DC1S033B	1.93	U	XV	0.483	0	0.242	-1.42
9207F3S019	9207F3S019B	1.93	U	XV	0.483	0	0.242	-1.42
9210H1S005	9210H1S005B	1.93	U	XV	0.483	0	0.242	-1.42
9207W6S036	9207W6S036B	1.93	U	XV	0.482	0	0.241	-1.42
9207C5S015	9207C5S015B	1.92	U	XV	0.481	0	0.241	-1.43
9207W2S023	9207W2S023B	1.92	U	XV	0.481	0	0.241	-1.43
9207F6S037	9207F6S037B	1.92	U	XV	0.48	0	0.24	-1.43
9210F3S017	9210F3S017B	1.92	U	XV	0.48	0	0.24	-1.43
9207W2S024	9207W2S024B	1.92	U	XV	0.48	0	0.24	-1.43
9207W4S032	9207W4S032B	1.92	U	XV	0.48	0	0.24	-1.43
9207F4S028	9207F4S028B	1.92	U	XV	0.479	0	0.24	-1.43
9207F6S039	9207F6S039B	1.92	U	XV	0.479	0	0.24	-1.43
9401W1S021	9401W1S021B	1.9	U	XV	0.476	0	0.238	-1.44
9207F5S032	9207F5S032BD	1.9	U	UJ	0.476	0	0.238	-1.44
9207F4S029	9207F4S029B	1.9	U	XV	0.475	0	0.238	-1.44
9401DC1S039	9401DC1S039B	1.88	U	XV	0.471	0	0.236	-1.45
9207S1S030	9207S1S030B	1.88	U	XV	0.47	0	0.235	-1.45
9401DC1S040	9401DC1S040B	1.88	U	XV	0.469	0	0.235	-1.45
9207D2S053	9207D2S053B	1.83	U	XV	0.457	0	0.229	-1.48

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	1.82	U	XV	0.455	0	0.228	-1.48
9207D2S051	9207D2S051B	1.81	U	XV	0.451	0	0.226	-1.49
9401DC1S041	9401DC1S041B	1.81	U	XV	0.451	0	0.226	-1.49
9401DC1S044	9401DC1S044B	1.71	U	XV	0.428	0	0.214	-1.54
9207H5S010	9207H5S010B	1.71	U	XV	0.428	0	0.214	-1.54
9210D1S050	9210D1S050B	1.69	U	U	0.424	0	0.212	-1.55
9401DC1S038	9401DC1S038B	1.69	U	XV	0.422	0	0.211	-1.56
9401DC1S047	9401DC1S047B	1.69	U	XV	0.422	0	0.211	-1.56
9401DC1S045	9401DC1S045B	1.67	U	XV	0.418	0	0.209	-1.57
9401DC1S046	9401DC1S046B	1.65	U	XV	0.413	0	0.207	-1.58
9207H1S013	9207H1S013B	1.64	U	XV	0.411	0	0.206	-1.58
9207S5S029	9207S5S029B	1.64	U	XV	0.411	0	0.206	-1.58
9210S2S034	9210S2S034B	1.62	U	XV	0.405	0	0.203	-1.6
9207D1S046	9207D1S046B	1.59	U	XV	0.398	0	0.199	-1.61
9207H3S003A	9207H3S003AB	1.59	U	XV	0.398	0	0.199	-1.61
9207H1S012	9207H1S012B	1.53	U	UJ	0.381	0	0.191	-1.66
9210S2S031	9210S2S031B	1.48	U	XV	0.37	0	0.185	-1.69
9210D1S048	9210D1S048B	1.48	U	XV	0.369	0	0.185	-1.69
9210D1S051	9210D1S051B	1.45	U	U	0.364	0	0.182	-1.7
9210H1S004	9210H1S004B	1.43	U	U	0.358	0	0.179	-1.72
9207C1S003	9207C1S003B	1.42	U	XV	0.356	0	0.178	-1.73
9207S3S036	9207S3S036B	1.39	U	U	0.348	0	0.174	-1.75
9210S1S023	9210S1S023B	1.39	U	XV	0.347	0	0.174	-1.75
9210S3S041	9210S3S041B	1.37	U	XV	0.341	0	0.171	-1.77
9207H3S005	9207H3S005BD	1.29	U	XV	0.322	0	0.161	-1.83
9401W1S004A	9401W1S004AB	1.24	U	U	0.31	0	0.155	-1.86
9207H2S003	9207H2S003B	1.23	U	XV	0.309	0	0.155	-1.87
9210D1S055	9210D1S055B	1.21	U	U	0.303	0	0.152	-1.89
9207F5S033	9207F5S033B	1.2	U	XV	0.301	0	0.151	-1.89
9207D4S054	9207D4S054B	1.18	U	XV	0.294	0	0.147	-1.92
9207F1S004	9207F1S004B	1.18	U	XV	0.294	0	0.147	-1.92
9210D3S057	9210D3S057B	1.15	U	XV	0.288	0	0.144	-1.94
9210S1S019	9210S1S019B	1.15	U	XV	0.287	0	0.144	-1.94
9210D3S059	9210D3S059B	1.15	U	XV	0.286	0	0.143	-1.94
9207S6S045	9207S6S045B	1.1	U	XV	0.274	0	0.137	-1.99
9210S1S021	9210S1S021B	1.02	U	UJ	0.255	0	0.128	-2.06
9207D5S059	9207D5S059B	1.01	U	XV	0.253	0	0.127	-2.07
9207H5S026	9207H5S026B	1.01	U	XV	0.253	0	0.127	-2.07
9210S2S035	9210S2S035B	0.995	U	XV	0.249	0	0.125	-2.08

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.987	U	XV	0.247	0	0.124	-2.09
9207H3S017	9207H3S017B	0.962	U	XV	0.241	0	0.121	-2.12
9207S1S027	9207S1S027B	0.119	J	XV	0.037	1	0.119	-2.13
9207H2S014	9207H2S014B	0.916	U	XV	0.229	0	0.115	-2.17
9210S1S024	9210S1S024B	0.846	U	XV	0.212	0	0.106	-2.24
9207S1S031	9207S1S031B	0.84	U	XV	0.21	0	0.105	-2.25
9210S2S032	9210S2S032B	0.776	U	XV	0.194	0	0.097	-2.33
9210D1S052	9210D1S052BD	0.755	U	XV	0.189	0	0.095	-2.36
9210D1S053	9210D1S053B	0.748	U	XV	0.187	0	0.094	-2.37
9207H3S006	9207H3S006B	0.744	U	XV	0.186	0	0.093	-2.38
9210S2S037	9210S2S037B	0.744	U	XV	0.186	0	0.093	-2.38
9210S2S026	9210S2S026B	0.092	J	XV	0.036	1	0.092	-2.38
9207H2S015	9207H2S015B	0.728	U	XV	0.182	0	0.091	-2.4
9210S1S018	9210S1S018B	0.702	U	XV	0.175	0	0.088	-2.44
9207S2S032	9207S2S032B	0.678	U	U	0.169	0	0.085	-2.47
9210F1S001	9210F1S001B	0.667	U	XV	0.167	0	0.084	-2.48
9210F1S003	9210F1S003B	0.666	U	XV	0.167	0	0.084	-2.48
9210F1S004	9210F1S004B	0.666	U	XV	0.167	0	0.084	-2.48
9210F1S005	9210F1S005B	0.662	U	XV	0.166	0	0.083	-2.49
9210F1S006	9210F1S006B	0.664	U	XV	0.166	0	0.083	-2.49
9401W1S013	9401W1S013B	0.663	U	U	0.166	0	0.083	-2.49
9401DC1S051	9401DC1S051B	0.662	U	XV	0.165	0	0.083	-2.49
9210F1S002	9210F1S002B	0.658	U	XV	0.164	0	0.082	-2.5
9207D4S056	9207D4S056B	0.605	U	XV	0.151	0	0.076	-2.58
9207S4S040	9207S4S040B	0.531	U	XV	0.133	0	0.067	-2.71
9207S4S028	9207S4S028B	0.495	U	XV	0.124	0	0.062	-2.78
9210S2S038	9210S2S038B	0.449	U	XV	0.112	0	0.056	-2.88
9210S1S022	9210S1S022B	0.445	U	U	0.111	0	0.056	-2.89
9210H3S012	9210H3S012B	0.411	U	U	0.103	0	0.052	-2.97
9210S2S033	9210S2S033B	0.4	U	XV	0.1	0	0.05	-3.0
9210H3S011	9210H3S011B	0.386	U	XV	0.096	0	0.048	-3.03
9210D1S056	9210D1S056B	0.359	U	XV	0.09	0	0.045	-3.1
9210H2S009	9210H2S009B	0.313	U	XV	0.078	0	0.039	-3.24
9207S4S039	9207S4S039B	0.036	J	XV	0.01	1	0.036	-3.32
9210S3S044	9210S3S044B	0.268	U	XV	0.067	0	0.034	-3.39
9210D3S058	9210D3S058B	0.266	U	XV	0.067	0	0.033	-3.4
9210S3S043	9210S3S043B	0.26	U	XV	0.065	0	0.033	-3.43
9207S4S038	9207S4S038B	0.254	U	XV	0.064	0	0.032	-3.45
9207C1S001	9207C1S001B	0.249	U	XV	0.062	0	0.031	-3.47

Table G.100
Statistical Summary for Benzoic acid (65850) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S004	9401W1S004B	0.233	U	U	0.058	0	0.029	-3.53
9210S1S001A	9210S1S001AB	0.226	U	XV	0.057	0	0.028	-3.57
9401W1S003	9401W1S003B	0.223	U	U	0.056	0	0.028	-3.58
9207S4S041	9207S4S041BD	0.222	U	XV	0.056	0	0.028	-3.58
9207C5S016	9207C5S016B	0.22	U	XV	0.055	0	0.028	-3.59
9207D2S052	9207D2S052B	0.199	U	XV	0.05	0	0.025	-3.69
9210S2S029	9210S2S029B	0.197	U	XV	0.049	0	0.025	-3.7
9210S2S027	9210S2S027B	0.194	U	XV	0.048	0	0.024	-3.72
9207S3S037	9207S3S037B	0.191	U	XV	0.048	0	0.024	-3.74
9207C1S002	9207C1S002B	0.185	U	UJ	0.046	0	0.023	-3.77
9210S3S040	9210S3S040B	0.184	U	XV	0.046	0	0.023	-3.77
9207C4S011	9207C4S011B	0.183	U	XV	0.046	0	0.023	-3.78
9207S3S034	9207S3S034B	0.178	U	XV	0.045	0	0.022	-3.81
9207S5S042	9207S5S042B	0.174	U	XV	0.044	0	0.022	-3.83
9207S5S043	9207S5S043B	0.172	U	XV	0.043	0	0.021	-3.84
9207H3S022A	9207H3S022AB	0.162	U	XV	0.041	0	0.02	-3.9
9210S2S030	9210S2S030B	0.155	U	XV	0.039	0	0.019	-3.95
9210S2S025	9210S2S025B	0.143	U	XV	0.036	0	0.018	-4.02
9207S2S033	9207S2S033B	0.127	U	XV	0.032	0	0.016	-4.14
9207C6S017	9207C6S017B	0.118	U	XV	0.03	0	0.015	-4.21
9210S2S036	9210S2S036B	0.102	U	XV	0.025	0	0.013	-4.37
9210S2S028	9210S2S028B	0.094	U	XV	0.023	0	0.012	-4.45

Number of Samples	295
Number of Detects	7
Minimum	0.012
Median	0.248
Maximum	24.5
Arithmetic Average	0.808
Std Dev	1.8
PERT-Beta Expected Value	4.25
LN Mean	-1.23
LN Std Dev	1.4
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.101
Statistical Summary for Boron (7440428) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001A	9207H1S001AA	3990		XV	391	1	3990	8.29
9401W1S001	9401W1S001A	99.2		=	3.53	1	99.2	4.6
9401DC1S032	9401DC1S032A	35.2		XV	0.791	1	35.2	3.56
9207F6S039	9207F6S039A	26.8	* N	XV	0.786	1	26.8	3.29
9210F1S006	9210F1S006A	17.5		XV	0.756	1	17.5	2.86
9210F3S014	9210F3S014A	15.4	N	XV	0.743	1	15.4	2.73
9207F1S001	9207F1S001AD	12	J N	J	3.64	1	12	2.48
9401DC1S024A	9401DC1S024AA	11.5		XV	0.798	1	11.5	2.44
9207F2S009	9207F2S009A	11.1		XV	0.746	1	11.1	2.41
9207F4S027	9207F4S027A	11.1		XV	0.778	1	11.1	2.41
9207RS016	9207RS016A	9.62		XV	0.792	1	9.62	2.26
9207F3S015	9207F3S015A	8.35		XV	0.778	1	8.35	2.12
9210C1S003	9210C1S003A	7.41		=	0.726	1	7.41	2.0
9210D3S059	9210D3S059A	6.75		XV	0.734	1	6.75	1.91
9210H2S008	9210H2S008A	4.71		XV	0.696	1	4.71	1.55
9210RS014	9210RS014A	4.34	N	XV	0.752	1	4.34	1.47
9207RS002	9207RS002A	3.52		XV	0.769	1	3.52	1.26
9210W1S016	9210W1S016A	2.83	J	XV	0.794	1	2.83	1.04
9401W1S012	9401W1S012A	2.61	J	J	0.794	1	2.61	0.959
9210RS002	9210RS002A	2.45	J N	XV	0.734	1	2.45	0.896
9401DC1S045	9401DC1S045A	4	U	XV	4	0	2	0.693
9401W1S020	9401W1S020A	1.95	J	XV	0.805	1	1.95	0.668
9401DC1S057A	9401DC1S057AA	3.53	U	UJ	3.53	0	1.77	0.568
9207H1S012	9207H1S012A	3.26	U	XV	3.26	0	1.63	0.489
9207H3S005	9207H3S005A	1.34	J	XV	0.685	1	1.34	0.293
9207W2S024A	9207W2S024AA	1.18	J * N	XV	0.794	1	1.18	0.166
9207H5S009	9207H5S009A	0.832	U	XV	0.832	0	0.416	-0.877
9207S2S032	9207S2S032A	0.791	U	XV	0.791	0	0.396	-0.928
9207S4S041	9207S4S041A	0.787	U	XV	0.787	0	0.394	-0.933
9207W3S029	9207W3S029A	0.763	U	XV	0.763	0	0.382	-0.964
9207W5S034	9207W5S034A	0.758	U	XV	0.758	0	0.379	-0.97
9401DC1S028	9401DC1S028A	0.717	U	XV	0.717	0	0.359	-1.03
9207D1S047	9207D1S047AD	0.672	U	XV	0.672	0	0.336	-1.09
9210S3S044	9210S3S044A	0.659	U	XV	0.659	0	0.33	-1.11
9210D1S052	9210D1S052AD	0.65	U	XV	0.65	0	0.325	-1.12
9207C6S017	9207C6S017AD	0.539	U	XV	0.539	0	0.27	-1.31
9207D5S057	9207D5S057A	0.503	U	XV	0.503	0	0.252	-1.38
9210S2S038	9210S2S038AD	0.476	U	XV	0.476	0	0.238	-1.44
9207H5S026	9207H5S026AD	0.422	U	XV	0.422	0	0.211	-1.56

Table G.101
Statistical Summary for Boron (7440428) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017A	0.379	U	XV	0.379	0	0.19	-1.66
9207C1S001	9207C1S001A	0.187	U	XV	0.187	0	0.094	-2.37

Number of Samples	41
Number of Detects	23
Minimum	0.094
Median	2
Maximum	3990
Arithmetic Average	105
Std Dev	622
PERT-Beta Expected Value	666
LN Mean	0.846
LN Std Dev	2.1
S-W p-value for normality	5.4E-14
S-W p-value for lognormality	0.004

Table G.102
Statistical Summary for TCLP Cadmium (7440439) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9767D1B003	9767D1B003	0.071		=	0.01	1	0.071	-2.65
9767D1B004	9767D1B004	0.064		=	0.01	1	0.064	-2.75
9401R1B006	9401R1B006	0.055		=	0.003	1	0.055	-2.89
9401W1B001	9401W1B001B	0.046		=	0.003	1	0.046	-3.08
9207H3S005	9207H3S005AD	0.039		XV	0.003	1	0.039	-3.25
9210F1S006	9210F1S006A	0.03		=	0.003	1	0.03	-3.52
9207H5S009	9207H5S009A	0.03		XV	0.003	1	0.03	-3.52
9401E1B005	9401E1B005B	0.026		=	0.003	1	0.026	-3.66
9401DC1S024A	9401DC1S024AA	0.017		XV	0.003	1	0.017	-4.06
9207F6S039	9207F6S039A	0.014		=	0.003	1	0.014	-4.28
9767D1B006	9767D1B006	0.014	J	J	0.01	1	0.014	-4.29
9401DC1S045	9401DC1S045A	0.008	J	XV	0.003	1	0.008	-4.89
9207RS002	9207RS002A	0.007	J	J	0.003	1	0.007	-4.93
9401DC1S032	9401DC1S032A	0.006	J	XV	0.003	1	0.006	-5.2
9767D1B001	9767D1B001	0.01	U	UJ	0.01	0	0.005	-5.3
9767D1B002	9767D1B002	0.01	U	UJ	0.01	0	0.005	-5.3
9767D1B005	9767D1B005	0.01	U	UJ	0.01	0	0.005	-5.3
9401W1S001	9401W1S001A	0.004	J	J	0.003	1	0.004	-5.49
9207D1S047	9207D1S047AD	0.004	J	XV	0.003	1	0.004	-5.53
9210C1S003	9210C1S003A	0.004	J	J	0.003	1	0.004	-5.6
9401W1S012	9401W1S012A	0.003	J	J	0.003	1	0.003	-5.75
9401DC1S057A	9401DC1S057AA	0.003	U	UJ	0.003	0	0.002	-6.5
9207D5S057	9207D5S057A	0.003	U	XV	0.003	0	0.002	-6.5
9401DC1S028	9401DC1S028A	0.003	U	XV	0.003	0	0.002	-6.5
9401E1B002	9401E1B002B	0.003	U	UJ	0.003	0	0.002	-6.5
9401E1B003	9401E1B003B	0.003	U	UJ	0.003	0	0.002	-6.5
9207W2S024A	9207W2S024AA	0.003	U	UJ	0.003	0	0.002	-6.5
9207F1S001	9207F1S001A	0.003	U	UJ	0.003	0	0.002	-6.5
9207F2S009	9207F2S009A	0.003	U	UJ	0.003	0	0.002	-6.5
9207F3S015	9207F3S015A	0.003	U	UJ	0.003	0	0.002	-6.5
9207F4S027	9207F4S027A	0.003	U	UJ	0.003	0	0.002	-6.5
9210F3S014	9210F3S014A	0.003	U	UJ	0.003	0	0.002	-6.5
9207W3S029	9207W3S029A	0.003	U	UJ	0.003	0	0.002	-6.5
9207W5S034	9207W5S034A	0.003	U	UJ	0.003	0	0.002	-6.5
9210W1S016	9210W1S016A	0.003	U	UJ	0.003	0	0.002	-6.5
9207RS016	9207RS016A	0.003	U	UJ	0.003	0	0.002	-6.5
9210RS002	9210RS002A	0.003	U	UJ	0.003	0	0.002	-6.5
9210RS014	9210RS014A	0.003	U	UJ	0.003	0	0.002	-6.5
9207S2S032	9207S2S032A	0.003	U	XV	0.003	0	0.002	-6.5

Table G.102
Statistical Summary for TCLP Cadmium (7440439) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017A	0.003	U	XV	0.003	0	0.002	-6.5
9210S2S038	9210S2S038A	0.003	U	XV	0.003	0	0.002	-6.5
9210S3S044	9210S3S044A	0.003	U	XV	0.003	0	0.002	-6.5

Number of Samples	42
Number of Detects	18
Minimum	0.002
Median	0.002
Maximum	0.071
Arithmetic Average	0.012
Std Dev	0.018
PERT-Beta Expected Value	0.014
LN Mean	-5.42
LN Std Dev	1.32
S-W p-value for normality	3.9E-09
S-W p-value for lognormality	2.4E-06

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S024	9401DC1S024B	16.7		XV	0.295	1	16.7	2.82
9401DC1S026	9401DC1S026B	16.1		XV	0.299	1	16.1	2.78
9401DC1S032	9401DC1S032B	15.8		XV	0.298	1	15.8	2.76
9401DC1S022A	9401DC1S022AB	14.7		XV	0.594	1	14.7	2.69
9210F2S012	9210F2S012B	8.86		XV	0.299	1	8.86	2.18
9401DC1S022	9401DC1S022B	6.69		XV	0.291	1	6.69	1.9
9401DC1S054	9401DC1S054B	6.51		XV	0.3	1	6.51	1.87
9401DC1S031	9401DC1S031B	6.45		XV	0.298	1	6.45	1.86
9401DC1S023A	9401DC1S023AB	5.4		XV	0.299	1	5.4	1.69
9401DC1S034	9401DC1S034B	4.99		XV	0.299	1	4.99	1.61
9210F2S013	9210F2S013B	4.79		XV	0.03	1	4.79	1.57
9401DC1S030	9401DC1S030B	4.06		XV	0.298	1	4.06	1.4
9401DC1S024A	9401DC1S024AB	2.62		XV	0.297	1	2.62	0.963
9401DC1S037	9401DC1S037B	1.79		XV	0.29	1	1.79	0.582
9207W1S023A	9207W1S023AB	1.79		XV	0.03	1	1.79	0.582
9210H1S006	9210H1S006B	9.8	U	XV	2.94	0	1.47	0.385
9401DC1S033	9401DC1S033B	1.4		XV	0.029	1	1.4	0.336
9401DC1S035	9401DC1S035B	1.37		XV	0.296	1	1.37	0.315
9401DC1S036	9401DC1S036B	1.28		XV	0.298	1	1.28	0.247
9401DC1S023	9401DC1S023B	1.11		XV	0.03	1	1.11	0.104
9207D1S050	9207D1S050B	3.77	U	XV	1.13	0	0.565	-0.571
9207F3S020	9207F3S020B	2.5	U	XV	0.75	0	0.375	-0.981
9401W1S020	9401W1S020B	2.14	U	XV	0.641	0	0.321	-1.14
9207H3S019	9207H3S019B	2	U	XV	0.6	0	0.3	-1.2
9401DC1S055	9401DC1S055BD	1.86	U	XV	0.558	0	0.279	-1.28
9210W1S010	9210W1S010B	0.239		XV	0.03	1	0.239	-1.43
9207C6S018	9207C6S018B	0.237		XV	0.03	1	0.237	-1.44
9401DC1S053	9401DC1S053B	1.55	U	UJ	0.465	0	0.233	-1.46
9207D5S057	9207D5S057B	1.4	U	XV	0.419	0	0.21	-1.56
9210H3S013	9210H3S013B	1.39	U	XV	0.418	0	0.209	-1.57
9207D1S048	9207D1S048B	1.22	U	XV	0.367	0	0.184	-1.7
9210H3S014	9210H3S014B	1.11	U	XV	0.334	0	0.167	-1.79
9207D1S047	9207D1S047B	1.02	U	XV	0.307	0	0.154	-1.87
9210C1S002	9210C1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9210C3S008	9210C3S008B	0.999	U	XV	0.3	0	0.15	-1.9
9207F2S012	9207F2S012B	1	U	U	0.3	0	0.15	-1.9
9401W1S002A	9401W1S002AB	0.999	U	U	0.3	0	0.15	-1.9
9401W1S017	9401W1S017B	0.999	U	U	0.3	0	0.15	-1.9
9207F6S040	9207F6S040B	0.996	U	XV	0.299	0	0.15	-1.9

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S010	9210F2S010B	0.998	U	XV	0.299	0	0.15	-1.9
9207H3S020	9207H3S020B	0.995	U	XV	0.299	0	0.15	-1.9
9401W1S001	9401W1S001B	0.997	U	U	0.299	0	0.15	-1.9
9401W1S001A	9401W1S001AB	0.997	U	U	0.299	0	0.15	-1.9
9401W1S002	9401W1S002B	0.997	U	U	0.299	0	0.15	-1.9
9207F1S001	9207F1S001BD	0.989	U	U	0.297	0	0.149	-1.91
9210F3S019	9210F3S019B	0.989	U	XV	0.297	0	0.149	-1.91
9210D1S049	9210D1S049B	0.148	J	XV	0.098	1	0.148	-1.91
9210F3S018	9210F3S018B	0.988	U	XV	0.296	0	0.148	-1.91
9401DC1S056	9401DC1S056B	0.924	U	XV	0.277	0	0.139	-1.98
9210H3S015	9210H3S015B	0.912	U	XV	0.274	0	0.137	-1.99
9207H3S018	9207H3S018B	0.911	U	XV	0.273	0	0.137	-1.99
9210D1S046	9210D1S046B	0.901	U	U	0.27	0	0.135	-2.0
9210C3S007	9210C3S007B	0.125		XV	0.03	1	0.125	-2.08
9210D1S047	9210D1S047B	0.821	U	U	0.246	0	0.123	-2.1
9401DC1S057A	9401DC1S057AB	0.802	U	U	0.24	0	0.12	-2.12
9207H4S008	9207H4S008B	0.768	U	XV	0.23	0	0.115	-2.16
9401DC1S048	9401DC1S048B	0.668	U	XV	0.2	0	0.1	-2.3
9210C1S003	9210C1S003B	0.096	J	J	0.03	1	0.096	-2.35
9207H3S022	9207H3S022B	0.54	U	XV	0.162	0	0.081	-2.51
9401W1S011	9401W1S011B	0.52	U	XV	0.156	0	0.078	-2.55
9401DC1S025	9401DC1S025B	0.505	U	XV	0.151	0	0.076	-2.58
9207F3S018	9207F3S018B	0.5	U	U	0.15	0	0.075	-2.59
9207F3S023	9207F3S023B	0.5	U	XV	0.15	0	0.075	-2.59
9207F4S026	9207F4S026B	0.5	U	XV	0.15	0	0.075	-2.59
9207F3S017	9207F3S017B	0.496	U	U	0.149	0	0.075	-2.6
9207F3S022	9207F3S022B	0.498	U	XV	0.149	0	0.075	-2.6
9207W2S025	9207W2S025B	0.497	U	XV	0.149	0	0.075	-2.6
9207W5S033	9207W5S033B	0.496	U	XV	0.149	0	0.075	-2.6
9207F3S013	9207F3S013B	0.493	U	XV	0.148	0	0.074	-2.6
9207W3S028	9207W3S028B	0.492	U	XV	0.148	0	0.074	-2.6
9207H1S002	9207H1S002B	0.485	U	XV	0.146	0	0.073	-2.62
9207H3S024	9207H3S024B	0.488	U	XV	0.146	0	0.073	-2.62
9207H3S023	9207H3S023B	0.48	U	XV	0.144	0	0.072	-2.63
9207D2S034A	9207D2S034AB	0.472	U	XV	0.142	0	0.071	-2.65
9207W4S031	9207W4S031B	0.472	U	XV	0.142	0	0.071	-2.65
9210D1S048	9210D1S048B	0.061	J	XV	0.022	1	0.061	-2.8
9401DC1S027	9401DC1S027B	0.373	U	XV	0.112	0	0.056	-2.88
9207C6S019	9207C6S019B	0.053	J	XV	0.03	1	0.053	-2.94

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H2S010	9210H2S010B	0.34	U	U	0.102	0	0.051	-2.98
9401W1S014	9401W1S014B	0.33	U	U	0.099	0	0.05	-3.01
9207S6S044	9207S6S044B	0.3	U	XV	0.09	0	0.045	-3.1
9207D4S055	9207D4S055B	0.293	U	XV	0.088	0	0.044	-3.12
9210C3S006	9210C3S006B	0.044	J	XV	0.03	1	0.044	-3.13
9207H5S009	9207H5S009B	0.278	U	XV	0.083	0	0.042	-3.18
9207F1S005	9207F1S005B	0.04	J	XV	0.03	1	0.04	-3.23
9210D1S006A	9210D1S006AB	0.252	U	XV	0.076	0	0.038	-3.28
9207H3S004	9207H3S004B	0.249	U	XV	0.075	0	0.037	-3.29
9207F1S003	9207F1S003B	0.033	J	XV	0.03	1	0.033	-3.42
9210H2S008	9210H2S008BD	0.216	U	XV	0.065	0	0.032	-3.43
9207H1S001A	9207H1S001AB	0.193	U	XV	0.058	0	0.029	-3.54
9207H1S001	9207H1S001B	0.167	U	U	0.05	0	0.025	-3.68
9210S1S020	9210S1S020B	0.154	U	U	0.046	0	0.023	-3.77
9401DC1S029	9401DC1S029B	0.138	U	XV	0.041	0	0.021	-3.88
9207D5S058	9207D5S058B	0.131	U	XV	0.039	0	0.02	-3.93
9210S3S042	9210S3S042B	0.12	U	XV	0.036	0	0.018	-4.02
9210S2S002A	9210S2S002AB	0.113	U	XV	0.034	0	0.017	-4.07
9207H3S007	9207H3S007B	0.111	U	XV	0.033	0	0.017	-4.09
9210D1S053	9210D1S053B	0.017	J	XV	0.011	1	0.017	-4.1
9401W1S004	9401W1S004B	0.016		=	0.004	1	0.016	-4.12
9401DC1S028	9401DC1S028B	0.107	U	XV	0.032	0	0.016	-4.13
9401DC1S043	9401DC1S043B	0.101	U	U	0.03	0	0.015	-4.19
9207C2S004	9207C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9207C2S004A	9207C2S004AB	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S010	9207C3S010B	0.1	U	XV	0.03	0	0.015	-4.2
9210C1S001A	9210C1S001AB	0.1	U	XV	0.03	0	0.015	-4.2
9210C2S004	9210C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S018	9210W1S018B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S019	9210W1S019B	0.1	U	U	0.03	0	0.015	-4.2
9207F1S002	9207F1S002B	0.1	U	XV	0.03	0	0.015	-4.2
9207F1S006	9207F1S006B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S007	9207F2S007B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S009	9207F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S011	9207F2S011BD	0.1	U	U	0.03	0	0.015	-4.2
9210F2S009	9210F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9210F3S015	9210F3S015B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S014	9210W1S014B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S015	9401W1S015B	0.1	U	XV	0.03	0	0.015	-4.2

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S018	9401W1S018B	0.1	U	U	0.03	0	0.015	-4.2
9401W1S019	9401W1S019B	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S008	9207C3S008B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S049	9401DC1S049B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S050	9401DC1S050B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S052	9401DC1S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S017	9210W1S017B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S008	9207F2S008B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S010	9207F2S010B	0.1	U	U	0.03	0	0.015	-4.2
9207F3S016	9207F3S016B	0.1	U	U	0.03	0	0.015	-4.2
9207F5S036	9207F5S036B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S026	9207W3S026B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S027	9207W3S027B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S011	9210W1S011B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S012	9210W1S012B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S007	9401W1S007B	0.1	U	U	0.03	0	0.015	-4.2
9207C2S006	9207C2S006B	0.099	U	XV	0.03	0	0.015	-4.21
9210C2S005	9210C2S005B	0.1	U	XV	0.03	0	0.015	-4.21
9210D1S052	9210D1S052B	0.015	J	XV	0.012	1	0.015	-4.21
9207W1S039	9207W1S039B	0.1	U	XV	0.03	0	0.015	-4.21
9207W3S040	9207W3S040B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S014	9207F3S014B	0.099	U	U	0.03	0	0.015	-4.21
9207F3S015	9207F3S015B	0.099	U	U	0.03	0	0.015	-4.21
9207F4S025	9207F4S025B	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S034	9207F5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9207F6S042	9207F6S042B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S011	9210F2S011B	0.1	U	XV	0.03	0	0.015	-4.21
9207W1S021	9207W1S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207W4S030	9207W4S030B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S009	9210W1S009B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S015	9210W1S015B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S009	9401W1S009B	0.099	U	U	0.03	0	0.015	-4.21
9401W1S012	9401W1S012B	0.1	U	U	0.03	0	0.015	-4.21
9207C3S009	9207C3S009B	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S010A	9207C4S010AB	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S013	9207C4S013B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S021	9207F3S021B	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S035	9207F5S035B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S007	9210F2S007BD	0.099	U	XV	0.03	0	0.015	-4.21

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W1S020	9207W1S020B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S013	9210W1S013B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S016	9210W1S016B	0.099	U	XV	0.03	0	0.015	-4.21
9207C3S007	9207C3S007B	0.099	U	XV	0.03	0	0.015	-4.21
9207C5S012A	9207C5S012AB	0.099	U	XV	0.03	0	0.015	-4.21
9207F5S031	9207F5S031B	0.099	U	XV	0.03	0	0.015	-4.21
9210F3S014	9210F3S014B	0.099	U	XV	0.03	0	0.015	-4.21
9207W5S034	9207W5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S005	9401W1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F4S030	9207F4S030B	0.098	U	XV	0.03	0	0.015	-4.22
9207W6S037	9207W6S037B	0.098	U	XV	0.03	0	0.015	-4.22
9401W1S016	9401W1S016B	0.098	U	XV	0.03	0	0.015	-4.22
9207W2S024A	9207W2S024AB	0.098	U	XV	0.029	0	0.015	-4.22
9207F3S024	9207F3S024B	0.098	U	XV	0.029	0	0.015	-4.22
9207F4S027	9207F4S027B	0.098	U	XV	0.029	0	0.015	-4.22
9207W5S035	9207W5S035B	0.098	U	XV	0.029	0	0.015	-4.22
9207H3S021	9207H3S021B	0.098	U	XV	0.029	0	0.015	-4.22
9207W1S022	9207W1S022B	0.098	U	XV	0.029	0	0.015	-4.22
9207F6S038	9207F6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9210F2S008	9210F2S008B	0.097	U	XV	0.029	0	0.015	-4.23
9207W3S029	9207W3S029BD	0.097	U	XV	0.029	0	0.015	-4.23
9207W6S038	9207W6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9207F3S019	9207F3S019B	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S041	9207F6S041B	0.097	U	XV	0.029	0	0.015	-4.23
9210F3S016	9210F3S016B	0.097	U	XV	0.029	0	0.015	-4.23
9210H1S005	9210H1S005B	0.097	U	XV	0.029	0	0.015	-4.23
9207C5S015	9207C5S015B	0.096	U	XV	0.029	0	0.014	-4.24
9207W6S036	9207W6S036B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S037	9207F6S037B	0.096	U	XV	0.029	0	0.014	-4.24
9210F3S017	9210F3S017B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S023	9207W2S023B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S024	9207W2S024B	0.096	U	XV	0.029	0	0.014	-4.24
9207W4S032	9207W4S032B	0.096	U	XV	0.029	0	0.014	-4.24
9207F4S028	9207F4S028B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S039	9207F6S039B	0.096	U	XV	0.029	0	0.014	-4.24
9207F5S032	9207F5S032BD	0.095	U	U	0.029	0	0.014	-4.25
9401W1S021	9401W1S021B	0.095	U	XV	0.029	0	0.014	-4.25
9207F4S029	9207F4S029B	0.095	U	XV	0.029	0	0.014	-4.25
9401DC1S039	9401DC1S039B	0.094	U	XV	0.028	0	0.014	-4.26

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S040	9401DC1S040B	0.094	U	XV	0.028	0	0.014	-4.26
9207S1S030	9207S1S030B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S042	9401DC1S042B	0.093	U	U	0.028	0	0.014	-4.27
9207D2S053	9207D2S053B	0.091	U	XV	0.027	0	0.014	-4.29
9210S1S017	9210S1S017B	0.091	U	XV	0.027	0	0.014	-4.29
9207D2S051	9207D2S051B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S041	9401DC1S041B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S044	9401DC1S044B	0.086	U	XV	0.026	0	0.013	-4.35
9207H5S010	9207H5S010B	0.086	U	XV	0.026	0	0.013	-4.35
9210D1S050	9210D1S050B	0.085	U	U	0.025	0	0.013	-4.37
9401DC1S038	9401DC1S038B	0.085	U	XV	0.025	0	0.013	-4.37
9401DC1S047	9401DC1S047B	0.084	U	XV	0.025	0	0.013	-4.37
9401DC1S045	9401DC1S045B	0.084	U	XV	0.025	0	0.013	-4.38
9401DC1S046	9401DC1S046B	0.083	U	XV	0.025	0	0.012	-4.39
9207H1S013	9207H1S013B	0.082	U	XV	0.025	0	0.012	-4.39
9207S5S029	9207S5S029B	0.082	U	XV	0.025	0	0.012	-4.4
9210S2S034	9210S2S034B	0.081	U	XV	0.024	0	0.012	-4.41
9207D1S046	9207D1S046B	0.08	U	XV	0.024	0	0.012	-4.43
9207H3S003A	9207H3S003AB	0.08	U	XV	0.024	0	0.012	-4.43
9207H1S012	9207H1S012B	0.076	U	U	0.023	0	0.011	-4.47
9210S2S031	9210S2S031B	0.074	U	XV	0.022	0	0.011	-4.5
9210D1S051	9210D1S051B	0.073	U	U	0.022	0	0.011	-4.52
9210H1S004	9210H1S004B	0.072	U	U	0.022	0	0.011	-4.53
9207C1S003	9207C1S003B	0.071	U	XV	0.021	0	0.011	-4.54
9207S3S036	9207S3S036B	0.07	U	U	0.021	0	0.01	-4.56
9401W1S003	9401W1S003B	0.01	J	J	0.003	1	0.01	-4.57
9210S1S023	9210S1S023B	0.069	U	XV	0.021	0	0.01	-4.57
9210S3S041	9210S3S041B	0.068	U	XV	0.021	0	0.01	-4.58
9207H3S005	9207H3S005BD	0.064	U	XV	0.019	0	0.01	-4.64
9401W1S004A	9401W1S004AB	0.062	U	U	0.019	0	0.009	-4.68
9207H2S003	9207H2S003B	0.062	U	XV	0.019	0	0.009	-4.68
9210D1S055	9210D1S055B	0.061	U	U	0.018	0	0.009	-4.7
9207F5S033	9207F5S033B	0.06	U	XV	0.018	0	0.009	-4.7
9207F1S004	9207F1S004B	0.059	U	XV	0.018	0	0.009	-4.73
9207D4S054	9207D4S054B	0.059	U	XV	0.018	0	0.009	-4.73
9210D3S057	9210D3S057B	0.058	U	XV	0.017	0	0.009	-4.75
9210D3S059	9210D3S059B	0.057	U	XV	0.017	0	0.009	-4.76
9210S1S019	9210S1S019B	0.057	U	XV	0.017	0	0.009	-4.76
9207S6S045	9207S6S045B	0.055	U	XV	0.016	0	0.008	-4.8

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S021	9210S1S021B	0.051	U	UJ	0.015	0	0.008	-4.87
9207D5S059	9207D5S059B	0.051	U	XV	0.015	0	0.008	-4.88
9207H5S026	9207H5S026BD	0.051	U	XV	0.015	0	0.008	-4.89
9210S2S035	9210S2S035B	0.05	U	XV	0.015	0	0.007	-4.9
9207H3S016	9207H3S016B	0.049	U	XV	0.015	0	0.007	-4.91
9207H3S017	9207H3S017B	0.048	U	XV	0.014	0	0.007	-4.93
9207H2S014	9207H2S014B	0.046	U	XV	0.014	0	0.007	-4.98
9210S1S024	9210S1S024B	0.042	U	XV	0.013	0	0.006	-5.06
9207S1S031	9207S1S031B	0.042	U	XV	0.013	0	0.006	-5.07
9210S2S032	9210S2S032B	0.039	U	XV	0.012	0	0.006	-5.15
9207H3S006	9207H3S006B	0.037	U	XV	0.011	0	0.006	-5.18
9210S2S037	9210S2S037B	0.037	U	XV	0.011	0	0.006	-5.18
9207H2S015	9207H2S015B	0.036	U	XV	0.011	0	0.005	-5.21
9210S1S018	9210S1S018B	0.035	U	XV	0.011	0	0.005	-5.25
9207S2S032	9207S2S032B	0.034	U	U	0.01	0	0.005	-5.28
9210F1S001	9210F1S001B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S003	9210F1S003B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S004	9210F1S004B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S006	9210F1S006B	0.033	U	XV	0.01	0	0.005	-5.3
9401W1S013	9401W1S013B	0.033	U	U	0.01	0	0.005	-5.3
9401DC1S051	9401DC1S051B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S005	9210F1S005B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S002	9210F1S002B	0.033	U	XV	0.01	0	0.005	-5.31
9207D4S056	9207D4S056B	0.03	U	XV	0.009	0	0.005	-5.4
9207S4S040	9207S4S040B	0.027	U	XV	0.008	0	0.004	-5.53
9210S2S028	9210S2S028B	0.004	J	XV	0.001	1	0.004	-5.59
9207S4S028	9207S4S028B	0.025	U	XV	0.007	0	0.004	-5.6
9210S2S038	9210S2S038B	0.022	U	XV	0.007	0	0.003	-5.69
9210S1S022	9210S1S022B	0.022	U	U	0.007	0	0.003	-5.7
9210H3S012	9210H3S012B	0.021	U	U	0.006	0	0.003	-5.78
9210S2S033	9210S2S033B	0.02	U	XV	0.006	0	0.003	-5.81
9210H3S011	9210H3S011B	0.019	U	XV	0.006	0	0.003	-5.85
9210D1S056	9210D1S056B	0.018	U	XV	0.005	0	0.003	-5.92
9210H2S009	9210H2S009B	0.016	U	XV	0.005	0	0.002	-6.06
9210S3S044	9210S3S044B	0.013	U	XV	0.004	0	0.002	-6.21
9210D3S058	9210D3S058B	0.013	U	XV	0.004	0	0.002	-6.22
9210S3S043	9210S3S043B	0.013	U	XV	0.004	0	0.002	-6.24
9207S4S038	9207S4S038B	0.013	U	XV	0.004	0	0.002	-6.26
9207C1S001	9207C1S001B	0.012	U	XV	0.004	0	0.002	-6.28

Table G.103
Statistical Summary for Carbazole (86748) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S001A	9210S1S001AB	0.011	U	XV	0.003	0	0.002	-6.38
9207S4S041	9207S4S041BD	0.011	U	XV	0.003	0	0.002	-6.39
9207S4S039	9207S4S039B	0.002	J	XV	5.9E-04	1	0.002	-6.4
9207C5S016	9207C5S016B	0.011	U	XV	0.003	0	0.002	-6.41
9207D2S052	9207D2S052B	0.01	U	XV	0.003	0	0.001	-6.51
9210S2S029	9210S2S029B	0.01	U	XV	0.003	0	0.001	-6.52
9210S2S027	9210S2S027B	0.01	U	XV	0.003	0	0.001	-6.54
9207S3S037	9207S3S037B	0.01	U	XV	0.003	0	0.001	-6.55
9207C1S002	9207C1S002B	0.009	U	U	0.003	0	0.001	-6.58
9210S3S040	9210S3S040B	0.009	U	XV	0.003	0	0.001	-6.59
9207C4S011	9207C4S011B	0.009	U	XV	0.003	0	0.001	-6.59
9207S3S034	9207S3S034B	0.009	U	XV	0.003	0	0.001	-6.62
9207S5S042	9207S5S042B	0.009	U	XV	0.003	0	0.001	-6.64
9207S5S043	9207S5S043B	0.009	U	XV	0.003	0	0.001	-6.65
9207H3S022A	9207H3S022AB	0.008	U	XV	0.002	0	0.001	-6.71
9210S2S030	9210S2S030B	0.008	U	XV	0.002	0	0.001	-6.76
9207S1S027	9207S1S027B	0.007	U	XV	0.002	0	0.001	-6.79
9210S2S026	9210S2S026B	0.007	U	XV	0.002	0	0.001	-6.83
9210S2S025	9210S2S025B	0.007	U	XV	0.002	0	0.001	-6.84
9207S2S033	9207S2S033B	0.006	U	XV	0.002	0	9.6E-04	-6.95
9207C6S017	9207C6S017B	0.006	U	XV	0.002	0	8.9E-04	-7.03
9210S2S036	9210S2S036B	0.005	U	XV	0.002	0	7.6E-04	-7.18

Number of Samples	295
Number of Detects	35
Minimum	7.6E-04
Median	0.015
Maximum	16.7
Arithmetic Average	0.458
Std Dev	2.08
PERT-Beta Expected Value	2.79
LN Mean	-3.74
LN Std Dev	1.92
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S005	9210H1S005A	416		XV	3.81	1	416	6.03
9207C5S015	9207C5S015A	17.2		XV	1.78	1	17.2	2.84
9207H1S001A	9207H1S001AA	4.35		XV	2.07	1	4.35	1.47
9207H3S023	9207H3S023A	3.04		XV	0.448	1	3.04	1.11
9207F3S024	9207F3S024A	-1.36	U	XV	2.52	0	2.52	0.924
9207W5S033	9207W5S033A	-1.95	U	XV	2.49	0	2.49	0.912
9207W6S036	9207W6S036A	-1.77	U	XV	2.49	0	2.49	0.912
9207F5S034	9207F5S034A	-0.676	U	XV	2.48	0	2.48	0.908
9207F6S039	9207F6S039A	-1.05	U	XV	2.48	0	2.48	0.908
9207F4S030	9207F4S030A	-3.21	U	XV	2.47	0	2.47	0.904
9207W5S035	9207W5S035A	-1.17	U	XV	2.46	0	2.46	0.9
9207F3S021	9207F3S021A	-1.28	U	XV	2.44	0	2.44	0.892
9207F5S031	9207F5S031A	-1.69	U	XV	2.44	0	2.44	0.892
9207F3S020	9207F3S020A	-0.345	U	XV	2.42	0	2.42	0.884
9207W2S024A	9207W2S024AAD	-0.525	U	XV	2.41	0	2.41	0.88
9207F1S003	9207F1S003A	-1.97	U	XV	2.4	0	2.4	0.875
9210H1S006	9210H1S006A	0.284	U	XV	2.4	0	2.4	0.875
9207RS001	9207RS001A	-1.48	U	XV	2.4	0	2.4	0.875
9207W3S029	9207W3S029AD	-0.667	U	XV	2.38	0	2.38	0.867
9207W3S040	9207W3S040A	-0.861	U	XV	2.37	0	2.37	0.863
9207W4S030	9207W4S030A	-2.06	U	XV	2.37	0	2.37	0.863
9207RS002	9207RS002AD	-0.74	U	XV	2.37	0	2.37	0.863
9207C3S007	9207C3S007A	-1.72	U	XV	2.35	0	2.35	0.854
9207F1S006	9207F1S006A	-1.87	U	XV	2.35	0	2.35	0.854
9207F5S032	9207F5S032AD	0.521	U	U	2.34	0	2.34	0.85
9207W4S031	9207W4S031A	-0.821	U	XV	2.34	0	2.34	0.85
9207W6S038	9207W6S038A	-0.81	U	XV	2.34	0	2.34	0.85
9207C6S019	9207C6S019A	-0.115	U	XV	2.33	0	2.33	0.846
9210C3S007	9210C3S007A	-1.7	U	XV	2.33	0	2.33	0.846
9207C4S013	9207C4S013A	-1.75	U	XV	2.32	0	2.32	0.842
9207C6S018	9207C6S018A	-0.775	U	XV	2.32	0	2.32	0.842
9401DC1S024A	9401DC1S024AA	-1.73	U	XV	2.32	0	2.32	0.842
9210W1S015	9210W1S015A	0.225	U	XV	2.32	0	2.32	0.842
9210RS008	9210RS008A	0.29	U	XV	2.32	0	2.32	0.842
9210RS013	9210RS013A	0.443	U	XV	2.32	0	2.32	0.842
9207F6S038	9207F6S038A	-0.954	U	XV	2.31	0	2.31	0.837
9207W1S039	9207W1S039A	-1.31	U	XV	2.3	0	2.3	0.833
9207F3S017	9207F3S017A	-1.45	U	UJ	2.3	0	2.3	0.833
9210RS012	9210RS012A	-0.314	U	XV	2.3	0	2.3	0.833

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C4S010A	9207C4S010AA	-0.641	U	XV	2.29	0	2.29	0.829
9401DC1S023	9401DC1S023A	0.299	U	XV	2.29	0	2.29	0.829
9401W1S021	9401W1S021A	-0.207	U	XV	2.29	0	2.29	0.829
9207F4S028	9207F4S028A	-1.5	U	XV	2.29	0	2.29	0.829
9207C2S004A	9207C2S004AA	-1.61	U	XV	2.28	0	2.28	0.824
9401DC1S030	9401DC1S030A	-0.657	U	XV	2.28	0	2.28	0.824
9401DC1S054	9401DC1S054A	-0.586	U	XV	2.28	0	2.28	0.824
9210W1S010	9210W1S010A	-0.257	U	XV	2.28	0	2.28	0.824
9210W1S013	9210W1S013A	0.258	U	XV	2.28	0	2.28	0.824
9210C2S004	9210C2S004A	-0.999	U	XV	2.27	0	2.27	0.82
9207F2S008	9207F2S008A	-0.627	U	U	2.27	0	2.27	0.82
9207F2S010	9207F2S010A	-1.32	U	UJ	2.27	0	2.27	0.82
9207W3S028	9207W3S028A	-1.58	U	XV	2.27	0	2.27	0.82
9210W1S012	9210W1S012A	0.263	U	XV	2.27	0	2.27	0.82
9207RS006	9207RS006A	-1.47	U	XV	2.27	0	2.27	0.82
9210RS009	9210RS009A	-0.485	U	XV	2.27	0	2.27	0.82
9207C3S010	9207C3S010A	-0.205	U	XV	2.26	0	2.26	0.815
9207C5S012A	9207C5S012AA	-0.603	U	XV	2.26	0	2.26	0.815
9207C2S004	9207C2S004A	-1.05	U	XV	2.25	0	2.25	0.811
9207F5S036	9207F5S036A	-1.85	U	XV	2.25	0	2.25	0.811
9207F6S041	9207F6S041A	-0.251	U	XV	2.25	0	2.25	0.811
9207W3S027	9207W3S027A	-1.52	U	XV	2.25	0	2.25	0.811
9401W1S005	9401W1S005A	-1.47	U	XV	2.25	0	2.25	0.811
9210C2S005	9210C2S005A	-1.24	U	XV	2.24	0	2.24	0.806
9210C3S006	9210C3S006A	-2.26	U	XV	2.24	0	2.24	0.806
9207F1S001	9207F1S001A	0.182	U	U	2.24	0	2.24	0.806
9207F3S013	9207F3S013A	-0.639	U	XV	2.24	0	2.24	0.806
9207F3S022	9207F3S022A	-1.8	U	XV	2.24	0	2.24	0.806
9207F4S025	9207F4S025A	-0.845	U	XV	2.24	0	2.24	0.806
9207F5S035	9207F5S035A	-1.18	U	XV	2.24	0	2.24	0.806
9207F6S037	9207F6S037A	-1.94	U	XV	2.24	0	2.24	0.806
9210W1S011	9210W1S011A	-0.947	U	XV	2.24	0	2.24	0.806
9207W1S023A	9207W1S023AA	-0.353	U	XV	2.23	0	2.23	0.802
9207W3S026	9207W3S026A	-0.841	U	XV	2.23	0	2.23	0.802
9401DC1S022A	9401DC1S022AA	-0.681	U	XV	2.22	0	2.22	0.798
9207F3S014	9207F3S014A	-1.72	U	UJ	2.22	0	2.22	0.798
9207F3S018	9207F3S018A	-1.63	U	UJ	2.22	0	2.22	0.798
9207F3S019	9207F3S019A	0.002	U	XV	2.22	0	2.22	0.798
9207F4S029	9207F4S029A	-1.35	U	XV	2.22	0	2.22	0.798

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F6S040	9207F6S040A	-1.11	U	XV	2.22	0	2.22	0.798
9207F6S042	9207F6S042A	-0.358	U	XV	2.22	0	2.22	0.798
9401DC1S031	9401DC1S031A	-0.574	U	XV	2.21	0	2.21	0.793
9401DC1S033	9401DC1S033A	-0.579	U	XV	2.21	0	2.21	0.793
9207F1S002	9207F1S002A	-1.51	U	XV	2.21	0	2.21	0.793
9207F4S027	9207F4S027A	-1.76	U	XV	2.21	0	2.21	0.793
9210W1S009	9210W1S009A	-0.334	U	XV	2.21	0	2.21	0.793
9210W1S014	9210W1S014A	-0.068	U	XV	2.21	0	2.21	0.793
9207C3S009	9207C3S009A	-1.58	U	XV	2.2	0	2.2	0.788
9207F2S012	9207F2S012A	-0.862	U	U	2.2	0	2.2	0.788
9401DC1S032	9401DC1S032A	-1.06	U	XV	2.19	0	2.19	0.784
9207F1S005	9207F1S005A	-1.25	U	XV	2.19	0	2.19	0.784
9207W6S037	9207W6S037A	-1.45	U	XV	2.19	0	2.19	0.784
9207C2S006	9207C2S006A	-0.791	U	XV	2.17	0	2.17	0.775
9207F3S023	9207F3S023A	-0.257	U	XV	2.17	0	2.17	0.775
9207F4S026	9207F4S026A	-0.992	U	XV	2.17	0	2.17	0.775
9210W1S018	9210W1S018A	-5.4E-04	U	XV	2.16	0	2.16	0.77
9207F2S007	9207F2S007A	0.632	U	U	2.15	0	2.15	0.765
9210W1S016	9210W1S016A	-0.87	U	XV	2.15	0	2.15	0.765
9207F3S015	9207F3S015A	-0.57	U	U	2.11	0	2.11	0.747
9207C3S008	9207C3S008A	-0.517	U	XV	2.09	0	2.09	0.737
9207F2S011	9207F2S011A	-0.728	U	U	2.09	0	2.09	0.737
9207F3S016	9207F3S016A	-0.509	U	U	2.08	0	2.08	0.732
9210RS002	9210RS002A	-0.257	U	XV	2.03	0	2.03	0.708
9207RS008	9207RS008A	-0.197	U	XV	1.98	0	1.98	0.683
9207W1S020	9207W1S020A	-0.538	U	XV	1.96	0	1.96	0.673
9207W2S024	9207W2S024A	-0.859	U	XV	1.96	0	1.96	0.673
9207W1S022	9207W1S022A	-0.889	U	XV	1.95	0	1.95	0.668
9210F2S008	9210F2S008A	-1.05	U	XV	1.94	0	1.94	0.663
9210RS010	9210RS010A	-0.659	U	XV	1.92	0	1.92	0.652
9210C1S002	9210C1S002A	-0.67	U	XV	1.91	0	1.91	0.647
9210W1S019	9210W1S019A	-0.307	U	U	1.91	0	1.91	0.647
9207RS017	9207RS017A	-0.718	U	XV	1.91	0	1.91	0.647
9207RS019	9207RS019A	-0.652	U	XV	1.91	0	1.91	0.647
9210C1S001A	9210C1S001AA	0.379	U	XV	1.9	0	1.9	0.642
9401DC1S036	9401DC1S036A	1.37	U	XV	1.9	0	1.9	0.642
9210RS004	9210RS004A	0.075	U	XV	1.9	0	1.9	0.642
9210F2S007	9210F2S007A	1.2	U	XV	1.89	0	1.89	0.637
9207RS016	9207RS016A	0.246	U	XV	1.89	0	1.89	0.637

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Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S013	9210F2S013A	0.183	U	XV	1.88	0	1.88	0.631
9207W2S023	9207W2S023A	-0.64	U	XV	1.88	0	1.88	0.631
9207RS007	9207RS007A	1.62	U	XV	1.88	0	1.88	0.631
9207RS010	9207RS010A	-0.365	U	XV	1.88	0	1.88	0.631
9210RS003	9210RS003A	0.425	U	XV	1.88	0	1.88	0.631
9210RS005	9210RS005A	0.12	U	XV	1.88	0	1.88	0.631
9210RS011	9210RS011A	1.35	U	XV	1.88	0	1.88	0.631
9210RS007	9210RS007A	0.41	U	XV	1.87	0	1.87	0.626
9401DC1S026	9401DC1S026A	-0.232	U	XV	1.86	0	1.86	0.621
9210F2S010	9210F2S010A	-0.531	U	XV	1.85	0	1.85	0.615
9210F2S011	9210F2S011A	0.075	U	XV	1.85	0	1.85	0.615
9207RS014	9207RS014A	0.23	U	XV	1.85	0	1.85	0.615
9210C3S008	9210C3S008A	0.197	U	XV	1.84	0	1.84	0.61
9207RS011	9207RS011A	-0.043	U	XV	1.84	0	1.84	0.61
9207RS012	9207RS012A	1.09	U	XV	1.84	0	1.84	0.61
9207RS015	9207RS015A	-0.073	U	XV	1.84	0	1.84	0.61
9210RS006	9210RS006A	1.21	U	XV	1.84	0	1.84	0.61
9210RS014	9210RS014AD	-0.027	U	XV	1.84	0	1.84	0.61
9207F2S009	9207F2S009A	-0.811	U	XV	1.82	0	1.82	0.599
9210F2S012	9210F2S012A	0.004	U	XV	1.82	0	1.82	0.599
9207W1S021	9207W1S021A	-0.087	U	XV	1.82	0	1.82	0.599
9207RS018	9207RS018A	-0.757	U	XV	1.82	0	1.82	0.599
9401DC1S023A	9401DC1S023AA	0.454	U	XV	1.81	0	1.81	0.593
9210W1S017	9210W1S017A	-0.916	U	XV	1.8	0	1.8	0.588
9401DC1S037	9401DC1S037A	0.954	U	XV	1.79	0	1.79	0.582
9207RS013	9207RS013A	0.479	U	XV	1.79	0	1.79	0.582
9207W2S025	9207W2S025A	-0.582	U	XV	1.78	0	1.78	0.577
9207W4S032	9207W4S032A	-0.073	U	XV	1.78	0	1.78	0.577
9210C1S003	9210C1S003A	0.039	U	U	1.77	0	1.77	0.571
9210RS001	9210RS001A	0.232	U	XV	1.76	0	1.76	0.565
9210F2S009	9210F2S009A	0.252	U	XV	1.75	0	1.75	0.56
9207RS003	9207RS003A	0.984	U	XV	1.75	0	1.75	0.56
9207RS004	9207RS004A	1.37	U	XV	1.72	0	1.72	0.542
9207W5S034	9207W5S034A	0.256	U	XV	1.69	0	1.69	0.525
9207RS002AA	9207RS002AA	-0.609	U	XV	1.69	0	1.69	0.525
9207D1S048	9207D1S048A	0.216	U	XV	1.68	0	1.68	0.519
9207RS001AA	9207RS001AA	0.745	U	XV	1.66	0	1.66	0.507
9210H2S009	9210H2S009A	1.32		XV	0.822	1	1.32	0.278
9210F3S017	9210F3S017A	0.959		XV	0.84	1	0.959	-0.042

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S003A	9207H3S003AA	0.31	U	XV	0.943	0	0.943	-0.059
9401DC1S029	9401DC1S029A	-0.497	U	XV	0.909	0	0.909	-0.095
9210S2S025	9210S2S025A	-0.311	U	XV	0.822	0	0.822	-0.196
9207S4S040	9207S4S040A	-0.38	U	XV	0.819	0	0.819	-0.2
9401DC1S022	9401DC1S022A	-0.459	U	XV	0.795	0	0.795	-0.229
9210F3S019	9210F3S019A	0.064	U	XV	0.795	0	0.795	-0.229
9401W1S002A	9401W1S002AA	-0.401	U	U	0.793	0	0.793	-0.232
9210F3S016	9210F3S016A	-0.029	U	XV	0.79	0	0.79	-0.236
9401DC1S028	9401DC1S028A	-0.157	U	XV	0.789	0	0.789	-0.237
9401DC1S034	9401DC1S034A	-0.507	U	XV	0.788	0	0.788	-0.238
9207D4S054	9207D4S054A	0.051	U	XV	0.787	0	0.787	-0.24
9401DC1S035	9401DC1S035A	-0.182	U	XV	0.786	0	0.786	-0.241
9210F3S015	9210F3S015A	-0.669	U	XV	0.785	0	0.785	-0.242
9401W1S016	9401W1S016A	-0.351	U	XV	0.785	0	0.785	-0.242
9401DC1S052	9401DC1S052A	0.782		XV	0.742	1	0.782	-0.246
9207S1S030	9207S1S030A	-0.49	U	XV	0.782	0	0.782	-0.246
9401DC1S024	9401DC1S024A	-0.483	U	XV	0.776	0	0.776	-0.254
9210F3S018	9210F3S018A	0.759	U	XV	0.773	0	0.773	-0.257
9207D2S034A	9207D2S034AA	-0.201	U	XV	0.772	0	0.772	-0.259
9207S2S033	9207S2S033A	-0.158	U	XV	0.77	0	0.77	-0.261
9207S4S039	9207S4S039A	-0.268	U	XV	0.769	0	0.769	-0.263
9210F3S014	9210F3S014A	-0.137	U	XV	0.765	0	0.765	-0.268
9401DC1S049	9401DC1S049A	0.637	U	XV	0.762	0	0.762	-0.272
9210H3S014	9210H3S014A	-0.198	U	XV	0.761	0	0.761	-0.273
9401W1S019	9401W1S019A	0.623	U	XV	0.76	0	0.76	-0.274
9207D1S046	9207D1S046A	-0.243	U	XV	0.759	0	0.759	-0.276
9207H3S019	9207H3S019A	0.221	U	XV	0.759	0	0.759	-0.276
9207H3S022A	9207H3S022AA	-0.19	U	XV	0.754	0	0.754	-0.282
9210D1S056	9210D1S056A	-0.098	U	XV	0.752	0	0.752	-0.285
9207H3S018	9207H3S018A	0.171	U	XV	0.75	0	0.75	-0.288
9210S2S033	9210S2S033A	0.135	U	XV	0.746	0	0.746	-0.293
9210S3S044	9210S3S044A	0.177	U	XV	0.738	0	0.738	-0.304
9401DC1S045	9401DC1S045A	-0.156	U	XV	0.737	0	0.737	-0.305
9207D1S050	9207D1S050A	0.046	U	XV	0.734	0	0.734	-0.309
9207D5S057	9207D5S057A	0.003	U	XV	0.733	0	0.733	-0.311
9401DC1S041	9401DC1S041A	-0.19	U	XV	0.733	0	0.733	-0.311
9207H3S006	9207H3S006A	0.058	U	XV	0.733	0	0.733	-0.311
9207H2S015	9207H2S015A	0.138	U	XV	0.731	0	0.731	-0.313
9210D3S057	9210D3S057A	-0.11	U	XV	0.726	0	0.726	-0.32

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Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S004	9210H1S004A	-0.279	U	U	0.726	0	0.726	-0.32
9207S5S042	9207S5S042A	-0.484	U	XV	0.726	0	0.726	-0.32
9210H3S015	9210H3S015A	0.255	U	XV	0.722	0	0.722	-0.326
9210S3S040	9210S3S040A	-0.504	U	XV	0.719	0	0.719	-0.33
9207D5S059	9207D5S059A	-0.024	U	XV	0.708	0	0.708	-0.345
9207H1S002	9207H1S002A	-0.036	U	XV	0.704	0	0.704	-0.351
9207S1S031	9207S1S031A	-0.395	U	XV	0.704	0	0.704	-0.351
9207H1S013	9207H1S013A	-0.512	U	XV	0.701	0	0.701	-0.355
9207D2S051	9207D2S051A	-0.054	U	XV	0.697	0	0.697	-0.361
9210D1S050	9210D1S050A	-0.316	U	U	0.697	0	0.697	-0.361
9210S2S028	9210S2S028A	-0.328	U	XV	0.697	0	0.697	-0.361
9210H3S012	9210H3S012A	-0.273	U	U	0.694	0	0.694	-0.365
9207S4S038	9207S4S038A	-0.304	U	XV	0.689	0	0.689	-0.373
9210H2S010	9210H2S010A	-0.15	U	U	0.685	0	0.685	-0.378
9210S3S043	9210S3S043A	0.025	U	XV	0.68	0	0.68	-0.386
9401W1S017	9401W1S017A	-0.027	U	U	0.676	0	0.676	-0.392
9207H3S017	9207H3S017A	-0.172	U	XV	0.672	0	0.672	-0.397
9210S2S027	9210S2S027A	-0.188	U	XV	0.668	0	0.668	-0.403
9210F1S006	9210F1S006A	0.667		XV	0.644	1	0.667	-0.405
9210S2S026	9210S2S026A	-0.363	U	XV	0.666	0	0.666	-0.406
9210D1S053	9210D1S053A	-0.313	U	XV	0.665	0	0.665	-0.408
9210F1S001	9210F1S001A	0.531	U	XV	0.663	0	0.663	-0.411
9210F1S005	9210F1S005A	0.661		XV	0.66	1	0.661	-0.414
9207H5S026	9207H5S026AD	-0.101	U	XV	0.661	0	0.661	-0.414
9207H5S009	9207H5S009A	0.071	U	XV	0.659	0	0.659	-0.417
9401W1S002	9401W1S002A	0.138	U	U	0.648	0	0.648	-0.434
9401W1S018	9401W1S018A	-0.055	U	UJ	0.648	0	0.648	-0.434
9401W1S013	9401W1S013A	0.316	U	U	0.647	0	0.647	-0.435
9401W1S001A	9401W1S001AA	0.06	U	U	0.645	0	0.645	-0.439
9401W1S015	9401W1S015A	0.347	U	XV	0.644	0	0.644	-0.44
9401W1S001	9401W1S001A	0.455	U	U	0.642	0	0.642	-0.443
9210F1S004	9210F1S004A	-0.156	U	XV	0.64	0	0.64	-0.446
9401W1S014	9401W1S014A	-0.058	U	U	0.64	0	0.64	-0.446
9210F1S002	9210F1S002A	-0.18	U	XV	0.639	0	0.639	-0.448
9401W1S012	9401W1S012A	-0.204	U	UJ	0.638	0	0.638	-0.449
9401DC1S047	9401DC1S047A	-0.39	U	XV	0.637	0	0.637	-0.451
9210F1S003	9210F1S003A	-0.19	U	XV	0.636	0	0.636	-0.453
9207H4S008	9207H4S008A	0.215	U	XV	0.636	0	0.636	-0.453
9207D2S052	9207D2S052A	-0.031	U	XV	0.629	0	0.629	-0.464

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Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D3S058	9210D3S058A	-0.262	U	XV	0.629	0	0.629	-0.464
9401W1S007	9401W1S007A	-0.021	U	U	0.629	0	0.629	-0.464
9401W1S009	9401W1S009A	-0.101	U	UJ	0.629	0	0.629	-0.464
9207H2S014	9207H2S014A	0.087	U	XV	0.625	0	0.625	-0.47
9207D5S058	9207D5S058A	0.007	U	XV	0.623	0	0.623	-0.473
9401DC1S051	9401DC1S051A	0.058	U	XV	0.622	0	0.622	-0.475
9210S2S035	9210S2S035A	0.06	U	XV	0.614	0	0.614	-0.488
9207H3S007	9207H3S007A	0.014	U	XV	0.602	0	0.602	-0.507
9401DC1S050	9401DC1S050AD	0.526	U	XV	0.601	0	0.601	-0.509
9207S5S043	9207S5S043A	-0.072	U	XV	0.6	0	0.6	-0.511
9210S2S038	9210S2S038AD	-0.07	U	XV	0.595	0	0.595	-0.519
9207H2S003	9207H2S003A	0.083	U	XV	0.593	0	0.593	-0.523
9207H3S020	9207H3S020A	-0.195	U	XV	0.589	0	0.589	-0.529
9207S4S041	9207S4S041A	-0.149	U	XV	0.589	0	0.589	-0.529
9401DC1S038	9401DC1S038A	-0.163	U	XV	0.585	0	0.585	-0.536
9401DC1S040	9401DC1S040A	-0.292	U	XV	0.582	0	0.582	-0.541
9207H3S021	9207H3S021A	0.066	U	XV	0.577	0	0.577	-0.55
9210D1S052	9210D1S052A	-0.162	U	XV	0.576	0	0.576	-0.552
9207S6S044	9207S6S044A	0.018	U	XV	0.571	0	0.571	-0.56
9207D1S047	9207D1S047A	-0.079	U	XV	0.569	0	0.569	-0.564
9210D1S048	9210D1S048A	-0.459	U	XV	0.565	0	0.565	-0.571
9210S3S041	9210S3S041A	-0.05	U	XV	0.564	0	0.564	-0.573
9207H3S005	9207H3S005A	-0.172	U	XV	0.563	0	0.563	-0.574
9210D1S006A	9210D1S006AA	0.202	U	XV	0.561	0	0.561	-0.578
9210S1S021	9210S1S021A	-0.127	U	UJ	0.561	0	0.561	-0.578
9210H3S011	9210H3S011A	-0.072	U	XV	0.558	0	0.558	-0.583
9401DC1S046	9401DC1S046A	-0.05	U	XV	0.554	0	0.554	-0.591
9207H3S022	9207H3S022A	0.549		XV	0.467	1	0.549	-0.6
9210S1S020	9210S1S020A	-0.103	U	UJ	0.548	0	0.548	-0.601
9401W1S020	9401W1S020A	-0.004	U	XV	0.544	0	0.544	-0.609
9210H3S013	9210H3S013A	-0.159	U	XV	0.539	0	0.539	-0.618
9401W1S004A	9401W1S004AA	-0.214	U	UJ	0.536	0	0.536	-0.624
9207H1S012	9207H1S012A	-0.06	U	U	0.534	0	0.534	-0.627
9207F1S004	9207F1S004A	-0.289	U	XV	0.533	0	0.533	-0.629
9401DC1S048	9401DC1S048A	-0.198	U	XV	0.529	0	0.529	-0.637
9210D1S049	9210D1S049A	-0.326	U	XV	0.528	0	0.528	-0.639
9401DC1S043	9401DC1S043A	-0.243	U	UJ	0.528	0	0.528	-0.639
9210S2S034	9210S2S034A	-0.105	U	XV	0.528	0	0.528	-0.639
9207S3S037	9207S3S037A	-0.191	U	XV	0.516	0	0.516	-0.662

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S057A	9401DC1S057AA	-0.272	U	UJ	0.513	0	0.513	-0.667
9207F5S033	9207F5S033A	-0.085	U	XV	0.512	0	0.512	-0.669
9207D4S055	9207D4S055A	-0.082	U	XV	0.509	0	0.509	-0.675
9210D3S059	9210D3S059A	-0.186	U	XV	0.508	0	0.508	-0.677
9401DC1S044	9401DC1S044A	0.093	U	XV	0.508	0	0.508	-0.677
9207D4S056	9207D4S056A	-0.098	U	XV	0.506	0	0.506	-0.681
9210H2S008	9210H2S008AD	-0.394	U	XV	0.506	0	0.506	-0.681
9210D1S051	9210D1S051A	-0.117	U	U	0.497	0	0.497	-0.699
9207S1S027	9207S1S027A	-0.302	U	XV	0.493	0	0.493	-0.707
9210D1S055	9210D1S055A	-0.17	U	U	0.485	0	0.485	-0.724
9401DC1S042	9401DC1S042A	-0.263	U	U	0.484	0	0.484	-0.726
9207S5S029	9207S5S029A	0.025	U	XV	0.478	0	0.478	-0.738
9207D2S053	9207D2S053A	-0.135	U	XV	0.476	0	0.476	-0.742
9401DC1S055	9401DC1S055A	0.346	U	XV	0.475	0	0.475	-0.744
9401DC1S056	9401DC1S056A	-0.323	U	XV	0.474	0	0.474	-0.747
9210S2S037	9210S2S037A	-0.169	U	XV	0.473	0	0.473	-0.749
9210S1S022	9210S1S022A	-0.092	U	UJ	0.469	0	0.469	-0.757
9401DC1S027	9401DC1S027A	0.441	U	XV	0.467	0	0.467	-0.761
9401DC1S039	9401DC1S039A	-0.057	U	XV	0.467	0	0.467	-0.761
9210S3S042	9210S3S042A	-0.077	U	XV	0.463	0	0.463	-0.77
9207H1S001	9207H1S001A	-0.008	U	U	0.462	0	0.462	-0.772
9207S3S034	9207S3S034A	-0.236	U	XV	0.456	0	0.456	-0.785
9401DC1S025	9401DC1S025A	-0.16	U	XV	0.453	0	0.453	-0.792
9207C4S011	9207C4S011A	-0.123	U	XV	0.445	0	0.445	-0.81
9210S2S031	9210S2S031A	-0.217	U	XV	0.438	0	0.438	-0.826
9210S1S001A	9210S1S001AA	0.108	U	XV	0.434	0	0.434	-0.835
9207S3S036	9207S3S036A	0.052	U	U	0.431	0	0.431	-0.842
9207H5S010	9207H5S010A	-0.125	U	XV	0.429	0	0.429	-0.846
9210D1S047	9210D1S047A	-0.17	U	U	0.428	0	0.428	-0.849
9401W1S004	9401W1S004A	-0.034	U	UJ	0.425	0	0.425	-0.856
9210S2S036	9210S2S036A	-0.076	U	XV	0.424	0	0.424	-0.858
9210D1S046	9210D1S046A	-0.229	U	U	0.422	0	0.422	-0.863
9207S6S045	9207S6S045A	-0.06	U	XV	0.422	0	0.422	-0.863
9207C6S017	9207C6S017AD	-0.147	U	XV	0.417	0	0.417	-0.875
9207H3S016	9207H3S016A	0.115	U	XV	0.416	0	0.416	-0.877
9207S2S032	9207S2S032A	0.002	U	U	0.408	0	0.408	-0.896
9207H3S024	9207H3S024A	0.187	U	XV	0.406	0	0.406	-0.901
9210S1S023	9210S1S023A	0.201	U	XV	0.405	0	0.405	-0.904
9207S4S028	9207S4S028A	-0.199	U	XV	0.397	0	0.397	-0.924

Table G.104
Statistical Summary for Carbon-14 (14762755) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S003	9401W1S003A	-0.173	U	UJ	0.378	0	0.378	-0.973
9401DC1S053	9401DC1S053A	-0.278	U	UJ	0.347	0	0.347	-1.06
9210S2S002A	9210S2S002AA	0.017	U	XV	0.345	0	0.345	-1.06
9210S1S018	9210S1S018A	0.238	U	XV	0.34	0	0.34	-1.08
9210S1S024	9210S1S024A	0.224	U	XV	0.337	0	0.337	-1.09
9401W1S011	9401W1S011A	0.037	U	XV	0.327	0	0.327	-1.12
9210S2S032	9210S2S032A	-0.064	U	XV	0.313	0	0.313	-1.16
9207H3S004	9207H3S004A	-0.017	U	XV	0.312	0	0.312	-1.16
9210S2S030	9210S2S030A	-0.008	U	XV	0.301	0	0.301	-1.2
9210S1S019	9210S1S019A	0.066	U	XV	0.282	0	0.282	-1.27
9210S1S017	9210S1S017A	0.06	U	XV	0.281	0	0.281	-1.27
9207C5S016	9207C5S016A	-0.165	U	XV	0.276	0	0.276	-1.29
9210S2S029	9210S2S029A	-0.032	U	XV	0.198	0	0.198	-1.62
9207C1S003	9207C1S003A	0.022	U	XV	0.169	0	0.169	-1.78
9207C1S002	9207C1S002A	-0.016	U	U	0.156	0	0.156	-1.86
9207C1S001	9207C1S001A	0.018	U	XV	0.082	0	0.082	-2.5

Number of Samples	328
Number of Detects	10
Minimum	0.082
Median	0.79
Maximum	416
Arithmetic Average	2.63
Std Dev	22.9
PERT-Beta Expected Value	69.9
LN Mean	0.075
LN Std Dev	0.799
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S020	9401W1S020A	0.211	U	XV	1.09	0	1.09	0.086
9210RS008	9210RS008A	1.01		XV	0.237	1	1.01	0.01
9210RS011	9210RS011A	0.886		XV	0.093	1	0.886	-0.121
9210RS003	9210RS003A	0.798		XV	0.044	1	0.798	-0.226
9210RS009	9210RS009A	0.775		XV	0.209	1	0.775	-0.255
9401DC1S027	9401DC1S027A	-0.013	U	XV	0.7	0	0.7	-0.357
9207D1S050	9207D1S050A	0.237	U	XV	0.648	0	0.648	-0.434
9210RS014	9210RS014AD	0.646		XV	0.068	1	0.646	-0.437
9210RS007	9210RS007A	0.568		XV	0.051	1	0.568	-0.566
9210H1S004	9210H1S004A	0.167	U	U	0.544	0	0.544	-0.609
9401DC1S042	9401DC1S042A	0.108	U	U	0.512	0	0.512	-0.669
9210H2S008	9210H2S008A	0.179	U	XV	0.501	0	0.501	-0.691
9210RS013	9210RS013A	0.486		XV	0.113	1	0.486	-0.722
9401DC1S055	9401DC1S055A	0.155	U	XV	0.471	0	0.471	-0.753
9401DC1S029	9401DC1S029A	-0.065	U	XV	0.433	0	0.433	-0.837
9207H3S020	9207H3S020A	0.119	U	XV	0.426	0	0.426	-0.853
9210D1S055	9210D1S055A	-0.018	U	U	0.421	0	0.421	-0.865
9401DC1S043	9401DC1S043A	0.294	U	U	0.414	0	0.414	-0.882
9210RS004	9210RS004A	0.406		XV	0.065	1	0.406	-0.901
9210RS012	9210RS012A	0.381		XV	0.137	1	0.381	-0.965
9210H1S006	9210H1S006A	0.092	U	XV	0.376	0	0.376	-0.978
9210RS001	9210RS001A	0.365		XV	0.062	1	0.365	-1.01
9207H4S008	9207H4S008A	0.041	U	XV	0.356	0	0.356	-1.03
9207H5S009	9207H5S009A	0.039	U	XV	0.352	0	0.352	-1.04
9401DC1S040	9401DC1S040A	0.038	U	XV	0.348	0	0.348	-1.06
9210D1S047	9210D1S047A	-0.08	U	U	0.335	0	0.335	-1.09
9210D3S058	9210D3S058A	0.017	U	XV	0.321	0	0.321	-1.14
9207S6S044	9207S6S044A	-0.049	U	XV	0.32	0	0.32	-1.14
9401DC1S025	9401DC1S025A	-0.047	U	XV	0.315	0	0.315	-1.16
9401DC1S045	9401DC1S045A	0.026	U	XV	0.307	0	0.307	-1.18
9210RS002	9210RS002A	0.302		XV	0.058	1	0.302	-1.2
9210RS010	9210RS010A	0.302		XV	0.066	1	0.302	-1.2
9401DC1S041	9401DC1S041A	0.117	U	XV	0.288	0	0.288	-1.24
9210D3S059	9210D3S059A	-0.024	U	XV	0.287	0	0.287	-1.25
9401DC1S038	9401DC1S038A	-0.041	U	XV	0.285	0	0.285	-1.26
9207H1S012	9207H1S012A	0.029	U	U	0.28	0	0.28	-1.27
9210RS006	9210RS006A	0.267		XV	0.069	1	0.267	-1.32
9207H1S001A	9207H1S001AA	0.072	U	XV	0.264	0	0.264	-1.33
9401DC1S056	9401DC1S056A	-0.097	U	XV	0.261	0	0.261	-1.34

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S022	9210S1S022A	-0.102	U	U	0.258	0	0.258	-1.35
9210D3S057	9210D3S057A	-0.057	U	XV	0.256	0	0.256	-1.36
9210S1S024	9210S1S024A	-0.08	U	XV	0.255	0	0.255	-1.37
9210S1S023	9210S1S023A	-0.009	U	XV	0.244	0	0.244	-1.41
9210S1S001A	9210S1S001AA	-0.064	U	XV	0.236	0	0.236	-1.44
9401DC1S039	9401DC1S039A	0.002	U	XV	0.235	0	0.235	-1.45
9401DC1S044	9401DC1S044A	0.042	U	XV	0.232	0	0.232	-1.46
9207D4S055	9207D4S055A	0.106	U	XV	0.228	0	0.228	-1.48
9207H3S019	9207H3S019A	0.045	U	XV	0.225	0	0.225	-1.49
9401DC1S047	9401DC1S047A	0.017	U	XV	0.222	0	0.222	-1.51
9207RS007	9207RS007A	0.218		XV	0.12	1	0.218	-1.52
9207RS015	9207RS015A	0.188	U	XV	0.218	0	0.218	-1.52
9401DC1S036	9401DC1S036A	0.032	U	XV	0.216	0	0.216	-1.53
9207RS011	9207RS011A	0.213	J	XV	0.09	1	0.213	-1.55
9207RS001	9207RS001A	0.076	U	XV	0.212	0	0.212	-1.55
9210F1S004	9210F1S004A	0.211		XV	0.04	1	0.211	-1.56
9207H2S015	9207H2S015A	0.21		XV	0.083	1	0.21	-1.56
9207C2S004	9207C2S004A	0.066	U	XV	0.208	0	0.208	-1.57
9207RS006	9207RS006A	0.024	U	XV	0.207	0	0.207	-1.58
9207H1S002	9207H1S002A	-0.035	U	XV	0.204	0	0.204	-1.59
9207H1S013	9207H1S013A	0.016	U	XV	0.204	0	0.204	-1.59
9210C2S004	9210C2S004A	-0.038	U	XV	0.203	0	0.203	-1.59
9207RS012	9207RS012A	0.046	U	XV	0.196	0	0.196	-1.63
9401DC1S028	9401DC1S028A	0.002	U	XV	0.194	0	0.194	-1.64
9207RS017	9207RS017A	0.194	J	XV	0.076	1	0.194	-1.64
9207H3S023	9207H3S023A	-0.038	U	XV	0.191	0	0.191	-1.66
9401DC1S037	9401DC1S037A	0.043	U	XV	0.19	0	0.19	-1.66
9210F2S012	9210F2S012A	0.009	U	XV	0.19	0	0.19	-1.66
9210W1S011	9210W1S011A	-0.024	U	XV	0.189	0	0.189	-1.67
9401DC1S052	9401DC1S052A	0.026	U	XV	0.185	0	0.185	-1.69
9210W1S015	9210W1S015A	0.112	U	XV	0.183	0	0.183	-1.7
9207W4S030	9207W4S030A	0.057	U	XV	0.182	0	0.182	-1.7
9210D1S053	9210D1S053A	4.2E-04	U	XV	0.181	0	0.181	-1.71
9210H1S005	9210H1S005A	0.008	U	XV	0.181	0	0.181	-1.71
9207H3S003A	9207H3S003AA	0.022	U	XV	0.178	0	0.178	-1.73
9207RS002	9207RS002AD	0.045	U	XV	0.177	0	0.177	-1.73
9401DC1S035	9401DC1S035A	0.056	U	XV	0.173	0	0.173	-1.75
9401W1S017	9401W1S017A	0.024	U	U	0.173	0	0.173	-1.75
9210S1S018	9210S1S018A	-0.023	U	XV	0.172	0	0.172	-1.76

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S014	9401W1S014A	-0.023	U	U	0.171	0	0.171	-1.77
9210D1S051	9210D1S051A	0.01	U	U	0.17	0	0.17	-1.77
9207W1S022	9207W1S022A	0.071	U	XV	0.17	0	0.17	-1.77
9210D1S050	9210D1S050A	0.011	U	U	0.169	0	0.169	-1.78
9207D2S053	9207D2S053A	0.066	U	XV	0.167	0	0.167	-1.79
9210H2S010	9210H2S010A	0.001	U	U	0.167	0	0.167	-1.79
9401DC1S024	9401DC1S024A	0.008	U	XV	0.166	0	0.166	-1.8
9207RS013	9207RS013A	-0.008	U	XV	0.165	0	0.165	-1.8
9210D1S056	9210D1S056A	-0.082	U	XV	0.163	0	0.163	-1.81
9207W2S024A	9207W2S024AAD	0.05	U	XV	0.163	0	0.163	-1.81
9401DC1S057A	9401DC1S057AA	0.038	U	U	0.161	0	0.161	-1.83
9401DC1S022	9401DC1S022A	0.031	U	XV	0.16	0	0.16	-1.83
9401DC1S026	9401DC1S026A	-0.016	U	XV	0.16	0	0.16	-1.83
9207W6S038	9207W6S038A	-0.038	U	XV	0.16	0	0.16	-1.83
9210D1S048	9210D1S048A	0.112	U	XV	0.159	0	0.159	-1.84
9210W1S018	9210W1S018A	-0.068	U	XV	0.159	0	0.159	-1.84
9210F3S015	9210F3S015A	0.031	U	XV	0.159	0	0.159	-1.84
9401DC1S050	9401DC1S050AD	0.01	U	XV	0.158	0	0.158	-1.85
9207H3S021	9207H3S021A	0.034	U	XV	0.158	0	0.158	-1.85
9210W1S013	9210W1S013A	0.02	U	XV	0.156	0	0.156	-1.86
9207F3S013	9207F3S013A	0.043	U	XV	0.155	0	0.155	-1.86
9207W6S036	9207W6S036A	0.004	U	XV	0.154	0	0.154	-1.87
9401W1S018	9401W1S018A	0.063	U	U	0.153	0	0.153	-1.88
9207W1S023A	9207W1S023AA	-0.02	U	XV	0.151	0	0.151	-1.89
9207F3S018	9207F3S018A	0.03	U	U	0.151	0	0.151	-1.89
9401DC1S023A	9401DC1S023AA	0.014	U	XV	0.15	0	0.15	-1.9
9207RS003	9207RS003A	0.002	U	XV	0.15	0	0.15	-1.9
9210D1S052	9210D1S052A	-0.015	U	XV	0.149	0	0.149	-1.9
9207D2S052	9207D2S052A	0.021	U	XV	0.148	0	0.148	-1.91
9401W1S021	9401W1S021A	0.011	U	XV	0.148	0	0.148	-1.91
9207H5S010	9207H5S010A	-0.02	U	XV	0.148	0	0.148	-1.91
9401W1S012	9401W1S012A	-0.005	U	U	0.148	0	0.148	-1.91
9207D2S034A	9207D2S034AA	0.05	U	XV	0.146	0	0.146	-1.92
9207W1S021	9207W1S021A	0.025	U	XV	0.146	0	0.146	-1.92
9401DC1S049	9401DC1S049A	0.031	U	XV	0.144	0	0.144	-1.94
9210W1S014	9210W1S014A	0.006	U	XV	0.144	0	0.144	-1.94
9207RS016	9207RS016A	0.142	J	XV	0.103	1	0.142	-1.95
9207F1S004	9207F1S004A	-0.011	U	XV	0.14	0	0.14	-1.97
9210W1S012	9210W1S012A	0.03	U	XV	0.14	0	0.14	-1.97

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H3S015	9210H3S015A	-0.053	U	XV	0.137	0	0.137	-1.99
9207F5S033	9207F5S033A	0.022	U	XV	0.136	0	0.136	-2.0
9401DC1S030	9401DC1S030A	0.078	U	XV	0.135	0	0.135	-2.0
9210D1S046	9210D1S046A	-0.005	U	U	0.135	0	0.135	-2.0
9210F2S013	9210F2S013A	-0.037	U	XV	0.134	0	0.134	-2.01
9207W3S028	9207W3S028A	0.006	U	XV	0.134	0	0.134	-2.01
9401W1S011	9401W1S011A	0.039	U	XV	0.134	0	0.134	-2.01
9207C4S011	9207C4S011A	0.008	U	XV	0.133	0	0.133	-2.02
9207W1S039	9207W1S039A	-0.047	U	XV	0.133	0	0.133	-2.02
9401W1S009	9401W1S009A	0.133	U	U	0.133	0	0.133	-2.02
9207F1S003	9207F1S003A	-0.001	U	XV	0.132	0	0.132	-2.02
9207F3S015	9207F3S015A	-0.065	U	U	0.132	0	0.132	-2.02
9401DC1S022A	9401DC1S022AA	0.001	U	XV	0.131	0	0.131	-2.03
9207H2S014	9207H2S014A	-0.003	U	XV	0.131	0	0.131	-2.03
9207H3S024	9207H3S024A	-0.014	U	XV	0.131	0	0.131	-2.03
9207W2S023	9207W2S023A	-0.03	U	XV	0.131	0	0.131	-2.03
9207S5S029	9207S5S029A	-0.046	U	XV	0.131	0	0.131	-2.03
9207F2S007	9207F2S007A	-0.017	U	U	0.13	0	0.13	-2.04
9207F4S027	9207F4S027A	0.063	U	XV	0.129	0	0.129	-2.05
9207W5S034	9207W5S034A	-0.002	U	XV	0.129	0	0.129	-2.05
9210H3S013	9210H3S013A	0.029	U	XV	0.128	0	0.128	-2.06
9207W3S029	9207W3S029AD	-0.018	U	XV	0.128	0	0.128	-2.06
9207D1S046	9207D1S046A	-0.008	U	XV	0.127	0	0.127	-2.06
9207F4S028	9207F4S028A	0.034	U	XV	0.127	0	0.127	-2.06
9207W3S040	9207W3S040A	0.214	U	XV	0.126	0	0.126	-2.07
9207RS018	9207RS018A	0.097	U	XV	0.126	0	0.126	-2.07
9401W1S002A	9401W1S002AA	0.011	U	U	0.125	0	0.125	-2.08
9207RS008	9207RS008A	-0.045	U	XV	0.125	0	0.125	-2.08
9207S4S038	9207S4S038A	-0.017	U	XV	0.125	0	0.125	-2.08
9207D5S058	9207D5S058A	-0.019	U	XV	0.124	0	0.124	-2.09
9207W5S033	9207W5S033A	-0.036	U	XV	0.124	0	0.124	-2.09
9207C2S006	9207C2S006A	0.036	U	XV	0.123	0	0.123	-2.1
9401W1S019	9401W1S019A	-0.033	U	XV	0.123	0	0.123	-2.1
9207RS004	9207RS004A	0.079	U	XV	0.123	0	0.123	-2.1
9210S2S035	9210S2S035A	0.033	U	XV	0.123	0	0.123	-2.1
9207F3S020	9207F3S020A	-0.007	U	XV	0.122	0	0.122	-2.1
9207RS014	9207RS014A	0.096	U	XV	0.122	0	0.122	-2.1
9210D1S006A	9210D1S006AA	0.035	U	XV	0.121	0	0.121	-2.11
9207W6S037	9207W6S037A	0.009	U	XV	0.121	0	0.121	-2.11

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017AD	0.009	U	XV	0.121	0	0.121	-2.11
9207F4S029	9207F4S029A	0.002	U	XV	0.12	0	0.12	-2.12
9210F1S006	9210F1S006A	-0.054	U	XV	0.12	0	0.12	-2.12
9401W1S001A	9401W1S001AA	-0.004	U	U	0.12	0	0.12	-2.12
9401W1S016	9401W1S016A	-0.027	U	XV	0.12	0	0.12	-2.12
9207RS010	9207RS010A	-0.054	U	XV	0.12	0	0.12	-2.12
9207S4S040	9207S4S040A	0.017	U	XV	0.12	0	0.12	-2.12
9207H3S005	9207H3S005A	0.034	U	XV	0.119	0	0.119	-2.13
9207H3S022A	9207H3S022AA	-0.007	U	XV	0.119	0	0.119	-2.13
9210S2S026	9210S2S026A	-0.046	U	XV	0.119	0	0.119	-2.13
9210W1S019	9210W1S019A	0.011	U	U	0.118	0	0.118	-2.14
9207F5S032	9207F5S032A	0.008	U	U	0.118	0	0.118	-2.14
9207H3S022	9207H3S022A	0.043	U	XV	0.118	0	0.118	-2.14
9401DC1S034	9401DC1S034A	0.02	U	XV	0.117	0	0.117	-2.15
9207F1S001	9207F1S001A	0.007	U	U	0.117	0	0.117	-2.15
9207F3S023	9207F3S023A	0.019	U	XV	0.117	0	0.117	-2.15
9401W1S013	9401W1S013A	0.026	U	U	0.117	0	0.117	-2.15
9207H3S004	9207H3S004A	-0.044	U	XV	0.116	0	0.116	-2.15
9401DC1S033	9401DC1S033A	-0.021	U	XV	0.115	0	0.115	-2.16
9207F6S039	9207F6S039A	-0.033	U	XV	0.115	0	0.115	-2.16
9207RS001AA	9207RS001AA	0.118	U	XV	0.115	0	0.115	-2.16
9210S2S032	9210S2S032A	-0.005	U	XV	0.114	0	0.114	-2.17
9207F3S022	9207F3S022A	-0.036	U	XV	0.113	0	0.113	-2.18
9401W1S007	9401W1S007A	-0.077	U	U	0.113	0	0.113	-2.18
9207C3S009	9207C3S009A	-0.056	U	XV	0.112	0	0.112	-2.19
9207D4S054	9207D4S054A	-0.062	U	XV	0.112	0	0.112	-2.19
9207H3S006	9207H3S006A	-0.062	U	XV	0.111	0	0.111	-2.2
9207F4S030	9207F4S030A	-0.005	U	XV	0.11	0	0.11	-2.21
9207F5S036	9207F5S036A	0.095	U	XV	0.11	0	0.11	-2.21
9207H1S001	9207H1S001A	-0.062	U	U	0.11	0	0.11	-2.21
9207F6S042	9207F6S042A	-0.023	U	XV	0.109	0	0.109	-2.22
9401W1S005	9401W1S005A	0.05	U	XV	0.108	0	0.108	-2.23
9207W2S024	9207W2S024A	0.07	U	XV	0.107	0	0.107	-2.23
9207S5S043	9207S5S043A	0.022	U	XV	0.106	0	0.106	-2.24
9210D1S049	9210D1S049A	0.007	U	XV	0.105	0	0.105	-2.25
9207F3S014	9207F3S014A	0.005	U	U	0.105	0	0.105	-2.25
9210F3S017	9210F3S017A	-0.007	U	XV	0.105	0	0.105	-2.25
9210S2S030	9210S2S030A	0.021	U	XV	0.105	0	0.105	-2.25
9210C3S006	9210C3S006A	0.038	U	XV	0.104	0	0.104	-2.26

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S048	9401DC1S048A	0.019	U	XV	0.103	0	0.103	-2.27
9207F1S002	9207F1S002A	0.015	U	XV	0.103	0	0.103	-2.27
9210F1S001	9210F1S001A	-0.022	U	XV	0.103	0	0.103	-2.27
9207W1S020	9207W1S020A	0.001	U	XV	0.102	0	0.102	-2.28
9207F2S012	9207F2S012A	-0.035	U	U	0.101	0	0.101	-2.29
9210F3S018	9210F3S018A	0.009	U	XV	0.101	0	0.101	-2.29
9207F5S035	9207F5S035A	0.042	U	XV	0.1	0	0.1	-2.3
9210H3S014	9210H3S014A	-0.046	U	XV	0.1	0	0.1	-2.3
9207D1S048	9207D1S048A	0.1		XV	0.082	1	0.1	-2.31
9207F3S024	9207F3S024A	-0.005	U	XV	0.099	0	0.099	-2.31
9401DC1S024A	9401DC1S024AA	-0.065	U	XV	0.099	0	0.099	-2.31
9210RS005	9210RS005A	0.098	J	XV	0.069	1	0.098	-2.32
9207D2S051	9207D2S051A	8.0E-04	U	XV	0.098	0	0.098	-2.32
9207H3S007	9207H3S007A	0.018	U	XV	0.098	0	0.098	-2.32
9401DC1S046	9401DC1S046A	0.003	U	XV	0.098	0	0.098	-2.33
9210F3S014	9210F3S014A	0.081	U	XV	0.098	0	0.098	-2.33
9207H3S018	9207H3S018A	-0.022	U	XV	0.098	0	0.098	-2.33
9401W1S002	9401W1S002A	0.016	U	U	0.097	0	0.097	-2.33
9207F3S019	9207F3S019A	-0.022	U	XV	0.097	0	0.097	-2.33
9210W1S010	9210W1S010A	0.03	U	XV	0.097	0	0.097	-2.33
9401DC1S051	9401DC1S051A	-0.052	U	XV	0.096	0	0.096	-2.34
9207F3S016	9207F3S016A	0.013	U	U	0.096	0	0.096	-2.34
9207F2S011	9207F2S011AD	-0.008	U	U	0.096	0	0.096	-2.35
9207F3S017	9207F3S017A	-0.007	U	U	0.094	0	0.094	-2.36
9207F6S041	9207F6S041A	-0.007	U	XV	0.094	0	0.094	-2.36
9207D1S047	9207D1S047AD	0.093	J	XV	0.084	1	0.093	-2.38
9210F1S002	9210F1S002A	0.033	U	XV	0.091	0	0.091	-2.4
9207C4S010A	9207C4S010AA	-0.045	U	XV	0.091	0	0.091	-2.4
9207F4S026	9207F4S026A	0.012	U	XV	0.09	0	0.09	-2.41
9210H2S009	9210H2S009A	0.029	U	XV	0.09	0	0.09	-2.41
9401DC1S031	9401DC1S031A	0.005	U	XV	0.09	0	0.09	-2.41
9207C6S019	9207C6S019A	0.028	U	XV	0.09	0	0.09	-2.41
9401DC1S032	9401DC1S032A	0.028	U	XV	0.09	0	0.09	-2.41
9207W5S035	9207W5S035A	-0.057	U	XV	0.09	0	0.09	-2.41
9210F3S016	9210F3S016A	0.075	U	XV	0.09	0	0.09	-2.41
9207F2S010	9207F2S010A	0.019	U	U	0.089	0	0.089	-2.42
9207W3S026	9207W3S026A	-0.028	U	XV	0.089	0	0.089	-2.42
9207F6S037	9207F6S037A	0.023	U	XV	0.089	0	0.089	-2.42
9207F1S005	9207F1S005A	0.028	U	XV	0.089	0	0.089	-2.42

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002AA	9207RS002AA	0.082	U	XV	0.089	0	0.089	-2.42
9207C5S015	9207C5S015A	0.022	U	XV	0.088	0	0.088	-2.43
9401DC1S054	9401DC1S054A	0.048	U	XV	0.088	0	0.088	-2.43
9207H2S003	9207H2S003A	0.041	U	XV	0.088	0	0.088	-2.43
9207F6S038	9207F6S038A	0.002	U	XV	0.086	0	0.086	-2.45
9210F1S003	9210F1S003A	-0.018	U	XV	0.086	0	0.086	-2.45
9210F1S005	9210F1S005A	-0.021	U	XV	0.085	0	0.085	-2.46
9207C3S010	9207C3S010A	-0.03	U	XV	0.085	0	0.085	-2.47
9207W4S032	9207W4S032A	-0.011	U	XV	0.085	0	0.085	-2.47
9207S3S037	9207S3S037A	-0.001	U	XV	0.084	0	0.084	-2.48
9207D4S056	9207D4S056A	0.029	U	XV	0.082	0	0.082	-2.5
9207D5S057	9207D5S057A	0.004	U	XV	0.082	0	0.082	-2.5
9210W1S017	9210W1S017A	-0.046	U	XV	0.081	0	0.081	-2.51
9401DC1S023	9401DC1S023A	-0.029	U	XV	0.081	0	0.081	-2.51
9207F1S006	9207F1S006A	-0.028	U	XV	0.081	0	0.081	-2.51
9210C3S008	9210C3S008A	0.038	U	XV	0.08	0	0.08	-2.53
9207S2S032	9207S2S032A	1.1E-04	U	U	0.08	0	0.08	-2.53
9207C5S012A	9207C5S012AA	0.015	U	XV	0.079	0	0.079	-2.54
9210S2S031	9210S2S031A	-0.015	U	XV	0.079	0	0.079	-2.54
9210S2S029	9210S2S029A	0.009	U	XV	0.078	0	0.078	-2.55
9210F2S008	9210F2S008A	0.047	U	XV	0.078	0	0.078	-2.55
9207F3S021	9207F3S021A	-0.045	U	XV	0.077	0	0.077	-2.56
9207F5S031	9207F5S031A	-0.045	U	XV	0.077	0	0.077	-2.56
9207F4S025	9207F4S025A	-0.016	U	XV	0.076	0	0.076	-2.58
9207F6S040	9207F6S040A	0.006	U	XV	0.076	0	0.076	-2.58
9207S3S036	9207S3S036A	0.002	U	U	0.076	0	0.076	-2.58
9210F2S011	9210F2S011A	-0.015	U	XV	0.075	0	0.075	-2.6
9207C4S013	9207C4S013A	-0.017	U	XV	0.075	0	0.075	-2.6
9207C3S008	9207C3S008A	-0.021	U	XV	0.074	0	0.074	-2.6
9210W1S009	9210W1S009A	-0.008	U	XV	0.074	0	0.074	-2.61
9210S1S020	9210S1S020A	-0.026	U	U	0.074	0	0.074	-2.61
9207F2S008	9207F2S008A	-0.008	U	U	0.074	0	0.074	-2.61
9207F5S034	9207F5S034A	-0.015	U	XV	0.073	0	0.073	-2.62
9207W2S025	9207W2S025A	0.007	U	XV	0.073	0	0.073	-2.62
9210F3S019	9210F3S019A	0.008	U	XV	0.072	0	0.072	-2.63
9210F2S009	9210F2S009A	-0.024	U	XV	0.072	0	0.072	-2.63
9401W1S001	9401W1S001A	0	U	U	0.072	0	0.072	-2.64
9210S2S038	9210S2S038AD	0.005	U	XV	0.07	0	0.07	-2.66
9207C5S016	9207C5S016A	-0.038	U	XV	0.069	0	0.069	-2.67

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S025	9210S2S025A	-0.054	U	XV	0.069	0	0.069	-2.68
9210F2S010	9210F2S010A	6.1E-04	U	XV	0.068	0	0.068	-2.68
9210S2S033	9210S2S033A	-0.006	U	XV	0.067	0	0.067	-2.7
9207C6S018	9207C6S018A	-0.009	U	XV	0.066	0	0.066	-2.72
9401W1S015	9401W1S015A	-0.012	U	XV	0.066	0	0.066	-2.72
9207W3S027	9207W3S027A	-0.01	U	XV	0.066	0	0.066	-2.72
9210C1S001A	9210C1S001AA	-0.028	U	XV	0.065	0	0.065	-2.73
9210C3S007	9210C3S007A	-0.028	U	XV	0.065	0	0.065	-2.74
9207D5S059	9207D5S059A	-0.01	U	XV	0.064	0	0.064	-2.74
9207H3S016	9207H3S016A	0.022	U	XV	0.063	0	0.063	-2.76
9210C1S002	9210C1S002A	0.025	U	XV	0.063	0	0.063	-2.77
9207C3S007	9207C3S007A	-0.02	U	XV	0.062	0	0.062	-2.77
9210S3S043	9210S3S043A	0.014	U	XV	0.061	0	0.061	-2.8
9210H3S011	9210H3S011A	0.006	U	XV	0.061	0	0.061	-2.8
9210C2S005	9210C2S005A	0.015	U	XV	0.06	0	0.06	-2.81
9207RS019	9207RS019A	0.162	U	XV	0.06	0	0.06	-2.81
9207S6S045	9207S6S045A	-0.006	U	XV	0.06	0	0.06	-2.82
9401W1S003	9401W1S003A	0.001	U	U	0.06	0	0.06	-2.82
9207F2S009	9207F2S009A	0.012	U	XV	0.059	0	0.059	-2.84
9207S5S042	9207S5S042A	-0.019	U	XV	0.058	0	0.058	-2.84
9210W1S016	9210W1S016A	0.006	U	XV	0.058	0	0.058	-2.85
9210H3S012	9210H3S012A	-0.005	U	U	0.058	0	0.058	-2.85
9401DC1S053	9401DC1S053A	0.191	U	UJ	0.058	0	0.058	-2.85
9207S2S033	9207S2S033A	0.016	U	XV	0.057	0	0.057	-2.87
9210C1S003	9210C1S003A	0.005	U	U	0.056	0	0.056	-2.88
9210S2S037	9210S2S037A	0.041	U	XV	0.056	0	0.056	-2.88
9210S2S027	9210S2S027A	-0.013	U	XV	0.056	0	0.056	-2.89
9210S2S036	9210S2S036A	0.017	U	XV	0.056	0	0.056	-2.89
9210S1S021	9210S1S021A	-0.012	U	U	0.055	0	0.055	-2.9
9207C2S004A	9207C2S004AA	-0.002	U	XV	0.055	0	0.055	-2.9
9207H3S017	9207H3S017A	0.014	U	XV	0.055	0	0.055	-2.91
9207S4S041	9207S4S041A	-2.8E-04	U	XV	0.053	0	0.053	-2.95
9210S3S042	9210S3S042A	0.01	U	XV	0.05	0	0.05	-2.99
9210F2S007	9210F2S007AD	-0.006	U	XV	0.049	0	0.049	-3.02
9207H5S026	9207H5S026A	0.009	U	XV	0.049	0	0.049	-3.02
9210S3S040	9210S3S040A	0.036	U	XV	0.048	0	0.048	-3.04
9210S2S002A	9210S2S002AA	0.002	U	XV	0.048	0	0.048	-3.04
9207S4S028	9207S4S028A	0.026	U	XV	0.045	0	0.045	-3.1
9207W4S031	9207W4S031A	0.031	U	XV	0.043	0	0.043	-3.15

Table G.105
Statistical Summary for Cesium-137 (10045973) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S3S034	9207S3S034A	0.016	U	XV	0.043	0	0.043	-3.15
9210S3S044	9210S3S044A	0.008	U	XV	0.043	0	0.043	-3.16
9401W1S004A	9401W1S004AA	-0.01	U	U	0.039	0	0.039	-3.24
9210S2S028	9210S2S028A	-0.007	U	XV	0.036	0	0.036	-3.32
9207C6S017	9207C6S017AD	0.011	U	XV	0.034	0	0.034	-3.38
9210S3S041	9210S3S041A	9.5E-04	U	XV	0.033	0	0.033	-3.42
9207C1S002	9207C1S002A	0.004	U	U	0.031	0	0.031	-3.48
9401W1S004	9401W1S004A	0.003	U	U	0.029	0	0.029	-3.55
9207S4S039	9207S4S039A	-0.015	U	XV	0.028	0	0.028	-3.57
9210S2S034	9210S2S034A	7.5E-04	U	XV	0.026	0	0.026	-3.63
9207S1S027	9207S1S027A	-0.003	U	XV	0.026	0	0.026	-3.65
9210S1S019	9210S1S019A	-0.012	U	XV	0.025	0	0.025	-3.71
9207S1S030	9207S1S030A	-0.006	U	XV	0.024	0	0.024	-3.73
9207S1S031	9207S1S031A	-4.0E-04	U	XV	0.022	0	0.022	-3.83
9207C1S001	9207C1S001A	-0.005	U	XV	0.016	0	0.016	-4.13
9207C1S003	9207C1S003AD	-0.002	U	XV	0.015	0	0.015	-4.17

Number of Samples	328
Number of Detects	22
Minimum	0.015
Median	0.119
Maximum	1.09
Arithmetic Average	0.156
Std Dev	0.142
PERT-Beta Expected Value	0.264
LN Mean	-2.11
LN Std Dev	0.675
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.106
Statistical Summary for TCLP Chromium (7440473) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S009	9207H5S009A	0.85		XV	0.03	1	0.85	-0.163
9767D1B001	9767D1B001	0.235		=	0.01	1	0.235	-1.45
9210S2S038	9210S2S038AD	0.235		XV	0.03	1	0.235	-1.45
9401E1B002	9401E1B002B	0.233		=	0.03	1	0.233	-1.46
9401DC1S028	9401DC1S028A	0.216		XV	0.03	1	0.216	-1.53
9210RS014	9210RS014A	0.213		=	0.03	1	0.213	-1.55
9207H3S005	9207H3S005AD	0.183		XV	0.03	1	0.183	-1.7
9207D1S047	9207D1S047AD	0.181		XV	0.03	1	0.181	-1.71
9207F2S009	9207F2S009A	0.128		=	0.03	1	0.128	-2.06
9767D1B002	9767D1B002	0.124		=	0.01	1	0.124	-2.09
9207D5S057	9207D5S057A	0.12		XV	0.03	1	0.12	-2.12
9210F3S014	9210F3S014A	0.114		=	0.03	1	0.114	-2.17
9210RS002	9210RS002A	0.111		=	0.03	1	0.111	-2.2
9401R1B006	9401R1B006	0.099	J	J	0.03	1	0.099	-2.32
9210S1S017	9210S1S017A	0.078	J	XV	0.03	1	0.078	-2.55
9401W1B001	9401W1B001B	0.072	J	J	0.03	1	0.072	-2.64
9207F3S015	9207F3S015A	0.071	J	J	0.03	1	0.071	-2.65
9207F6S039	9207F6S039A	0.066	J	J	0.03	1	0.066	-2.72
9210S3S044	9210S3S044A	0.065	J	XV	0.03	1	0.065	-2.73
9767D1B006	9767D1B006	0.064		=	0.01	1	0.064	-2.76
9207W3S029	9207W3S029A	0.062	J	J	0.03	1	0.062	-2.78
9401DC1S045	9401DC1S045A	0.057	J	XV	0.03	1	0.057	-2.86
9207RS002	9207RS002A	0.037	J	J	0.03	1	0.037	-3.3
9401E1B003	9401E1B003B	0.035	J	J	0.03	1	0.035	-3.35
9207F1S001	9207F1S001A	0.033	J	J	0.03	1	0.033	-3.41
9767D1B004	9767D1B004	0.029	J	J	0.01	1	0.029	-3.53
9767D1B003	9767D1B003	0.028	J	J	0.01	1	0.028	-3.59
9767D1B005	9767D1B005	0.02	J	J	0.01	1	0.02	-3.9
9210C1S003	9210C1S003A	0.03	U	UJ	0.03	0	0.015	-4.2
9401DC1S024A	9401DC1S024AA	0.03	U	XV	0.03	0	0.015	-4.2
9401DC1S032	9401DC1S032A	0.03	U	XV	0.03	0	0.015	-4.2
9401DC1S057A	9401DC1S057AA	0.03	U	UJ	0.03	0	0.015	-4.2
9401E1B005	9401E1B005B	0.03	U	UJ	0.03	0	0.015	-4.2
9207W2S024A	9207W2S024AA	0.03	U	UJ	0.03	0	0.015	-4.2
9207F4S027	9207F4S027A	0.03	U	UJ	0.03	0	0.015	-4.2
9210F1S006	9210F1S006A	0.03	U	UJ	0.03	0	0.015	-4.2
9207W5S034	9207W5S034A	0.03	U	UJ	0.03	0	0.015	-4.2
9210W1S016	9210W1S016A	0.03	U	UJ	0.03	0	0.015	-4.2
9401W1S001	9401W1S001A	0.03	U	UJ	0.03	0	0.015	-4.2

Table G.106
Statistical Summary for TCLP Chromium (7440473) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S012	9401W1S012A	0.03	U	UJ	0.03	0	0.015	-4.2
9207RS016	9207RS016A	0.03	U	UJ	0.03	0	0.015	-4.2
9207S2S032	9207S2S032A	0.03	U	XV	0.03	0	0.015	-4.2

Number of Samples	42
Number of Detects	28
Minimum	0.015
Median	0.06
Maximum	0.85
Arithmetic Average	0.094
Std Dev	0.139
PERT-Beta Expected Value	0.184
LN Mean	-2.99
LN Std Dev	1.1
S-W p-value for normality	4.2E-10
S-W p-value for lognormality	6.5E-04

Table G.107
Statistical Summary for Chromium (7440473) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S009	9207H5S009A	1290		XV	2.08	1	1290	7.16
9207C6S017	9207C6S017AD	143		XV	0.674	1	143	4.96
9401DC1S045	9401DC1S045A	134		XV	1	1	134	4.9
9401E1B003	9401E1B003A	92.4		=	0.348	1	92.4	4.53
9207F6S039	9207F6S039A	81.9	*	XV	0.196	1	81.9	4.41
9210RS014	9210RS014A	77.7	* N	XV	0.188	1	77.7	4.35
9401R1B006	9401R1B006	75	*	J	0.191	1	75	4.32
9207H1S012	9207H1S012A	71.5		XV	0.816	1	71.5	4.27
9401DC1S057A	9401DC1S057AA	63.1		=	0.177	1	63.1	4.14
9207RS002	9207RS002AD	47.6	N	XV	0.198	1	47.6	3.86
9210D3S059	9210D3S059A	27.9		XV	0.183	1	27.9	3.33
9210H2S008	9210H2S008A	25.6		XV	0.174	1	25.6	3.24
9210D1S052	9210D1S052A	23.4		XV	0.181	1	23.4	3.15
9207C1S001	9207C1S001A	20		XV	0.047	1	20	3.0
9210S1S017	9210S1S017AD	18.8		XV	0.149	1	18.8	2.93
9401DC1S028	9401DC1S028A	18.4		XV	0.179	1	18.4	2.91
9401DC1S032	9401DC1S032A	15.3		XV	0.198	1	15.3	2.73
9210S2S038	9210S2S038AD	14.6		XV	0.119	1	14.6	2.68
9207F3S015	9207F3S015A	14.5		XV	0.195	1	14.5	2.67
9210C1S003	9210C1S003A	13.8		=	0.181	1	13.8	2.62
9401E1B005	9401E1B005A	13		=	0.185	1	13	2.56
9401W1B001	9401W1B001A	12.7		=	0.165	1	12.7	2.54
9210F3S014	9210F3S014A	12.3	* N	XV	0.186	1	12.3	2.51
9207F4S027	9207F4S027A	11.9		XV	0.195	1	11.9	2.48
9210RS002	9210RS002A	10.6	* N	XV	0.183	1	10.6	2.36
9207RS016	9207RS016A	10.4		XV	0.198	1	10.4	2.34
9401E1B002	9401E1B002A	10.3		=	0.084	1	10.3	2.33
9207W3S029	9207W3S029A	10.3	* N	XV	0.191	1	10.3	2.33
9207F2S009	9207F2S009A	10		XV	0.187	1	10	2.3
9207F1S001	9207F1S001AD	9.83	* N	J	0.182	1	9.83	2.29
9207H1S001A	9207H1S001AA	9.08	N	XV	0.977	1	9.08	2.21
9401DC1S024A	9401DC1S024AA	7.78		XV	0.2	1	7.78	2.05
9210S3S044	9210S3S044A	7.59		XV	0.165	1	7.59	2.03
9210W1S016	9210W1S016A	6.21		XV	0.198	1	6.21	1.83
9207D1S047	9207D1S047AD	5.82		XV	0.168	1	5.82	1.76
9210F1S006	9210F1S006A	4.72		XV	0.189	1	4.72	1.55
9207S4S041	9207S4S041AD	2.99		XV	0.251	1	2.99	1.1
9207W2S024A	9207W2S024AA	2.82	*	XV	0.198	1	2.82	1.04
9401W1S020	9401W1S020A	2.51		XV	0.201	1	2.51	0.92

Table G.107
Statistical Summary for Chromium (7440473) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S012	9401W1S012A	1.96	N	J	0.198	1	1.96	0.673
9401W1S001	9401W1S001A	1.92	J N	J	0.883	1	1.92	0.652
9207W5S034	9207W5S034A	1.85		XV	0.189	1	1.85	0.615
9207D5S057	9207D5S057A	1.23		XV	0.126	1	1.23	0.207
9207H3S005	9207H3S005A	0.777		XV	0.171	1	0.777	-0.252
9207H5S026	9207H5S026A	0.596		XV	0.189	1	0.596	-0.518
9207S2S032	9207S2S032A	0.405	J	XV	0.198	1	0.405	-0.904

Number of Samples	46
Number of Detects	46
Minimum	0.405
Median	12.1
Maximum	1290
Arithmetic Average	53.0
Std Dev	190
PERT-Beta Expected Value	223
LN Mean	2.5
LN Std Dev	1.57
S-W p-value for normality	5.0E-14
S-W p-value for lognormality	0.327

Table G.108
Statistical Summary for TCLP 2,4-D (94757) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401E1B002	9401E1B002B	0.019	B J	J	0.017	1	0.019	-3.97
9401E1B003	9401E1B003B	0.05	U	U	0.017	0	0.008	-4.79
9401E1B005	9401E1B005B	0.05	U	U	0.017	0	0.008	-4.79
9401W1B001	9401W1B001B	0.05	U	U	0.017	0	0.008	-4.79
9401R1B006	9401R1B006	0.05	U	U	0.017	0	0.008	-4.79

Number of Samples	5
Number of Detects	1
Minimum	0.008
Median	0.008
Maximum	0.019
Arithmetic Average	0.01
Std Dev	0.005
PERT-Beta Expected Value	0.01
LN Mean	-4.62
LN Std Dev	0.363
S-W p-value for normality	--
S-W p-value for lognormality	--

Table G.109
Statistical Summary for 2,4-D (94757) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS016	9207RS016B	2.48	U	XV	0.824	0	0.412	-0.887
9207RS002	9207RS002B	2.44	U	XV	0.809	0	0.405	-0.905
9210RS002	9210RS002B	0.199	U	XV	0.066	0	0.033	-3.41
9401W1S020	9401W1S020B	0.074	U	XV	0.025	0	0.012	-4.4
9210F3S014	9210F3S014B	0.009	B P	XV	0.002	1	0.009	-4.73
9401W1S001	9401W1S001B	0.05	U	U	0.017	0	0.008	-4.79
9401W1S012	9401W1S012B	0.05	U	U	0.017	0	0.008	-4.8
9210RS014	9210RS014BD	0.05	U	XV	0.017	0	0.008	-4.8
9401DC1S032	9401DC1S032B	0.049	U	XV	0.016	0	0.008	-4.81
9207D5S057	9207D5S057B	0.038	U	XV	0.013	0	0.006	-5.07
9401DC1S028	9401DC1S028B	0.027	U	XV	0.009	0	0.004	-5.41
9207D1S047	9207D1S047B	0.025	U	XV	0.008	0	0.004	-5.47
9207F4S027	9207F4S027B	0.025	U	XV	0.008	0	0.004	-5.49
9210W1S016	9210W1S016B	0.025	U	XV	0.008	0	0.004	-5.49
9207F6S039	9207F6S039B	0.025	U	XV	0.008	0	0.004	-5.49
9207F2S009	9207F2S009B	0.025	U	XV	0.008	0	0.004	-5.49
9210C1S003	9210C1S003BD	0.025	U	U	0.008	0	0.004	-5.5
9207W5S034	9207W5S034B	0.025	U	XV	0.008	0	0.004	-5.5
9207W2S024A	9207W2S024AB	0.025	U	XV	0.008	0	0.004	-5.51
9401DC1S024A	9401DC1S024AB	0.024	U	XV	0.008	0	0.004	-5.51
9207W3S029	9207W3S029B	0.024	U	XV	0.008	0	0.004	-5.51
9207F3S015	9207F3S015B	0.024	U	U	0.008	0	0.004	-5.54
9401DC1S055	9401DC1S055B	0.023	U J	XV	0.008	0	0.004	-5.57
9401DC1S045	9401DC1S045B	0.021	U	XV	0.007	0	0.003	-5.66
9207H3S005	9207H3S005B	0.021	U	XV	0.007	0	0.003	-5.67
9207H1S013	9207H1S013B	0.02	U	XV	0.007	0	0.003	-5.7
9207H5S009	9207H5S009B	0.018	U	XV	0.006	0	0.003	-5.8
9210H2S008	9210H2S008B	0.018	U	XV	0.006	0	0.003	-5.83
9210D3S059	9210D3S059B	0.014	U	XV	0.005	0	0.002	-6.06
9207H5S026	9207H5S026B	0.013	U	XV	0.004	0	0.002	-6.16
9210S3S044	9210S3S044B	0.01	U	XV	0.003	0	0.002	-6.38
9207S2S032	9207S2S032B	0.01	U	U	0.003	0	0.002	-6.41
9401DC1S057A	9401DC1S057AB	0.01	U	U	0.003	0	0.002	-6.42
9210D1S052	9210D1S052B	0.009	U	XV	0.003	0	0.002	-6.46
9210F1S006	9210F1S006B	0.005	U	XV	0.002	0	8.3E-04	-7.09
9207F1S001	9207F1S001B	0.005	U	U	0.002	0	8.3E-04	-7.1
9207C1S001	9207C1S001B	0.004	U	XV	0.001	0	6.7E-04	-7.31
9207S4S041	9207S4S041B	0.002	U	XV	7.6E-04	0	3.8E-04	-7.87
9207C6S017	9207C6S017BD	0.002	U	XV	7.0E-04	0	3.5E-04	-7.96

Table G.109
Statistical Summary for 2,4-D (94757) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		39						
Number of Detects		1						
Minimum		3.5E-04						
Median		0.004						
Maximum		0.412						
Arithmetic Average		0.025						
Std Dev		0.09						
PERT-Beta Expected Value		0.071						
LN Mean		-5.49						
LN Std Dev		1.41						
S-W p-value for normality		1.0E-12						
S-W p-value for lognormality		2.9E-05						

Table G.110
Statistical Summary for 4,4'-DDD (72548) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002	9207RS002B	0.397	U	XV	0.099	0	0.05	-3.0
9207RS016	9207RS016B	0.397	U	XV	0.099	0	0.05	-3.0
9401DC1S055	9401DC1S055B	0.372	U J	XV	0.093	0	0.046	-3.07
9210D1S052	9210D1S052B	0.014		XV	0.002	1	0.014	-4.27
9401W1S020	9401W1S020B	0.101	U	XV	0.025	0	0.013	-4.37
9210RS002	9210RS002B	0.098	U	XV	0.025	0	0.012	-4.4
9210RS014	9210RS014BD	0.097	U	XV	0.024	0	0.012	-4.41
9401W1S001	9401W1S001B	0.08	U	U	0.02	0	0.01	-4.61
9401W1S012	9401W1S012B	0.076	U	U	0.019	0	0.01	-4.66
9401DC1S028	9401DC1S028B	0.043	U	XV	0.011	0	0.005	-5.22
9401DC1S024A	9401DC1S024AB	0.04	U	XV	0.01	0	0.005	-5.3
9210F3S014	9210F3S014B	0.039	U	XV	0.01	0	0.005	-5.31
9401DC1S032	9401DC1S032B	0.039	U	XV	0.01	0	0.005	-5.32
9401DC1S045	9401DC1S045B	0.034	U	XV	0.009	0	0.004	-5.46
9401DC1S057A	9401DC1S057AB	0.016	U	U	0.004	0	0.002	-6.21
9207D5S057	9207D5S057B	0.01	U	XV	0.002	0	0.001	-6.71
9210C1S003	9210C1S003BD	0.004	U	U	0.001	0	5.0E-04	-7.6
9207F4S027	9207F4S027B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.6
9207F2S009	9207F2S009B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.61
9207W5S034	9207W5S034B	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207W3S029	9207W3S029BD	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207F6S039	9207F6S039B	0.004	U	XV	9.9E-04	0	4.9E-04	-7.61
9207F1S001	9207F1S001BD	0.004	U	U	9.9E-04	0	4.9E-04	-7.61
9207F3S015	9207F3S015B	0.004	U	U	9.8E-04	0	4.9E-04	-7.62
9210W1S016	9210W1S016B	0.004	U	XV	9.8E-04	0	4.9E-04	-7.62
9207W2S024A	9207W2S024ABD	0.004	U	XV	9.8E-04	0	4.9E-04	-7.63
9210F1S006	9210F1S006B	0.004	U	XV	9.7E-04	0	4.8E-04	-7.63
9207D1S047	9207D1S047B	0.004	U	XV	9.5E-04	0	4.8E-04	-7.65
9207H3S005	9207H3S005BD	0.003	U	XV	8.7E-04	0	4.3E-04	-7.74
9207C1S001	9207C1S001B	0.003	U	XV	8.2E-04	0	4.1E-04	-7.8
9210H2S008	9210H2S008BD	0.003	U	XV	7.1E-04	0	3.5E-04	-7.95
9210D3S059	9210D3S059B	0.002	U	XV	5.7E-04	0	2.9E-04	-8.16
9207H5S026	9207H5S026B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9210S3S044	9210S3S044B	0.002	U	XV	3.9E-04	0	2.0E-04	-8.54
9207H5S009	9207H5S009B	0.001	U	XV	3.7E-04	0	1.8E-04	-8.61
9207S2S032	9207S2S032B	7.3E-04	U	U	1.8E-04	0	9.1E-05	-9.3
9207H1S013	9207H1S013B	3.6E-04	U	XV	9.1E-05	0	4.5E-05	-10.0
9207S4S041	9207S4S041B	3.6E-04	U	XV	9.0E-05	0	4.5E-05	-10.0

Table G.110
Statistical Summary for 4,4'-DDD (72548) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		1						
Minimum		4.5E-05						
Median		5.0E-04						
Maximum		0.05						
Arithmetic Average		0.007						
Std Dev		0.013						
PERT-Beta Expected Value		0.009						
LN Mean		-6.66						
LN Std Dev		1.91						
S-W p-value for normality		7.2E-10						
S-W p-value for lognormality		0.008						

Table G.111
Statistical Summary for 4,4'-DDE (72559) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002	9207RS002B	0.397	U	XV	0.099	0	0.05	-3.0
9207RS016	9207RS016B	0.397	U	XV	0.099	0	0.05	-3.0
9210D1S052	9210D1S052B	0.049		XV	0.002	1	0.049	-3.02
9401DC1S055	9401DC1S055B	0.372	U J	XV	0.093	0	0.046	-3.07
9210C1S003	9210C1S003B	0.015	J	J	0.005	1	0.015	-4.22
9401W1S020	9401W1S020B	0.101	U	XV	0.025	0	0.013	-4.37
9210RS002	9210RS002B	0.098	U	XV	0.025	0	0.012	-4.4
9210RS014	9210RS014BD	0.097	U	XV	0.024	0	0.012	-4.41
9207F2S009	9207F2S009B	0.011		XV	1.0E-03	1	0.011	-4.52
9401W1S001	9401W1S001B	0.08	U	U	0.02	0	0.01	-4.61
9401W1S012	9401W1S012B	0.076	U	U	0.019	0	0.01	-4.66
9207H3S005	9207H3S005BD	0.007		XV	8.7E-04	1	0.007	-4.95
9401DC1S028	9401DC1S028B	0.043	U	XV	0.011	0	0.005	-5.22
9401DC1S024A	9401DC1S024AB	0.04	U	XV	0.01	0	0.005	-5.3
9210F3S014	9210F3S014B	0.039	U	XV	0.01	0	0.005	-5.31
9401DC1S032	9401DC1S032B	0.039	U	XV	0.01	0	0.005	-5.32
9401DC1S045	9401DC1S045B	0.034	U	XV	0.009	0	0.004	-5.46
9401DC1S057A	9401DC1S057AB	0.016	U	U	0.004	0	0.002	-6.21
9210W1S016	9210W1S016B	0.002	J	XV	9.8E-04	1	0.002	-6.48
9207D1S047	9207D1S047BD	0.001	J	XV	0.001	1	0.001	-6.52
9207H1S013	9207H1S013B	0.001		XV	9.1E-05	1	0.001	-6.66
9207D5S057	9207D5S057B	0.01	U	XV	0.002	0	0.001	-6.71
9207F4S027	9207F4S027B	0.001	J	XV	1.0E-03	1	0.001	-6.76
9207S4S041	9207S4S041B	0.001		XV	9.0E-05	1	0.001	-6.87
9207W5S034	9207W5S034B	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207W3S029	9207W3S029BD	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207F6S039	9207F6S039B	0.004	U	XV	9.9E-04	0	4.9E-04	-7.61
9207F1S001	9207F1S001BD	0.004	U	U	9.9E-04	0	4.9E-04	-7.61
9207F3S015	9207F3S015B	0.004	U	U	9.8E-04	0	4.9E-04	-7.62
9207W2S024A	9207W2S024ABD	0.004	U	XV	9.8E-04	0	4.9E-04	-7.63
9210F1S006	9210F1S006B	0.004	U	XV	9.7E-04	0	4.8E-04	-7.63
9207C1S001	9207C1S001B	0.003	U	XV	8.2E-04	0	4.1E-04	-7.8
9210H2S008	9210H2S008BD	0.003	U	XV	7.1E-04	0	3.5E-04	-7.95
9210D3S059	9210D3S059B	0.002	U	XV	5.7E-04	0	2.9E-04	-8.16
9207H5S026	9207H5S026B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9210S3S044	9210S3S044B	0.002	U	XV	3.9E-04	0	2.0E-04	-8.54
9207H5S009	9207H5S009B	0.001	U	XV	3.7E-04	0	1.8E-04	-8.61
9207S2S032	9207S2S032B	7.3E-04	U	U	1.8E-04	0	9.1E-05	-9.3

Table G.111
Statistical Summary for 4,4'-DDE (72559) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		9						
Minimum		9.1E-05						
Median		0.002						
Maximum		0.05						
Arithmetic Average		0.008						
Std Dev		0.015						
PERT-Beta Expected Value		0.009						
LN Mean		-6.13						
LN Std Dev		1.78						
S-W p-value for normality		3.7E-09						
S-W p-value for lognormality		0.054						

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W2S025	9207W2S025B	22.4		XV	1.49	1	22.4	3.11
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9210D3S058	9210D3S058B	7.67		XV	0.199	1	7.67	2.04
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9207S6S044	9207S6S044B	3.29		XV	0.901	1	3.29	1.19
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210F3S014	9210F3S014B	1.69		XV	0.296	1	1.69	0.525
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	U	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	U	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	U	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	U	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	U	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	U	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9207C3S010	9207C3S010B	1.25		XV	0.3	1	1.25	0.223
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	U	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9207H1S001A	9207H1S001AB	1.09	J	XV	0.579	1	1.09	0.086
9207F4S025	9207F4S025B	1.06		XV	0.298	1	1.06	0.058
9207C2S006	9207C2S006B	1.05		XV	0.298	1	1.05	0.049
9210F2S009	9210F2S009B	1.02		XV	0.3	1	1.02	0.02
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9210F2S007	9210F2S007B	0.866	J	XV	0.299	1	0.866	-0.144
9210S1S022	9210S1S022B	0.864		=	0.067	1	0.864	-0.146
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9207F5S032	9207F5S032BD	0.771	J	J	0.286	1	0.771	-0.26
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	U	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	U	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9207F2S008	9207F2S008B	0.672	J	J	0.299	1	0.672	-0.397
9207F4S029	9207F4S029B	0.597	J	XV	0.285	1	0.597	-0.516

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S011	9210F2S011B	0.583	J	XV	0.298	1	0.583	-0.54
9210D1S053	9210D1S053B	0.569		XV	0.112	1	0.569	-0.564
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9207D4S054	9207D4S054B	0.51	J	XV	0.176	1	0.51	-0.673
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207H2S015	9207H2S015B	0.483		XV	0.109	1	0.483	-0.728
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9210D1S050	9210D1S050B	0.375	J	J	0.254	1	0.375	-0.981
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210F1S005	9210F1S005B	0.363		XV	0.099	1	0.363	-1.01
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9210D1S048	9210D1S048B	0.318	J	XV	0.222	1	0.318	-1.15
9210D1S052	9210D1S052B	0.261	J	XV	0.115	1	0.261	-1.34
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9210F1S003	9210F1S003B	0.223	J	XV	0.1	1	0.223	-1.5
9210S2S028	9210S2S028B	0.212		XV	0.014	1	0.212	-1.55
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9207D5S059	9207D5S059B	0.196	J	XV	0.152	1	0.196	-1.63
9207S4S028	9207S4S028B	0.183	J	XV	0.074	1	0.183	-1.7
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	U	0.3	0	0.15	-1.9

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	U	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	U	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	U	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	U	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	U	0.299	0	0.15	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	U	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	U	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	U	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	U	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	U	0.229	0	0.115	-2.17
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210S2S026	9210S2S026B	0.109		XV	0.022	1	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9207C1S001	9207C1S001B	0.095	J	XV	0.037	1	0.095	-2.36
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207C4S011	9207C4S011B	0.088	J	XV	0.027	1	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9207C5S016	9207C5S016B	0.034	J	XV	0.033	1	0.034	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9207C6S017	9207C6S017B	0.028	J	XV	0.018	1	0.028	-3.59
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9

Table G.112
Statistical Summary for Di-n-butyl phthalate (84742) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	31
Minimum	0.003
Median	0.149
Maximum	22.4
Arithmetic Average	0.625
Std Dev	1.73
PERT-Beta Expected Value	3.83
LN Mean	-1.58
LN Std Dev	1.43
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	U	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	U	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	U	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	U	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	U	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	U	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	U	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	U	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	U	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S022	9210S1S022B	0.215	J	J	0.067	1	0.215	-1.54
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	U	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	U	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	U	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	U	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	U	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	U	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	U	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	U	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	U	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	U	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	U	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	U	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9401DC1S051	9401DC1S051B	0.104	J	XV	0.099	1	0.104	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09

Table G.113
Statistical Summary for Diethyl phthalate (84662) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	2
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.473
Std Dev	1.08
PERT-Beta Expected Value	2.55
LN Mean	-1.78
LN Std Dev	1.41
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	U	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	U	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	U	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	U	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	U	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	U	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	U	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	U	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	U	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9207F4S028	9207F4S028B	0.569	J	XV	0.287	1	0.569	-0.564
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207W2S023	9207W2S023B	0.432	J	XV	0.288	1	0.432	-0.839
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	U	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	U	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	U	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	U	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	U	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	U	0.299	0	0.15	-1.9

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	U	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	U	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	U	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	U	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	U	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	U	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S036	9210S2S036B	0.031	J	XV	0.015	1	0.031	-3.49
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08

Table G.114
Statistical Summary for Dimethyl phthalate (131113) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	3
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.475
Std Dev	1.08
PERT-Beta Expected Value	2.55
LN Mean	-1.77
LN Std Dev	1.41
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.115
Statistical Summary for Endosulfan sulfate (1031078) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002	9207RS002B	0.397	U	XV	0.099	0	0.05	-3.0
9207RS016	9207RS016B	0.397	U	XV	0.099	0	0.05	-3.0
9401DC1S055	9401DC1S055B	0.372	U J	XV	0.093	0	0.046	-3.07
9401W1S020	9401W1S020B	0.101	U	XV	0.025	0	0.013	-4.37
9210RS002	9210RS002B	0.098	U	XV	0.025	0	0.012	-4.4
9210RS014	9210RS014BD	0.097	U	XV	0.024	0	0.012	-4.41
9401W1S001	9401W1S001B	0.08	U	U	0.02	0	0.01	-4.61
9401W1S012	9401W1S012B	0.076	U	U	0.019	0	0.01	-4.66
9401DC1S028	9401DC1S028B	0.043	U	XV	0.011	0	0.005	-5.22
9401DC1S024A	9401DC1S024AB	0.04	U	XV	0.01	0	0.005	-5.3
9210F3S014	9210F3S014B	0.039	U	XV	0.01	0	0.005	-5.31
9207H3S005	9207H3S005BD	0.005		XV	8.7E-04	1	0.005	-5.31
9401DC1S032	9401DC1S032B	0.039	U	XV	0.01	0	0.005	-5.32
9401DC1S045	9401DC1S045B	0.034	U	XV	0.009	0	0.004	-5.46
9207D1S047	9207D1S047BD	0.003	J	XV	0.001	1	0.003	-5.93
9401DC1S057A	9401DC1S057AB	0.016	U	U	0.004	0	0.002	-6.21
9207D5S057	9207D5S057B	0.01	U	XV	0.002	0	0.001	-6.71
9210D1S052	9210D1S052B	0.008	U	XV	0.002	0	9.6E-04	-6.95
9210C1S003	9210C1S003BD	0.004	U	U	0.001	0	5.0E-04	-7.6
9207F4S027	9207F4S027B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.6
9207F2S009	9207F2S009B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.61
9207W5S034	9207W5S034B	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207W3S029	9207W3S029BD	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207F6S039	9207F6S039B	0.004	U	XV	9.9E-04	0	4.9E-04	-7.61
9207F1S001	9207F1S001BD	0.004	U	U	9.9E-04	0	4.9E-04	-7.61
9207F3S015	9207F3S015B	0.004	U	U	9.8E-04	0	4.9E-04	-7.62
9210W1S016	9210W1S016B	0.004	U	XV	9.8E-04	0	4.9E-04	-7.62
9207W2S024A	9207W2S024ABD	0.004	U	XV	9.8E-04	0	4.9E-04	-7.63
9210F1S006	9210F1S006B	0.004	U	XV	9.7E-04	0	4.8E-04	-7.63
9207C1S001	9207C1S001B	0.003	U	XV	8.2E-04	0	4.1E-04	-7.8
9210H2S008	9210H2S008BD	0.003	U	XV	7.1E-04	0	3.5E-04	-7.95
9210D3S059	9210D3S059B	0.002	U	XV	5.7E-04	0	2.9E-04	-8.16
9207H5S026	9207H5S026B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9210S3S044	9210S3S044B	0.002	U	XV	3.9E-04	0	2.0E-04	-8.54
9207H5S009	9207H5S009B	0.001	U	XV	3.7E-04	0	1.8E-04	-8.61
9207S2S032	9207S2S032B	7.3E-04	U	U	1.8E-04	0	9.1E-05	-9.3
9207H1S013	9207H1S013B	3.6E-04	U	XV	9.1E-05	0	4.5E-05	-10.0
9207S4S041	9207S4S041B	3.6E-04	U	XV	9.0E-05	0	4.5E-05	-10.0

Table G.115
Statistical Summary for Endosulfan sulfate (1031078) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		2						
Minimum		4.5E-05						
Median		5.0E-04						
Maximum		0.05						
Arithmetic Average		0.006						
Std Dev		0.013						
PERT-Beta Expected Value		0.009						
LN Mean		-6.62						
LN Std Dev		1.87						
S-W p-value for normality		4.6E-10						
S-W p-value for lognormality		0.039						

Table G.116
Statistical Summary for Endrin aldehyde (7421934) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002	9207RS002B	0.397	U	XV	0.099	0	0.05	-3.0
9207RS016	9207RS016B	0.397	U	XV	0.099	0	0.05	-3.0
9401DC1S055	9401DC1S055B	0.372	U J	XV	0.093	0	0.046	-3.07
9401W1S020	9401W1S020B	0.101	U	XV	0.025	0	0.013	-4.37
9210RS002	9210RS002B	0.098	U	XV	0.025	0	0.012	-4.4
9210RS014	9210RS014BD	0.097	U	XV	0.024	0	0.012	-4.41
9401W1S001	9401W1S001B	0.08	U	U	0.02	0	0.01	-4.61
9401W1S012	9401W1S012B	0.076	U	U	0.019	0	0.01	-4.66
9401DC1S028	9401DC1S028B	0.043	U	XV	0.011	0	0.005	-5.22
9401DC1S024A	9401DC1S024AB	0.04	U	XV	0.01	0	0.005	-5.3
9210F3S014	9210F3S014B	0.039	U	XV	0.01	0	0.005	-5.31
9401DC1S032	9401DC1S032B	0.039	U	XV	0.01	0	0.005	-5.32
9401DC1S045	9401DC1S045B	0.034	U	XV	0.009	0	0.004	-5.46
9401DC1S057A	9401DC1S057AB	0.016	U	U	0.004	0	0.002	-6.21
9207D5S057	9207D5S057B	0.01	U	XV	0.002	0	0.001	-6.71
9210D3S059	9210D3S059B	0.001	J	XV	5.7E-04	1	0.001	-6.88
9210D1S052	9210D1S052B	0.008	U	XV	0.002	0	9.6E-04	-6.95
9210C1S003	9210C1S003BD	0.004	U	U	0.001	0	5.0E-04	-7.6
9207F4S027	9207F4S027B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.6
9207F2S009	9207F2S009B	0.004	U	XV	1.0E-03	0	5.0E-04	-7.61
9207W5S034	9207W5S034B	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207W3S029	9207W3S029BD	0.004	U	XV	9.9E-04	0	5.0E-04	-7.61
9207F6S039	9207F6S039B	0.004	U	XV	9.9E-04	0	4.9E-04	-7.61
9207F1S001	9207F1S001BD	0.004	U	U	9.9E-04	0	4.9E-04	-7.61
9207F3S015	9207F3S015B	0.004	U	U	9.8E-04	0	4.9E-04	-7.62
9210W1S016	9210W1S016B	0.004	U	XV	9.8E-04	0	4.9E-04	-7.62
9207W2S024A	9207W2S024ABD	0.004	U	XV	9.8E-04	0	4.9E-04	-7.63
9210F1S006	9210F1S006B	0.004	U	XV	9.7E-04	0	4.8E-04	-7.63
9207D1S047	9207D1S047B	0.004	U	XV	9.5E-04	0	4.8E-04	-7.65
9207H3S005	9207H3S005BD	0.003	U	XV	8.7E-04	0	4.3E-04	-7.74
9207C1S001	9207C1S001B	0.003	U	XV	8.2E-04	0	4.1E-04	-7.8
9210H2S008	9210H2S008BD	0.003	U	XV	7.1E-04	0	3.5E-04	-7.95
9207H5S026	9207H5S026B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9210S3S044	9210S3S044B	0.002	U	XV	3.9E-04	0	2.0E-04	-8.54
9207H5S009	9207H5S009B	0.001	U	XV	3.7E-04	0	1.8E-04	-8.61
9207S2S032	9207S2S032B	7.3E-04	U	U	1.8E-04	0	9.1E-05	-9.3
9207H1S013	9207H1S013B	3.6E-04	U	XV	9.1E-05	0	4.5E-05	-10.0
9207S4S041	9207S4S041B	3.6E-04	U	XV	9.0E-05	0	4.5E-05	-10.0

Table G.116
Statistical Summary for Endrin aldehyde (7421934) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		1						
Minimum		4.5E-05						
Median		5.0E-04						
Maximum		0.05						
Arithmetic Average		0.006						
Std Dev		0.013						
PERT-Beta Expected Value		0.009						
LN Mean		-6.7						
LN Std Dev		1.85						
S-W p-value for normality		3.6E-10						
S-W p-value for lognormality		0.013						

Table G.117
Statistical Summary for Heptachlor epoxide (1024573) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS016	9207RS016B	0.199	U	XV	0.05	0	0.025	-3.69
9207RS002	9207RS002B	0.199	U	XV	0.05	0	0.025	-3.7
9401DC1S055	9401DC1S055B	0.186	U J	XV	0.047	0	0.023	-3.76
9401W1S020	9401W1S020B	0.05	U	XV	0.013	0	0.006	-5.07
9210RS002	9210RS002B	0.049	U	XV	0.012	0	0.006	-5.09
9210RS014	9210RS014BD	0.048	U	XV	0.012	0	0.006	-5.11
9401W1S001	9401W1S001B	0.04	U	U	0.01	0	0.005	-5.3
9401W1S012	9401W1S012B	0.038	U	U	0.01	0	0.005	-5.35
9401DC1S028	9401DC1S028B	0.022	U	XV	0.005	0	0.003	-5.92
9401DC1S024A	9401DC1S024AB	0.02	U	XV	0.005	0	0.002	-6.0
9210F3S014	9210F3S014B	0.02	U	XV	0.005	0	0.002	-6.01
9401DC1S032	9401DC1S032B	0.02	U	XV	0.005	0	0.002	-6.02
9401DC1S045	9401DC1S045B	0.017	U	XV	0.004	0	0.002	-6.15
9401DC1S057A	9401DC1S057AB	0.008	U	U	0.002	0	0.001	-6.91
9207D5S057	9207D5S057B	0.005	U	XV	0.001	0	6.1E-04	-7.41
9210D1S052	9210D1S052B	0.004	U	XV	9.5E-04	0	4.8E-04	-7.65
9210C1S003	9210C1S003BD	0.002	U	U	5.0E-04	0	2.5E-04	-8.29
9207F4S027	9207F4S027B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F2S009	9207F2S009B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207W3S029	9207W3S029BD	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207W5S034	9207W5S034B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F6S039	9207F6S039B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F1S001	9207F1S001BD	0.002	U	U	4.9E-04	0	2.5E-04	-8.31
9207F3S015	9207F3S015B	0.002	U	U	4.9E-04	0	2.5E-04	-8.31
9210W1S016	9210W1S016B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9207W2S024A	9207W2S024ABD	0.002	U	XV	4.9E-04	0	2.4E-04	-8.32
9210F1S006	9210F1S006B	0.002	U	XV	4.8E-04	0	2.4E-04	-8.33
9207D1S047	9207D1S047B	0.002	U	XV	4.8E-04	0	2.4E-04	-8.34
9207H3S005	9207H3S005BD	0.002	U	XV	4.3E-04	0	2.2E-04	-8.44
9207C1S001	9207C1S001B	0.002	U	XV	4.1E-04	0	2.1E-04	-8.49
9210H2S008	9210H2S008BD	0.001	U	XV	3.5E-04	0	1.8E-04	-8.64
9210D3S059	9210D3S059B	0.001	U	XV	2.9E-04	0	1.4E-04	-8.86
9207H5S026	9207H5S026B	9.9E-04	U	XV	2.5E-04	0	1.2E-04	-9.0
9210S3S044	9210S3S044B	7.8E-04	U	XV	2.0E-04	0	9.8E-05	-9.24
9207H5S009	9207H5S009B	7.3E-04	U	XV	1.8E-04	0	9.2E-05	-9.3
9207H1S013	9207H1S013B	7.9E-05	J	XV	4.5E-05	1	7.9E-05	-9.44
9207S2S032	9207S2S032B	3.6E-04	U	U	9.1E-05	0	4.6E-05	-10.0
9207S4S041	9207S4S041B	1.8E-04	U	XV	4.5E-05	0	2.3E-05	-10.7

Table G.117
Statistical Summary for Heptachlor epoxide (1024573) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		1						
Minimum		2.3E-05						
Median		2.5E-04						
Maximum		0.025						
Arithmetic Average		0.003						
Std Dev		0.007						
PERT-Beta Expected Value		0.004						
LN Mean		-7.39						
LN Std Dev		1.82						
S-W p-value for normality		3.5E-10						
S-W p-value for lognormality		0.005						

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9207F6S040	9207F6S040B	3.54	J	XV	2.99	1	3.54	1.26
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9207F1S005	9207F1S005B	1.73		XV	0.298	1	1.73	0.548
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	U	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	UJ	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	UJ	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	UJ	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9207F2S010	9207F2S010B	1.21		=	0.299	1	1.21	0.191
9207F6S037	9207F6S037B	1.21		XV	0.288	1	1.21	0.191
9401DC1S057A	9401DC1S057AB	8.02	U	UJ	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9207F6S042	9207F6S042B	1.06		XV	0.298	1	1.06	0.058
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207F1S002	9207F1S002B	0.84	J	XV	0.3	1	0.84	-0.174
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	U	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	U	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9207F1S006	9207F1S006B	0.672	J	XV	0.3	1	0.672	-0.397
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9207F5S034	9207F5S034B	0.35	J	XV	0.298	1	0.35	-1.05
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	UJ	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	U	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	U	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	UJ	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F2S008	9207F2S008B	0.996	U	U	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	U	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	UJ	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	U	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	U	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	UJ	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	UJ	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	UJ	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	U	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09

Table G.118
Statistical Summary for Isophorone (78591) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	U	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	8
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.5
Std Dev	1.1
PERT-Beta Expected Value	2.55
LN Mean	-1.74
LN Std Dev	1.44
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.119
Statistical Summary for TCLP Lead (7439921) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S009	9207H5S009A	5.97		XV	0.005	1	5.97	1.79
9207H3S005	9207H3S005A	3.91		XV	0.005	1	3.91	1.36
9767D1B003	9767D1B003	3.18		=	0.033	1	3.18	1.16
9767D1B004	9767D1B004	1.92		=	0.033	1	1.92	0.652
9207W3S029	9207W3S029A	0.739		=	0.005	1	0.739	-0.302
9210S1S017	9210S1S017AD	0.41		XV	0.005	1	0.41	-0.892
9207W5S034	9207W5S034A	0.407		=	0.005	1	0.407	-0.899
9207RS002	9207RS002A	0.371		=	0.005	1	0.371	-0.992
9401DC1S045	9401DC1S045A	0.362		XV	0.005	1	0.362	-1.02
9767D1B002	9767D1B002	0.339		=	0.033	1	0.339	-1.08
9401DC1S028	9401DC1S028A	0.312		XV	0.005	1	0.312	-1.16
9207D1S047	9207D1S047AD	0.254		XV	0.005	1	0.254	-1.37
9767D1B006	9767D1B006	0.195		=	0.033	1	0.195	-1.63
9207RS016	9207RS016A	0.172		=	0.005	1	0.172	-1.76
9401E1B005	9401E1B005B	0.132		=	0.005	1	0.132	-2.02
9401R1B006	9401R1B006	0.11		=	0.005	1	0.11	-2.21
9210RS014	9210RS014A	0.104		=	0.005	1	0.104	-2.26
9207W2S024A	9207W2S024AA	0.101		=	0.005	1	0.101	-2.29
9767D1B001	9767D1B001	0.097	J	J	0.033	1	0.097	-2.34
9401E1B002	9401E1B002B	0.078		=	0.005	1	0.078	-2.55
9210RS002	9210RS002A	0.078		=	0.005	1	0.078	-2.55
9210S2S038	9210S2S038AD	0.024		XV	0.005	1	0.024	-3.72
9401W1S001	9401W1S001A	0.022		=	0.005	1	0.022	-3.82
9401DC1S057A	9401DC1S057AA	0.019	J	J	0.005	1	0.019	-3.98
9207S2S032	9207S2S032A	0.017	J	XV	0.005	1	0.017	-4.07
9767D1B005	9767D1B005	0.033	U	UJ	0.033	0	0.017	-4.1
9207D5S057	9207D5S057A	0.007	J	XV	0.005	1	0.007	-4.96
9210C1S003	9210C1S003A	0.005	U	UJ	0.005	0	0.003	-5.99
9401DC1S024A	9401DC1S024AA	0.005	U	XV	0.005	0	0.003	-5.99
9401DC1S032	9401DC1S032A	0.005	U	XV	0.005	0	0.003	-5.99
9401E1B003	9401E1B003B	0.005	U	UJ	0.005	0	0.003	-5.99
9207F1S001	9207F1S001A	0.005	U	UJ	0.005	0	0.003	-5.99
9207F2S009	9207F2S009A	0.005	U	UJ	0.005	0	0.003	-5.99
9207F3S015	9207F3S015A	0.005	U	UJ	0.005	0	0.003	-5.99
9207F4S027	9207F4S027A	0.005	U	UJ	0.005	0	0.003	-5.99
9207F6S039	9207F6S039A	0.005	U	UJ	0.005	0	0.003	-5.99
9210F1S006	9210F1S006A	0.005	U	UJ	0.005	0	0.003	-5.99
9210F3S014	9210F3S014A	0.005	U	UJ	0.005	0	0.003	-5.99
9210W1S016	9210W1S016A	0.005	U	UJ	0.005	0	0.003	-5.99

Table G.119
Statistical Summary for TCLP Lead (7439921) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B001	9401W1B001B	0.005	U	UJ	0.005	0	0.003	-5.99
9401W1S012	9401W1S012A	0.005	U	UJ	0.005	0	0.003	-5.99
9210S3S044	9210S3S044A	0.005	U	XV	0.005	0	0.003	-5.99

Number of Samples	42
Number of Detects	26
Minimum	0.003
Median	0.051
Maximum	5.97
Arithmetic Average	0.462
Std Dev	1.18
PERT-Beta Expected Value	1.03
LN Mean	-3.26
LN Std Dev	2.48
S-W p-value for normality	1.6E-11
S-W p-value for lognormality	3.5E-04

Table G.120
Statistical Summary for Lead (7439921) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C1S001	9207C1S001A	2210		XV	23.4	1	2210	7.7
9207C6S017	9207C6S017AD	1280		XV	8.42	1	1280	7.15
9207H1S012	9207H1S012A	1010		XV	20.4	1	1010	6.92
9401DC1S045	9401DC1S045A	319		XV	0.5	1	319	5.77
9210D1S052	9210D1S052AD	294	* N	XV	0.081	1	294	5.68
9210D3S059	9210D3S059A	288		XV	0.092	1	288	5.66
9207H5S009	9207H5S009A	252		XV	0.104	1	252	5.53
9210S1S017	9210S1S017AD	217		XV	0.074	1	217	5.38
9207H3S005	9207H3S005A	161		XV	0.086	1	161	5.08
9401DC1S028	9401DC1S028A	117		XV	0.09	1	117	4.76
9207RS016	9207RS016A	112	* N	XV	0.099	1	112	4.72
9401R1B006	9401R1B006	107	*	J	0.096	1	107	4.67
9207RS002	9207RS002AD	80.2		XV	0.099	1	80.2	4.38
9207W3S029	9207W3S029A	71.6	*	XV	0.095	1	71.6	4.27
9207H1S001A	9207H1S001AA	59.9	E	XV	0.488	1	59.9	4.09
9210C1S003	9210C1S003A	39.4		=	0.091	1	39.4	3.67
9210RS014	9210RS014A	35.3	E	XV	0.094	1	35.3	3.56
9210RS002	9210RS002A	25.7	E	XV	0.092	1	25.7	3.25
9207W5S034	9207W5S034A	19.4		XV	0.095	1	19.4	2.97
9401E1B005	9401E1B005A	17.3	*	=	0.093	1	17.3	2.85
9401W1S020	9401W1S020A	17		XV	0.101	1	17	2.83
9207F2S009	9207F2S009A	12.3	* N	XV	0.093	1	12.3	2.51
9401DC1S057A	9401DC1S057AA	11.3	N	J	0.088	1	11.3	2.42
9207W2S024A	9207W2S024AA	10	* N	XV	0.099	1	10	2.3
9210H2S008	9210H2S008A	8.22		XV	0.087	1	8.22	2.11
9207F3S015	9207F3S015A	7.31		XV	0.097	1	7.31	1.99
9207F6S039	9207F6S039A	6.99	* N	XV	0.098	1	6.99	1.94
9207F1S001	9207F1S001AD	6.87	* N	J	0.091	1	6.87	1.93
9207D1S047	9207D1S047A	5.78		XV	0.087	1	5.78	1.75
9210S2S038	9210S2S038A	5.68		XV	0.11	1	5.68	1.74
9207F4S027	9207F4S027A	5.12		XV	0.486	1	5.12	1.63
9401E1B002	9401E1B002A	4.66	N	J	0.042	1	4.66	1.54
9401DC1S024A	9401DC1S024AA	3.75		XV	0.1	1	3.75	1.32
9401DC1S032	9401DC1S032A	3.73		XV	0.099	1	3.73	1.32
9401E1B003	9401E1B003A	3.69	*	=	0.174	1	3.69	1.31
9210W1S016	9210W1S016A	3.37		XV	0.099	1	3.37	1.21
9210F3S014	9210F3S014A	2.06	*	XV	0.095	1	2.06	0.723
9401W1S012	9401W1S012A	1.8		=	0.099	1	1.8	0.588
9401W1S001	9401W1S001A	1.6	J	J	0.442	1	1.6	0.47

Table G.120
Statistical Summary for Lead (7439921) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F1S006	9210F1S006A	1.32		XV	0.095	1	1.32	0.278
9401W1B001	9401W1B001A	0.67		=	0.083	1	0.67	-0.4
9207S4S041	9207S4S041A	0.561		XV	0.098	1	0.561	-0.578
9210S3S044	9210S3S044A	0.543		XV	0.082	1	0.543	-0.611
9207S2S032	9207S2S032A	0.222	J	XV	0.099	1	0.222	-1.51
9207D5S057	9207D5S057A	0.188	J	XV	0.063	1	0.188	-1.67
9207H5S026	9207H5S026AD	0.06	J	XV	0.053	1	0.06	-2.81

Number of Samples	46
Number of Detects	46
Minimum	0.06
Median	10.7
Maximum	2210
Arithmetic Average	149
Std Dev	394
PERT-Beta Expected Value	375
LN Mean	2.66
LN Std Dev	2.42
S-W p-value for normality	2.7E-12
S-W p-value for lognormality	0.894

Table G.121
Statistical Summary for Lindane (58899) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS016	9207RS016B	0.199	U	XV	0.05	0	0.025	-3.69
9207RS002	9207RS002B	0.199	U	XV	0.05	0	0.025	-3.7
9401DC1S055	9401DC1S055B	0.186	U J	XV	0.047	0	0.023	-3.76
9401W1S020	9401W1S020B	0.05	U	XV	0.013	0	0.006	-5.07
9210RS002	9210RS002B	0.049	U	XV	0.012	0	0.006	-5.09
9210RS014	9210RS014BD	0.048	U	XV	0.012	0	0.006	-5.11
9401W1S001	9401W1S001B	0.04	U	U	0.01	0	0.005	-5.3
9401W1S012	9401W1S012B	0.038	U	U	0.01	0	0.005	-5.35
9401DC1S028	9401DC1S028B	0.022	U	XV	0.005	0	0.003	-5.92
9401DC1S024A	9401DC1S024AB	0.02	U	XV	0.005	0	0.002	-6.0
9210F3S014	9210F3S014B	0.02	U	XV	0.005	0	0.002	-6.01
9401DC1S032	9401DC1S032B	0.02	U	XV	0.005	0	0.002	-6.02
9210D1S052	9210D1S052B	0.002	J	XV	9.5E-04	1	0.002	-6.08
9401DC1S045	9401DC1S045B	0.017	U	XV	0.004	0	0.002	-6.15
9401DC1S057A	9401DC1S057AB	0.008	U	U	0.002	0	0.001	-6.91
9207S4S041	9207S4S041B	7.1E-04		XV	4.5E-05	1	7.1E-04	-7.24
9207D5S057	9207D5S057B	0.005	U	XV	0.001	0	6.1E-04	-7.41
9210C1S003	9210C1S003BD	0.002	U	U	5.0E-04	0	2.5E-04	-8.29
9207F4S027	9207F4S027B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F2S009	9207F2S009B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207W3S029	9207W3S029BD	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207W5S034	9207W5S034B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F6S039	9207F6S039B	0.002	U	XV	5.0E-04	0	2.5E-04	-8.3
9207F1S001	9207F1S001BD	0.002	U	U	4.9E-04	0	2.5E-04	-8.31
9207F3S015	9207F3S015B	0.002	U	U	4.9E-04	0	2.5E-04	-8.31
9210W1S016	9210W1S016B	0.002	U	XV	4.9E-04	0	2.5E-04	-8.31
9207W2S024A	9207W2S024ABD	0.002	U	XV	4.9E-04	0	2.4E-04	-8.32
9210F1S006	9210F1S006B	0.002	U	XV	4.8E-04	0	2.4E-04	-8.33
9207D1S047	9207D1S047B	0.002	U	XV	4.8E-04	0	2.4E-04	-8.34
9207H3S005	9207H3S005BD	0.002	U	XV	4.3E-04	0	2.2E-04	-8.44
9207C1S001	9207C1S001B	0.002	U	XV	4.1E-04	0	2.1E-04	-8.49
9210H2S008	9210H2S008BD	0.001	U	XV	3.5E-04	0	1.8E-04	-8.64
9210D3S059	9210D3S059B	0.001	U	XV	2.9E-04	0	1.4E-04	-8.86
9207H5S026	9207H5S026B	9.9E-04	U	XV	2.5E-04	0	1.2E-04	-9.0
9210S3S044	9210S3S044B	7.8E-04	U	XV	2.0E-04	0	9.8E-05	-9.24
9207H5S009	9207H5S009B	7.3E-04	U	XV	1.8E-04	0	9.2E-05	-9.3
9207S2S032	9207S2S032B	3.6E-04	U	U	9.1E-05	0	4.6E-05	-10.0
9207H1S013	9207H1S013B	1.8E-04	U	XV	4.5E-05	0	2.3E-05	-10.7

Table G.121
Statistical Summary for Lindane (58899) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Number of Samples		38						
Number of Detects		2						
Minimum		2.3E-05						
Median		2.5E-04						
Maximum		0.025						
Arithmetic Average		0.003						
Std Dev		0.007						
PERT-Beta Expected Value		0.004						
LN Mean		-7.29						
LN Std Dev		1.8						
S-W p-value for normality		4.2E-10						
S-W p-value for lognormality		0.008						

Table G.122
Statistical Summary for Manganese (7439965) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S045	9401DC1S045A	3250		XV	20	1	3250	8.09
9207H1S012	9207H1S012A	1530		XV	4.08	1	1530	7.33
9401DC1S057A	9401DC1S057AA	905		=	17.7	1	905	6.81
9207C6S017	9207C6S017AD	860		XV	16.8	1	860	6.76
9210D3S059	9210D3S059A	774		XV	0.917	1	774	6.65
9207F3S015	9207F3S015A	716		XV	9.73	1	716	6.57
9210D1S052	9210D1S052AD	673		XV	0.813	1	673	6.51
9401DC1S028	9401DC1S028A	556		XV	17.9	1	556	6.32
9210C1S003	9210C1S003AD	544		J	1.86	1	544	6.3
9207F4S027	9207F4S027A	464		XV	0.973	1	464	6.14
9207C1S001	9207C1S001A	272		XV	2.34	1	272	5.61
9401W1S020	9401W1S020A	247		XV	1.01	1	247	5.51
9401DC1S032	9401DC1S032A	219	*	XV	1.98	1	219	5.39
9207F6S039	9207F6S039A	172	*	XV	0.196	1	172	5.15
9207RS016	9207RS016A	167		XV	0.198	1	167	5.12
9401DC1S024A	9401DC1S024AA	161	E	XV	0.2	1	161	5.08
9210W1S016	9210W1S016A	148	E	XV	0.198	1	148	5.0
9210RS014	9210RS014A	102		XV	0.188	1	102	4.62
9207F1S001	9207F1S001AD	101	*	J	0.182	1	101	4.62
9210F1S006	9210F1S006A	101		XV	0.189	1	101	4.62
9210F3S014	9210F3S014A	95.1		XV	0.186	1	95.1	4.55
9207W2S024A	9207W2S024AA	85.9	*	XV	0.198	1	85.9	4.45
9210RS002	9210RS002A	84.2		XV	0.183	1	84.2	4.43
9207F2S009	9207F2S009A	82.9		XV	0.187	1	82.9	4.42
9207W3S029	9207W3S029A	42.7	*	XV	0.191	1	42.7	3.75
9207W5S034	9207W5S034A	41.7		XV	0.189	1	41.7	3.73
9207RS002	9207RS002AD	37.4		XV	0.198	1	37.4	3.62
9401W1S012	9401W1S012A	34.2		=	0.198	1	34.2	3.53
9207H1S001A	9207H1S001AA	33		XV	0.977	1	33	3.5
9401W1S001	9401W1S001A	20.2		=	0.883	1	20.2	3.01
9207H5S009	9207H5S009A	18		XV	0.208	1	18	2.89
9210S2S038	9210S2S038AD	14.6		XV	0.119	1	14.6	2.68
9210H2S008	9210H2S008A	12.4	E	XV	0.174	1	12.4	2.52
9210S1S017	9210S1S017AD	7.05		XV	0.149	1	7.05	1.95
9207D1S047	9207D1S047AD	3.1		XV	0.168	1	3.1	1.13
9210S3S044	9210S3S044A	1.05		XV	0.165	1	1.05	0.049
9207H3S005	9207H3S005A	0.869		XV	0.171	1	0.869	-0.14
9207D5S057	9207D5S057A	0.387	J	XV	0.126	1	0.387	-0.949
9207S4S041	9207S4S041AD	0.268	J	XV	0.251	1	0.268	-1.32

Table G.122
Statistical Summary for Manganese (7439965) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S2S032	9207S2S032A	0.26	J	XV	0.198	1	0.26	-1.35
9207H5S026	9207H5S026AD	0.144	J	XV	0.106	1	0.144	-1.94

Number of Samples	41
Number of Detects	41
Minimum	0.144
Median	95.1
Maximum	3250
Arithmetic Average	307
Std Dev	578
PERT-Beta Expected Value	605
LN Mean	3.97
LN Std Dev	2.55
S-W p-value for normality	5.1E-10
S-W p-value for lognormality	0.009

Table G.123
Statistical Summary for TCLP Mercury (7439976) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9767D1B002	9767D1B002	0.002	J	J	6.7E-04	1	0.002	-6.27
9401DC1S024A	9401DC1S024AA	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9401DC1S032	9401DC1S032A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9401DC1S057A	9401DC1S057AA	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9207D1S047	9207D1S047A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9207D5S057	9207D5S057A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9401DC1S028	9401DC1S028A	6.7E-04	U	XV	6.7E-04	0	3.4E-04	-8.0
9401DC1S045	9401DC1S045A	6.7E-04	U	XV	6.7E-04	0	3.4E-04	-8.0
9767D1B001	9767D1B001	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9767D1B003	9767D1B003	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9767D1B004	9767D1B004	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9767D1B005	9767D1B005	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9767D1B006	9767D1B006	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9401E1B002	9401E1B002B	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9401E1B003	9401E1B003B	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9401E1B005	9401E1B005B	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9207H3S005	9207H3S005A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9207H5S009	9207H5S009A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9401W1B001	9401W1B001B	6.7E-04	U	UJ	6.7E-04	0	3.4E-04	-8.0
9401R1B006	9401R1B006	6.7E-04	U	U	6.7E-04	0	3.4E-04	-8.0
9207S2S032	9207S2S032A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9210S1S017	9210S1S017A	6.7E-04	U	XV	6.7E-04	0	3.4E-04	-8.0
9210S2S038	9210S2S038A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0
9210S3S044	9210S3S044A	6.7E-04	U N	XV	6.7E-04	0	3.4E-04	-8.0

Number of Samples	24
Number of Detects	1
Minimum	3.4E-04
Median	3.4E-04
Maximum	0.002
Arithmetic Average	4.0E-04
Std Dev	3.2E-04
PERT-Beta Expected Value	5.9E-04
LN Mean	-7.93
LN Std Dev	0.353

Table G.123
Statistical Summary for TCLP Mercury (7439976) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
S-W p-value for normality		2.2E-10						
S-W p-value for lognormality		2.2E-10						

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S031	9207F5S031B	31.1		XV	0.118	1	31.1	3.44
9210F2S013	9210F2S013B	14.1		XV	0.12	1	14.1	2.65
9210F2S012	9210F2S012B	10.4		XV	0.299	1	10.4	2.34
9401DC1S024	9401DC1S024B	5.37		XV	0.295	1	5.37	1.68
9401DC1S032	9401DC1S032B	3.18		XV	0.298	1	3.18	1.16
9401DC1S026	9401DC1S026B	2.78		XV	0.299	1	2.78	1.02
9401DC1S022A	9401DC1S022AB	2.37		XV	0.594	1	2.37	0.863
9210C1S003	9210C1S003B	2.12		=	0.03	1	2.12	0.751
9401DC1S054	9401DC1S054B	1.68		XV	0.3	1	1.68	0.519
9210H1S006	9210H1S006B	9.8	U	XV	2.94	0	1.47	0.385
9401DC1S031	9401DC1S031B	1.24		XV	0.298	1	1.24	0.215
9207F5S032	9207F5S032BD	1.14		=	0.029	1	1.14	0.131
9401DC1S030	9401DC1S030B	1.12		XV	0.298	1	1.12	0.113
9401DC1S022	9401DC1S022B	0.99		XV	0.291	1	0.99	-0.01
9207W1S023A	9207W1S023AB	0.91		XV	0.03	1	0.91	-0.094
9401DC1S023A	9401DC1S023AB	0.667	J	XV	0.299	1	0.667	-0.405
9401DC1S034	9401DC1S034B	0.618	J	XV	0.299	1	0.618	-0.481
9207D1S050	9207D1S050B	3.77	U	XV	1.13	0	0.565	-0.571
9207F3S020	9207F3S020B	2.5	U	XV	0.75	0	0.375	-0.981
9401DC1S024A	9401DC1S024AB	0.366	J	XV	0.297	1	0.366	-1.01
9401W1S020	9401W1S020B	2.14	U	XV	0.641	0	0.321	-1.14
9207H3S019	9207H3S019B	2	U	XV	0.6	0	0.3	-1.2
9401DC1S055	9401DC1S055BD	1.86	U	XV	0.558	0	0.279	-1.28
9401DC1S053	9401DC1S053B	1.55	U	UJ	0.465	0	0.233	-1.46
9207D5S057	9207D5S057B	1.4	U	XV	0.419	0	0.21	-1.56
9210H3S013	9210H3S013B	1.39	U	XV	0.418	0	0.209	-1.57
9207F5S034	9207F5S034B	0.198		XV	0.03	1	0.198	-1.62
9207D1S048	9207D1S048B	1.22	U	XV	0.367	0	0.184	-1.7
9210H3S014	9210H3S014B	1.11	U	XV	0.334	0	0.167	-1.79
9207D1S047	9207D1S047B	1.02	U	XV	0.307	0	0.154	-1.87
9210C1S002	9210C1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9210C3S008	9210C3S008B	0.999	U	XV	0.3	0	0.15	-1.9
9207F2S012	9207F2S012B	1	U	U	0.3	0	0.15	-1.9
9401W1S002A	9401W1S002AB	0.999	U	U	0.3	0	0.15	-1.9
9401W1S017	9401W1S017B	0.999	U	U	0.3	0	0.15	-1.9
9207F6S040	9207F6S040B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S010	9210F2S010B	0.998	U	XV	0.299	0	0.15	-1.9
9207H3S020	9207H3S020B	0.995	U	XV	0.299	0	0.15	-1.9
9401W1S001	9401W1S001B	0.997	U	U	0.299	0	0.15	-1.9

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S001A	9401W1S001AB	0.997	U	U	0.299	0	0.15	-1.9
9401W1S002	9401W1S002B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S036	9401DC1S036B	0.992	U	XV	0.298	0	0.149	-1.9
9207F1S001	9207F1S001BD	0.989	U	U	0.297	0	0.149	-1.91
9210F3S019	9210F3S019B	0.989	U	XV	0.297	0	0.149	-1.91
9210F3S018	9210F3S018B	0.988	U	XV	0.296	0	0.148	-1.91
9401DC1S037	9401DC1S037B	0.968	U	XV	0.29	0	0.145	-1.93
9401DC1S056	9401DC1S056B	0.924	U	XV	0.277	0	0.139	-1.98
9210F3S014	9210F3S014B	0.137		XV	0.03	1	0.137	-1.99
9210H3S015	9210H3S015B	0.912	U	XV	0.274	0	0.137	-1.99
9207H3S018	9207H3S018B	0.911	U	XV	0.273	0	0.137	-1.99
9210D1S046	9210D1S046B	0.901	U	U	0.27	0	0.135	-2.0
9210D1S047	9210D1S047B	0.821	U	U	0.246	0	0.123	-2.1
9401DC1S057A	9401DC1S057AB	0.802	U	U	0.24	0	0.12	-2.12
9207H4S008	9207H4S008B	0.768	U	XV	0.23	0	0.115	-2.16
9401DC1S048	9401DC1S048B	0.668	U	XV	0.2	0	0.1	-2.3
9401DC1S033	9401DC1S033B	0.087	J	XV	0.029	1	0.087	-2.44
9207H3S022	9207H3S022B	0.54	U	XV	0.162	0	0.081	-2.51
9210C3S007	9210C3S007B	0.078	J	XV	0.03	1	0.078	-2.55
9401W1S011	9401W1S011B	0.52	U	XV	0.156	0	0.078	-2.55
9401DC1S025	9401DC1S025B	0.505	U	XV	0.151	0	0.076	-2.58
9207F3S018	9207F3S018B	0.5	U	U	0.15	0	0.075	-2.59
9207F3S023	9207F3S023B	0.5	U	XV	0.15	0	0.075	-2.59
9207F4S026	9207F4S026B	0.5	U	XV	0.15	0	0.075	-2.59
9207F3S017	9207F3S017B	0.496	U	U	0.149	0	0.075	-2.6
9207F3S022	9207F3S022B	0.498	U	XV	0.149	0	0.075	-2.6
9207W2S025	9207W2S025B	0.497	U	XV	0.149	0	0.075	-2.6
9207W5S033	9207W5S033B	0.496	U	XV	0.149	0	0.075	-2.6
9207F3S013	9207F3S013B	0.493	U	XV	0.148	0	0.074	-2.6
9207W3S028	9207W3S028B	0.492	U	XV	0.148	0	0.074	-2.6
9207H1S002	9207H1S002B	0.485	U	XV	0.146	0	0.073	-2.62
9207H3S024	9207H3S024B	0.488	U	XV	0.146	0	0.073	-2.62
9207H3S023	9207H3S023B	0.48	U	XV	0.144	0	0.072	-2.63
9207D2S034A	9207D2S034AB	0.472	U	XV	0.142	0	0.071	-2.65
9207W4S031	9207W4S031B	0.472	U	XV	0.142	0	0.071	-2.65
9210C3S006	9210C3S006B	0.066	J	XV	0.03	1	0.066	-2.72
9401DC1S027	9401DC1S027B	0.373	U	XV	0.112	0	0.056	-2.88
9207W2S023	9207W2S023B	0.053	J	XV	0.029	1	0.053	-2.94
9210H2S010	9210H2S010B	0.34	U	U	0.102	0	0.051	-2.98

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S014	9401W1S014B	0.33	U	U	0.099	0	0.05	-3.01
9210D1S049	9210D1S049B	0.328	U	XV	0.098	0	0.049	-3.01
9207S6S044	9207S6S044B	0.3	U	XV	0.09	0	0.045	-3.1
9207D4S055	9207D4S055B	0.293	U	XV	0.088	0	0.044	-3.12
9207H5S009	9207H5S009B	0.278	U	XV	0.083	0	0.042	-3.18
9207C6S018	9207C6S018B	0.04	J	XV	0.03	1	0.04	-3.23
9401W1S015	9401W1S015B	0.039	J	XV	0.03	1	0.039	-3.25
9210D1S006A	9210D1S006AB	0.252	U	XV	0.076	0	0.038	-3.28
9207H3S004	9207H3S004B	0.249	U	XV	0.075	0	0.037	-3.29
9207W1S021	9207W1S021B	0.036	J	XV	0.03	1	0.036	-3.33
9207W1S022	9207W1S022B	0.034	J	XV	0.029	1	0.034	-3.38
9401DC1S035	9401DC1S035BD	0.033	J	XV	0.029	1	0.033	-3.41
9210H2S008	9210H2S008BD	0.216	U	XV	0.065	0	0.032	-3.43
9207C6S019	9207C6S019B	0.032	J	XV	0.03	1	0.032	-3.45
9401W1S005	9401W1S005B	0.031	J	XV	0.03	1	0.031	-3.49
9207H1S001A	9207H1S001AB	0.193	U	XV	0.058	0	0.029	-3.54
9207H1S001	9207H1S001B	0.167	U	U	0.05	0	0.025	-3.68
9210S1S020	9210S1S020B	0.154	U	U	0.046	0	0.023	-3.77
9401DC1S029	9401DC1S029B	0.138	U	XV	0.041	0	0.021	-3.88
9207D5S058	9207D5S058B	0.131	U	XV	0.039	0	0.02	-3.93
9210S3S042	9210S3S042B	0.12	U	XV	0.036	0	0.018	-4.02
9210S2S002A	9210S2S002AB	0.113	U	XV	0.034	0	0.017	-4.07
9207H3S007	9207H3S007B	0.111	U	XV	0.033	0	0.017	-4.09
9401DC1S028	9401DC1S028B	0.107	U	XV	0.032	0	0.016	-4.13
9401DC1S043	9401DC1S043B	0.101	U	U	0.03	0	0.015	-4.19
9207C2S004	9207C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9207C2S004A	9207C2S004AB	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S010	9207C3S010B	0.1	U	XV	0.03	0	0.015	-4.2
9210C1S001A	9210C1S001AB	0.1	U	XV	0.03	0	0.015	-4.2
9210C2S004	9210C2S004B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S018	9210W1S018B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S019	9210W1S019B	0.1	U	U	0.03	0	0.015	-4.2
9207F1S002	9207F1S002B	0.1	U	XV	0.03	0	0.015	-4.2
9207F1S006	9207F1S006B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S007	9207F2S007B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S009	9207F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S011	9207F2S011BD	0.1	U	U	0.03	0	0.015	-4.2
9210F2S009	9210F2S009B	0.1	U	XV	0.03	0	0.015	-4.2
9210F3S015	9210F3S015B	0.1	U	XV	0.03	0	0.015	-4.2

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W1S014	9210W1S014B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S018	9401W1S018B	0.1	U	U	0.03	0	0.015	-4.2
9401W1S019	9401W1S019B	0.1	U	XV	0.03	0	0.015	-4.2
9207C3S008	9207C3S008B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S023	9401DC1S023B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S049	9401DC1S049B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S050	9401DC1S050B	0.1	U	XV	0.03	0	0.015	-4.2
9401DC1S052	9401DC1S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S017	9210W1S017B	0.1	U	XV	0.03	0	0.015	-4.2
9207F2S008	9207F2S008B	0.1	U	U	0.03	0	0.015	-4.2
9207F2S010	9207F2S010B	0.1	U	U	0.03	0	0.015	-4.2
9207F3S016	9207F3S016B	0.1	U	U	0.03	0	0.015	-4.2
9207F5S036	9207F5S036B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S026	9207W3S026B	0.1	U	XV	0.03	0	0.015	-4.2
9207W3S027	9207W3S027B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S011	9210W1S011B	0.1	U	XV	0.03	0	0.015	-4.2
9210W1S012	9210W1S012B	0.1	U	XV	0.03	0	0.015	-4.2
9401W1S007	9401W1S007B	0.1	U	U	0.03	0	0.015	-4.2
9207C2S006	9207C2S006B	0.099	U	XV	0.03	0	0.015	-4.21
9210C2S005	9210C2S005B	0.1	U	XV	0.03	0	0.015	-4.21
9207W1S039	9207W1S039B	0.1	U	XV	0.03	0	0.015	-4.21
9207W3S040	9207W3S040B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S003	9207F1S003B	0.099	U	XV	0.03	0	0.015	-4.21
9207F1S005	9207F1S005B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S014	9207F3S014B	0.099	U	U	0.03	0	0.015	-4.21
9207F3S015	9207F3S015B	0.099	U	U	0.03	0	0.015	-4.21
9207F4S025	9207F4S025B	0.099	U	XV	0.03	0	0.015	-4.21
9207F6S042	9207F6S042B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S011	9210F2S011B	0.1	U	XV	0.03	0	0.015	-4.21
9207W4S030	9207W4S030B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S009	9210W1S009B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S010	9210W1S010B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S015	9210W1S015B	0.099	U	XV	0.03	0	0.015	-4.21
9401W1S009	9401W1S009B	0.099	U	U	0.03	0	0.015	-4.21
9401W1S012	9401W1S012B	0.1	U	U	0.03	0	0.015	-4.21
9207C3S009	9207C3S009B	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S010A	9207C4S010AB	0.099	U	XV	0.03	0	0.015	-4.21
9207C4S013	9207C4S013B	0.099	U	XV	0.03	0	0.015	-4.21
9207F3S021	9207F3S021B	0.099	U	XV	0.03	0	0.015	-4.21

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S035	9207F5S035B	0.099	U	XV	0.03	0	0.015	-4.21
9210F2S007	9210F2S007BD	0.099	U	XV	0.03	0	0.015	-4.21
9207W1S020	9207W1S020B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S013	9210W1S013B	0.099	U	XV	0.03	0	0.015	-4.21
9210W1S016	9210W1S016B	0.099	U	XV	0.03	0	0.015	-4.21
9207C3S007	9207C3S007B	0.099	U	XV	0.03	0	0.015	-4.21
9207C5S012A	9207C5S012AB	0.099	U	XV	0.03	0	0.015	-4.21
9207W5S034	9207W5S034B	0.099	U	XV	0.03	0	0.015	-4.21
9207F4S030	9207F4S030B	0.098	U	XV	0.03	0	0.015	-4.22
9207W6S037	9207W6S037B	0.098	U	XV	0.03	0	0.015	-4.22
9401W1S016	9401W1S016B	0.098	U	XV	0.03	0	0.015	-4.22
9207W2S024A	9207W2S024AB	0.098	U	XV	0.029	0	0.015	-4.22
9207F3S024	9207F3S024B	0.098	U	XV	0.029	0	0.015	-4.22
9207F4S027	9207F4S027B	0.098	U	XV	0.029	0	0.015	-4.22
9207W5S035	9207W5S035B	0.098	U	XV	0.029	0	0.015	-4.22
9207H3S021	9207H3S021B	0.098	U	XV	0.029	0	0.015	-4.22
9207F6S038	9207F6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9210F2S008	9210F2S008B	0.097	U	XV	0.029	0	0.015	-4.23
9207W3S029	9207W3S029BD	0.097	U	XV	0.029	0	0.015	-4.23
9207W6S038	9207W6S038B	0.097	U	XV	0.029	0	0.015	-4.23
9207F3S019	9207F3S019B	0.097	U	XV	0.029	0	0.015	-4.23
9207F6S041	9207F6S041B	0.097	U	XV	0.029	0	0.015	-4.23
9210F3S016	9210F3S016B	0.097	U	XV	0.029	0	0.015	-4.23
9210H1S005	9210H1S005B	0.097	U	XV	0.029	0	0.015	-4.23
9207C5S015	9207C5S015B	0.096	U	XV	0.029	0	0.014	-4.24
9207W6S036	9207W6S036B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S037	9207F6S037B	0.096	U	XV	0.029	0	0.014	-4.24
9210F3S017	9210F3S017B	0.096	U	XV	0.029	0	0.014	-4.24
9207W2S024	9207W2S024B	0.096	U	XV	0.029	0	0.014	-4.24
9207W4S032	9207W4S032B	0.096	U	XV	0.029	0	0.014	-4.24
9207F4S028	9207F4S028B	0.096	U	XV	0.029	0	0.014	-4.24
9207F6S039	9207F6S039B	0.096	U	XV	0.029	0	0.014	-4.24
9401W1S021	9401W1S021B	0.095	U	XV	0.029	0	0.014	-4.25
9207F4S029	9207F4S029B	0.095	U	XV	0.029	0	0.014	-4.25
9401DC1S039	9401DC1S039B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S040	9401DC1S040B	0.094	U	XV	0.028	0	0.014	-4.26
9207S1S030	9207S1S030B	0.094	U	XV	0.028	0	0.014	-4.26
9401DC1S042	9401DC1S042B	0.093	U	U	0.028	0	0.014	-4.27
9207D2S053	9207D2S053B	0.091	U	XV	0.027	0	0.014	-4.29

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.091	U	XV	0.027	0	0.014	-4.29
9207D2S051	9207D2S051B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S041	9401DC1S041B	0.09	U	XV	0.027	0	0.014	-4.3
9401DC1S044	9401DC1S044B	0.086	U	XV	0.026	0	0.013	-4.35
9207H5S010	9207H5S010B	0.086	U	XV	0.026	0	0.013	-4.35
9210D1S050	9210D1S050B	0.085	U	U	0.025	0	0.013	-4.37
9401DC1S038	9401DC1S038B	0.085	U	XV	0.025	0	0.013	-4.37
9401DC1S047	9401DC1S047B	0.084	U	XV	0.025	0	0.013	-4.37
9401DC1S045	9401DC1S045B	0.084	U	XV	0.025	0	0.013	-4.38
9401DC1S046	9401DC1S046B	0.083	U	XV	0.025	0	0.012	-4.39
9207H1S013	9207H1S013B	0.082	U	XV	0.025	0	0.012	-4.39
9207S5S029	9207S5S029B	0.082	U	XV	0.025	0	0.012	-4.4
9210S2S034	9210S2S034B	0.081	U	XV	0.024	0	0.012	-4.41
9207D1S046	9207D1S046B	0.08	U	XV	0.024	0	0.012	-4.43
9207H3S003A	9207H3S003AB	0.08	U	XV	0.024	0	0.012	-4.43
9207H1S012	9207H1S012B	0.076	U	U	0.023	0	0.011	-4.47
9401W1S013	9401W1S013B	0.011	J	J	0.01	1	0.011	-4.48
9210D1S048	9210D1S048B	0.074	U	XV	0.022	0	0.011	-4.5
9210S2S031	9210S2S031B	0.074	U	XV	0.022	0	0.011	-4.5
9210D1S051	9210D1S051B	0.073	U	U	0.022	0	0.011	-4.52
9210H1S004	9210H1S004B	0.072	U	U	0.022	0	0.011	-4.53
9207C1S003	9207C1S003B	0.071	U	XV	0.021	0	0.011	-4.54
9207S3S036	9207S3S036B	0.07	U	U	0.021	0	0.01	-4.56
9210S1S023	9210S1S023B	0.069	U	XV	0.021	0	0.01	-4.57
9210S3S041	9210S3S041B	0.068	U	XV	0.021	0	0.01	-4.58
9207H3S005	9207H3S005BD	0.064	U	XV	0.019	0	0.01	-4.64
9401W1S004A	9401W1S004AB	0.062	U	U	0.019	0	0.009	-4.68
9207H2S003	9207H2S003B	0.062	U	XV	0.019	0	0.009	-4.68
9210D1S055	9210D1S055B	0.061	U	U	0.018	0	0.009	-4.7
9207F5S033	9207F5S033B	0.06	U	XV	0.018	0	0.009	-4.7
9207F1S004	9207F1S004B	0.059	U	XV	0.018	0	0.009	-4.73
9207D4S054	9207D4S054B	0.059	U	XV	0.018	0	0.009	-4.73
9210D3S057	9210D3S057B	0.058	U	XV	0.017	0	0.009	-4.75
9210D3S059	9210D3S059B	0.057	U	XV	0.017	0	0.009	-4.76
9210S1S019	9210S1S019B	0.057	U	XV	0.017	0	0.009	-4.76
9207S6S045	9207S6S045B	0.055	U	XV	0.016	0	0.008	-4.8
9210S1S021	9210S1S021B	0.051	U	UJ	0.015	0	0.008	-4.87
9207D5S059	9207D5S059B	0.051	U	XV	0.015	0	0.008	-4.88
9207H5S026	9207H5S026BD	0.051	U	XV	0.015	0	0.008	-4.89

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S035	9210S2S035B	0.05	U	XV	0.015	0	0.007	-4.9
9207H3S016	9207H3S016B	0.049	U	XV	0.015	0	0.007	-4.91
9207H3S017	9207H3S017B	0.048	U	XV	0.014	0	0.007	-4.93
9207H2S014	9207H2S014B	0.046	U	XV	0.014	0	0.007	-4.98
9210S1S024	9210S1S024B	0.042	U	XV	0.013	0	0.006	-5.06
9207S1S031	9207S1S031B	0.042	U	XV	0.013	0	0.006	-5.07
9210S2S032	9210S2S032B	0.039	U	XV	0.012	0	0.006	-5.15
9210D1S052	9210D1S052BD	0.038	U	XV	0.011	0	0.006	-5.18
9210D1S053	9210D1S053B	0.037	U	XV	0.011	0	0.006	-5.18
9207H3S006	9207H3S006B	0.037	U	XV	0.011	0	0.006	-5.18
9210S2S037	9210S2S037B	0.037	U	XV	0.011	0	0.006	-5.18
9207H2S015	9207H2S015B	0.036	U	XV	0.011	0	0.005	-5.21
9210S1S018	9210S1S018B	0.035	U	XV	0.011	0	0.005	-5.25
9207S2S032	9207S2S032B	0.034	U	U	0.01	0	0.005	-5.28
9210F1S001	9210F1S001B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S003	9210F1S003B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S004	9210F1S004B	0.033	U	XV	0.01	0	0.005	-5.3
9210F1S006	9210F1S006B	0.033	U	XV	0.01	0	0.005	-5.3
9401DC1S051	9401DC1S051B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S005	9210F1S005B	0.033	U	XV	0.01	0	0.005	-5.31
9210F1S002	9210F1S002B	0.033	U	XV	0.01	0	0.005	-5.31
9207D4S056	9207D4S056B	0.03	U	XV	0.009	0	0.005	-5.4
9207S4S040	9207S4S040B	0.027	U	XV	0.008	0	0.004	-5.53
9207S4S028	9207S4S028B	0.025	U	XV	0.007	0	0.004	-5.6
9210S2S038	9210S2S038B	0.022	U	XV	0.007	0	0.003	-5.69
9210S1S022	9210S1S022B	0.022	U	U	0.007	0	0.003	-5.7
9210H3S012	9210H3S012B	0.021	U	U	0.006	0	0.003	-5.78
9210S2S033	9210S2S033B	0.02	U	XV	0.006	0	0.003	-5.81
9210H3S011	9210H3S011B	0.019	U	XV	0.006	0	0.003	-5.85
9210D1S056	9210D1S056B	0.018	U	XV	0.005	0	0.003	-5.92
9210H2S009	9210H2S009B	0.016	U	XV	0.005	0	0.002	-6.06
9210S3S044	9210S3S044B	0.013	U	XV	0.004	0	0.002	-6.21
9210D3S058	9210D3S058B	0.013	U	XV	0.004	0	0.002	-6.22
9210S3S043	9210S3S043B	0.013	U	XV	0.004	0	0.002	-6.24
9207S4S038	9207S4S038B	0.013	U	XV	0.004	0	0.002	-6.26
9207C1S001	9207C1S001B	0.012	U	XV	0.004	0	0.002	-6.28
9401W1S004	9401W1S004B	0.012	U	U	0.004	0	0.002	-6.35
9210S1S001A	9210S1S001AB	0.011	U	XV	0.003	0	0.002	-6.38
9401W1S003	9401W1S003B	0.011	U	U	0.003	0	0.002	-6.39

Table G.124
Statistical Summary for 2-Methylnaphthalene (91576) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.011	U	XV	0.003	0	0.002	-6.39
9207C5S016	9207C5S016B	0.011	U	XV	0.003	0	0.002	-6.41
9207D2S052	9207D2S052B	0.01	U	XV	0.003	0	0.001	-6.51
9210S2S029	9210S2S029B	0.01	U	XV	0.003	0	0.001	-6.52
9210S2S027	9210S2S027B	0.01	U	XV	0.003	0	0.001	-6.54
9207S3S037	9207S3S037B	0.01	U	XV	0.003	0	0.001	-6.55
9207C1S002	9207C1S002B	0.009	U	U	0.003	0	0.001	-6.58
9210S3S040	9210S3S040B	0.009	U	XV	0.003	0	0.001	-6.59
9207C4S011	9207C4S011B	0.009	U	XV	0.003	0	0.001	-6.59
9207S3S034	9207S3S034B	0.009	U	XV	0.003	0	0.001	-6.62
9207S5S042	9207S5S042B	0.009	U	XV	0.003	0	0.001	-6.64
9207S5S043	9207S5S043B	0.009	U	XV	0.003	0	0.001	-6.65
9207H3S022A	9207H3S022AB	0.008	U	XV	0.002	0	0.001	-6.71
9210S2S030	9210S2S030B	0.008	U	XV	0.002	0	0.001	-6.76
9207S1S027	9207S1S027B	0.007	U	XV	0.002	0	0.001	-6.79
9210S2S026	9210S2S026B	0.007	U	XV	0.002	0	0.001	-6.83
9210S2S025	9210S2S025B	0.007	U	XV	0.002	0	0.001	-6.84
9207S2S033	9207S2S033B	0.006	U	XV	0.002	0	9.6E-04	-6.95
9207C6S017	9207C6S017B	0.006	U	XV	0.002	0	8.9E-04	-7.03
9210S2S036	9210S2S036B	0.005	U	XV	0.002	0	7.6E-04	-7.18
9210S2S028	9210S2S028B	0.005	U	XV	0.001	0	7.0E-04	-7.26
9207S4S039	9207S4S039B	0.002	U	XV	5.9E-04	0	3.0E-04	-8.13

Number of Samples	295
Number of Detects	31
Minimum	3.0E-04
Median	0.015
Maximum	31.1
Arithmetic Average	0.314
Std Dev	2.12
PERT-Beta Expected Value	5.19
LN Mean	-3.84
LN Std Dev	1.8
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.125
Statistical Summary for Molybdenum (7439987) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210RS014	9210RS014A	91.1	N	XV	0.075	1	91.1	4.51
9401DC1S045	9401DC1S045A	79.7		XV	0.08	1	79.7	4.38
9401DC1S057A	9401DC1S057AA	34.2		=	0.071	1	34.2	3.53
9207RS002	9207RS002AD	27.9	*	XV	0.079	1	27.9	3.33
9207H1S012	9207H1S012A	23.9		XV	0.326	1	23.9	3.17
9210D1S052	9210D1S052A	16.1		XV	0.073	1	16.1	2.78
9207C6S017	9207C6S017AD	14.1		XV	0.27	1	14.1	2.65
9210D3S059	9210D3S059A	10.6		XV	0.073	1	10.6	2.36
9207H5S009	9207H5S009A	10.3		XV	0.083	1	10.3	2.33
9210RS002	9210RS002A	7.56	N	XV	0.073	1	7.56	2.02
9210S2S038	9210S2S038AD	6.54		XV	0.048	1	6.54	1.88
9401DC1S028	9401DC1S028A	2.71		XV	0.072	1	2.71	0.997
9207RS016	9207RS016A	2.04		XV	0.079	1	2.04	0.713
9207F6S039	9207F6S039A	1.72	* N	XV	0.079	1	1.72	0.542
9207C1S001	9207C1S001A	1.56		XV	0.019	1	1.56	0.445
9401W1S001	9401W1S001A	1.4	N	J	0.353	1	1.4	0.336
9210C1S003	9210C1S003A	1.32		=	0.073	1	1.32	0.278
9207H1S001A	9207H1S001AA	1.15		XV	0.391	1	1.15	0.14
9207F3S015	9207F3S015A	0.828		XV	0.078	1	0.828	-0.189
9401DC1S024A	9401DC1S024AA	0.679		XV	0.08	1	0.679	-0.387
9210W1S016	9210W1S016A	0.652		XV	0.079	1	0.652	-0.428
9207F2S009	9207F2S009A	0.624		XV	0.075	1	0.624	-0.472
9207F4S027	9207F4S027A	0.558	J	XV	0.389	1	0.558	-0.583
9210F3S014	9210F3S014A	0.437		XV	0.074	1	0.437	-0.828
9207F1S001	9207F1S001AD	0.393	J	J	0.364	1	0.393	-0.934
9401DC1S032	9401DC1S032A	0.386		XV	0.079	1	0.386	-0.952
9207W2S024A	9207W2S024AAD	0.359	* N	XV	0.078	1	0.359	-1.02
9207S4S041	9207S4S041A	0.339		XV	0.079	1	0.339	-1.08
9401W1S020	9401W1S020A	0.261		XV	0.081	1	0.261	-1.34
9210H2S008	9210H2S008A	0.206		XV	0.07	1	0.206	-1.58
9210S1S017	9210S1S017A	0.137		XV	0.038	1	0.137	-1.99
9207W5S034	9207W5S034A	0.127	J	XV	0.076	1	0.127	-2.06
9210F1S006	9210F1S006A	0.097	J	XV	0.076	1	0.097	-2.33
9210S3S044	9210S3S044A	0.086	J	XV	0.066	1	0.086	-2.45
9207H5S026	9207H5S026AD	0.05	J	XV	0.042	1	0.05	-3.01
9207S2S032	9207S2S032A	0.079	U	XV	0.079	0	0.04	-3.23
9401W1S012	9401W1S012AD	0.079	U N	UJ	0.079	0	0.039	-3.24
9207W3S029	9207W3S029A	0.076	U	XV	0.076	0	0.038	-3.27
9207D1S047	9207D1S047AD	0.067	U	XV	0.067	0	0.034	-3.39

Table G.125
Statistical Summary for Molybdenum (7439987) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S005	9207H3S005AD	0.058	U	XV	0.058	0	0.029	-3.55
9207D5S057	9207D5S057A	0.05	U	XV	0.05	0	0.025	-3.68

Number of Samples	41
Number of Detects	35
Minimum	0.025
Median	0.652
Maximum	91.1
Arithmetic Average	8.3
Std Dev	19.5
PERT-Beta Expected Value	15.6
LN Mean	-0.137
LN Std Dev	2.32
S-W p-value for normality	6.8E-11
S-W p-value for lognormality	0.129

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S001A	9210S1S001AA	4.39	U	XV	22.2	0	22.2	3.1
9210D1S051	9210D1S051A	0.345	U	U	10.3	0	10.3	2.33
9207S5S029	9207S5S029A	5.19	U	XV	8.99	0	8.99	2.2
9207H1S001A	9207H1S001AA	2.64	U	XV	3.51	0	3.51	1.26
9401DC1S043	9401DC1S043A	0.399	U	U	2.87	0	2.87	1.05
9401DC1S057A	9401DC1S057AA	2.14	U	U	2.81	0	2.81	1.03
9401DC1S038	9401DC1S038A	1.03	U	XV	2.78	0	2.78	1.02
9401DC1S040	9401DC1S040A	2.68	U	XV	2.72	0	2.72	1.0
9401DC1S053	9401DC1S053A	0.794	U	U	2.72	0	2.72	1.0
9401DC1S045	9401DC1S045A	0.012	U	XV	2.46	0	2.46	0.9
9401DC1S039	9401DC1S039A	0.58	U	XV	2.24	0	2.24	0.806
9401DC1S044	9401DC1S044A	-0.137	U	XV	2.23	0	2.23	0.802
9207H1S012	9207H1S012A	-0.963	U	U	2.22	0	2.22	0.798
9401DC1S042	9401DC1S042A	-0.598	U	U	2.16	0	2.16	0.77
9401DC1S056	9401DC1S056A	-1.74	U	XV	2.02	0	2.02	0.703
9401DC1S047	9401DC1S047A	0.953	U	XV	2.01	0	2.01	0.698
9210H1S006	9210H1S006A	-0.2	U	XV	1.96	0	1.96	0.673
9401DC1S041	9401DC1S041A	0.14	U	XV	1.88	0	1.88	0.631
9210S2S028	9210S2S028A	-0.242	U	XV	1.88	0	1.88	0.631
9207D1S046	9207D1S046A	0.676	U	XV	1.73	0	1.73	0.548
9207H1S013	9207H1S013A	-0.625	U	XV	1.72	0	1.72	0.542
9207D4S055	9207D4S055A	0.023	U	XV	1.66	0	1.66	0.507
9207D5S058	9207D5S058A	-0.357	U	XV	1.6	0	1.6	0.47
9210S1S018	9210S1S018A	-1.29	U	XV	1.54	0	1.54	0.432
9210RS009	9210RS009A	0.687	U	XV	1.52	0	1.52	0.419
9207F3S024	9207F3S024A	-0.992	U	XV	1.51	0	1.51	0.412
9401DC1S029	9401DC1S029A	0.832	U	XV	1.49	0	1.49	0.399
9210RS014	9210RS014AD	-0.678	U	XV	1.48	0	1.48	0.392
9207H5S009	9207H5S009A	-0.06	U	XV	1.45	0	1.45	0.372
9401W1S011	9401W1S011A	-1.17	U	XV	1.44	0	1.44	0.365
9207S6S044	9207S6S044A	-0.255	U	XV	1.44	0	1.44	0.365
9207D2S053	9207D2S053A	-0.131	U	XV	1.42	0	1.42	0.351
9207D4S054	9207D4S054A	-0.306	U	XV	1.41	0	1.41	0.344
9210D1S047	9210D1S047A	0.226	U	U	1.41	0	1.41	0.344
9207C4S011	9207C4S011A	-0.593	U	XV	1.4	0	1.4	0.336
9401DC1S046	9401DC1S046A	0.164	U	XV	1.39	0	1.39	0.329
9210S1S024	9210S1S024A	-0.018	U	XV	1.37	0	1.37	0.315
9207F3S021	9207F3S021A	-0.725	U	XV	1.36	0	1.36	0.307
9210RS006	9210RS006A	-0.408	U	XV	1.36	0	1.36	0.307

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S020	9207H3S020A	0.021	U	XV	1.35	0	1.35	0.3
9401DC1S055	9401DC1S055AD	-0.238	U	XV	1.33	0	1.33	0.285
9207H3S003A	9207H3S003AA	-1.14	U	XV	1.33	0	1.33	0.285
9401DC1S027	9401DC1S027A	-0.808	U	XV	1.32	0	1.32	0.278
9210D3S059	9210D3S059A	-0.949	U	XV	1.32	0	1.32	0.278
9207D1S050	9207D1S050A	-0.968	U	XV	1.3	0	1.3	0.262
9210D1S053	9210D1S053A	0.634	U	XV	1.29	0	1.29	0.255
9207D1S048	9207D1S048A	-0.194	U	XV	1.27	0	1.27	0.239
9207F2S008	9207F2S008A	-1.04	U	UJ	1.27	0	1.27	0.239
9210RS008	9210RS008A	0.176	U	XV	1.27	0	1.27	0.239
9207H3S007	9207H3S007A	-0.441	U	XV	1.26	0	1.26	0.231
9207H2S014	9207H2S014A	0.038	U	XV	1.25	0	1.25	0.223
9210D1S046	9210D1S046A	0.28	U	U	1.24	0	1.24	0.215
9210D1S052	9210D1S052AD	0.165	U	XV	1.24	0	1.24	0.215
9210RS012	9210RS012A	0.227	U	XV	1.24	0	1.24	0.215
9210D3S058	9210D3S058A	-0.775	U	XV	1.23	0	1.23	0.207
9207H2S015	9207H2S015A	0.04	U	XV	1.23	0	1.23	0.207
9210S1S023	9210S1S023A	1.01	U	XV	1.23	0	1.23	0.207
9401DC1S025	9401DC1S025A	-0.098	U	XV	1.22	0	1.22	0.199
9210D1S056	9210D1S056A	-0.696	U	XV	1.21	0	1.21	0.191
9207D5S057	9207D5S057A	-0.043	U	XV	1.2	0	1.2	0.182
9210D1S050	9210D1S050A	-0.198	U	U	1.19	0	1.19	0.174
9210S1S017	9210S1S017AD	-0.681	U	XV	1.19	0	1.19	0.174
9207C5S016	9207C5S016A	-0.4	U	XV	1.17	0	1.17	0.157
9207H3S023	9207H3S023A	-0.215	U	XV	1.17	0	1.17	0.157
9207C3S008	9207C3S008A	-1.08	U	XV	1.16	0	1.16	0.148
9207H3S019	9207H3S019A	0.161	U	XV	1.16	0	1.16	0.148
9210RS003	9210RS003A	-0.299	U	XV	1.15	0	1.15	0.14
9207C5S015	9207C5S015A	-0.824	U	XV	1.13	0	1.13	0.122
9207H4S008	9207H4S008A	0.023	U	XV	1.13	0	1.13	0.122
9207D1S047	9207D1S047AD	-0.148	U	XV	1.12	0	1.12	0.113
9210F2S010	9210F2S010A	-0.387	U	XV	1.12	0	1.12	0.113
9207D2S052	9207D2S052A	-0.076	U	XV	1.11	0	1.11	0.104
9210D1S048	9210D1S048A	-0.022	U	XV	1.11	0	1.11	0.104
9401DC1S033	9401DC1S033A	0.589	U	XV	1.1	0	1.1	0.095
9401W1S020	9401W1S020A	-0.462	U	XV	1.1	0	1.1	0.095
9207D5S059	9207D5S059A	0.544	U	XV	1.09	0	1.09	0.086
9401DC1S028	9401DC1S028A	0.228	U	XV	1.09	0	1.09	0.086
9207W5S034	9207W5S034A	-0.483	U	XV	1.09	0	1.09	0.086

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C5S012A	9207C5S012AA	-0.365	U	XV	1.08	0	1.08	0.077
9210F2S008	9210F2S008A	-0.08	U	XV	1.08	0	1.08	0.077
9207C6S017	9207C6S017AD	-0.61	U	XV	1.06	0	1.06	0.058
9210F3S018	9210F3S018A	0.132	U	XV	1.06	0	1.06	0.058
9210W1S019	9210W1S019A	-0.767	U	UJ	1.05	0	1.05	0.049
9207H3S016	9207H3S016A	-0.678	U	XV	1.05	0	1.05	0.049
9207H3S018	9207H3S018A	0.033	U	XV	1.05	0	1.05	0.049
9207H3S024	9207H3S024A	-0.464	U	XV	1.05	0	1.05	0.049
9210H1S005	9210H1S005A	-0.395	U	XV	1.05	0	1.05	0.049
9207W6S036	9207W6S036A	0.46	U	XV	1.05	0	1.05	0.049
9207RS001	9207RS001A	-0.78	U	XV	1.05	0	1.05	0.049
9210S2S032	9210S2S032A	-0.873	U	XV	1.05	0	1.05	0.049
9210S2S035	9210S2S035A	-0.159	U	XV	1.05	0	1.05	0.049
9207H2S003	9207H2S003A	-0.553	U	XV	1.04	0	1.04	0.039
9210H3S014	9210H3S014A	0.202	U	XV	1.04	0	1.04	0.039
9207RS013	9207RS013A	-0.102	U	XV	1.04	0	1.04	0.039
9207S4S039	9207S4S039A	-0.449	U	XV	1.04	0	1.04	0.039
9210S2S030	9210S2S030A	-0.675	U	XV	1.04	0	1.04	0.039
9210D1S006A	9210D1S006AA	-0.575	U	XV	1.03	0	1.03	0.03
9207F2S007	9207F2S007A	-0.19	U	U	1.03	0	1.03	0.03
9207F6S039	9207F6S039A	0.458	U	XV	1.03	0	1.03	0.03
9207F5S036	9207F5S036A	0.289	U	XV	1.02	0	1.02	0.02
9210H3S015	9210H3S015A	-0.564	U	XV	1.02	0	1.02	0.02
9207C1S002	9207C1S002A	-0.315	U	U	1.01	0	1.01	0.01
9210C1S001A	9210C1S001AA	-0.351	U	XV	1.01	0	1.01	0.01
9207W3S028	9207W3S028A	0.044	U	XV	0.999	0	0.999	-0.001
9401DC1S048	9401DC1S048A	-0.061	U	XV	0.998	0	0.998	-0.002
9207F2S010	9207F2S010A	-0.399	U	U	0.996	0	0.996	-0.004
9210F2S012	9210F2S012A	-0.058	U	XV	0.995	0	0.995	-0.005
9207W5S035	9207W5S035A	-0.218	U	XV	0.987	0	0.987	-0.013
9207C4S013	9207C4S013A	0.058	U	XV	0.986	0	0.986	-0.014
9207F3S015	9207F3S015A	-0.53	U	U	0.983	0	0.983	-0.017
9210RS013	9210RS013A	0.334	U	XV	0.983	0	0.983	-0.017
9210F2S013	9210F2S013A	0.068	U	XV	0.982	0	0.982	-0.018
9207H3S017	9207H3S017A	0.472	U	XV	0.976	0	0.976	-0.024
9207F2S009	9207F2S009A	-0.536	U	XV	0.975	0	0.975	-0.025
9207F3S013	9207F3S013A	-0.249	U	XV	0.969	0	0.969	-0.031
9207S5S043	9207S5S043A	-0.789	U	XV	0.967	0	0.967	-0.034
9207W4S030	9207W4S030A	-0.316	U	XV	0.965	0	0.965	-0.036

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H3S013	9210H3S013A	0.101	U	XV	0.964	0	0.964	-0.037
9207W2S023	9207W2S023A	0.422	U	XV	0.964	0	0.964	-0.037
9207W4S032	9207W4S032A	-0.46	U	XV	0.962	0	0.962	-0.039
9401W1S004A	9401W1S004AA	0.234	U	UJ	0.962	0	0.962	-0.039
9207H5S026	9207H5S026A	0.404	U	XV	0.961	0	0.961	-0.04
9401W1S015	9401W1S015A	0.26	U	XV	0.961	0	0.961	-0.04
9210S1S022	9210S1S022A	-0.194	U	UJ	0.958	0	0.958	-0.043
9207RS006	9207RS006A	-0.446	U	XV	0.953	0	0.953	-0.048
9207F6S040	9207F6S040A	0.571	U	XV	0.951	0	0.951	-0.05
9207H3S022	9207H3S022A	-0.085	U	XV	0.949	0	0.949	-0.052
9210F2S009	9210F2S009A	0.022	U	XV	0.948	0	0.948	-0.053
9210S1S021	9210S1S021A	-0.233	U	UJ	0.947	0	0.947	-0.054
9207F2S012	9207F2S012A	-0.857	U	UJ	0.946	0	0.946	-0.056
9207W3S029	9207W3S029A	0.022	U	XV	0.946	0	0.946	-0.056
9207F5S033	9207F5S033A	-0.702	U	XV	0.943	0	0.943	-0.059
9207F3S014	9207F3S014A	-0.395	U	U	0.937	0	0.937	-0.065
9207H3S022A	9207H3S022AA	0.021	U	XV	0.937	0	0.937	-0.065
9210F2S011	9210F2S011A	-0.299	U	XV	0.936	0	0.936	-0.066
9207RS001AA	9207RS001AA	-0.066	U	XV	0.936	0	0.936	-0.066
9207H1S002	9207H1S002A	0.151	U	XV	0.931	0	0.931	-0.071
9207W2S024	9207W2S024A	-0.095	U	XV	0.929	0	0.929	-0.074
9207W6S037	9207W6S037A	0.822	U	XV	0.926	0	0.926	-0.077
9207W2S024A	9207W2S024AAD	0.205	U	XV	0.924	0	0.924	-0.079
9207S4S040	9207S4S040A	0.476	U	XV	0.919	0	0.919	-0.084
9207S4S041	9207S4S041A	0.636	U	XV	0.919	0	0.919	-0.084
9207C2S004A	9207C2S004AA	0.899	U	XV	0.918	0	0.918	-0.086
9210W1S009	9210W1S009A	-0.428	U	XV	0.916	0	0.916	-0.088
9210S1S019	9210S1S019A	-0.499	U	XV	0.912	0	0.912	-0.092
9207W5S033	9207W5S033A	-0.122	U	XV	0.909	0	0.909	-0.095
9207H5S010	9207H5S010A	0.041	U	XV	0.908	0	0.908	-0.097
9207F6S041	9207F6S041A	-0.597	U	XV	0.904	0	0.904	-0.101
9207C1S001	9207C1S001A	-0.592	U	XV	0.901	0	0.901	-0.104
9207S2S032	9207S2S032A	-0.19	U	U	0.896	0	0.896	-0.11
9207RS015	9207RS015A	-0.196	U	XV	0.891	0	0.891	-0.115
9210D1S049	9210D1S049A	-0.637	U	XV	0.886	0	0.886	-0.121
9207S3S036	9207S3S036A	-0.66	U	UJ	0.881	0	0.881	-0.127
9207S5S042	9207S5S042A	0.428	U	XV	0.88	0	0.88	-0.128
9401DC1S037	9401DC1S037A	-0.096	U	XV	0.878	0	0.878	-0.13
9207RS017	9207RS017A	0.318	U	XV	0.876	0	0.876	-0.132

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S029	9210S2S029A	-0.572	U	XV	0.876	0	0.876	-0.132
9401DC1S023	9401DC1S023A	0.029	U	XV	0.875	0	0.875	-0.134
9207F6S038	9207F6S038A	-0.18	U	XV	0.875	0	0.875	-0.134
9401W1S003	9401W1S003A	-0.478	U	UJ	0.874	0	0.874	-0.135
9207S1S027	9207S1S027A	-0.307	U	XV	0.874	0	0.874	-0.135
9207F5S035	9207F5S035A	-0.465	U	XV	0.869	0	0.869	-0.14
9207RS011	9207RS011A	-0.292	U	XV	0.868	0	0.868	-0.142
9401DC1S030	9401DC1S030A	0.003	U	XV	0.865	0	0.865	-0.145
9210RS010	9210RS010A	-0.504	U	XV	0.865	0	0.865	-0.145
9207S3S037	9207S3S037A	0.707	U	XV	0.864	0	0.864	-0.146
9210S3S042	9210S3S042A	-0.133	U	XV	0.863	0	0.863	-0.147
9210C3S007	9210C3S007A	-0.489	U	XV	0.852	0	0.852	-0.16
9207W3S027	9207W3S027A	-0.025	U	XV	0.849	0	0.849	-0.164
9210C3S006	9210C3S006A	0.423	U	XV	0.848	0	0.848	-0.165
9207S3S034	9207S3S034A	-0.725	U	XV	0.847	0	0.847	-0.166
9207H3S021	9207H3S021A	0.371	U	XV	0.846	0	0.846	-0.167
9207F4S025	9207F4S025A	-0.104	U	XV	0.844	0	0.844	-0.17
9401DC1S036	9401DC1S036A	-0.412	U	XV	0.841	0	0.841	-0.173
9210D3S057	9210D3S057A	-0.578	U	XV	0.841	0	0.841	-0.173
9207W2S025	9207W2S025A	0.197	U	XV	0.839	0	0.839	-0.176
9207C4S010A	9207C4S010AA	0.224	U	XV	0.836	0	0.836	-0.179
9207W1S021	9207W1S021A	-0.347	U	XV	0.834	0	0.834	-0.182
9207W6S038	9207W6S038A	0.834		XV	0.801	1	0.834	-0.182
9210F3S014	9210F3S014A	-0.49	U	XV	0.832	0	0.832	-0.184
9210W1S013	9210W1S013A	-0.04	U	XV	0.832	0	0.832	-0.184
9207RS016	9207RS016A	-0.191	U	XV	0.832	0	0.832	-0.184
9210S2S025	9210S2S025A	0.026	U	XV	0.823	0	0.823	-0.195
9207C1S003	9207C1S003A	-0.125	U	XV	0.822	0	0.822	-0.196
9401DC1S031	9401DC1S031A	0.54	U	XV	0.821	0	0.821	-0.197
9210W1S015	9210W1S015A	0.039	U	XV	0.82	0	0.82	-0.198
9210S2S037	9210S2S037A	-0.578	U	XV	0.819	0	0.819	-0.2
9210H1S004	9210H1S004A	0.048	U	U	0.818	0	0.818	-0.201
9210S3S040	9210S3S040A	0.256	U	XV	0.817	0	0.817	-0.202
9210W1S017	9210W1S017A	-0.567	U	XV	0.816	0	0.816	-0.203
9207H3S005	9207H3S005A	0.085	U	XV	0.814	0	0.814	-0.206
9401W1S004	9401W1S004A	-0.354	U	UJ	0.81	0	0.81	-0.211
9210C1S003	9210C1S003A	-0.147	U	U	0.809	0	0.809	-0.212
9210W1S011	9210W1S011A	0.128	U	XV	0.809	0	0.809	-0.212
9207RS004	9207RS004A	-0.09	U	XV	0.807	0	0.807	-0.214

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S019	9207F3S019A	-0.459	U	XV	0.806	0	0.806	-0.216
9207RS019	9207RS019A	-0.186	U	XV	0.806	0	0.806	-0.216
9207F6S037	9207F6S037A	-0.333	U	XV	0.797	0	0.797	-0.227
9207D4S056	9207D4S056A	-0.419	U	XV	0.795	0	0.795	-0.229
9210RS001	9210RS001A	-0.241	U	XV	0.794	0	0.794	-0.231
9207W3S040	9207W3S040A	-0.353	U	XV	0.792	0	0.792	-0.233
9210D1S055	9210D1S055A	-0.097	U	U	0.79	0	0.79	-0.236
9210W1S018	9210W1S018A	0.122	U	XV	0.789	0	0.789	-0.237
9207S2S033	9207S2S033A	-0.471	U	XV	0.781	0	0.781	-0.247
9207F6S042	9207F6S042A	0.413	U	XV	0.779	0	0.779	-0.25
9207H1S001	9207H1S001A	-0.355	U	U	0.774	0	0.774	-0.256
9210H2S009	9210H2S009A	0.296	U	XV	0.772	0	0.772	-0.259
9210S2S026	9210S2S026A	-0.359	U	XV	0.772	0	0.772	-0.259
9207S4S038	9207S4S038A	-0.069	U	XV	0.771	0	0.771	-0.26
9207F1S004	9207F1S004A	0.109	U	XV	0.77	0	0.77	-0.261
9207F4S026	9207F4S026A	-0.487	U	XV	0.769	0	0.769	-0.263
9207W1S039	9207W1S039A	-0.356	U	XV	0.768	0	0.768	-0.264
9207F3S016	9207F3S016A	-0.257	U	U	0.768	0	0.768	-0.264
9207F3S022	9207F3S022A	-0.215	U	XV	0.767	0	0.767	-0.265
9210H3S011	9210H3S011A	-0.206	U	XV	0.765	0	0.765	-0.268
9207RS002	9207RS002AD	0.023	U	XV	0.762	0	0.762	-0.272
9210W1S012	9210W1S012A	0.174	U	XV	0.76	0	0.76	-0.274
9210W1S016	9210W1S016A	0.403	U	XV	0.76	0	0.76	-0.274
9207F3S017	9207F3S017A	-1.2	U	UJ	0.758	0	0.758	-0.277
9207C3S007	9207C3S007A	-0.329	U	XV	0.755	0	0.755	-0.281
9210F2S007	9210F2S007A	-0.315	U	XV	0.754	0	0.754	-0.282
9207W1S022	9207W1S022A	-0.247	U	XV	0.752	0	0.752	-0.285
9207F4S029	9207F4S029A	-0.49	U	XV	0.751	0	0.751	-0.286
9207W3S026	9207W3S026A	-0.588	U	XV	0.745	0	0.745	-0.294
9210RS011	9210RS011A	-0.466	U	XV	0.744	0	0.744	-0.296
9401DC1S022A	9401DC1S022AA	-0.334	U	XV	0.737	0	0.737	-0.305
9207F4S027	9207F4S027A	-0.171	U	XV	0.736	0	0.736	-0.307
9207F4S028	9207F4S028A	-0.312	U	XV	0.733	0	0.733	-0.311
9210H3S012	9210H3S012A	0.114	U	U	0.733	0	0.733	-0.311
9210H2S010	9210H2S010A	0.097	U	U	0.732	0	0.732	-0.312
9401DC1S032	9401DC1S032A	0.185	U	XV	0.726	0	0.726	-0.32
9207F3S018	9207F3S018A	-0.685	U	UJ	0.723	0	0.723	-0.324
9207W1S020	9207W1S020A	-0.144	U	XV	0.723	0	0.723	-0.324
9207RS018	9207RS018A	-0.149	U	XV	0.721	0	0.721	-0.327

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S023A	9401DC1S023AA	0.06	U	XV	0.716	0	0.716	-0.334
9207S4S028	9207S4S028A	0.567	U	XV	0.715	0	0.715	-0.335
9207C3S010	9207C3S010A	-0.463	U	XV	0.71	0	0.71	-0.342
9207F3S023	9207F3S023A	-0.22	U	XV	0.705	0	0.705	-0.35
9210C2S005	9210C2S005A	0.242	U	XV	0.704	0	0.704	-0.351
9210RS002	9210RS002A	-0.508	U	XV	0.701	0	0.701	-0.355
9207W1S023A	9207W1S023AA	0.053	U	XV	0.696	0	0.696	-0.362
9210S1S020	9210S1S020A	-0.113	U	UJ	0.696	0	0.696	-0.362
9207F1S003	9207F1S003A	-1.3	U	XV	0.692	0	0.692	-0.368
9207H3S006	9207H3S006A	-0.588	U	XV	0.691	0	0.691	-0.37
9207F5S032	9207F5S032A	0.038	U	U	0.69	0	0.69	-0.371
9210F3S017	9210F3S017A	-0.44	U	XV	0.69	0	0.69	-0.371
9210C1S002	9210C1S002A	-0.14	U	XV	0.686	0	0.686	-0.377
9210W1S014	9210W1S014A	0.229	U	XV	0.68	0	0.68	-0.386
9210C3S008	9210C3S008A	0.005	U	XV	0.673	0	0.673	-0.396
9401DC1S024A	9401DC1S024AA	0.297	U	XV	0.673	0	0.673	-0.396
9401DC1S026	9401DC1S026A	-0.098	U	XV	0.668	0	0.668	-0.403
9401DC1S054	9401DC1S054A	-0.046	U	XV	0.668	0	0.668	-0.403
9207D2S034A	9207D2S034AA	-0.52	U	XV	0.668	0	0.668	-0.403
9207S1S030	9207S1S030A	0.14	U	XV	0.667	0	0.667	-0.405
9210S2S036	9210S2S036A	-0.341	U	XV	0.666	0	0.666	-0.406
9207C6S018	9207C6S018A	-0.315	U	XV	0.664	0	0.664	-0.409
9207S1S031	9207S1S031A	0.214	U	XV	0.664	0	0.664	-0.409
9210H2S008	9210H2S008AD	0.279	U	XV	0.661	0	0.661	-0.414
9207D2S051	9207D2S051A	-0.084	U	XV	0.66	0	0.66	-0.416
9207RS003	9207RS003A	-0.394	U	XV	0.657	0	0.657	-0.42
9207C6S019	9207C6S019A	0.107	U	XV	0.656	0	0.656	-0.422
9207H3S004	9207H3S004A	-0.154	U	XV	0.655	0	0.655	-0.423
9210S2S002A	9210S2S002AA	-0.003	U	XV	0.655	0	0.655	-0.423
9207F1S001	9207F1S001A	-0.463	U	UJ	0.654	0	0.654	-0.425
9210S3S041	9210S3S041A	-0.151	U	XV	0.65	0	0.65	-0.431
9210S2S033	9210S2S033A	-0.221	U	XV	0.646	0	0.646	-0.437
9207F5S034	9207F5S034A	0.024	U	XV	0.644	0	0.644	-0.44
9210RS007	9210RS007A	-0.3	U	XV	0.643	0	0.643	-0.442
9207F5S031	9207F5S031A	-0.287	U	XV	0.642	0	0.642	-0.443
9401W1S016	9401W1S016A	-0.206	U	XV	0.639	0	0.639	-0.448
9210S2S034	9210S2S034A	-0.219	U	XV	0.639	0	0.639	-0.448
9207F4S030	9207F4S030A	-0.302	U	XV	0.638	0	0.638	-0.449
9207F1S005	9207F1S005A	-0.16	U	XV	0.635	0	0.635	-0.454

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S020	9207F3S020A	-0.199	U	XV	0.631	0	0.631	-0.46
9210S2S027	9210S2S027A	-0.227	U	XV	0.628	0	0.628	-0.465
9210S3S043	9210S3S043A	-0.076	U	XV	0.623	0	0.623	-0.473
9401W1S021	9401W1S021A	0.007	U	XV	0.618	0	0.618	-0.481
9207C2S006	9207C2S006A	-0.218	U	XV	0.611	0	0.611	-0.493
9210F1S003	9210F1S003A	-0.164	U	XV	0.607	0	0.607	-0.499
9207RS014	9207RS014A	-0.25	U	XV	0.606	0	0.606	-0.501
9210C2S004	9210C2S004A	-0.225	U	XV	0.604	0	0.604	-0.504
9207S6S045	9207S6S045A	-0.405	U	XV	0.604	0	0.604	-0.504
9210W1S010	9210W1S010A	0.2	U	XV	0.6	0	0.6	-0.511
9210RS005	9210RS005A	-0.348	U	XV	0.598	0	0.598	-0.514
9401DC1S034	9401DC1S034A	-0.839	U	XV	0.595	0	0.595	-0.519
9210F3S015	9210F3S015A	-0.361	U	XV	0.593	0	0.593	-0.523
9207RS007	9207RS007A	-0.174	U	XV	0.588	0	0.588	-0.531
9401DC1S022	9401DC1S022A	0.251	U	XV	0.587	0	0.587	-0.533
9207C2S004	9207C2S004A	0.145	U	XV	0.575	0	0.575	-0.553
9210S3S044	9210S3S044A	0.028	U	XV	0.575	0	0.575	-0.553
9207F1S002	9207F1S002A	-0.211	U	XV	0.574	0	0.574	-0.555
9207RS008	9207RS008A	-0.113	U	XV	0.574	0	0.574	-0.555
9207RS012	9207RS012A	-0.224	U	XV	0.571	0	0.571	-0.56
9207W4S031	9207W4S031A	-0.341	U	XV	0.569	0	0.569	-0.564
9207F2S011	9207F2S011A	-0.364	U	UJ	0.568	0	0.568	-0.566
9207C3S009	9207C3S009A	-0.035	U	XV	0.566	0	0.566	-0.569
9210F1S004	9210F1S004A	0.095	U	XV	0.566	0	0.566	-0.569
9210RS004	9210RS004A	0.001	U	XV	0.559	0	0.559	-0.582
9210F1S002	9210F1S002A	-0.201	U	XV	0.556	0	0.556	-0.587
9207F1S006	9207F1S006A	-0.161	U	XV	0.548	0	0.548	-0.601
9207RS002AA	9207RS002AA	-0.107	U	XV	0.543	0	0.543	-0.611
9401W1S005	9401W1S005A	0.329	U	XV	0.538	0	0.538	-0.62
9210F3S016	9210F3S016A	0.227	U	XV	0.537	0	0.537	-0.622
9207RS010	9207RS010A	-0.125	U	XV	0.533	0	0.533	-0.629
9210F3S019	9210F3S019A	0.022	U	XV	0.529	0	0.529	-0.637
9401DC1S051	9401DC1S051A	0.014	U	XV	0.525	0	0.525	-0.644
9401W1S019	9401W1S019A	0.226	U	XV	0.52	0	0.52	-0.654
9210F1S005	9210F1S005A	-0.071	U	XV	0.513	0	0.513	-0.667
9401W1S002	9401W1S002A	0.362	U	UJ	0.507	0	0.507	-0.679
9401W1S014	9401W1S014A	-0.009	U	UJ	0.501	0	0.501	-0.691
9401W1S017	9401W1S017A	0.488	U	U	0.501	0	0.501	-0.691
9401W1S018	9401W1S018A	0.388	U	UJ	0.489	0	0.489	-0.715

Table G.126
Statistical Summary for Nickel-63 (13981378) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S012	9401W1S012A	0.32	U	UJ	0.487	0	0.487	-0.719
9401DC1S024	9401DC1S024A	-0.07	U	XV	0.473	0	0.473	-0.749
9401DC1S049	9401DC1S049A	0.124	U	XV	0.469	0	0.469	-0.757
9401W1S013	9401W1S013A	0.416	U	UJ	0.469	0	0.469	-0.757
9401DC1S052	9401DC1S052A	0.333	U	XV	0.468	0	0.468	-0.759
9401W1S009	9401W1S009A	0.018	U	UJ	0.468	0	0.468	-0.759
9210S2S031	9210S2S031A	-0.09	U	XV	0.453	0	0.453	-0.792
9401DC1S035	9401DC1S035A	-0.01	U	XV	0.447	0	0.447	-0.805
9401W1S007	9401W1S007A	0.164	U	UJ	0.444	0	0.444	-0.812
9401W1S001A	9401W1S001AA	0.287	U	UJ	0.432	0	0.432	-0.839
9210F1S001	9210F1S001A	-0.125	U	XV	0.429	0	0.429	-0.846
9210S2S038	9210S2S038AD	-0.067	U	XV	0.415	0	0.415	-0.879
9210F1S006	9210F1S006A	0.079	U	XV	0.41	0	0.41	-0.892
9401DC1S050	9401DC1S050AD	0.374	U	XV	0.403	0	0.403	-0.909
9401W1S002A	9401W1S002AA	0.165	U	UJ	0.326	0	0.326	-1.12
9401W1S001	9401W1S001A	0.24	U	UJ	0.323	0	0.323	-1.13

Number of Samples	328
Number of Detects	1
Minimum	0.323
Median	0.865
Maximum	22.2
Arithmetic Average	1.07
Std Dev	1.42
PERT-Beta Expected Value	4.33
LN Mean	-0.105
LN Std Dev	0.458
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9401DC1S030	9401DC1S030B	5.9	J	XV	2.98	1	5.9	1.77
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	U	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	UJ	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	UJ	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	UJ	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	UJ	2.99	0	1.5	0.402
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	UJ	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	U	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	U	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	U	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	U	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	UJ	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	U	0.299	0	0.15	-1.9
9207F2S010	9207F2S010B	0.996	U	U	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	U	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	UJ	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S006	9210C3S006B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	U	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	U	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	UJ	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	UJ	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207F4S030	9207F4S030B	0.982	U	XV	0.295	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9207F6S038	9207F6S038B	0.972	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207C5S015	9207C5S015B	0.962	U	XV	0.289	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	UJ	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	UJ	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9401W1S004	9401W1S004B	0.035	J	J	0.035	1	0.035	-3.34
9401W1S003	9401W1S003B	0.034	J	J	0.033	1	0.034	-3.39
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08

Table G.127
Statistical Summary for 4-Nitrophenol (100027) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	UJ	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	3
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.487
Std Dev	1.12
PERT-Beta Expected Value	2.55
LN Mean	-1.78
LN Std Dev	1.41
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H1S006	9210H1S006B	98	U	XV	29.4	0	14.7	2.69
9207D1S050	9207D1S050B	37.7	U	XV	11.3	0	5.65	1.73
9207F3S020	9207F3S020B	25	U	XV	7.5	0	3.75	1.32
9401W1S020	9401W1S020B	21.4	U	XV	6.41	0	3.21	1.16
9207H3S019	9207H3S019B	20	U	XV	6	0	3	1.1
9401DC1S022A	9401DC1S022AB	19.8	U	XV	5.94	0	2.97	1.09
9401DC1S055	9401DC1S055BD	18.6	U	XV	5.58	0	2.79	1.03
9207F4S030	9207F4S030B	2.61		XV	0.295	1	2.61	0.959
9401DC1S053	9401DC1S053B	15.5	U	UJ	4.65	0	2.33	0.844
9207D5S057	9207D5S057B	14	U	XV	4.19	0	2.1	0.74
9210H3S013	9210H3S013B	13.9	U	XV	4.18	0	2.09	0.737
9207D1S048	9207D1S048B	12.2	U	XV	3.67	0	1.84	0.607
9207F6S038	9207F6S038B	1.81		XV	0.292	1	1.81	0.593
9210H3S014	9210H3S014B	11.1	U	XV	3.34	0	1.67	0.513
9207D1S047	9207D1S047B	10.2	U	XV	3.07	0	1.54	0.429
9210C1S002	9210C1S002B	9.99	U	XV	3	0	1.5	0.405
9210C3S008	9210C3S008B	9.99	U	XV	3	0	1.5	0.405
9401DC1S054	9401DC1S054B	9.99	U	XV	3	0	1.5	0.405
9207F2S012	9207F2S012B	10	U	UJ	3	0	1.5	0.405
9401W1S002A	9401W1S002AB	9.99	U	U	3	0	1.5	0.405
9401W1S017	9401W1S017B	9.99	U	U	3	0	1.5	0.405
9401DC1S023A	9401DC1S023AB	9.96	U	XV	2.99	0	1.5	0.402
9401DC1S026	9401DC1S026B	9.98	U	XV	2.99	0	1.5	0.402
9401DC1S034	9401DC1S034B	9.96	U	XV	2.99	0	1.5	0.402
9207F6S040	9207F6S040B	9.96	U	XV	2.99	0	1.5	0.402
9210F2S010	9210F2S010B	9.98	U	XV	2.99	0	1.5	0.402
9210F2S012	9210F2S012B	9.95	U	XV	2.99	0	1.5	0.402
9207H3S020	9207H3S020B	9.95	U	XV	2.99	0	1.5	0.402
9401W1S001	9401W1S001B	9.97	U	U	2.99	0	1.5	0.402
9401W1S001A	9401W1S001AB	9.97	U	U	2.99	0	1.5	0.402
9401W1S002	9401W1S002B	9.97	U	U	2.99	0	1.5	0.402
9401DC1S030	9401DC1S030B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S031	9401DC1S031B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S032	9401DC1S032B	9.95	U	XV	2.98	0	1.49	0.399
9401DC1S036	9401DC1S036B	9.92	U	XV	2.98	0	1.49	0.399
9401DC1S024A	9401DC1S024AB	9.9	U	XV	2.97	0	1.49	0.395
9207F1S001	9207F1S001BD	9.89	U	U	2.97	0	1.49	0.395
9210F3S019	9210F3S019B	9.89	U	XV	2.97	0	1.49	0.395
9210F3S018	9210F3S018B	9.88	U	XV	2.96	0	1.48	0.392

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S024	9401DC1S024B	9.84	U	XV	2.95	0	1.48	0.389
9401DC1S022	9401DC1S022B	9.71	U	XV	2.91	0	1.46	0.375
9401DC1S037	9401DC1S037B	9.68	U	XV	2.9	0	1.45	0.372
9401DC1S056	9401DC1S056B	9.24	U	XV	2.77	0	1.39	0.326
9210H3S015	9210H3S015B	9.12	U	XV	2.74	0	1.37	0.315
9207H3S018	9207H3S018B	9.11	U	XV	2.73	0	1.37	0.311
9210D1S046	9210D1S046B	9.01	U	U	2.7	0	1.35	0.3
9210D1S047	9210D1S047B	8.21	U	U	2.46	0	1.23	0.207
9401DC1S057A	9401DC1S057AB	8.02	U	UJ	2.4	0	1.2	0.182
9207H4S008	9207H4S008B	7.68	U	XV	2.3	0	1.15	0.14
9401DC1S048	9401DC1S048B	6.68	U	XV	2	0	1	0
9207H3S022	9207H3S022B	5.4	U	XV	1.62	0	0.81	-0.211
9401W1S011	9401W1S011B	5.2	U	XV	1.56	0	0.78	-0.248
9401DC1S025	9401DC1S025B	5.05	U	XV	1.51	0	0.755	-0.281
9207F3S018	9207F3S018B	5	U	UJ	1.5	0	0.75	-0.288
9207F3S023	9207F3S023B	5	U	XV	1.5	0	0.75	-0.288
9207F4S026	9207F4S026B	5	U	XV	1.5	0	0.75	-0.288
9207F3S017	9207F3S017B	4.96	U	UJ	1.49	0	0.745	-0.294
9207F3S022	9207F3S022B	4.98	U	XV	1.49	0	0.745	-0.294
9207W2S025	9207W2S025B	4.97	U	XV	1.49	0	0.745	-0.294
9207W5S033	9207W5S033B	4.96	U	XV	1.49	0	0.745	-0.294
9207F3S013	9207F3S013B	4.93	U	XV	1.48	0	0.74	-0.301
9207W3S028	9207W3S028B	4.92	U	XV	1.48	0	0.74	-0.301
9207H1S002	9207H1S002B	4.85	U	XV	1.46	0	0.73	-0.315
9207H3S024	9207H3S024B	4.88	U	XV	1.46	0	0.73	-0.315
9207H3S023	9207H3S023B	4.8	U	XV	1.44	0	0.72	-0.329
9207D2S034A	9207D2S034AB	4.72	U	XV	1.42	0	0.71	-0.342
9207W4S031	9207W4S031B	4.72	U	XV	1.42	0	0.71	-0.342
9401DC1S027	9401DC1S027B	3.73	U	XV	1.12	0	0.56	-0.58
9210H2S010	9210H2S010B	3.4	U	U	1.02	0	0.51	-0.673
9401W1S014	9401W1S014B	3.3	U	U	0.99	0	0.495	-0.703
9210D1S049	9210D1S049B	3.28	U	XV	0.984	0	0.492	-0.709
9207S6S044	9207S6S044B	3	U	XV	0.901	0	0.451	-0.797
9207D4S055	9207D4S055B	2.93	U	XV	0.88	0	0.44	-0.821
9207H5S009	9207H5S009B	2.78	U	XV	0.833	0	0.417	-0.876
9210D1S006A	9210D1S006AB	2.52	U	XV	0.756	0	0.378	-0.973
9207H3S004	9207H3S004B	2.49	U	XV	0.746	0	0.373	-0.986
9207C5S015	9207C5S015B	0.351	J	XV	0.289	1	0.351	-1.05
9210C3S006	9210C3S006B	0.349	J	XV	0.298	1	0.349	-1.05

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H2S008	9210H2S008BD	2.16	U	XV	0.647	0	0.324	-1.13
9207H1S001A	9207H1S001AB	1.93	U	XV	0.579	0	0.29	-1.24
9207H1S001	9207H1S001B	1.67	U	U	0.502	0	0.251	-1.38
9210S1S020	9210S1S020B	1.54	U	U	0.461	0	0.231	-1.47
9401DC1S029	9401DC1S029B	1.38	U	XV	0.414	0	0.207	-1.58
9207D5S058	9207D5S058B	1.31	U	XV	0.393	0	0.197	-1.63
9210S3S042	9210S3S042B	1.2	U	XV	0.359	0	0.18	-1.72
9210S2S002A	9210S2S002AB	1.13	U	XV	0.34	0	0.17	-1.77
9207H3S007	9207H3S007B	1.11	U	XV	0.334	0	0.167	-1.79
9401DC1S028	9401DC1S028B	1.07	U	XV	0.321	0	0.161	-1.83
9401DC1S043	9401DC1S043B	1.01	U	U	0.304	0	0.152	-1.88
9207C2S004	9207C2S004B	1	U	XV	0.3	0	0.15	-1.9
9207C2S004A	9207C2S004AB	1	U	XV	0.3	0	0.15	-1.9
9207C3S010	9207C3S010B	1	U	XV	0.3	0	0.15	-1.9
9210C1S001A	9210C1S001AB	1	U	XV	0.3	0	0.15	-1.9
9210C2S004	9210C2S004B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S018	9210W1S018B	0.999	U	XV	0.3	0	0.15	-1.9
9210W1S019	9210W1S019B	1	U	U	0.3	0	0.15	-1.9
9207F1S002	9207F1S002B	0.999	U	XV	0.3	0	0.15	-1.9
9207F1S006	9207F1S006B	1	U	XV	0.3	0	0.15	-1.9
9207F2S007	9207F2S007B	0.999	U	UJ	0.3	0	0.15	-1.9
9207F2S009	9207F2S009B	1	U	XV	0.3	0	0.15	-1.9
9207F2S011	9207F2S011BD	0.999	U	UJ	0.3	0	0.15	-1.9
9210F2S009	9210F2S009B	1	U	XV	0.3	0	0.15	-1.9
9210F3S015	9210F3S015B	1	U	XV	0.3	0	0.15	-1.9
9210W1S014	9210W1S014B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S015	9401W1S015B	0.999	U	XV	0.3	0	0.15	-1.9
9401W1S018	9401W1S018B	0.999	U	U	0.3	0	0.15	-1.9
9401W1S019	9401W1S019B	0.999	U	XV	0.3	0	0.15	-1.9
9207C3S008	9207C3S008B	0.998	U	XV	0.299	0	0.15	-1.9
9207C6S019	9207C6S019B	0.997	U	XV	0.299	0	0.15	-1.9
9210C1S003	9210C1S003B	0.997	U	U	0.299	0	0.15	-1.9
9401DC1S023	9401DC1S023B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S049	9401DC1S049B	0.998	U	XV	0.299	0	0.15	-1.9
9401DC1S050	9401DC1S050B	0.996	U	XV	0.299	0	0.15	-1.9
9401DC1S052	9401DC1S052B	0.996	U	XV	0.299	0	0.15	-1.9
9207W1S023A	9207W1S023AB	0.995	U	XV	0.299	0	0.15	-1.9
9210W1S017	9210W1S017B	0.996	U	XV	0.299	0	0.15	-1.9
9207F2S008	9207F2S008B	0.996	U	UJ	0.299	0	0.15	-1.9

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F2S010	9207F2S010B	0.996	U	UJ	0.299	0	0.15	-1.9
9207F3S016	9207F3S016B	0.998	U	UJ	0.299	0	0.15	-1.9
9207F5S036	9207F5S036B	0.996	U	XV	0.299	0	0.15	-1.9
9210F2S013	9210F2S013B	0.998	U	XV	0.299	0	0.15	-1.9
9207W3S026	9207W3S026B	0.995	U	XV	0.299	0	0.15	-1.9
9207W3S027	9207W3S027B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S011	9210W1S011B	0.998	U	XV	0.299	0	0.15	-1.9
9210W1S012	9210W1S012B	0.998	U	XV	0.299	0	0.15	-1.9
9401W1S007	9401W1S007B	0.997	U	U	0.299	0	0.15	-1.9
9207C2S006	9207C2S006B	0.992	U	XV	0.298	0	0.149	-1.9
9210C2S005	9210C2S005B	0.995	U	XV	0.298	0	0.149	-1.9
9210C3S007	9210C3S007B	0.992	U	XV	0.298	0	0.149	-1.9
9207W1S039	9207W1S039B	0.995	U	XV	0.298	0	0.149	-1.9
9207W3S040	9207W3S040B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S003	9207F1S003B	0.994	U	XV	0.298	0	0.149	-1.9
9207F1S005	9207F1S005B	0.993	U	XV	0.298	0	0.149	-1.9
9207F3S014	9207F3S014B	0.993	U	UJ	0.298	0	0.149	-1.9
9207F3S015	9207F3S015B	0.994	U	UJ	0.298	0	0.149	-1.9
9207F4S025	9207F4S025B	0.992	U	XV	0.298	0	0.149	-1.9
9207F5S034	9207F5S034B	0.993	U	XV	0.298	0	0.149	-1.9
9207F6S042	9207F6S042B	0.994	U	XV	0.298	0	0.149	-1.9
9210F2S011	9210F2S011B	0.995	U	XV	0.298	0	0.149	-1.9
9207W1S021	9207W1S021B	0.992	U	XV	0.298	0	0.149	-1.9
9207W4S030	9207W4S030B	0.992	U	XV	0.298	0	0.149	-1.9
9210W1S009	9210W1S009B	0.994	U	XV	0.298	0	0.149	-1.9
9210W1S010	9210W1S010B	0.993	U	XV	0.298	0	0.149	-1.9
9210W1S015	9210W1S015B	0.994	U	XV	0.298	0	0.149	-1.9
9401W1S009	9401W1S009B	0.993	U	U	0.298	0	0.149	-1.9
9401W1S012	9401W1S012B	0.995	U	U	0.298	0	0.149	-1.9
9207C3S009	9207C3S009B	0.991	U	XV	0.297	0	0.149	-1.91
9207C4S010A	9207C4S010AB	0.99	U	XV	0.297	0	0.149	-1.91
9207C4S013	9207C4S013B	0.99	U	XV	0.297	0	0.149	-1.91
9207C6S018	9207C6S018B	0.99	U	XV	0.297	0	0.149	-1.91
9207F3S021	9207F3S021B	0.991	U	XV	0.297	0	0.149	-1.91
9207F5S035	9207F5S035B	0.989	U	XV	0.297	0	0.149	-1.91
9210F2S007	9210F2S007BD	0.989	U	XV	0.297	0	0.149	-1.91
9207W1S020	9207W1S020B	0.991	U	XV	0.297	0	0.149	-1.91
9210W1S013	9210W1S013B	0.989	U	XV	0.297	0	0.149	-1.91
9210W1S016	9210W1S016B	0.99	U	XV	0.297	0	0.149	-1.91

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C3S007	9207C3S007B	0.988	U	XV	0.296	0	0.148	-1.91
9207C5S012A	9207C5S012AB	0.988	U	XV	0.296	0	0.148	-1.91
9207F5S031	9207F5S031B	0.986	U	XV	0.296	0	0.148	-1.91
9210F3S014	9210F3S014B	0.985	U	XV	0.296	0	0.148	-1.91
9207W5S034	9207W5S034B	0.987	U	XV	0.296	0	0.148	-1.91
9401W1S005	9401W1S005B	0.987	U	XV	0.296	0	0.148	-1.91
9207W6S037	9207W6S037B	0.983	U	XV	0.295	0	0.148	-1.91
9401W1S016	9401W1S016B	0.984	U	XV	0.295	0	0.148	-1.91
9207W2S024A	9207W2S024AB	0.979	U	XV	0.294	0	0.147	-1.92
9207F3S024	9207F3S024B	0.979	U	XV	0.294	0	0.147	-1.92
9207F4S027	9207F4S027B	0.979	U	XV	0.294	0	0.147	-1.92
9207W5S035	9207W5S035B	0.979	U	XV	0.294	0	0.147	-1.92
9207H3S021	9207H3S021B	0.978	U	XV	0.293	0	0.147	-1.92
9207W1S022	9207W1S022B	0.978	U	XV	0.293	0	0.147	-1.92
9401DC1S035	9401DC1S035BD	0.973	U	XV	0.292	0	0.146	-1.92
9210F2S008	9210F2S008B	0.969	U	XV	0.291	0	0.146	-1.93
9207W3S029	9207W3S029BD	0.97	U	XV	0.291	0	0.146	-1.93
9207W6S038	9207W6S038B	0.971	U	XV	0.291	0	0.146	-1.93
9401DC1S033	9401DC1S033B	0.965	U	XV	0.29	0	0.145	-1.93
9207F3S019	9207F3S019B	0.966	U	XV	0.29	0	0.145	-1.93
9207F6S041	9207F6S041B	0.968	U	XV	0.29	0	0.145	-1.93
9210F3S016	9210F3S016B	0.967	U	XV	0.29	0	0.145	-1.93
9210H1S005	9210H1S005B	0.966	U	XV	0.29	0	0.145	-1.93
9207W6S036	9207W6S036B	0.964	U	XV	0.289	0	0.145	-1.93
9207F6S037	9207F6S037B	0.959	U	XV	0.288	0	0.144	-1.94
9210F3S017	9210F3S017B	0.961	U	XV	0.288	0	0.144	-1.94
9207W2S023	9207W2S023B	0.962	U	XV	0.288	0	0.144	-1.94
9207W2S024	9207W2S024B	0.96	U	XV	0.288	0	0.144	-1.94
9207W4S032	9207W4S032B	0.96	U	XV	0.288	0	0.144	-1.94
9207F4S028	9207F4S028B	0.958	U	XV	0.287	0	0.144	-1.94
9207F6S039	9207F6S039B	0.958	U	XV	0.287	0	0.144	-1.94
9207F5S032	9207F5S032BD	0.952	U	U	0.286	0	0.143	-1.94
9401W1S021	9401W1S021B	0.951	U	XV	0.285	0	0.143	-1.95
9207F4S029	9207F4S029B	0.95	U	XV	0.285	0	0.143	-1.95
9401DC1S039	9401DC1S039B	0.942	U	XV	0.283	0	0.142	-1.96
9401DC1S040	9401DC1S040B	0.939	U	XV	0.282	0	0.141	-1.96
9207S1S030	9207S1S030B	0.941	U	XV	0.282	0	0.141	-1.96
9401DC1S042	9401DC1S042B	0.934	U	U	0.28	0	0.14	-1.97
9207D2S053	9207D2S053B	0.914	U	XV	0.274	0	0.137	-1.99

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017B	0.91	U	XV	0.273	0	0.137	-1.99
9207D2S051	9207D2S051B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S041	9401DC1S041B	0.903	U	XV	0.271	0	0.136	-2.0
9401DC1S044	9401DC1S044B	0.857	U	XV	0.257	0	0.129	-2.05
9207H5S010	9207H5S010B	0.856	U	XV	0.257	0	0.129	-2.05
9210D1S050	9210D1S050B	0.847	U	U	0.254	0	0.127	-2.06
9401DC1S038	9401DC1S038B	0.845	U	XV	0.253	0	0.127	-2.07
9401DC1S047	9401DC1S047B	0.844	U	XV	0.253	0	0.127	-2.07
9401DC1S045	9401DC1S045B	0.835	U	XV	0.251	0	0.126	-2.08
9401DC1S046	9401DC1S046B	0.827	U	XV	0.248	0	0.124	-2.09
9207H1S013	9207H1S013B	0.822	U	XV	0.247	0	0.124	-2.09
9207S5S029	9207S5S029B	0.821	U	XV	0.246	0	0.123	-2.1
9210S2S034	9210S2S034B	0.81	U	XV	0.243	0	0.122	-2.11
9207D1S046	9207D1S046B	0.797	U	XV	0.239	0	0.12	-2.12
9207H3S003A	9207H3S003AB	0.796	U	XV	0.239	0	0.12	-2.12
9207H1S012	9207H1S012B	0.763	U	UJ	0.229	0	0.115	-2.17
9210D1S048	9210D1S048B	0.739	U	XV	0.222	0	0.111	-2.2
9210S2S031	9210S2S031B	0.739	U	XV	0.222	0	0.111	-2.2
9210D1S051	9210D1S051B	0.727	U	U	0.218	0	0.109	-2.22
9210H1S004	9210H1S004B	0.716	U	U	0.215	0	0.108	-2.23
9207C1S003	9207C1S003B	0.712	U	XV	0.214	0	0.107	-2.23
9207S3S036	9207S3S036B	0.695	U	U	0.209	0	0.105	-2.26
9210S1S023	9210S1S023B	0.693	U	XV	0.208	0	0.104	-2.26
9210S3S041	9210S3S041B	0.683	U	XV	0.205	0	0.103	-2.28
9207H3S005	9207H3S005BD	0.643	U	XV	0.193	0	0.097	-2.34
9401W1S004A	9401W1S004AB	0.62	U	U	0.186	0	0.093	-2.38
9207H2S003	9207H2S003B	0.617	U	XV	0.185	0	0.093	-2.38
9210D1S055	9210D1S055B	0.605	U	U	0.182	0	0.091	-2.4
9207F5S033	9207F5S033B	0.602	U	XV	0.181	0	0.091	-2.4
9207F1S004	9207F1S004B	0.589	U	XV	0.177	0	0.089	-2.42
9207D4S054	9207D4S054B	0.588	U	XV	0.176	0	0.088	-2.43
9210D3S057	9210D3S057B	0.575	U	XV	0.173	0	0.087	-2.45
9210D3S059	9210D3S059B	0.573	U	XV	0.172	0	0.086	-2.45
9210S1S019	9210S1S019B	0.574	U	XV	0.172	0	0.086	-2.45
9207S6S045	9207S6S045B	0.548	U	XV	0.164	0	0.082	-2.5
9210S1S021	9210S1S021B	0.509	U	UJ	0.153	0	0.077	-2.57
9207D5S059	9207D5S059B	0.505	U	XV	0.152	0	0.076	-2.58
9207H5S026	9207H5S026BD	0.505	U	XV	0.151	0	0.076	-2.58
9210S2S035	9210S2S035B	0.497	U	XV	0.149	0	0.075	-2.6

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S016	9207H3S016B	0.493	U	XV	0.148	0	0.074	-2.6
9207H3S017	9207H3S017B	0.481	U	XV	0.144	0	0.072	-2.63
9207H2S014	9207H2S014B	0.458	U	XV	0.137	0	0.069	-2.68
9210S1S024	9210S1S024B	0.423	U	XV	0.127	0	0.064	-2.76
9207S1S031	9207S1S031B	0.42	U	XV	0.126	0	0.063	-2.76
9210S2S032	9210S2S032B	0.388	U	XV	0.116	0	0.058	-2.85
9210D1S052	9210D1S052BD	0.377	U	XV	0.113	0	0.057	-2.87
9210D1S053	9210D1S053B	0.374	U	XV	0.112	0	0.056	-2.88
9207H3S006	9207H3S006B	0.372	U	XV	0.112	0	0.056	-2.88
9210S2S037	9210S2S037B	0.372	U	XV	0.112	0	0.056	-2.88
9207H2S015	9207H2S015B	0.364	U	XV	0.109	0	0.055	-2.91
9210S1S018	9210S1S018B	0.351	U	XV	0.105	0	0.053	-2.95
9207S2S032	9207S2S032B	0.339	U	U	0.102	0	0.051	-2.98
9210F1S001	9210F1S001B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S003	9210F1S003B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S004	9210F1S004B	0.333	U	XV	0.1	0	0.05	-3.0
9210F1S006	9210F1S006B	0.332	U	XV	0.1	0	0.05	-3.0
9401W1S013	9401W1S013B	0.331	U	U	0.099	0	0.05	-3.0
9401DC1S051	9401DC1S051B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S005	9210F1S005B	0.331	U	XV	0.099	0	0.05	-3.0
9210F1S002	9210F1S002B	0.329	U	XV	0.099	0	0.049	-3.01
9207D4S056	9207D4S056B	0.302	U	XV	0.091	0	0.045	-3.09
9207S4S040	9207S4S040B	0.265	U	XV	0.08	0	0.04	-3.22
9207S4S028	9207S4S028B	0.247	U	XV	0.074	0	0.037	-3.29
9210S2S038	9210S2S038B	0.224	U	XV	0.067	0	0.034	-3.39
9210S1S022	9210S1S022B	0.223	U	U	0.067	0	0.033	-3.4
9210H3S012	9210H3S012B	0.205	U	U	0.062	0	0.031	-3.48
9210S2S033	9210S2S033B	0.2	U	XV	0.06	0	0.03	-3.51
9210H3S011	9210H3S011B	0.193	U	XV	0.058	0	0.029	-3.54
9210D1S056	9210D1S056B	0.18	U	XV	0.054	0	0.027	-3.61
9210H2S009	9210H2S009B	0.156	U	XV	0.047	0	0.023	-3.75
9210S3S044	9210S3S044B	0.134	U	XV	0.04	0	0.02	-3.9
9210D3S058	9210D3S058B	0.133	U	XV	0.04	0	0.02	-3.91
9210S3S043	9210S3S043B	0.13	U	XV	0.039	0	0.02	-3.94
9207S4S038	9207S4S038B	0.127	U	XV	0.038	0	0.019	-3.96
9207C1S001	9207C1S001B	0.124	U	XV	0.037	0	0.019	-3.98
9401W1S004	9401W1S004B	0.117	U	U	0.035	0	0.018	-4.05
9210S1S001A	9210S1S001AB	0.113	U	XV	0.034	0	0.017	-4.08
9401W1S003	9401W1S003B	0.111	U	U	0.033	0	0.017	-4.09

Table G.128
Statistical Summary for Phenol (108952) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041BD	0.111	U	XV	0.033	0	0.017	-4.09
9207C5S016	9207C5S016B	0.11	U	XV	0.033	0	0.017	-4.1
9207D2S052	9207D2S052B	0.1	U	XV	0.03	0	0.015	-4.2
9210S2S029	9210S2S029B	0.099	U	XV	0.03	0	0.015	-4.21
9210S2S027	9210S2S027B	0.097	U	XV	0.029	0	0.015	-4.23
9207S3S037	9207S3S037B	0.096	U	XV	0.029	0	0.014	-4.25
9207C1S002	9207C1S002B	0.093	U	UJ	0.028	0	0.014	-4.28
9210S3S040	9210S3S040B	0.092	U	XV	0.028	0	0.014	-4.28
9207C4S011	9207C4S011B	0.091	U	XV	0.027	0	0.014	-4.29
9207S3S034	9207S3S034B	0.089	U	XV	0.027	0	0.013	-4.32
9207S5S042	9207S5S042B	0.087	U	XV	0.026	0	0.013	-4.34
9207S5S043	9207S5S043B	0.086	U	XV	0.026	0	0.013	-4.35
9207H3S022A	9207H3S022AB	0.081	U	XV	0.024	0	0.012	-4.41
9210S2S030	9210S2S030B	0.077	U	XV	0.023	0	0.012	-4.46
9207S1S027	9207S1S027B	0.075	U	XV	0.023	0	0.011	-4.49
9210S2S026	9210S2S026B	0.072	U	XV	0.022	0	0.011	-4.53
9210S2S025	9210S2S025B	0.072	U	XV	0.022	0	0.011	-4.53
9207S2S033	9207S2S033B	0.064	U	XV	0.019	0	0.01	-4.65
9207C6S017	9207C6S017B	0.059	U	XV	0.018	0	0.009	-4.73
9210S2S036	9210S2S036B	0.051	U	XV	0.015	0	0.008	-4.88
9210S2S028	9210S2S028B	0.047	U	XV	0.014	0	0.007	-4.96
9207S4S039	9207S4S039B	0.02	U	XV	0.006	0	0.003	-5.82

Number of Samples	295
Number of Detects	4
Minimum	0.003
Median	0.149
Maximum	14.7
Arithmetic Average	0.488
Std Dev	1.09
PERT-Beta Expected Value	2.55
LN Mean	-1.76
LN Std Dev	1.43
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.129
Statistical Summary for Potassium-40 (13966002) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S012	9401W1S012A	64.5		=	1.38	1	64.5	4.17
9401W1S009	9401W1S009A	63		=	1.44	1	63	4.14
9401W1S014	9401W1S014A	61.4		=	2.04	1	61.4	4.12
9401W1S017	9401W1S017A	55.3		=	1.64	1	55.3	4.01
9401W1S005	9401W1S005A	51.9		XV	1.2	1	51.9	3.95
9401W1S007	9401W1S007A	50.4		=	2.16	1	50.4	3.92
9401W1S016	9401W1S016A	48.3		XV	1.56	1	48.3	3.88
9207W1S022	9207W1S022A	47.3		XV	2.01	1	47.3	3.86
9207W1S023A	9207W1S023AA	43.3		XV	1.01	1	43.3	3.77
9207W1S021	9207W1S021A	41.5		XV	1.57	1	41.5	3.73
9207W3S027	9207W3S027A	40.4		XV	0.672	1	40.4	3.7
9401W1S015	9401W1S015A	39.2		XV	0.644	1	39.2	3.67
9401DC1S023	9401DC1S023A	39		XV	0.868	1	39	3.66
9401DC1S050	9401DC1S050A	37.6		XV	2.83	1	37.6	3.63
9401DC1S035	9401DC1S035A	35.3		XV	2.19	1	35.3	3.56
9401W1S018	9401W1S018A	35.3		=	1.51	1	35.3	3.56
9207W2S024A	9207W2S024AA	33.1		XV	1.07	1	33.1	3.5
9210W1S009	9210W1S009A	32.5		XV	0.989	1	32.5	3.48
9207W2S024	9207W2S024A	32.3		XV	1.06	1	32.3	3.48
9207W1S020	9207W1S020A	31.9		XV	0.796	1	31.9	3.46
9401DC1S049	9401DC1S049A	30.1		XV	1.1	1	30.1	3.4
9401DC1S051	9401DC1S051A	29.5		XV	1.34	1	29.5	3.38
9207W3S026	9207W3S026A	29.5		XV	1.14	1	29.5	3.38
9207W5S034	9207W5S034A	28.3		XV	1.28	1	28.3	3.34
9401DC1S052	9401DC1S052A	27.2		XV	2.09	1	27.2	3.3
9207W3S028	9207W3S028A	26.2		XV	1.09	1	26.2	3.27
9401W1S013	9401W1S013A	26.2		=	1.75	1	26.2	3.27
9207W3S040	9207W3S040A	24.5		XV	1.28	1	24.5	3.2
9207W5S035	9207W5S035A	23		XV	0.992	1	23	3.14
9401W1S021	9401W1S021A	22.8		XV	1.88	1	22.8	3.13
9401W1S019	9401W1S019A	21.2		XV	2	1	21.2	3.05
9210W1S017	9210W1S017A	20		XV	1.45	1	20	3.0
9207F3S013	9207F3S013A	18.9		XV	2.22	1	18.9	2.94
9210W1S011	9210W1S011A	18.4		XV	1.79	1	18.4	2.91
9401DC1S036	9401DC1S036A	18.3		XV	2.19	1	18.3	2.91
9401DC1S033	9401DC1S033A	17.8		XV	1.25	1	17.8	2.88
9401DC1S030	9401DC1S030A	17.4		XV	1.38	1	17.4	2.86
9401DC1S054	9401DC1S054A	17.1		XV	1.45	1	17.1	2.84
9210W1S018	9210W1S018A	17		XV	1.15	1	17	2.83

Table G.129
Statistical Summary for Potassium-40 (13966002) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S032	9401DC1S032A	16.8		XV	0.904	1	16.8	2.82
9401DC1S034	9401DC1S034A	16.6		XV	1.4	1	16.6	2.81
9207W3S029	9207W3S029A	16.6		XV	0.983	1	16.6	2.81
9207W6S038	9207W6S038A	16.5		XV	1.75	1	16.5	2.8
9401DC1S031	9401DC1S031A	16.2		XV	0.951	1	16.2	2.79
9401DC1S024	9401DC1S024A	15.8		XV	1.66	1	15.8	2.76
9401DC1S023A	9401DC1S023AA	15.7		XV	1.64	1	15.7	2.75
9207W4S032	9207W4S032A	15		XV	0.736	1	15	2.71
9207W6S036	9207W6S036A	15		XV	1.22	1	15	2.71
9401DC1S022A	9401DC1S022AA	14.9		XV	0.958	1	14.9	2.7
9401DC1S022	9401DC1S022A	14.3		XV	1.28	1	14.3	2.66
9207W1S039	9207W1S039A	14.3		XV	1.12	1	14.3	2.66
9207W2S023	9207W2S023A	14.3		XV	1.82	1	14.3	2.66
9207W6S037	9207W6S037A	14.3		XV	1.21	1	14.3	2.66
9401DC1S024A	9401DC1S024AA	14.2		XV	2.4	1	14.2	2.65
9207W5S033	9207W5S033A	14.1		XV	1.53	1	14.1	2.65
9401DC1S026	9401DC1S026A	14		XV	1.47	1	14	2.64
9210W1S013	9210W1S013A	13.9		XV	1.92	1	13.9	2.63
9401DC1S037	9401DC1S037A	13.3		XV	1.8	1	13.3	2.59
9210W1S019	9210W1S019A	12.9		=	1.23	1	12.9	2.56
9210W1S015	9210W1S015A	12.4		XV	2.05	1	12.4	2.52
9207F5S036	9207F5S036A	11.4		XV	1.44	1	11.4	2.43
9207F3S017	9207F3S017A	10.1		=	1.58	1	10.1	2.31
9210W1S016	9210W1S016A	10		XV	0.626	1	10	2.3
9210W1S014	9210W1S014A	9.77		XV	2.28	1	9.77	2.28
9210F3S016	9210F3S016A	9.5		XV	1.27	1	9.5	2.25
9207F4S026	9207F4S026A	8.55		XV	0.727	1	8.55	2.15
9210C1S002	9210C1S002A	7.97		XV	0.44	1	7.97	2.08
9207F6S037	9207F6S037A	7.86		XV	0.962	1	7.86	2.06
9207F2S012	9207F2S012A	7.82		=	1.61	1	7.82	2.06
9207F4S030	9207F4S030A	7.77		XV	1.34	1	7.77	2.05
9210W1S010	9210W1S010A	7.68		XV	0.941	1	7.68	2.04
9207F3S016	9207F3S016A	7.45		=	1.43	1	7.45	2.01
9207F3S015	9207F3S015A	7.26		=	1.57	1	7.26	1.98
9207F5S031	9207F5S031A	7.22		XV	0.839	1	7.22	1.98
9207C5S015	9207C5S015A	7.04		XV	0.73	1	7.04	1.95
9210C2S004	9210C2S004A	6.77		XV	1.63	1	6.77	1.91
9207C6S018	9207C6S018A	6.38		XV	0.789	1	6.38	1.85
9210F3S018	9210F3S018A	5.99		XV	0.78	1	5.99	1.79

Table G.129
Statistical Summary for Potassium-40 (13966002) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S014	9207F3S014A	5.89		=	1.46	1	5.89	1.77
9210F1S001	9210F1S001A	5.81		XV	1.14	1	5.81	1.76
9207F4S027	9207F4S027A	5.73		XV	1.32	1	5.73	1.75
9207C6S019	9207C6S019A	5.63		XV	0.872	1	5.63	1.73
9207C4S013	9207C4S013A	5.53		XV	1.02	1	5.53	1.71
9210C3S006	9210C3S006A	5.51		XV	0.792	1	5.51	1.71
9210F1S006	9210F1S006A	5.46		XV	1.27	1	5.46	1.7
9207F3S018	9207F3S018A	5.22		=	0.315	1	5.22	1.65
9207F4S028	9207F4S028A	5.15		XV	0.318	1	5.15	1.64
9207C2S004A	9207C2S004AA	5.13		XV	0.745	1	5.13	1.64
9210C1S001A	9210C1S001AA	4.72		XV	0.934	1	4.72	1.55
9207F3S022	9207F3S022A	4.66		XV	1.18	1	4.66	1.54
9210C3S008	9210C3S008A	4.63		XV	1.08	1	4.63	1.53
9207C2S006	9207C2S006A	4.57		XV	1.42	1	4.57	1.52
9210RS010	9210RS010A	3.96		XV	0.53	1	3.96	1.38
9207F5S032	9207F5S032AD	3.58		=	0.322	1	3.58	1.28
9210RS004	9210RS004A	3.33		XV	0.741	1	3.33	1.2
9210C2S005	9210C2S005A	3.27		XV	0.638	1	3.27	1.18
9210RS006	9210RS006A	3.2		XV	0.98	1	3.2	1.16
9207C3S007	9207C3S007A	2.75		XV	0.645	1	2.75	1.01
9210RS001	9210RS001A	2.67		XV	0.561	1	2.67	0.982
9210F1S004	9210F1S004A	1.88		XV	0.422	1	1.88	0.631
9210RS002	9210RS002A	1.83		XV	0.126	1	1.83	0.604

Number of Samples	101
Number of Detects	101
Minimum	1.83
Median	14.3
Maximum	64.5
Arithmetic Average	18.6
Std Dev	15.2
PERT-Beta Expected Value	20.6
LN Mean	2.58
LN Std Dev	0.861
Lilliefors p-value for normality	0.01

Table G.129
Statistical Summary for Potassium-40 (13966002) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Lilliefors p-value for lognormality		0.06						

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W6S038	9207W6S038A	3.15		XV	0.649	1	3.15	1.15
9210W1S011	9210W1S011A	2.92		XV	1.54	1	2.92	1.07
9207W3S028	9207W3S028A	2.66		XV	0.908	1	2.66	0.978
9207W5S033	9207W5S033A	2.66		XV	0.756	1	2.66	0.978
9207W4S032	9207W4S032A	2.62		XV	0.358	1	2.62	0.963
9207W3S040	9207W3S040A	2.59		XV	1.06	1	2.59	0.952
9210W1S015	9210W1S015A	2.45		XV	0.187	1	2.45	0.896
9207W6S037	9207W6S037A	2.36		XV	0.587	1	2.36	0.859
9210W1S018	9210W1S018A	2.18		XV	0.813	1	2.18	0.779
9207W2S024A	9207W2S024AAD	2.08		XV	0.595	1	2.08	0.732
9207W3S029	9207W3S029A	2		XV	0.625	1	2	0.693
9207W2S024	9207W2S024A	1.78		XV	0.61	1	1.78	0.577
9401W1S021	9401W1S021A	1.71		XV	0.535	1	1.71	0.536
9207W5S034	9207W5S034A	1.7		XV	0.897	1	1.7	0.531
9210W1S013	9210W1S013A	1.68		XV	0.928	1	1.68	0.519
9207F3S013	9207F3S013A	1.62		XV	0.938	1	1.62	0.482
9401DC1S036	9401DC1S036A	1.6		XV	0.585	1	1.6	0.47
9401DC1S032	9401DC1S032A	1.5		XV	0.854	1	1.5	0.405
9401DC1S049	9401DC1S049A	1.44		XV	0.455	1	1.44	0.365
9401DC1S031	9401DC1S031A	0.867	U	XV	1.39	0	1.39	0.329
9207F6S041	9207F6S041A	1.38		XV	0.543	1	1.38	0.322
9401W1S016	9401W1S016A	1.36		XV	0.273	1	1.36	0.307
9401DC1S035	9401DC1S035AD	1.34		XV	0.362	1	1.34	0.293
9207C2S004	9207C2S004A	1.31		XV	0.207	1	1.31	0.27
9207F1S005	9207F1S005A	1.3		XV	0.764	1	1.3	0.262
9207F6S037	9207F6S037A	1.3		XV	0.403	1	1.3	0.262
9401DC1S037	9401DC1S037A	1.29		XV	0.462	1	1.29	0.255
9401DC1S054	9401DC1S054A	1.25		XV	0.765	1	1.25	0.223
9401W1S007	9401W1S007A	1.24		=	0.431	1	1.24	0.215
9207F4S028	9207F4S028A	1.21		XV	0.769	1	1.21	0.191
9207F2S011	9207F2S011AD	1.19		=	0.499	1	1.19	0.174
9207W3S027	9207W3S027A	1.17		XV	0.84	1	1.17	0.157
9207W6S036	9207W6S036A	1.17		XV	0.717	1	1.17	0.157
9207F3S023	9207F3S023A	1.14		XV	0.746	1	1.14	0.131
9401DC1S024A	9401DC1S024AA	1.13		XV	0.212	1	1.13	0.122
9401W1S018	9401W1S018A	1.13		=	0.423	1	1.13	0.122
9401DC1S024	9401DC1S024A	1.11		XV	0.454	1	1.11	0.104
9401DC1S023	9401DC1S023A	1.1		XV	0.371	1	1.1	0.095
9210F3S019	9210F3S019A	1.08		XV	0.498	1	1.08	0.077

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S005	9401W1S005A	1.07		XV	0.229	1	1.07	0.068
9207F6S042	9207F6S042A	1.06		XV	0.716	1	1.06	0.058
9401DC1S022A	9401DC1S022AA	1.05		XV	0.151	1	1.05	0.049
9207F3S015	9207F3S015A	0.217	U	U	1.05	0	1.05	0.049
9401DC1S026	9401DC1S026A	1.04		XV	0.203	1	1.04	0.039
9210W1S009	9210W1S009A	1.04		XV	0.242	1	1.04	0.039
9210W1S019	9210W1S019A	1.03		=	0.657	1	1.03	0.03
9210F3S016	9210F3S016A	1.03		XV	0.258	1	1.03	0.03
9207W4S030	9207W4S030A	0.871	U	XV	1.02	0	1.02	0.02
9207F6S038	9207F6S038A	1.01		XV	0.424	1	1.01	0.01
9401DC1S050	9401DC1S050A	1		XV	0.567	1	1	0
9207W1S023A	9207W1S023AA	0.997		XV	0.427	1	0.997	-0.003
9210C3S008	9210C3S008A	0.494	U	XV	0.995	0	0.995	-0.005
9207H2S015	9207H2S015A	-0.159	U	XV	0.977	0	0.977	-0.023
9401W1S019	9401W1S019A	0.977		XV	0.486	1	0.977	-0.023
9207W3S026	9207W3S026A	0.976		XV	0.679	1	0.976	-0.024
9207C2S004A	9207C2S004AA	0.972		XV	0.083	1	0.972	-0.028
9401W1S013	9401W1S013A	0.964		=	0.576	1	0.964	-0.037
9207F3S019	9207F3S019A	0.958		XV	0.57	1	0.958	-0.043
9401DC1S030	9401DC1S030A	0.946		XV	0.703	1	0.946	-0.056
9210C1S002	9210C1S002A	0.109	U	XV	0.938	0	0.938	-0.064
9401DC1S051	9401DC1S051A	0.93		XV	0.678	1	0.93	-0.073
9207RS010	9207RS010A	0.325	U	XV	0.93	0	0.93	-0.073
9210D1S056	9210D1S056A	-0.082	U	XV	0.928	0	0.928	-0.075
9401W1S015	9401W1S015A	0.912		XV	0.592	1	0.912	-0.092
9207F3S018	9207F3S018A	0.9		=	0.461	1	0.9	-0.105
9401DC1S022	9401DC1S022A	0.896		XV	0.491	1	0.896	-0.11
9207W5S035	9207W5S035A	0.836	U	XV	0.894	0	0.894	-0.112
9207F3S016	9207F3S016A	0.77	U	U	0.892	0	0.892	-0.114
9401DC1S034	9401DC1S034A	0.89		XV	0.531	1	0.89	-0.117
9207F1S003	9207F1S003A	0.49	U	XV	0.89	0	0.89	-0.117
9401DC1S052	9401DC1S052A	0.884		XV	0.527	1	0.884	-0.123
9207W1S020	9207W1S020A	0.523	U	XV	0.884	0	0.884	-0.123
9210F2S013	9210F2S013A	0.874		XV	0.311	1	0.874	-0.135
9210C1S001A	9210C1S001AA	0.869		XV	0.71	1	0.869	-0.14
9207H5S026	9207H5S026A	0.084	U	XV	0.869	0	0.869	-0.14
9207C6S018	9207C6S018A	0.867		XV	0.335	1	0.867	-0.143
9210W1S017	9210W1S017A	0.86		XV	0.816	1	0.86	-0.151
9207F4S026	9207F4S026A	0.859		XV	0.521	1	0.859	-0.152

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C5S015	9207C5S015A	0.186	U	XV	0.856	0	0.856	-0.155
9207F2S009	9207F2S009A	0.854		XV	0.614	1	0.854	-0.158
9207H3S017	9207H3S017A	-0.139	U	XV	0.85	0	0.85	-0.163
9210C3S006	9210C3S006A	0.84		XV	0.299	1	0.84	-0.174
9207F5S035	9207F5S035A	-0.024	U	XV	0.839	0	0.839	-0.176
9207S4S028	9207S4S028A	0.497	U	XV	0.833	0	0.833	-0.183
9207F3S020	9207F3S020A	0.387	U	XV	0.831	0	0.831	-0.185
9207RS019	9207RS019A	0.531	U	XV	0.816	0	0.816	-0.203
9207RS002	9207RS002A	0.228	U	XV	0.81	0	0.81	-0.211
9207W4S031	9207W4S031A	0.804		XV	0.733	1	0.804	-0.218
9207F3S014	9207F3S014A	0.802		=	0.547	1	0.802	-0.221
9207F3S024	9207F3S024A	0.225	U	XV	0.802	0	0.802	-0.221
9210F2S007	9210F2S007A	0.802		XV	0.562	1	0.802	-0.221
9207F2S008	9207F2S008A	0.496	U	U	0.794	0	0.794	-0.231
9210F1S002	9210F1S002A	0.298	U	XV	0.793	0	0.793	-0.232
9207D4S055	9207D4S055A	-0.07	U	XV	0.791	0	0.791	-0.234
9207C6S019	9207C6S019A	0.788		XV	0.414	1	0.788	-0.238
9210C1S003	9210C1S003AD	0.75	U	U	0.786	0	0.786	-0.241
9401W1S002A	9401W1S002AA	0.785		=	0.425	1	0.785	-0.242
9207RS004	9207RS004A	0.075	U	XV	0.783	0	0.783	-0.245
9207S4S039	9207S4S039A	0.126	U	XV	0.78	0	0.78	-0.248
9207W1S022	9207W1S022A	0.778		XV	0.763	1	0.778	-0.251
9207F2S010	9207F2S010A	0.777		=	0.581	1	0.777	-0.252
9207F1S004	9207F1S004A	0.124	U	XV	0.769	0	0.769	-0.263
9207C3S010	9207C3S010A	0.764		XV	0.619	1	0.764	-0.269
9207F2S012	9207F2S012A	0.512	U	U	0.763	0	0.763	-0.27
9210F2S011	9210F2S011A	0.761		XV	0.216	1	0.761	-0.273
9207RS006	9207RS006A	0.095	U	XV	0.758	0	0.758	-0.277
9207D5S058	9207D5S058A	0.122	U	XV	0.757	0	0.757	-0.278
9401DC1S053	9401DC1S053A	0.575	U	U	0.756	0	0.756	-0.28
9207F1S002	9207F1S002A	0.243	U	XV	0.753	0	0.753	-0.284
9207RS018	9207RS018A	0.351	U	XV	0.753	0	0.753	-0.284
9401DC1S023A	9401DC1S023AA	0.752		XV	0.199	1	0.752	-0.285
9210RS009	9210RS009A	0.752		XV	0.447	1	0.752	-0.285
9207H5S009	9207H5S009A	0.21	U	XV	0.747	0	0.747	-0.292
9401W1S014	9401W1S014A	0.737	U	U	0.744	0	0.744	-0.296
9207F6S039	9207F6S039A	0.743		XV	0.56	1	0.743	-0.297
9207D1S048	9207D1S048A	0.239	U	XV	0.74	0	0.74	-0.301
9207H3S020	9207H3S020A	0.407	U	XV	0.739	0	0.739	-0.302

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS017	9207RS017A	0.611	U	XV	0.732	0	0.732	-0.312
9207H1S001A	9207H1S001AA	-0.021	U	XV	0.728	0	0.728	-0.317
9207RS011	9207RS011A	0.179	U	XV	0.727	0	0.727	-0.319
9207RS003	9207RS003A	0.07	U	XV	0.724	0	0.724	-0.323
9210RS010	9210RS010A	0.401	U	XV	0.719	0	0.719	-0.33
9207S3S037	9207S3S037A	0.45	U	XV	0.714	0	0.714	-0.337
9207D4S054	9207D4S054A	-0.02	U	XV	0.711	0	0.711	-0.341
9207C3S007	9207C3S007A	0.708		XV	0.516	1	0.708	-0.345
9207F5S031	9207F5S031A	0.106	U	XV	0.705	0	0.705	-0.35
9210D3S059	9210D3S059A	-0.036	U	XV	0.7	0	0.7	-0.357
9207F1S001	9207F1S001AD	0.697		=	0.615	1	0.697	-0.361
9210S1S024	9210S1S024A	0.619	U	XV	0.697	0	0.697	-0.361
9401DC1S033	9401DC1S033A	0.685		XV	0.361	1	0.685	-0.378
9207D1S046	9207D1S046A	0.143	U	XV	0.685	0	0.685	-0.378
9207H3S021	9207H3S021A	0.018	U	XV	0.685	0	0.685	-0.378
9210RS001	9210RS001A	0.682		XV	0.303	1	0.682	-0.383
9207S4S041	9207S4S041A	0.238	U	XV	0.682	0	0.682	-0.383
9207H3S007	9207H3S007A	0.018	U	XV	0.679	0	0.679	-0.387
9207F3S021	9207F3S021A	0.678		XV	0.67	1	0.678	-0.389
9207RS014	9207RS014A	0.537	U	XV	0.672	0	0.672	-0.397
9207F3S017	9207F3S017A	0.01	U	U	0.667	0	0.667	-0.405
9207C2S006	9207C2S006A	0.664		XV	0.197	1	0.664	-0.409
9210H1S005	9210H1S005A	0.664		XV	0.285	1	0.664	-0.409
9207F5S034	9207F5S034A	0.248	U	XV	0.662	0	0.662	-0.412
9207D2S053	9207D2S053A	0.247	U	XV	0.661	0	0.661	-0.414
9207RS002AA	9207RS002AA	0.387	U	XV	0.66	0	0.66	-0.416
9207H3S022	9207H3S022A	0.658		XV	0.282	1	0.658	-0.419
9207F6S040	9207F6S040A	-0.046	U	XV	0.655	0	0.655	-0.423
9207RS013	9207RS013A	0.597	U	XV	0.647	0	0.647	-0.435
9207F2S007	9207F2S007A	0.169	U	U	0.644	0	0.644	-0.44
9210F3S014	9210F3S014A	0.644		XV	0.469	1	0.644	-0.44
9207W2S025	9207W2S025A	0.384	U	XV	0.644	0	0.644	-0.44
9210S1S017	9210S1S017A	0.644		XV	0.498	1	0.644	-0.44
9210F1S003	9210F1S003A	0.642		XV	0.423	1	0.642	-0.443
9207C5S012A	9207C5S012AA	0.163	U	XV	0.637	0	0.637	-0.451
9210F1S005	9210F1S005A	0.635		XV	0.549	1	0.635	-0.454
9210W1S012	9210W1S012A	0.167	U	XV	0.632	0	0.632	-0.459
9401DC1S027	9401DC1S027A	0.251	U	XV	0.63	0	0.63	-0.462
9207F1S006	9207F1S006A	0.581	U	XV	0.63	0	0.63	-0.462

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210RS003	9210RS003A	0.269	U	XV	0.628	0	0.628	-0.465
9207RS008	9207RS008A	0.365	U	XV	0.622	0	0.622	-0.475
9207H3S024	9207H3S024A	0.342	U	XV	0.621	0	0.621	-0.476
9207S5S042	9207S5S042A	0.236	U	XV	0.616	0	0.616	-0.485
9207D2S034A	9207D2S034AA	-0.055	U	XV	0.615	0	0.615	-0.486
9207W1S039	9207W1S039A	0.274	U	XV	0.613	0	0.613	-0.489
9210F3S015	9210F3S015A	0.613		XV	0.6	1	0.613	-0.489
9210W1S014	9210W1S014A	0.611		XV	0.166	1	0.611	-0.493
9207RS016	9207RS016A	0.611		XV	0.551	1	0.611	-0.493
9207D5S059	9207D5S059A	0.076	U	XV	0.608	0	0.608	-0.498
9207S2S033	9207S2S033A	0.228	U	XV	0.608	0	0.608	-0.498
9207H2S014	9207H2S014A	0.225	U	XV	0.602	0	0.602	-0.507
9210D1S051	9210D1S051A	0.597		=	0.28	1	0.597	-0.516
9207F3S022	9207F3S022A	0.475	U	XV	0.595	0	0.595	-0.519
9207S1S031	9207S1S031A	-0.027	U	XV	0.593	0	0.593	-0.523
9207C1S003	9207C1S003A	0.307	U	XV	0.592	0	0.592	-0.524
9210RS006	9210RS006A	0.488	U	XV	0.59	0	0.59	-0.528
9210S1S023	9210S1S023A	0.361	U	XV	0.589	0	0.589	-0.529
9207F4S030	9207F4S030A	0.446	U	XV	0.588	0	0.588	-0.531
9207H3S005	9207H3S005A	-0.042	U	XV	0.588	0	0.588	-0.531
9207H3S006	9207H3S006A	0.074	U	XV	0.588	0	0.588	-0.531
9207S1S027	9207S1S027A	0.095	U	XV	0.588	0	0.588	-0.531
9210RS013	9210RS013A	0.586		XV	0.362	1	0.586	-0.534
9210C2S004	9210C2S004A	0.582		XV	0.229	1	0.582	-0.541
9207D2S052	9207D2S052A	-0.03	U	XV	0.582	0	0.582	-0.541
9207W1S021	9207W1S021A	0.582		XV	0.576	1	0.582	-0.541
9207RS015	9207RS015A	-0.017	U	XV	0.581	0	0.581	-0.543
9207W2S023	9207W2S023A	0.259	U	XV	0.579	0	0.579	-0.546
9207D4S056	9207D4S056A	0.268	U	XV	0.575	0	0.575	-0.553
9401DC1S042	9401DC1S042A	0.219	U	U	0.575	0	0.575	-0.553
9210H3S015	9210H3S015A	0.526	U	XV	0.574	0	0.574	-0.555
9207RS007	9207RS007A	0.393	U	XV	0.573	0	0.573	-0.557
9207RS012	9207RS012A	0.526	U	XV	0.57	0	0.57	-0.562
9210RS008	9210RS008A	0.57		XV	0.531	1	0.57	-0.562
9210H3S013	9210H3S013A	0.469	U	XV	0.568	0	0.568	-0.566
9207F5S036	9207F5S036A	0.348	U	XV	0.565	0	0.565	-0.571
9207F4S029	9207F4S029A	0.24	U	XV	0.564	0	0.564	-0.573
9401DC1S044	9401DC1S044A	0.494	U	XV	0.563	0	0.563	-0.574
9207S4S038	9207S4S038A	0.435	U	XV	0.563	0	0.563	-0.574

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207D2S051	9207D2S051A	0.054	U	XV	0.562	0	0.562	-0.576
9210D1S053	9210D1S053A	0.015	U	XV	0.56	0	0.56	-0.58
9210F1S001	9210F1S001A	0.558		XV	0.411	1	0.558	-0.583
9401W1S002	9401W1S002A	0.554		=	0.364	1	0.554	-0.591
9207F4S027	9207F4S027A	0.246	U	XV	0.551	0	0.551	-0.596
9207H3S018	9207H3S018A	0.146	U	XV	0.551	0	0.551	-0.596
9210F2S009	9210F2S009A	0.547		XV	0.206	1	0.547	-0.603
9210F2S010	9210F2S010A	0.544	U	XV	0.546	0	0.546	-0.605
9210F3S017	9210F3S017A	0.472	U	XV	0.546	0	0.546	-0.605
9207S6S044	9207S6S044A	-0.039	U	XV	0.546	0	0.546	-0.605
9210F2S008	9210F2S008A	0.464	U	XV	0.537	0	0.537	-0.622
9210H1S004	9210H1S004A	0.131	U	U	0.535	0	0.535	-0.625
9207RS001AA	9207RS001AA	0.438	U	XV	0.535	0	0.535	-0.625
9210H1S006	9210H1S006A	0.145	U	XV	0.53	0	0.53	-0.635
9207F5S032	9207F5S032A	0.529		=	0.469	1	0.529	-0.637
9210F3S018	9210F3S018A	0.527	U	XV	0.529	0	0.529	-0.637
9207C4S010A	9207C4S010AA	0.527		XV	0.331	1	0.527	-0.641
9207RS001	9207RS001A	0.236	U	XV	0.527	0	0.527	-0.641
9210H2S008	9210H2S008AD	0.209	U	XV	0.525	0	0.525	-0.644
9207H1S012	9207H1S012A	0.06	U	U	0.524	0	0.524	-0.646
9207S5S029	9207S5S029A	0.098	U	XV	0.521	0	0.521	-0.652
9210W1S016	9210W1S016A	0.514		XV	0.226	1	0.514	-0.666
9210S2S026	9210S2S026A	-0.037	U	XV	0.511	0	0.511	-0.671
9210RS005	9210RS005A	0.354	U	XV	0.506	0	0.506	-0.681
9207C4S013	9207C4S013A	0.505		XV	0.364	1	0.505	-0.683
9210RS007	9210RS007A	0.417	U	XV	0.505	0	0.505	-0.683
9207S4S040	9207S4S040A	-0.053	U	XV	0.5	0	0.5	-0.693
9210F2S012	9210F2S012A	0.499		XV	0.183	1	0.499	-0.695
9401DC1S043	9401DC1S043A	0.498		=	0.484	1	0.498	-0.697
9401DC1S038	9401DC1S038A	-0.072	U	XV	0.497	0	0.497	-0.699
9210RS002	9210RS002A	0.153	U	XV	0.495	0	0.495	-0.703
9210S3S043	9210S3S043A	0.228	U	XV	0.495	0	0.495	-0.703
9210S1S018	9210S1S018A	0.493		XV	0.48	1	0.493	-0.707
9210S2S035	9210S2S035A	0.338	U	XV	0.493	0	0.493	-0.707
9210C3S007	9210C3S007A	0.492		XV	0.281	1	0.492	-0.709
9210S2S032	9210S2S032A	0.492		XV	0.32	1	0.492	-0.709
9207C4S011	9207C4S011A	0.12	U	XV	0.489	0	0.489	-0.715
9401W1S009	9401W1S009A	0.341	U	U	0.489	0	0.489	-0.715
9207H1S013	9207H1S013A	-0.043	U	XV	0.488	0	0.488	-0.717

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S023	9207H3S023A	0.061	U	XV	0.485	0	0.485	-0.724
9401DC1S048	9401DC1S048A	0.15	U	XV	0.483	0	0.483	-0.728
9401W1S001A	9401W1S001AA	0.048	U	U	0.48	0	0.48	-0.734
9401W1S012	9401W1S012A	0.479		=	0.448	1	0.479	-0.736
9210S2S027	9210S2S027A	0.054	U	XV	0.476	0	0.476	-0.742
9210H2S009	9210H2S009A	0.475		XV	0.158	1	0.475	-0.744
9401DC1S039	9401DC1S039A	0.303	U	XV	0.469	0	0.469	-0.757
9401W1S001	9401W1S001A	0.466		=	0.396	1	0.466	-0.764
9210C2S005	9210C2S005A	0.464		XV	0.183	1	0.464	-0.768
9210S2S002A	9210S2S002AA	0.141	U	XV	0.464	0	0.464	-0.768
9401W1S011	9401W1S011A	0.463		XV	0.386	1	0.463	-0.77
9207H3S004	9207H3S004A	-0.024	U	XV	0.462	0	0.462	-0.772
9401W1S017	9401W1S017A	0.38	U	U	0.46	0	0.46	-0.777
9210D1S055	9210D1S055A	0.396	U	U	0.452	0	0.452	-0.794
9210RS011	9210RS011A	0.451		XV	0.439	1	0.451	-0.796
9210H3S014	9210H3S014A	0.123	U	XV	0.449	0	0.449	-0.801
9401DC1S047	9401DC1S047A	0.365	U	XV	0.447	0	0.447	-0.805
9207H1S002	9207H1S002A	0.092	U	XV	0.439	0	0.439	-0.823
9401DC1S055	9401DC1S055A	0.429	U	XV	0.432	0	0.432	-0.839
9210S1S001A	9210S1S001AA	0.275	U	XV	0.432	0	0.432	-0.839
9207H5S010	9207H5S010A	0.069	U	XV	0.43	0	0.43	-0.844
9210S2S033	9210S2S033A	0.04	U	XV	0.428	0	0.428	-0.849
9210S1S020	9210S1S020A	0.108	U	U	0.421	0	0.421	-0.865
9210RS012	9210RS012A	0.416		XV	0.405	1	0.416	-0.877
9207D5S057	9207D5S057A	0.052	U	XV	0.414	0	0.414	-0.882
9210F1S006	9210F1S006A	0.221	U	XV	0.412	0	0.412	-0.887
9207C6S017	9207C6S017A	0.356	U	XV	0.411	0	0.411	-0.889
9401DC1S025	9401DC1S025A	0.33	U	XV	0.404	0	0.404	-0.906
9207H4S008	9207H4S008A	0.065	U	XV	0.401	0	0.401	-0.914
9210D1S006A	9210D1S006AA	-0.095	U	XV	0.4	0	0.4	-0.916
9207F4S025	9207F4S025A	0.394		XV	0.34	1	0.394	-0.931
9210F1S004	9210F1S004A	0.318	U	XV	0.389	0	0.389	-0.944
9207H3S022A	9207H3S022AA	0.122	U	XV	0.379	0	0.379	-0.97
9401DC1S046	9401DC1S046A	0.306	U	XV	0.375	0	0.375	-0.981
9210W1S010	9210W1S010A	0.375		XV	0.175	1	0.375	-0.981
9207S3S034	9207S3S034A	0.298	U	XV	0.374	0	0.374	-0.983
9207D1S050	9207D1S050A	0.124	U	XV	0.373	0	0.373	-0.986
9207C3S009	9207C3S009A	0.372		XV	0.242	1	0.372	-0.989
9207C5S016	9207C5S016A	0.002	U	XV	0.371	0	0.371	-0.992

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D3S057	9210D3S057A	0.357	U	XV	0.371	0	0.371	-0.992
9207D1S047	9207D1S047A	0.138	U	XV	0.37	0	0.37	-0.994
9210D1S049	9210D1S049A	0.224	U	XV	0.365	0	0.365	-1.01
9210S1S022	9210S1S022A	0.365		=	0.259	1	0.365	-1.01
9207H3S003A	9207H3S003AA	0.077	U	XV	0.364	0	0.364	-1.01
9401DC1S057A	9401DC1S057AA	0.194	U	U	0.362	0	0.362	-1.02
9207S1S030	9207S1S030A	0.248	U	XV	0.362	0	0.362	-1.02
9207S2S032	9207S2S032A	-0.018	U	U	0.36	0	0.36	-1.02
9207F5S033	9207F5S033A	0.034	U	XV	0.359	0	0.359	-1.02
9207C3S008	9207C3S008A	0.162	U	XV	0.357	0	0.357	-1.03
9210D1S052	9210D1S052A	0.354		XV	0.347	1	0.354	-1.04
9401W1S004	9401W1S004A	0.351		=	0.295	1	0.351	-1.05
9210S2S038	9210S2S038A	0.056	U	XV	0.35	0	0.35	-1.05
9210RS014	9210RS014A	0.349		XV	0.209	1	0.349	-1.05
9207H3S019	9207H3S019A	0.073	U	XV	0.347	0	0.347	-1.06
9210D1S046	9210D1S046A	0.346		=	0.291	1	0.346	-1.06
9207H3S016	9207H3S016A	-0.017	U	XV	0.339	0	0.339	-1.08
9210S2S031	9210S2S031A	0.071	U	XV	0.336	0	0.336	-1.09
9401DC1S045	9401DC1S045A	0.26	U	XV	0.332	0	0.332	-1.1
9210S3S044	9210S3S044A	0.191	U	XV	0.331	0	0.331	-1.11
9207H2S003	9207H2S003A	-0.038	U	XV	0.326	0	0.326	-1.12
9210H2S010	9210H2S010A	0.324		=	0.283	1	0.324	-1.13
9210RS004	9210RS004A	0.321		XV	0.159	1	0.321	-1.14
9210S1S021	9210S1S021A	0.32		=	0.266	1	0.32	-1.14
9210D3S058	9210D3S058A	0.304	U	XV	0.319	0	0.319	-1.14
9210S2S030	9210S2S030A	0.125	U	XV	0.313	0	0.313	-1.16
9401W1S020	9401W1S020A	0.167	U	XV	0.312	0	0.312	-1.16
9207H1S001	9207H1S001A	0.049	U	U	0.311	0	0.311	-1.17
9210S1S019	9210S1S019A	0.177	U	XV	0.308	0	0.308	-1.18
9210D1S048	9210D1S048A	0.215	U	XV	0.307	0	0.307	-1.18
9207S3S036	9207S3S036A	0.113	U	U	0.307	0	0.307	-1.18
9210D1S050	9210D1S050A	0.158	U	U	0.304	0	0.304	-1.19
9210D1S047	9210D1S047A	0.21	U	U	0.3	0	0.3	-1.2
9401W1S003	9401W1S003A	0.117	U	U	0.293	0	0.293	-1.23
9210S2S025	9210S2S025A	0.153	U	XV	0.267	0	0.267	-1.32
9207S5S043	9207S5S043A	0.127	U	XV	0.262	0	0.262	-1.34
9401DC1S029	9401DC1S029A	0.26		XV	0.191	1	0.26	-1.35
9210S2S036	9210S2S036A	0.254		XV	0.228	1	0.254	-1.37
9401W1S004A	9401W1S004AA	0.116	U	U	0.251	0	0.251	-1.38

Table G.130
Statistical Summary for Radium-226 (13982633) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S037	9210S2S037A	0.094	U	XV	0.236	0	0.236	-1.44
9210S3S040	9210S3S040A	0.236		XV	0.177	1	0.236	-1.44
9207C1S002	9207C1S002A	0.011	U	U	0.232	0	0.232	-1.46
9210S2S029	9210S2S029A	0.202	U	XV	0.22	0	0.22	-1.51
9401DC1S040	9401DC1S040A	0.147	U	XV	0.213	0	0.213	-1.55
9401DC1S041	9401DC1S041A	0.179	U	XV	0.207	0	0.207	-1.58
9401DC1S028	9401DC1S028A	0.061	U	XV	0.203	0	0.203	-1.59
9207S6S045	9207S6S045A	0.099	U	XV	0.201	0	0.201	-1.6
9210S2S034	9210S2S034A	0.156	U	XV	0.199	0	0.199	-1.61
9207C1S001	9207C1S001A	0.09	U	XV	0.197	0	0.197	-1.62
9210H3S011	9210H3S011A	0.046	U	XV	0.196	0	0.196	-1.63
9401DC1S056	9401DC1S056A	0.173	U	XV	0.189	0	0.189	-1.67
9210H3S012	9210H3S012A	0.137		=	0.135	1	0.137	-1.99
9210S2S028	9210S2S028A	0.048	U	XV	0.064	0	0.064	-2.75
9210S3S042	9210S3S042A	0.009	U	XV	0.041	0	0.041	-3.19
9210S3S041	9210S3S041A	0.021	U	XV	0.039	0	0.039	-3.25

Number of Samples	328
Number of Detects	133
Minimum	0.039
Median	0.611
Maximum	3.15
Arithmetic Average	0.717
Std Dev	0.455
PERT-Beta Expected Value	0.939
LN Mean	-0.493
LN Std Dev	0.576
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.131
Statistical Summary for TCLP Selenium (7782492) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9767D1B001	9767D1B001	0.099	J	J	0.06	1	0.099	-2.31
9767D1B002	9767D1B002	0.095	J	J	0.06	1	0.095	-2.36
9767D1B003	9767D1B003	0.063	J	J	0.06	1	0.063	-2.76
9767D1B004	9767D1B004	0.06	U	UJ	0.06	0	0.03	-3.51
9767D1B005	9767D1B005	0.06	U	UJ	0.06	0	0.03	-3.51
9767D1B006	9767D1B006	0.06	U	UJ	0.06	0	0.03	-3.51
9210C1S003	9210C1S003A	0.02	U	UJ	0.02	0	0.01	-4.61
9401DC1S024A	9401DC1S024AA	0.02	U	XV	0.02	0	0.01	-4.61
9401DC1S032	9401DC1S032A	0.02	U	XV	0.02	0	0.01	-4.61
9401DC1S057A	9401DC1S057AA	0.02	U	UJ	0.02	0	0.01	-4.61
9207D1S047	9207D1S047A	0.02	U	XV	0.02	0	0.01	-4.61
9207D5S057	9207D5S057A	0.02	U	XV	0.02	0	0.01	-4.61
9401DC1S028	9401DC1S028A	0.02	U	XV	0.02	0	0.01	-4.61
9401DC1S045	9401DC1S045A	0.02	U	XV	0.02	0	0.01	-4.61
9401E1B002	9401E1B002B	0.02	U	UJ	0.02	0	0.01	-4.61
9401E1B003	9401E1B003B	0.02	U	UJ	0.02	0	0.01	-4.61
9401E1B005	9401E1B005B	0.02	U	UJ	0.02	0	0.01	-4.61
9207W2S024A	9207W2S024AA	0.02	U	UJ	0.02	0	0.01	-4.61
9207F1S001	9207F1S001A	0.02	U	UJ	0.02	0	0.01	-4.61
9207F2S009	9207F2S009A	0.02	U	UJ	0.02	0	0.01	-4.61
9207F3S015	9207F3S015A	0.02	U	UJ	0.02	0	0.01	-4.61
9207F4S027	9207F4S027A	0.02	U	UJ	0.02	0	0.01	-4.61
9207F6S039	9207F6S039A	0.02	U	UJ	0.02	0	0.01	-4.61
9210F1S006	9210F1S006A	0.02	U	UJ	0.02	0	0.01	-4.61
9210F3S014	9210F3S014A	0.02	U	UJ	0.02	0	0.01	-4.61
9207H3S005	9207H3S005A	0.02	U	XV	0.02	0	0.01	-4.61
9207H5S009	9207H5S009A	0.02	U	XV	0.02	0	0.01	-4.61
9207W3S029	9207W3S029A	0.02	U	UJ	0.02	0	0.01	-4.61
9207W5S034	9207W5S034A	0.02	U	UJ	0.02	0	0.01	-4.61
9210W1S016	9210W1S016A	0.02	U	UJ	0.02	0	0.01	-4.61
9401W1B001	9401W1B001B	0.02	U	UJ	0.02	0	0.01	-4.61
9401W1S001	9401W1S001A	0.02	U	UJ	0.02	0	0.01	-4.61
9401W1S012	9401W1S012A	0.02	U	UJ	0.02	0	0.01	-4.61
9401R1B006	9401R1B006	0.02	U	U	0.02	0	0.01	-4.61
9207RS002	9207RS002A	0.02	U	UJ	0.02	0	0.01	-4.61
9207RS016	9207RS016A	0.02	U	UJ	0.02	0	0.01	-4.61
9210RS002	9210RS002A	0.02	U	UJ	0.02	0	0.01	-4.61
9210RS014	9210RS014A	0.02	U	UJ	0.02	0	0.01	-4.61
9207S2S032	9207S2S032A	0.02	U	XV	0.02	0	0.01	-4.61

Table G.131
Statistical Summary for TCLP Selenium (7782492) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S017	9210S1S017A	0.02	U	XV	0.02	0	0.01	-4.61
9210S2S038	9210S2S038A	0.02	U	XV	0.02	0	0.01	-4.61
9210S3S044	9210S3S044A	0.02	U	XV	0.02	0	0.01	-4.61

Number of Samples	42
Number of Detects	3
Minimum	0.01
Median	0.01
Maximum	0.099
Arithmetic Average	0.017
Std Dev	0.02
PERT-Beta Expected Value	0.025
LN Mean	-4.37
LN Std Dev	0.607
S-W p-value for normality	4.4E-12
S-W p-value for lognormality	1.5E-11

Table G.132
Statistical Summary for Selenium (7782492) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001A	9207H1S001AA	3.25	J N	XV	1.76	1	3.25	1.18
9401E1B005	9401E1B005A	2.71		=	0.333	1	2.71	0.997
9210RS002	9210RS002A	1.65	J	XV	1.65	1	1.65	0.501
9207RS016	9207RS016A	1.24	N	XV	0.356	1	1.24	0.215
9207F6S039	9207F6S039A	1.14		XV	0.354	1	1.14	0.131
9401DC1S045	9401DC1S045A	1.8	U	XV	1.8	0	0.9	-0.105
9207F4S027	9207F4S027A	1.75	U	XV	1.75	0	0.875	-0.134
9210F1S006	9210F1S006A	1.7	U N	XV	1.7	0	0.85	-0.163
9207F2S009	9207F2S009A	1.68	U N	XV	1.68	0	0.84	-0.174
9207F3S015	9207F3S015A	0.832	J	XV	0.35	1	0.832	-0.184
9207F1S001	9207F1S001AD	1.64	U	UJ	1.64	0	0.82	-0.198
9401W1S001	9401W1S001A	1.59	U	UJ	1.59	0	0.795	-0.229
9207H1S012	9207H1S012A	1.47	U	XV	1.47	0	0.735	-0.308
9210RS014	9210RS014A	0.733	J	XV	0.338	1	0.733	-0.311
9401R1B006	9401R1B006	0.651	J	J	0.344	1	0.651	-0.429
9401DC1S032	9401DC1S032A	0.614	J	XV	0.356	1	0.614	-0.488
9207W2S024A	9207W2S024AAD	0.552	J	XV	0.35	1	0.552	-0.594
9210W1S016	9210W1S016A	0.448	J N	XV	0.357	1	0.448	-0.803
9401W1S020	9401W1S020A	0.425	J N	XV	0.362	1	0.425	-0.856
9401DC1S024A	9401DC1S024AA	0.417	J N	XV	0.359	1	0.417	-0.875
9210F3S014	9210F3S014A	0.409	J	XV	0.335	1	0.409	-0.894
9401E1B003	9401E1B003A	0.627	U	UJ	0.627	0	0.314	-1.16
9207H5S009	9207H5S009A	0.374	U	XV	0.374	0	0.187	-1.68
9207S2S032	9207S2S032A	0.356	U	XV	0.356	0	0.178	-1.73
9401W1S012	9401W1S012AD	0.354	U	UJ	0.354	0	0.177	-1.73
9207S4S041	9207S4S041A	0.354	U	XV	0.354	0	0.177	-1.73
9207RS002	9207RS002A	0.346	U N	XV	0.346	0	0.173	-1.75
9207W3S029	9207W3S029A	0.344	U	XV	0.344	0	0.172	-1.76
9207W5S034	9207W5S034A	0.341	U	XV	0.341	0	0.171	-1.77
9210D3S059	9210D3S059A	0.33	U N	XV	0.33	0	0.165	-1.8
9210C1S003	9210C1S003A	0.327	U	UJ	0.327	0	0.164	-1.81
9401DC1S028	9401DC1S028A	0.323	U	XV	0.323	0	0.162	-1.82
9401DC1S057A	9401DC1S057AA	0.318	U N	UJ	0.318	0	0.159	-1.84
9207D1S047	9207D1S047AD	0.303	U	XV	0.303	0	0.152	-1.89
9401W1B001	9401W1B001A	0.297	U	UJ	0.297	0	0.149	-1.91
9210S3S044	9210S3S044A	0.297	U	XV	0.297	0	0.149	-1.91
9210D1S052	9210D1S052AD	0.293	U N	XV	0.293	0	0.147	-1.92
9210H2S008	9210H2S008AD	0.285	U N	XV	0.285	0	0.143	-1.95
9207H3S005	9207H3S005AD	0.259	U	XV	0.259	0	0.13	-2.04

Table G.132
Statistical Summary for Selenium (7782492) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C6S017	9207C6S017AD	0.243	U	XV	0.243	0	0.122	-2.11
9207D5S057	9207D5S057A	0.226	U	XV	0.226	0	0.113	-2.18
9210S2S038	9210S2S038AD	0.214	U	XV	0.214	0	0.107	-2.23
9207H5S026	9207H5S026AD	0.19	U	XV	0.19	0	0.095	-2.35
9210S1S017	9210S1S017A	0.17	U	XV	0.17	0	0.085	-2.47
9401E1B002	9401E1B002A	0.15	U	UJ	0.15	0	0.075	-2.59
9207C1S001	9207C1S001A	0.084	U	XV	0.084	0	0.042	-3.17

Number of Samples	46
Number of Detects	14
Minimum	0.042
Median	0.183
Maximum	3.25
Arithmetic Average	0.535
Std Dev	0.647
PERT-Beta Expected Value	0.67
LN Mean	-1.15
LN Std Dev	1.02
S-W p-value for normality	8.2E-09
S-W p-value for lognormality	0.019

Table G.133
Statistical Summary for Strontium (7440246) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S001	9401W1S001A	2470		=	26.5	1	2470	7.81
9210W1S016	9210W1S016A	478		XV	29.8	1	478	6.17
9210F3S014	9210F3S014A	293		XV	2.79	1	293	5.68
9207F6S039	9207F6S039A	288	*	XV	2.95	1	288	5.66
9207F1S001	9207F1S001AD	276		=	2.73	1	276	5.62
9207F2S009	9207F2S009A	266		XV	2.8	1	266	5.58
9207F4S027	9207F4S027A	204		XV	2.92	1	204	5.32
9210F1S006	9210F1S006A	185		XV	0.567	1	185	5.22
9210C1S003	9210C1S003A	181		=	0.544	1	181	5.2
9401DC1S024A	9401DC1S024AA	155		XV	0.599	1	155	5.04
9401DC1S032	9401DC1S032A	145		XV	0.593	1	145	4.98
9207F3S015	9207F3S015A	127		XV	0.584	1	127	4.84
9207RS016	9207RS016A	121		XV	0.594	1	121	4.8
9210RS002	9210RS002A	61.1	*	XV	0.55	1	61.1	4.11
9207H1S001A	9207H1S001AA	36.9	*	XV	2.93	1	36.9	3.61
9210RS014	9210RS014A	34.3	*	XV	0.564	1	34.3	3.54
9207RS002	9207RS002A	21.6	*	XV	0.577	1	21.6	3.07
9210D1S052	9210D1S052A	13.3		XV	0.543	1	13.3	2.59
9401W1S012	9401W1S012A	6.3		=	0.595	1	6.3	1.84
9207W2S024A	9207W2S024AA	4.32	*	XV	0.595	1	4.32	1.46
9207W5S034	9207W5S034A	4.07		XV	0.568	1	4.07	1.4
9207W3S029	9207W3S029A	2.69		XV	0.573	1	2.69	0.99
9207H3S005	9207H3S005A	2.52		XV	0.514	1	2.52	0.924
9401W1S020	9401W1S020A	1.8	J	XV	0.604	1	1.8	0.588
9207H1S012	9207H1S012A	2.45	U	XV	2.45	0	1.23	0.203
9210S1S017	9210S1S017AD	1.1	J	XV	0.446	1	1.1	0.095
9207C1S001	9207C1S001A	0.677		XV	0.14	1	0.677	-0.39
9207C6S017	9207C6S017AD	0.631	J	XV	0.404	1	0.631	-0.46
9207H5S009	9207H5S009A	0.624	U	XV	0.624	0	0.312	-1.16
9401DC1S045	9401DC1S045A	0.6	U	XV	0.6	0	0.3	-1.2
9207S2S032	9207S2S032A	0.593	U	XV	0.593	0	0.297	-1.22
9207S4S041	9207S4S041A	0.591	U	XV	0.591	0	0.296	-1.22
9210D3S059	9210D3S059A	0.55	U	XV	0.55	0	0.275	-1.29
9401DC1S028	9401DC1S028A	0.538	U	XV	0.538	0	0.269	-1.31
9401DC1S057A	9401DC1S057AA	0.53	U	UJ	0.53	0	0.265	-1.33
9207D1S047	9207D1S047AD	0.504	U	XV	0.504	0	0.252	-1.38
9210S3S044	9210S3S044A	0.494	U	XV	0.494	0	0.247	-1.4
9210H2S008	9210H2S008AD	0.475	U	XV	0.475	0	0.238	-1.44
9207D5S057	9207D5S057A	0.377	U	XV	0.377	0	0.189	-1.67

Table G.133
Statistical Summary for Strontium (7440246) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S038	9210S2S038AD	0.357	U	XV	0.357	0	0.179	-1.72
9207H5S026	9207H5S026AD	0.317	U	XV	0.317	0	0.159	-1.84

Number of Samples	41
Number of Detects	27
Minimum	0.159
Median	4.07
Maximum	2470
Arithmetic Average	131
Std Dev	391
PERT-Beta Expected Value	414
LN Mean	1.89
LN Std Dev	2.98
S-W p-value for normality	2.1E-12
S-W p-value for lognormality	6.2E-04

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H2S014	9207H2S014A	14.4		XV	1.77	1	14.4	2.67
9207D4S055	9207D4S055A	6.38		XV	1.97	1	6.38	1.85
9207D4S054	9207D4S054A	5.87		XV	1.88	1	5.87	1.77
9207H3S023	9207H3S023A	4.29		XV	1.64	1	4.29	1.46
9207H2S015	9207H2S015A	4.07		XV	1.92	1	4.07	1.4
9207H3S024	9207H3S024A	4.01		XV	1.69	1	4.01	1.39
9207D2S052	9207D2S052A	3.81		XV	1.93	1	3.81	1.34
9207H3S019	9207H3S019A	2.64		XV	1.59	1	2.64	0.971
9207H3S022A	9207H3S022AA	2.52		XV	1.81	1	2.52	0.924
9207D1S046	9207D1S046A	2.38		XV	2.02	1	2.38	0.867
9207D1S047	9207D1S047A	2.35		XV	1.51	1	2.35	0.854
9207H3S005	9207H3S005A	2.35		XV	1.99	1	2.35	0.854
9401DC1S037	9401DC1S037A	1.37	U	XV	2.24	0	2.24	0.806
9207D1S050	9207D1S050A	2.18		XV	1.8	1	2.18	0.779
9207H3S021	9207H3S021A	2.18		XV	1.8	1	2.18	0.779
9210F2S011	9210F2S011A	-1.14	U	XV	2	0	2	0.693
9207W6S038	9207W6S038A	1.03	U	XV	2	0	2	0.693
9210D1S047	9210D1S047A	1.18	U	UJ	1.99	0	1.99	0.688
9401DC1S038	9401DC1S038A	0.157	U	XV	1.99	0	1.99	0.688
9207W2S024A	9207W2S024AAD	0.403	U	XV	1.99	0	1.99	0.688
9210F3S015	9210F3S015A	1.08	U	XV	1.99	0	1.99	0.688
9210H3S011	9210H3S011A	-1.14	U	XV	1.99	0	1.99	0.688
9401W1S015	9401W1S015A	-0.578	U	XV	1.99	0	1.99	0.688
9210S2S027	9210S2S027A	1.6	U	XV	1.99	0	1.99	0.688
9207C6S017	9207C6S017A	0.709	U	XV	1.98	0	1.98	0.683
9210D1S006A	9210D1S006AA	-0.198	U	XV	1.98	0	1.98	0.683
9401DC1S028	9401DC1S028A	-0.319	U	XV	1.98	0	1.98	0.683
9401DC1S029	9401DC1S029A	0.128	U	XV	1.98	0	1.98	0.683
9207F5S036	9207F5S036A	0.232	U	XV	1.98	0	1.98	0.683
9207H1S001A	9207H1S001AA	0.932	U	XV	1.98	0	1.98	0.683
9207H3S018	9207H3S018A	1.98		XV	1.29	1	1.98	0.683
9207W1S021	9207W1S021A	0.552	U	XV	1.98	0	1.98	0.683
9207RS016	9207RS016A	-0.834	U	XV	1.98	0	1.98	0.683
9210RS009	9210RS009A	0.076	U	XV	1.98	0	1.98	0.683
9207S1S031	9207S1S031A	1.89	U	XV	1.98	0	1.98	0.683
9401DC1S057A	9401DC1S057AA	-0.534	U	UJ	1.97	0	1.97	0.678
9210D1S050	9210D1S050A	0.85	U	UJ	1.97	0	1.97	0.678
9210F1S005	9210F1S005A	-0.429	U	XV	1.97	0	1.97	0.678
9210F3S018	9210F3S018A	-1.04	U	XV	1.97	0	1.97	0.678

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S001A	9401W1S001AA	-0.352	U	U	1.97	0	1.97	0.678
9207RS017	9207RS017A	-0.385	U	XV	1.97	0	1.97	0.678
9210S1S022	9210S1S022A	1.24	U	U	1.97	0	1.97	0.678
9210D1S048	9210D1S048A	-0.915	U	XV	1.96	0	1.96	0.673
9401DC1S039	9401DC1S039A	-0.079	U	XV	1.96	0	1.96	0.673
9207F3S015	9207F3S015A	1.24	U	UJ	1.96	0	1.96	0.673
9207H1S013	9207H1S013A	0.22	U	XV	1.96	0	1.96	0.673
9210C1S001A	9210C1S001AA	-0.699	U	XV	1.95	0	1.95	0.668
9401DC1S024	9401DC1S024A	0.87	U	XV	1.95	0	1.95	0.668
9401DC1S034	9401DC1S034A	0.693	U	XV	1.95	0	1.95	0.668
9210D1S055	9210D1S055A	1.54	U	U	1.95	0	1.95	0.668
9401DC1S044	9401DC1S044A	1.39	U	XV	1.95	0	1.95	0.668
9207H3S007	9207H3S007A	1.14	U	XV	1.95	0	1.95	0.668
9207W4S031	9207W4S031A	-1.08	U	XV	1.95	0	1.95	0.668
9210RS008	9210RS008A	0.234	U	XV	1.95	0	1.95	0.668
9210S2S026	9210S2S026A	6.4E-04	U	XV	1.95	0	1.95	0.668
9401DC1S050	9401DC1S050A	0.853	U	XV	1.94	0	1.94	0.663
9401DC1S051	9401DC1S051A	-0.741	U	XV	1.94	0	1.94	0.663
9401W1S021	9401W1S021A	0.439	U	XV	1.94	0	1.94	0.663
9207F3S023	9207F3S023A	0.85	U	XV	1.94	0	1.94	0.663
9210F3S016	9210F3S016A	0.831	U	XV	1.94	0	1.94	0.663
9207H3S003A	9207H3S003AA	1.25	U	XV	1.94	0	1.94	0.663
9210H1S004	9210H1S004A	-1.26	U	UJ	1.94	0	1.94	0.663
9401W1S002	9401W1S002A	0.636	U	UJ	1.94	0	1.94	0.663
9401DC1S041	9401DC1S041A	1.18	U	XV	1.93	0	1.93	0.658
9401DC1S046	9401DC1S046A	0.333	U	XV	1.93	0	1.93	0.658
9401DC1S047	9401DC1S047A	0.104	U	XV	1.93	0	1.93	0.658
9401W1S020	9401W1S020A	-0.421	U	XV	1.92	0	1.92	0.652
9210F2S009	9210F2S009A	-0.823	U	XV	1.92	0	1.92	0.652
9210S1S020	9210S1S020A	0.029	U	U	1.92	0	1.92	0.652
9207C5S015	9207C5S015A	-0.23	U	XV	1.91	0	1.91	0.647
9210C3S006	9210C3S006A	-0.425	U	XV	1.91	0	1.91	0.647
9401DC1S035	9401DC1S035A	0.621	U	XV	1.91	0	1.91	0.647
9401DC1S055	9401DC1S055A	1.16	U	XV	1.91	0	1.91	0.647
9207D2S051	9207D2S051A	1.53	U	XV	1.91	0	1.91	0.647
9401DC1S045	9401DC1S045A	-0.778	U	XV	1.91	0	1.91	0.647
9207D5S058	9207D5S058A	1.25	U	XV	1.9	0	1.9	0.642
9207F3S019	9207F3S019A	0.341	U	XV	1.9	0	1.9	0.642
9210F1S004	9210F1S004A	0.883	U	XV	1.9	0	1.9	0.642

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F3S017	9210F3S017A	-0.583	U	XV	1.9	0	1.9	0.642
9210S1S024	9210S1S024A	0.048	U	XV	1.9	0	1.9	0.642
9210D1S046	9210D1S046A	1.88	U	UJ	1.89	0	1.89	0.637
9210F3S014	9210F3S014A	1.05	U	XV	1.89	0	1.89	0.637
9210F3S019	9210F3S019A	-0.349	U	XV	1.89	0	1.89	0.637
9401W1S019	9401W1S019A	-0.229	U	XV	1.89	0	1.89	0.637
9207F3S017	9207F3S017A	0.592	U	UJ	1.88	0	1.88	0.631
9210F1S006	9210F1S006A	-0.759	U	XV	1.88	0	1.88	0.631
9207H5S010	9207H5S010A	0.937	U	XV	1.88	0	1.88	0.631
9207RS011	9207RS011A	0.219	U	XV	1.88	0	1.88	0.631
9210S1S021	9210S1S021A	0.968	U	U	1.88	0	1.88	0.631
9207D2S053	9207D2S053A	1.33	U	XV	1.87	0	1.87	0.626
9210F1S001	9210F1S001A	-0.391	U	XV	1.87	0	1.87	0.626
9207C4S011	9207C4S011A	-0.106	U	XV	1.86	0	1.86	0.621
9210H1S005	9210H1S005A	1.09	U	XV	1.86	0	1.86	0.621
9210H2S010	9210H2S010A	-0.462	U	UJ	1.86	0	1.86	0.621
9210RS002	9210RS002A	0.718	U	XV	1.86	0	1.86	0.621
9210RS012	9210RS012A	0.122	U	XV	1.86	0	1.86	0.621
9401DC1S040	9401DC1S040A	-0.791	U	XV	1.85	0	1.85	0.615
9207F6S039	9207F6S039A	1.16	U	XV	1.85	0	1.85	0.615
9207H3S016	9207H3S016A	0.535	U	XV	1.85	0	1.85	0.615
9207H3S020	9207H3S020A	-0.589	U	XV	1.85	0	1.85	0.615
9207RS002AA	9207RS002AA	1.36	U	XV	1.85	0	1.85	0.615
9207F2S011	9207F2S011AD	1.19	U	UJ	1.84	0	1.84	0.61
9207F2S012	9207F2S012A	-0.676	U	UJ	1.84	0	1.84	0.61
9401W1S016	9401W1S016A	0.606	U	XV	1.84	0	1.84	0.61
9207S3S034	9207S3S034A	0.071	U	XV	1.84	0	1.84	0.61
9210F2S013	9210F2S013A	-0.886	U	XV	1.82	0	1.82	0.599
9207C4S010A	9207C4S010AA	1.37	U	XV	1.81	0	1.81	0.593
9207F3S024	9207F3S024A	0.02	U	XV	1.81	0	1.81	0.593
9207D4S056	9207D4S056A	1.73	U	XV	1.8	0	1.8	0.588
9207F3S014	9207F3S014A	0.401	U	UJ	1.8	0	1.8	0.588
9207H3S006	9207H3S006A	-0.573	U	XV	1.8	0	1.8	0.588
9207RS013	9207RS013A	-0.322	U	XV	1.8	0	1.8	0.588
9401DC1S022	9401DC1S022A	1.25	U	XV	1.79	0	1.79	0.582
9210D1S053	9210D1S053A	-0.176	U	XV	1.79	0	1.79	0.582
9210D1S056	9210D1S056A	1.79		XV	1.34	1	1.79	0.582
9207S1S030	9207S1S030A	-0.957	U	XV	1.79	0	1.79	0.582
9207F2S010	9207F2S010A	-0.157	U	UJ	1.78	0	1.78	0.577

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S001	9401W1S001A	0.648	U	UJ	1.78	0	1.78	0.577
9207S1S027	9207S1S027A	1.11	U	XV	1.78	0	1.78	0.577
9207F6S040	9207F6S040A	0.245	U	XV	1.77	0	1.77	0.571
9210F1S002	9210F1S002A	0.591	U	XV	1.77	0	1.77	0.571
9210F2S010	9210F2S010A	-0.02	U	XV	1.77	0	1.77	0.571
9210S2S033	9210S2S033A	-1	U	XV	1.77	0	1.77	0.571
9210D3S059	9210D3S059A	1.53	U	XV	1.76	0	1.76	0.565
9210S1S018	9210S1S018A	0.591	U	XV	1.76	0	1.76	0.565
9401DC1S031	9401DC1S031A	0.399	U	XV	1.75	0	1.75	0.56
9401DC1S043	9401DC1S043A	-0.401	U	UJ	1.75	0	1.75	0.56
9207H3S004	9207H3S004A	-0.143	U	XV	1.75	0	1.75	0.56
9210W1S016	9210W1S016A	-0.426	U	XV	1.75	0	1.75	0.56
9210S3S044	9210S3S044A	-0.273	U	XV	1.75	0	1.75	0.56
9207C3S009	9207C3S009A	0.793	U	XV	1.74	0	1.74	0.554
9207D2S034A	9207D2S034AA	0.53	U	XV	1.74	0	1.74	0.554
9207F2S007	9207F2S007A	-0.87	U	UJ	1.74	0	1.74	0.554
9207H2S003	9207H2S003A	1.49	U	XV	1.74	0	1.74	0.554
9207W2S025	9207W2S025A	1.46	U	XV	1.74	0	1.74	0.554
9207W3S029	9207W3S029AD	0.92	U	XV	1.74	0	1.74	0.554
9207W6S037	9207W6S037A	0.97	U	XV	1.74	0	1.74	0.554
9401W1S004A	9401W1S004AA	1.02	U	U	1.74	0	1.74	0.554
9401DC1S049	9401DC1S049A	1.05	U	XV	1.73	0	1.73	0.548
9401DC1S056	9401DC1S056A	0.801	U	XV	1.73	0	1.73	0.548
9210H3S013	9210H3S013A	-0.71	U	XV	1.73	0	1.73	0.548
9207S3S037	9207S3S037A	-0.384	U	XV	1.73	0	1.73	0.548
9207S4S039	9207S4S039A	0.883	U	XV	1.73	0	1.73	0.548
9210S2S025	9210S2S025A	-0.397	U	XV	1.73	0	1.73	0.548
9401DC1S053	9401DC1S053A	-0.647	U	UJ	1.72	0	1.72	0.542
9207F2S008	9207F2S008A	-0.844	U	UJ	1.72	0	1.72	0.542
9207F3S016	9207F3S016A	-0.328	U	UJ	1.72	0	1.72	0.542
9401W1S002A	9401W1S002AA	0.171	U	UJ	1.72	0	1.72	0.542
9207W4S032	9207W4S032A	1.22	U	XV	1.71	0	1.71	0.536
9401W1S013	9401W1S013A	0.801	U	UJ	1.7	0	1.7	0.531
9401DC1S030	9401DC1S030A	0.826	U	XV	1.69	0	1.69	0.525
9207D5S057	9207D5S057A	-0.08	U	XV	1.69	0	1.69	0.525
9207D5S059	9207D5S059A	-0.415	U	XV	1.69	0	1.69	0.525
9207F1S001	9207F1S001A	0.962	U	U	1.69	0	1.69	0.525
9401DC1S022A	9401DC1S022AA	-0.177	U	XV	1.68	0	1.68	0.519
9207W1S022	9207W1S022A	-0.498	U	XV	1.68	0	1.68	0.519

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W5S034	9207W5S034A	1.07	U	XV	1.68	0	1.68	0.519
9210D1S052	9210D1S052A	1.14	U	XV	1.66	0	1.66	0.507
9210W1S017	9210W1S017A	1.41	U	XV	1.66	0	1.66	0.507
9210H3S012	9210H3S012A	-0.296	U	UJ	1.66	0	1.66	0.507
9207W3S028	9207W3S028A	-0.572	U	XV	1.66	0	1.66	0.507
9207S5S043	9207S5S043A	-0.72	U	XV	1.66	0	1.66	0.507
9210S2S032	9210S2S032A	0.882	U	XV	1.66	0	1.66	0.507
9210S3S041	9210S3S041A	-0.499	U	XV	1.66	0	1.66	0.507
9207C2S004A	9207C2S004AA	-0.193	U	XV	1.65	0	1.65	0.501
9207W5S035	9207W5S035A	-0.25	U	XV	1.65	0	1.65	0.501
9207C2S006	9207C2S006A	0.051	U	XV	1.64	0	1.64	0.495
9210C2S004	9210C2S004A	1.39	U	XV	1.64	0	1.64	0.495
9207H4S008	9207H4S008A	0.607	U	XV	1.64	0	1.64	0.495
9207RS003	9207RS003A	0.83	U	XV	1.64	0	1.64	0.495
9207S6S045	9207S6S045A	1	U	XV	1.64	0	1.64	0.495
9210S3S042	9210S3S042A	-0.331	U	XV	1.64	0	1.64	0.495
9207C4S013	9207C4S013A	-0.472	U	XV	1.63	0	1.63	0.489
9210S1S017	9210S1S017AD	1.01	U	XV	1.63	0	1.63	0.489
9207C2S004	9207C2S004A	0.208	U	XV	1.61	0	1.61	0.476
9207F1S004	9207F1S004A	0.435	U	XV	1.61	0	1.61	0.476
9207F6S042	9207F6S042A	0.153	U	XV	1.61	0	1.61	0.476
9210W1S010	9210W1S010A	-0.034	U	XV	1.61	0	1.61	0.476
9207C3S007	9207C3S007A	-0.383	U	XV	1.6	0	1.6	0.47
9401W1S014	9401W1S014A	-0.779	U	UJ	1.6	0	1.6	0.47
9210S2S036	9210S2S036A	0.933	U	XV	1.6	0	1.6	0.47
9210C3S007	9210C3S007A	0.094	U	XV	1.59	0	1.59	0.464
9401DC1S033	9401DC1S033A	0.575	U	XV	1.59	0	1.59	0.464
9210D3S057	9210D3S057A	-0.051	U	XV	1.59	0	1.59	0.464
9401W1S011	9401W1S011A	0.791	U	XV	1.59	0	1.59	0.464
9207S4S040	9207S4S040A	0.309	U	XV	1.59	0	1.59	0.464
9207C5S016	9207C5S016A	1.38	U	XV	1.58	0	1.58	0.457
9401DC1S024A	9401DC1S024AA	-0.232	U	XV	1.58	0	1.58	0.457
9210S2S029	9210S2S029A	0.476	U	XV	1.58	0	1.58	0.457
9210S2S037	9210S2S037A	0.107	U	XV	1.58	0	1.58	0.457
9401DC1S027	9401DC1S027A	-0.286	U	XV	1.57	0	1.57	0.451
9207F6S041	9207F6S041A	0.684	U	XV	1.57	0	1.57	0.451
9210RS013	9210RS013A	0.019	U	XV	1.57	0	1.57	0.451
9210W1S011	9210W1S011A	0.59	U	XV	1.56	0	1.56	0.445
9207S4S028	9207S4S028A	-0.719	U	XV	1.56	0	1.56	0.445

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S019	9210S1S019A	-0.735	U	XV	1.56	0	1.56	0.445
9401W1S004	9401W1S004A	0.485	U	U	1.55	0	1.55	0.438
9210S2S034	9210S2S034A	-0.775	U	XV	1.55	0	1.55	0.438
9207S5S029	9207S5S029A	1.24	U	XV	1.54	0	1.54	0.432
9210S1S023	9210S1S023A	0.216	U	XV	1.54	0	1.54	0.432
9207C1S001	9207C1S001A	1.32	U	XV	1.53	0	1.53	0.425
9207W3S040	9207W3S040A	-0.853	U	XV	1.53	0	1.53	0.425
9210W1S015	9210W1S015A	0.044	U	XV	1.53	0	1.53	0.425
9207F4S029	9207F4S029A	0.716	U	XV	1.52	0	1.52	0.419
9207H1S012	9207H1S012A	-0.713	U	UJ	1.52	0	1.52	0.419
9207H3S022	9207H3S022A	-0.301	U	XV	1.52	0	1.52	0.419
9210S3S043	9210S3S043A	1.25	U	XV	1.52	0	1.52	0.419
9210H1S006	9210H1S006A	0.533	U	XV	1.51	0	1.51	0.412
9207W6S036	9207W6S036A	-0.55	U	XV	1.51	0	1.51	0.412
9401DC1S042	9401DC1S042A	-0.588	U	UJ	1.5	0	1.5	0.405
9207F6S038	9207F6S038A	1.01	U	XV	1.5	0	1.5	0.405
9210F1S003	9210F1S003A	0.867	U	XV	1.5	0	1.5	0.405
9207H5S026	9207H5S026AD	0.852	U	XV	1.5	0	1.5	0.405
9210W1S014	9210W1S014A	0.106	U	XV	1.5	0	1.5	0.405
9401W1S007	9401W1S007A	-0.357	U	UJ	1.5	0	1.5	0.405
9210S2S038	9210S2S038AD	0.548	U	XV	1.5	0	1.5	0.405
9207RS006	9207RS006A	-0.31	U	XV	1.49	0	1.49	0.399
9210RS004	9210RS004A	0.861	U	XV	1.49	0	1.49	0.399
9207S2S033	9207S2S033A	-0.234	U	XV	1.49	0	1.49	0.399
9207S5S042	9207S5S042A	0.309	U	XV	1.49	0	1.49	0.399
9207C6S018	9207C6S018A	-0.244	U	XV	1.48	0	1.48	0.392
9207F4S027	9207F4S027A	0.801	U	XV	1.48	0	1.48	0.392
9401W1S012	9401W1S012AD	0.185	U	UJ	1.48	0	1.48	0.392
9210RS001	9210RS001A	1.2	U	XV	1.48	0	1.48	0.392
9210S2S035	9210S2S035A	-0.405	U	XV	1.48	0	1.48	0.392
9207F2S009	9207F2S009A	-0.368	U	XV	1.47	0	1.47	0.385
9207H3S017	9207H3S017A	0.382	U	XV	1.47	0	1.47	0.385
9401W1S018	9401W1S018A	1	U	UJ	1.47	0	1.47	0.385
9401DC1S023A	9401DC1S023AA	0.287	U	XV	1.46	0	1.46	0.378
9207H1S002	9207H1S002A	-0.08	U	XV	1.46	0	1.46	0.378
9210S2S031	9210S2S031A	0.595	U	XV	1.46	0	1.46	0.378
9207C5S012A	9207C5S012AA	-0.077	U	XV	1.45	0	1.45	0.372
9210F2S012	9210F2S012A	0.404	U	XV	1.45	0	1.45	0.372
9401W1S009	9401W1S009A	-0.759	U	UJ	1.45	0	1.45	0.372

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS015	9207RS015A	0.853	U	XV	1.45	0	1.45	0.372
9207S4S038	9207S4S038A	-0.8	U	XV	1.45	0	1.45	0.372
9401DC1S036	9401DC1S036A	0.96	U	XV	1.44	0	1.44	0.365
9207F5S033	9207F5S033A	0.75	U	XV	1.44	0	1.44	0.365
9210W1S013	9210W1S013A	1.39	U	XV	1.44	0	1.44	0.365
9401W1S005	9401W1S005A	0.926	U	XV	1.44	0	1.44	0.365
9207F3S022	9207F3S022A	-0.341	U	XV	1.43	0	1.43	0.358
9401DC1S048	9401DC1S048A	-0.423	U	XV	1.42	0	1.42	0.351
9207F4S030	9207F4S030A	0.411	U	XV	1.42	0	1.42	0.351
9207F5S034	9207F5S034A	-0.566	U	XV	1.42	0	1.42	0.351
9210F2S007	9210F2S007AD	0.709	U	XV	1.42	0	1.42	0.351
9401W1S003	9401W1S003A	0.035	U	U	1.42	0	1.42	0.351
9207F5S031	9207F5S031A	0.334	U	XV	1.41	0	1.41	0.344
9207S4S041	9207S4S041A	0.853	U	XV	1.41	0	1.41	0.344
9207S6S044	9207S6S044A	0.198	U	XV	1.41	0	1.41	0.344
9210S2S030	9210S2S030A	-0.809	U	XV	1.41	0	1.41	0.344
9207C3S008	9207C3S008A	-0.366	U	XV	1.4	0	1.4	0.336
9210C2S005	9210C2S005A	-0.27	U	XV	1.4	0	1.4	0.336
9210H3S014	9210H3S014A	0.066	U	XV	1.4	0	1.4	0.336
9207C6S019	9207C6S019A	0.729	U	XV	1.39	0	1.39	0.329
9210S1S001A	9210S1S001AA	-0.303	U	XV	1.39	0	1.39	0.329
9210D3S058	9210D3S058A	-0.508	U	XV	1.38	0	1.38	0.322
9207F3S020	9207F3S020A	-0.2	U	XV	1.37	0	1.37	0.315
9210S2S028	9210S2S028A	-0.153	U	XV	1.36	0	1.36	0.307
9210C3S008	9210C3S008A	0.494	U	XV	1.32	0	1.32	0.278
9207F5S032	9207F5S032A	0.516	U	U	1.32	0	1.32	0.278
9210S2S002A	9210S2S002AA	0.149	U	XV	1.32	0	1.32	0.278
9210H3S015	9210H3S015A	0.692	U	XV	1.31	0	1.31	0.27
9210H2S008	9210H2S008A	1.23	U	XV	1.3	0	1.3	0.262
9210RS010	9210RS010A	1.15	U	XV	1.3	0	1.3	0.262
9401DC1S026	9401DC1S026A	0.447	U	XV	1.29	0	1.29	0.255
9401DC1S052	9401DC1S052A	0.542	U	XV	1.29	0	1.29	0.255
9207H5S009	9207H5S009A	0.716	U	XV	1.29	0	1.29	0.255
9210W1S019	9210W1S019A	0.296	U	U	1.28	0	1.28	0.247
9210C1S002	9210C1S002A	-0.031	U	XV	1.27	0	1.27	0.239
9401DC1S025	9401DC1S025A	-0.089	U	XV	1.27	0	1.27	0.239
9401DC1S054	9401DC1S054A	-0.038	U	XV	1.27	0	1.27	0.239
9401DC1S023	9401DC1S023A	0.331	U	XV	1.26	0	1.26	0.231
9207F6S037	9207F6S037A	-0.527	U	XV	1.26	0	1.26	0.231

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS001	9207RS001A	-0.276	U	XV	1.26	0	1.26	0.231
9207H1S001	9207H1S001A	0.596	U	U	1.24	0	1.24	0.215
9210C1S003	9210C1S003A	0.397	U	U	1.23	0	1.23	0.207
9210RS003	9210RS003A	-0.405	U	XV	1.23	0	1.23	0.207
9210H2S009	9210H2S009A	-0.605	U	XV	1.22	0	1.22	0.199
9207W1S020	9207W1S020A	0.702	U	XV	1.22	0	1.22	0.199
9210F2S008	9210F2S008A	-0.077	U	XV	1.21	0	1.21	0.191
9207W4S030	9207W4S030A	0.065	U	XV	1.21	0	1.21	0.191
9210RS005	9210RS005A	0.113	U	XV	1.2	0	1.2	0.182
9210RS006	9210RS006A	0.365	U	XV	1.2	0	1.2	0.182
9210RS011	9210RS011A	0.066	U	XV	1.2	0	1.2	0.182
9210RS014	9210RS014AD	0.297	U	XV	1.2	0	1.2	0.182
9207F3S018	9207F3S018A	-0.17	U	UJ	1.19	0	1.19	0.174
9207RS014	9207RS014A	-0.734	U	XV	1.18	0	1.18	0.166
9210RS007	9210RS007A	-0.069	U	XV	1.18	0	1.18	0.166
9207F3S021	9207F3S021A	-0.099	U	XV	1.15	0	1.15	0.14
9207F5S035	9207F5S035A	0.568	U	XV	1.15	0	1.15	0.14
9401W1S017	9401W1S017A	0.026	U	UJ	1.15	0	1.15	0.14
9401DC1S032	9401DC1S032A	0.162	U	XV	1.14	0	1.14	0.131
9210D1S049	9210D1S049A	-0.68	U	XV	1.12	0	1.12	0.113
9210W1S009	9210W1S009A	0.641	U	XV	1.1	0	1.1	0.095
9207S2S032	9207S2S032A	-0.453	U	U	1.1	0	1.1	0.095
9207RS018	9207RS018A	-0.15	U	XV	1.09	0	1.09	0.086
9207F3S013	9207F3S013A	0.547	U	XV	1.08	0	1.08	0.077
9207F4S026	9207F4S026A	0.506	U	XV	1.06	0	1.06	0.058
9207W2S024	9207W2S024A	-0.561	U	XV	1.04	0	1.04	0.039
9210W1S012	9210W1S012A	0.45	U	XV	1.04	0	1.04	0.039
9207C1S003	9207C1S003A	1.03		XV	0.999	1	1.03	0.03
9207W5S033	9207W5S033A	0.382	U	XV	1.03	0	1.03	0.03
9207D1S048	9207D1S048A	1	U	XV	1.02	0	1.02	0.02
9207W2S023	9207W2S023A	0.76	U	XV	1.01	0	1.01	0.01
9207C1S002	9207C1S002A	0.311	U	U	0.998	0	0.998	-0.002
9210S3S040	9210S3S040A	0.704	U	XV	0.994	0	0.994	-0.006
9207C3S010	9207C3S010A	0.382	U	XV	0.984	0	0.984	-0.016
9207W1S023A	9207W1S023AA	-0.118	U	XV	0.984	0	0.984	-0.016
9207S3S036	9207S3S036A	0.575	U	U	0.966	0	0.966	-0.035
9210D1S051	9210D1S051A	-0.397	U	UJ	0.96	0	0.96	-0.041
9207F4S028	9207F4S028A	-0.048	U	XV	0.907	0	0.907	-0.098
9207F1S005	9207F1S005A	-0.23	U	XV	0.889	0	0.889	-0.118

Table G.134
Statistical Summary for Strontium-90 (10098972) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS008	9207RS008A	0.158	U	XV	0.865	0	0.865	-0.145
9207RS002	9207RS002A	0.187	U	XV	0.831	0	0.831	-0.185
9210W1S018	9210W1S018A	0.01	U	XV	0.823	0	0.823	-0.195
9207RS019	9207RS019A	-0.391	U	XV	0.803	0	0.803	-0.219
9207RS012	9207RS012A	0.18	U	XV	0.778	0	0.778	-0.251
9207W1S039	9207W1S039A	-0.002	U	XV	0.769	0	0.769	-0.263
9207W3S026	9207W3S026A	-0.402	U	XV	0.759	0	0.759	-0.276
9207RS004	9207RS004A	0.585	U	XV	0.719	0	0.719	-0.33
9207F4S025	9207F4S025A	-0.151	U	XV	0.682	0	0.682	-0.383
9207F1S003	9207F1S003A	-0.483	U	XV	0.676	0	0.676	-0.392
9207F1S002	9207F1S002A	-0.003	U	XV	0.649	0	0.649	-0.432
9207F1S006	9207F1S006A	-0.109	U	XV	0.637	0	0.637	-0.451
9207W3S027	9207W3S027A	-0.071	U	XV	0.515	0	0.515	-0.664
9207RS007	9207RS007A	0.153	U	XV	0.467	0	0.467	-0.761
9207RS010	9207RS010A	0.155	U	XV	0.448	0	0.448	-0.803
9207RS001AA	9207RS001AA	0.119	U	XV	0.38	0	0.38	-0.968

Number of Samples	328
Number of Detects	17
Minimum	0.38
Median	1.66
Maximum	14.4
Arithmetic Average	1.69
Std Dev	0.907
PERT-Beta Expected Value	3.57
LN Mean	0.457
LN Std Dev	0.338
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207E1B002	9207E1B002	678		J	7.38	1	678	6.52
9207RS007	9207RS007A	22.5		XV	5.91	1	22.5	3.11
9207H1S001A	9207H1S001AA	16.8		XV	7.7	1	16.8	2.82
9207RS014	9207RS014A	16.4		XV	6.44	1	16.4	2.8
9207RS019	9207RS019A	12.3		XV	5.63	1	12.3	2.51
9207RS001AA	9207RS001AA	11.8		XV	7.7	1	11.8	2.47
9207RS003	9207RS003A	11.3		XV	5.99	1	11.3	2.42
9207RS018	9207RS018A	10.4		XV	6.03	1	10.4	2.34
9207RS017	9207RS017A	-0.27	U	XV	9.69	0	9.69	2.27
9401E1B005	9401E1B005A	-0.473	U	U	9.58	0	9.58	2.26
9207RS004	9207RS004A	9.02		XV	6.69	1	9.02	2.2
9401W1S020	9401W1S020A	5.05	U	XV	8.92	0	8.92	2.19
9210F2B005	9210F2B005	2.12	U	U	8.91	0	8.91	2.19
9207RS015	9207RS015A	8.9		XV	5.5	1	8.9	2.19
9207RS012	9207RS012A	8.82		XV	6.36	1	8.82	2.18
9210RS008	9210RS008A	-0.146	U	XV	8.7	0	8.7	2.16
9207RS011	9207RS011A	0.704	U	XV	8.62	0	8.62	2.15
9210H1S006	9210H1S006A	1.1	U	XV	8.47	0	8.47	2.14
9207C3S009	9207C3S009A	-0.962	U	XV	8.42	0	8.42	2.13
9401D1B011	9401D1B011	4.83	U	U	8.35	0	8.35	2.12
9207D1S046	9207D1S046A	-4.31	U	XV	8.28	0	8.28	2.11
9207C2S004	9207C2S004A	-1.97	U	XV	8.14	0	8.14	2.1
9207H3S005	9207H3S005AD	-1.51	U	XV	8.14	0	8.14	2.1
9401DC1S034	9401DC1S034A	-1.45	U	XV	8.01	0	8.01	2.08
9207D1S048	9207D1S048A	-3.02	U	XV	8.01	0	8.01	2.08
9210RS014	9210RS014AD	6.93	U	XV	8.01	0	8.01	2.08
9207D2S052	9207D2S052A	-0.668	U	XV	8	0	8	2.08
9207C2S006	9207C2S006A	-2.05	U	XV	7.96	0	7.96	2.07
9401W1B013	9401W1B013	-0.025	U	U	7.95	0	7.95	2.07
9210C2S004	9210C2S004A	-1.07	U	XV	7.93	0	7.93	2.07
9401D1B010	9401D1B010	5.34	U	U	7.83	0	7.83	2.06
9210H3B001	9210H3B001	0.13	U	U	7.83	0	7.83	2.06
9210RS003	9210RS003A	1.63	U	XV	7.78	0	7.78	2.05
9210D3B002	9210D3B002	1.39	U	U	7.72	0	7.72	2.04
9207F6S039	9207F6S039A	1.93	U	XV	7.72	0	7.72	2.04
9207H2S014	9207H2S014A	-2.75	U	XV	7.66	0	7.66	2.04
9207D4S054	9207D4S054A	-2.04	U	XV	7.62	0	7.62	2.03
9401R1B006	9401R1B006	1.83	U	U	7.6	0	7.6	2.03
9207W5S034	9207W5S034A	-4.72	U	XV	7.55	0	7.55	2.02

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S3S043	9210S3S043A	4.04	U	XV	7.5	0	7.5	2.01
9207D2S053	9207D2S053A	-1.33	U	XV	7.47	0	7.47	2.01
9401W1S018	9401W1S018A	-2.62	U	U	7.46	0	7.46	2.01
9401W1S009	9401W1S009A	2.84	U	U	7.41	0	7.41	2.0
9207H3S006	9207H3S006A	-0.29	U	XV	7.4	0	7.4	2.0
9401W1S013	9401W1S013A	3.29	U	U	7.35	0	7.35	1.99
9210H3S013	9210H3S013A	-1.18	U	XV	7.26	0	7.26	1.98
9767D1B001	9767D1B001	4.53	U	U	7.25	0	7.25	1.98
9207S4S038	9207S4S038A	-1.72	U	XV	7.2	0	7.2	1.97
9207H3S003A	9207H3S003AA	-0.386	U	XV	7.19	0	7.19	1.97
9207F6S037	9207F6S037A	5.97	U	XV	7.18	0	7.18	1.97
9207RS008	9207RS008A	7.17		XV	6.54	1	7.17	1.97
9207F5S036	9207F5S036A	1.1	U	XV	7.1	0	7.1	1.96
9210RS012	9210RS012A	2.38	U	XV	7.09	0	7.09	1.96
9210F1S002	9210F1S002A	1.03	U	XV	7.06	0	7.06	1.95
9207D2S034A	9207D2S034AA	-2.8	U	XV	7.04	0	7.04	1.95
9210F1S001	9210F1S001A	2.19	U	XV	7.04	0	7.04	1.95
9207D2S051	9207D2S051A	-0.612	U	XV	7.03	0	7.03	1.95
9401DC1S050	9401DC1S050A	-0.051	U	XV	7.02	0	7.02	1.95
9401W1S014	9401W1S014A	3.73	U	U	7.01	0	7.01	1.95
9210F1S004	9210F1S004A	-1.01	U	XV	7	0	7	1.95
9401D1B012	9401D1B012	-0.211	U	U	6.98	0	6.98	1.94
9207W6S037	9207W6S037A	1.72	U	XV	6.97	0	6.97	1.94
9207H1S001	9207H1S001A	-0.925	U	U	6.96	0	6.96	1.94
9207W6S038	9207W6S038A	0.399	U	XV	6.95	0	6.95	1.94
9207D5S058	9207D5S058A	-1.02	U	XV	6.94	0	6.94	1.94
9401W1S001	9401W1S001A	1.79	U	U	6.94	0	6.94	1.94
9210S2S033	9210S2S033A	1.15	U	XV	6.94	0	6.94	1.94
9401W1S015	9401W1S015A	-0.515	U	XV	6.93	0	6.93	1.94
9207F3S023	9207F3S023A	1.46	U	XV	6.92	0	6.92	1.93
9210F1B004	9210F1B004	1.85	U	U	6.9	0	6.9	1.93
9207RS016	9207RS016A	1.56	U	XV	6.9	0	6.9	1.93
9207W4S031	9207W4S031A	-1.17		XV	6.87	0	6.87	1.93
9207W4S032	9207W4S032A	-1.12	U	XV	6.87	0	6.87	1.93
9401W1S019	9401W1S019A	-1.61	U	XV	6.87	0	6.87	1.93
9210RS001	9210RS001A	3.07	U	XV	6.87	0	6.87	1.93
9207H1S012	9207H1S012A	-0.169	U	U	6.84	0	6.84	1.92
9207H3S016	9207H3S016A	1.27	U	XV	6.84	0	6.84	1.92
9401DC1S052	9401DC1S052A	-3.01	U	XV	6.83	0	6.83	1.92

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9767D1B005	9767D1B005	-0.025	U	U	6.77	0	6.77	1.91
9767D1B006	9767D1B006	0.065	U	U	6.72	0	6.72	1.91
9210D1S046	9210D1S046A	-0.505	U	U	6.71	0	6.71	1.9
9401W1S002	9401W1S002A	2.81	U	U	6.71	0	6.71	1.9
9210RS009	9210RS009A	4.74	U	XV	6.7	0	6.7	1.9
9207D4S055	9207D4S055A	-1.24	U	XV	6.69	0	6.69	1.9
9207W5S035	9207W5S035A	-0.215		XV	6.61	0	6.61	1.89
9207W6S036	9207W6S036A	-0.92	U	XV	6.61	0	6.61	1.89
9401DC1S032	9401DC1S032A	3.55	U	XV	6.6	0	6.6	1.89
9401W1S007	9401W1S007A	4.65	U	U	6.59	0	6.59	1.89
9210H3S014	9210H3S014A	-1.01	U	XV	6.58	0	6.58	1.88
9207F4S029	9207F4S029A	0.832	U	XV	6.57	0	6.57	1.88
9207F6S042	9207F6S042A	1.05	U	XV	6.57	0	6.57	1.88
9767D1B003	9767D1B003	0.231	U	U	6.56	0	6.56	1.88
9207S4S028	9207S4S028A	-0.709	U	XV	6.56	0	6.56	1.88
9207C2S004A	9207C2S004AA	5.06	U	XV	6.55	0	6.55	1.88
9207W5S033	9207W5S033A	-1.4		XV	6.55	0	6.55	1.88
9207D4S056	9207D4S056A	-3.15	U	XV	6.53	0	6.53	1.88
9207F3S019	9207F3S019A	0.724	U	XV	6.53	0	6.53	1.88
9207F4S030	9207F4S030A	2.36	U	XV	6.52	0	6.52	1.87
9207F6S038	9207F6S038A	2.09	U	XV	6.52	0	6.52	1.87
9207H2S015	9207H2S015A	1.37	U	XV	6.51	0	6.51	1.87
9401E1B003	9401E1B003A	-1.3	U	U	6.5	0	6.5	1.87
9401DC1S030	9401DC1S030A	-0.947	U	XV	6.48	0	6.48	1.87
9210D1S053	9210D1S053A	-2.14	U	XV	6.46	0	6.46	1.87
9210S3S044	9210S3S044A	1.12	U	XV	6.46	0	6.46	1.87
9207C4S011	9207C4S011A	0.562	U	XV	6.45	0	6.45	1.86
9207F3S021	9207F3S021A	-0.322	U	XV	6.43	0	6.43	1.86
9207H2S003	9207H2S003A	-3.87	U	XV	6.39	0	6.39	1.85
9207W2S024A	9207W2S024AA	2.58	U	XV	6.38	0	6.38	1.85
9210H1S005	9210H1S005A	0.591	U	XV	6.38	0	6.38	1.85
9207C1S002	9207C1S002A	-1.37	U	U	6.37	0	6.37	1.85
9210H3S012	9210H3S012A	-0.182	U	U	6.37	0	6.37	1.85
9401W1S002A	9401W1S002AA	4.37	U	U	6.36	0	6.36	1.85
9207C3S008	9207C3S008A	1.39	U	XV	6.35	0	6.35	1.85
9207C4S010A	9207C4S010AA	2.08	U	XV	6.35	0	6.35	1.85
9207H3S004	9207H3S004A	1.1	U	XV	6.34	0	6.34	1.85
9210S2S027	9210S2S027A	1.64	U	XV	6.34	0	6.34	1.85
9401DC1S022	9401DC1S022A	0.883	U	XV	6.33	0	6.33	1.85

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S3S036	9207S3S036A	-0.851	U	U	6.31	0	6.31	1.84
9210F3S015	9210F3S015A	1.32	U	XV	6.29	0	6.29	1.84
9207C3S007	9207C3S007A	2.26	U	XV	6.28	0	6.28	1.84
9767D1B002	9767D1B002	0.108	U	U	6.26	0	6.26	1.83
9207F5S031	9207F5S031A	0.744	U	XV	6.26	0	6.26	1.83
9207H3S007	9207H3S007A	-1.38	U	XV	6.24	0	6.24	1.83
9207W3S028	9207W3S028A	-1.78	U	XV	6.23	0	6.23	1.83
9210W1S013	9210W1S013A	-3.54	U	XV	6.22	0	6.22	1.83
9401W1S016	9401W1S016A	2.75	U	XV	6.21	0	6.21	1.83
9207F3S022	9207F3S022A	-0.558	U	XV	6.2	0	6.2	1.82
9207F6S041	9207F6S041A	2.68	U	XV	6.2	0	6.2	1.82
9210W2B006	9210W2B006	0.315	U	U	6.19	0	6.19	1.82
9207C4S013	9207C4S013A	2.13	U	XV	6.17	0	6.17	1.82
9210F3S017	9210F3S017A	-1.52	U	XV	6.17	0	6.17	1.82
9207C5S012A	9207C5S012AA	2.04	U	XV	6.16	0	6.16	1.82
9210D1S052	9210D1S052A	3.44	U	XV	6.14	0	6.14	1.81
9207C6S019	9207C6S019A	3.29	U	XV	6.13	0	6.13	1.81
9210RS011	9210RS011A	2.52	U	XV	6.12	0	6.12	1.81
9401DC1S049	9401DC1S049A	-2.03	U	XV	6.11	0	6.11	1.81
9207F3S016	9207F3S016A	0.661	U	U	6.1	0	6.1	1.81
9207D4B005	9207D4B005	0.226	U	U	6.09	0	6.09	1.81
9210F1S003	9210F1S003A	-0.688	U	XV	6.08	0	6.08	1.81
9401W1S012	9401W1S012A	3.02	U	U	6.08	0	6.08	1.81
9210D1S051	9210D1S051A	-0.093	U	U	6.05	0	6.05	1.8
9207RS002AA	9207RS002AA	4.95	U	XV	6.03	0	6.03	1.8
9207D4B006	9207D4B006	0.432	U	U	6	0	6	1.79
9207F3S017	9207F3S017A	1.63	U	U	6	0	6	1.79
9401DC1S036	9401DC1S036A	2.66	U	XV	5.99	0	5.99	1.79
9210W1S017	9210W1S017A	-0.083	U	XV	5.99	0	5.99	1.79
9207F3S014	9207F3S014A	1.45	U	U	5.99	0	5.99	1.79
9207H1S013	9207H1S013A	0.487	U	XV	5.95	0	5.95	1.78
9207C5S016	9207C5S016A	1.89	U	XV	5.94	0	5.94	1.78
9207D1S047	9207D1S047AD	0.077	U	XV	5.94	0	5.94	1.78
9207C3S010	9207C3S010A	1.2	U	XV	5.93	0	5.93	1.78
9207H3S020	9207H3S020A	1.05	U	XV	5.93	0	5.93	1.78
9210W1S012	9210W1S012A	0.238	U	XV	5.93	0	5.93	1.78
9207F3S024	9207F3S024A	0.324	U	XV	5.92	0	5.92	1.78
9207RS013	9207RS013A	3.45	U	XV	5.92	0	5.92	1.78
9210D1S048	9210D1S048A	1.02	U	XV	5.91	0	5.91	1.78

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F1S001	9207F1S001A	0.643	U	U	5.91	0	5.91	1.78
9207C6S018	9207C6S018A	1.93	U	XV	5.9	0	5.9	1.77
9401DC1S024	9401DC1S024A	2.28	U	XV	5.9	0	5.9	1.77
9210H3S015	9210H3S015A	-1.93	U	XV	5.9	0	5.9	1.77
9210S2S025	9210S2S025A	3.47	U	XV	5.89	0	5.89	1.77
9207C5S015	9207C5S015A	-0.556	U	XV	5.87	0	5.87	1.77
9210C2S005	9210C2S005A	-1.62	U	XV	5.85	0	5.85	1.77
9401DC1S031	9401DC1S031A	-1.12	U	XV	5.85	0	5.85	1.77
9767D1B004	9767D1B004	1.44	U	U	5.83	0	5.83	1.76
9210F1S005	9210F1S005A	0.822	U	XV	5.83	0	5.83	1.76
9210H3S011	9210H3S011A	-0.104	U	XV	5.83	0	5.83	1.76
9210C3S006	9210C3S006A	0.035	U	XV	5.82	0	5.82	1.76
9207F5S035	9207F5S035A	2.45	U	XV	5.82	0	5.82	1.76
9401DC1S054	9401DC1S054A	-1.4	U	XV	5.78	0	5.78	1.75
9207F1S002	9207F1S002A	-0.993	U	XV	5.78	0	5.78	1.75
9207F2S008	9207F2S008A	0.429	U	U	5.76	0	5.76	1.75
9207RS006	9207RS006A	-0.821	U	XV	5.74	0	5.74	1.75
9207F2S012	9207F2S012A	1.7	U	U	5.73	0	5.73	1.75
9207F5S034	9207F5S034A	-0.562	U	XV	5.73	0	5.73	1.75
9207D1S050	9207D1S050A	-0.292	U	XV	5.72	0	5.72	1.74
9207D5S057	9207D5S057A	1.17	U	XV	5.72	0	5.72	1.74
9207F3S020	9207F3S020A	0.661	U	XV	5.71	0	5.71	1.74
9207H4S008	9207H4S008A	1.01	U	XV	5.7	0	5.7	1.74
9401W1S017	9401W1S017A	0.045	U	U	5.68	0	5.68	1.74
9210H2S010	9210H2S010A	2.17	U	U	5.67	0	5.67	1.74
9207E1B004	9207E1B004	2.25	U	U	5.64	0	5.64	1.73
9207F3S015	9207F3S015A	0.437	U	U	5.64	0	5.64	1.73
9210RS005	9210RS005A	0.144	U	XV	5.61	0	5.61	1.72
9207S6S044	9207S6S044A	1.94	U	XV	5.61	0	5.61	1.72
9207H3S022	9207H3S022A	1.12	U	XV	5.6	0	5.6	1.72
9401W1B001	9401W1B001A	2.89	U	U	5.6	0	5.6	1.72
9210W1S011	9210W1S011A	-1.2	U	XV	5.59	0	5.59	1.72
9207H3S017	9207H3S017A	-0.645	U	XV	5.58	0	5.58	1.72
9210RS004	9210RS004A	0.25	U	XV	5.58	0	5.58	1.72
9210C3S007	9210C3S007A	1.79	U	XV	5.57	0	5.57	1.72
9207F2S011	9207F2S011A	1.53	U	U	5.56	0	5.56	1.72
9207H1B001	9207H1B001	-0.512	U	U	5.53	0	5.53	1.71
9207S4S041	9207S4S041A	-1.46	U	XV	5.53	0	5.53	1.71
9207F5S032	9207F5S032A	3.86	U	U	5.52	0	5.52	1.71

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S013	9207F3S013A	1.36	U	XV	5.48	0	5.48	1.7
9210F3S018	9210F3S018A	0.295	U	XV	5.48	0	5.48	1.7
9207S2S032	9207S2S032A	-1.09	U	U	5.47	0	5.47	1.7
9207C6S017	9207C6S017A	0.325	U	XV	5.46	0	5.46	1.7
9210F3S016	9210F3S016A	2.51	U	XV	5.46	0	5.46	1.7
9401E1B002	9401E1B002A	-1.99	U	U	5.44	0	5.44	1.69
9210W1S015	9210W1S015A	-1.38	U	XV	5.44	0	5.44	1.69
9207F2S010	9207F2S010A	-0.169	U	U	5.42	0	5.42	1.69
9207E1B010	9207E1B010	0.718	U	U	5.4	0	5.4	1.69
9207F2S007	9207F2S007A	1.26	U	U	5.4	0	5.4	1.69
9207F3S018	9207F3S018A	2.09	U	U	5.4	0	5.4	1.69
9207F1B011	9207F1B011D	3.88	U	U	5.37	0	5.37	1.68
9207F1B012	9207F1B012	1.71	U	U	5.35	0	5.35	1.68
9207W3S027	9207W3S027A	-2.63	U	XV	5.35	0	5.35	1.68
9210D1S006A	9210D1S006AA	1.65	U	XV	5.32	0	5.32	1.67
9207F1S003	9207F1S003A	-1.93	U	XV	5.31	0	5.31	1.67
9207H5S026	9207H5S026A	-1.2	U	XV	5.29	0	5.29	1.67
9207W3S040	9207W3S040A	-1.68	U	XV	5.28	0	5.28	1.66
9210RS013	9210RS013A	1.4	U	XV	5.27	0	5.27	1.66
9401DC1S048	9401DC1S048A	-2.85	U	XV	5.24	0	5.24	1.66
9401DC1S022A	9401DC1S022AA	-1.77	U	XV	5.23	0	5.23	1.65
9207F4S028	9207F4S028A	-1.96	U	XV	5.22	0	5.22	1.65
9210H1S004	9210H1S004A	-0.435	U	U	5.22	0	5.22	1.65
9207RS002	9207RS002AD	-0.144	U	XV	5.22	0	5.22	1.65
9207F5B013	9207F5B013	-0.143	U	U	5.19	0	5.19	1.65
9210F3S019	9210F3S019A	-0.574	U	XV	5.19	0	5.19	1.65
9210W1S009	9210W1S009A	-2.47	U	XV	5.19	0	5.19	1.65
9207H3S021	9207H3S021A	-0.742	U	XV	5.17	0	5.17	1.64
9401DC1S024A	9401DC1S024AA	-0.058	U	XV	5.16	0	5.16	1.64
9207F1S004	9207F1S004A	-1.78	U	XV	5.15	0	5.15	1.64
9210W1S014	9210W1S014A	-1.32	U	XV	5.14	0	5.14	1.64
9210F1S006	9210F1S006A	1.42	U	XV	5.12	0	5.12	1.63
9207H3S019	9207H3S019A	0.592	U	XV	5.12	0	5.12	1.63
9207E1B003	9207E1B003	-0.471	U	U	5.11	0	5.11	1.63
9207F6S040	9207F6S040A	-1.86	U	XV	5.1	0	5.1	1.63
9207W1S023A	9207W1S023AA	0.566	U	XV	5.09	0	5.09	1.63
9207RS001	9207RS001A	-1.33	U	XV	5.09	0	5.09	1.63
9207W1S039	9207W1S039A	-3.21	U	XV	5.08	0	5.08	1.63
9207H1S002	9207H1S002A	2.11	U	XV	5.07	0	5.07	1.62

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S038	9210S2S038AD	2.31	U	XV	5.07	0	5.07	1.62
9207D5S059	9207D5S059A	-2.86	U	XV	5.06	0	5.06	1.62
9210W1S019	9210W1S019A	0.56	U	U	5.04	0	5.04	1.62
9207H3S024	9207H3S024A	1.32	U	XV	5.01	0	5.01	1.61
9401DC1S028	9401DC1S028A	-0.056	U	XV	5	0	5	1.61
9401DC1S045	9401DC1S045A	1.09	U	XV	5	0	5	1.61
9207F1S005	9207F1S005A	-0.226	U	XV	4.98	0	4.98	1.61
9210W1S010	9210W1S010A	-2.77	U	XV	4.98	0	4.98	1.61
9207S5S042	9207S5S042A	-2.05	U	XV	4.97	0	4.97	1.6
9207F4S025	9207F4S025A	-1.2	U	XV	4.95	0	4.95	1.6
9207W3S026	9207W3S026A	-1.61	U	XV	4.95	0	4.95	1.6
9207S5S029	9207S5S029A	-0.51	U	XV	4.94	0	4.94	1.6
9210W1S016	9210W1S016A	-0.731	U	XV	4.93	0	4.93	1.6
9207F1S006	9207F1S006A	-0.012	U	XV	4.92	0	4.92	1.59
9207H5S010	9207H5S010A	-2.04	U	XV	4.92	0	4.92	1.59
9210RS002	9210RS002A	2.86	U	XV	4.92	0	4.92	1.59
9210S1S001A	9210S1S001AA	-0.744	U	XV	4.9	0	4.9	1.59
9210C1S001A	9210C1S001AA	0.673	U	XV	4.89	0	4.89	1.59
9401DC1S033	9401DC1S033A	1.76	U	XV	4.87	0	4.87	1.58
9401DC1S051	9401DC1S051A	0.331	U	XV	4.86	0	4.86	1.58
9207F4S027	9207F4S027A	-2.17	U	XV	4.86	0	4.86	1.58
9210S3S042	9210S3S042A	0.941	U	XV	4.86	0	4.86	1.58
9210C3S008	9210C3S008A	0.699	U	XV	4.84	0	4.84	1.58
9210H2S008	9210H2S008A	-0.463	U	XV	4.84	0	4.84	1.58
9207H5S009	9207H5S009A	1.82	U	XV	4.81	0	4.81	1.57
9210W1S018	9210W1S018A	-3.84	U	XV	4.8	0	4.8	1.57
9401DC1S026	9401DC1S026A	-0.04	U	XV	4.79	0	4.79	1.57
9207F5S033	9207F5S033A	0.052	U	XV	4.78	0	4.78	1.56
9207H3S023	9207H3S023A	0.057	U	XV	4.78	0	4.78	1.56
9210D1S050	9210D1S050A	-1.65	U	U	4.77	0	4.77	1.56
9401DC1S046	9401DC1S046A	1.28	U	XV	4.74	0	4.74	1.56
9207D5B007	9207D5B007	-0.369	U	U	4.73	0	4.73	1.55
9210D1S047	9210D1S047A	2.61	U	U	4.71	0	4.71	1.55
9207D6B008	9207D6B008	-0.025	U	U	4.69	0	4.69	1.55
9207F4S026	9207F4S026A	-2.6	U	XV	4.67	0	4.67	1.54
9401DC1S035	9401DC1S035AD	1.22	U	XV	4.62	0	4.62	1.53
9401W1S021	9401W1S021A	0.356	U	XV	4.6	0	4.6	1.53
9401W1S001A	9401W1S001AA	0.332	U	U	4.58	0	4.58	1.52
9401DC1S044	9401DC1S044A	1.79	U	XV	4.57	0	4.57	1.52

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S032	9210S2S032A	0.101	U	XV	4.57	0	4.57	1.52
9210D3S057	9210D3S057A	-3.26	U	XV	4.55	0	4.55	1.52
9210F2S007	9210F2S007AD	2.44	U	XV	4.55	0	4.55	1.52
9210S2S031	9210S2S031A	0.138	U	XV	4.53	0	4.53	1.51
9401DC1S027	9401DC1S027A	-1.09	U	XV	4.5	0	4.5	1.5
9401DC1S029	9401DC1S029A	1.2	U	XV	4.5	0	4.5	1.5
9210S1S018	9210S1S018A	-0.626	U	XV	4.5	0	4.5	1.5
9401DC1S023A	9401DC1S023AA	0.282	U	XV	4.49	0	4.49	1.5
9401DC1S038	9401DC1S038A	1.55	U	XV	4.49	0	4.49	1.5
9401DC1S040	9401DC1S040A	1.31	U	XV	4.49	0	4.49	1.5
9210F2S011	9210F2S011A	3.03	U	XV	4.45	0	4.45	1.49
9207S2S033	9207S2S033A	0.892	U	XV	4.45	0	4.45	1.49
9210S3S040	9210S3S040A	0.526	U	XV	4.45	0	4.45	1.49
9401DC1S025	9401DC1S025A	-0.125	U	XV	4.41	0	4.41	1.48
9207C1S003	9207C1S003A	1.89	U	XV	4.4	0	4.4	1.48
9210F2S012	9210F2S012A	0.519	U	XV	4.4	0	4.4	1.48
9207H3S022A	9207H3S022AA	-2.72	U	XV	4.4	0	4.4	1.48
9210F2S008	9210F2S008A	1.55	U	XV	4.39	0	4.39	1.48
9207S4S040	9207S4S040A	-1.24	U	XV	4.39	0	4.39	1.48
9210D1S055	9210D1S055A	-2.39	U	U	4.38	0	4.38	1.48
9401DC1S056	9401DC1S056A	1.37	U	XV	4.36	0	4.36	1.47
9401DC1S037	9401DC1S037A	3.43	U	XV	4.35	0	4.35	1.47
9207C1S001	9207C1S001A	-0.93	U	XV	4.27	0	4.27	1.45
9207F2S009	9207F2S009A	2.83	U	XV	4.27	0	4.27	1.45
9210S1S017	9210S1S017AD	0.393	U	XV	4.27	0	4.27	1.45
9210D3S058	9210D3S058A	-0.835	U	XV	4.25	0	4.25	1.45
9401W1S004	9401W1S004A	-0.41	U	U	4.25	0	4.25	1.45
9210F3S014	9210F3S014A	0.66	U	XV	4.24	0	4.24	1.44
9401DC1S047	9401DC1S047A	2.3	U	XV	4.21	0	4.21	1.44
9210F2S013	9210F2S013A	0.157	U	XV	4.21	0	4.21	1.44
9401DC1S041	9401DC1S041A	-0.14	U	XV	4.19	0	4.19	1.43
9210S2S026	9210S2S026A	2.36	U	XV	4.19	0	4.19	1.43
9210S2S002A	9210S2S002AA	-0.762	U	XV	4.17	0	4.17	1.43
9401DC1S039	9401DC1S039A	0.777	U	XV	4.15	0	4.15	1.42
9210C1S002	9210C1S002A	-0.696	U	XV	4.14	0	4.14	1.42
9210S1S023	9210S1S023A	0.806	U	XV	4.13	0	4.13	1.42
9210D3S059	9210D3S059A	-0.424	U	XV	4.11	0	4.11	1.41
9207S3S037	9207S3S037A	-1.07	U	XV	4.09	0	4.09	1.41
9207RS010	9207RS010A	4.03	U	XV	4.08	0	4.08	1.41

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S022	9210S1S022A	-1.52	U	U	4.08	0	4.08	1.41
9210D1S049	9210D1S049A	-0.526	U	XV	4.07	0	4.07	1.4
9207H3S018	9207H3S018A	0.701	U	XV	4.03	0	4.03	1.39
9210H2S009	9210H2S009A	-0.69	U	XV	4	0	4	1.39
9401DC1S055	9401DC1S055AD	0.269	U	XV	3.95	0	3.95	1.37
9210RS010	9210RS010A	1.97	U	XV	3.85	0	3.85	1.35
9210F2S010	9210F2S010A	0.894	U	XV	3.82	0	3.82	1.34
9207S1S030	9207S1S030A	2.64	U	XV	3.82	0	3.82	1.34
9401DC1S023	9401DC1S023A	1.04	U	XV	3.8	0	3.8	1.34
9210S1S024	9210S1S024A	-0.559	U	XV	3.8	0	3.8	1.34
9210D1S056	9210D1S056A	0.28	U	XV	3.76	0	3.76	1.32
9210S3S041	9210S3S041A	-0.153	U	XV	3.73	0	3.73	1.32
9207S1S031	9207S1S031A	0.876	U	XV	3.7	0	3.7	1.31
9210RS007	9210RS007A	1.01	U	XV	3.68	0	3.68	1.3
9401W1S005	9401W1S005A	1.26	U	XV	3.63	0	3.63	1.29
9210S2S030	9210S2S030A	0.157	U	XV	3.62	0	3.62	1.29
9210S2S029	9210S2S029A	0.141	U	XV	3.52	0	3.52	1.26
9210S2S035	9210S2S035A	-0.071	U	XV	3.46	0	3.46	1.24
9210RS006	9210RS006A	0.231	U	XV	3.45	0	3.45	1.24
9210S2S036	9210S2S036A	-0.376	U	XV	3.45	0	3.45	1.24
9401W1S011	9401W1S011A	0.482	U	XV	3.43	0	3.43	1.23
9210S2S028	9210S2S028A	2.2	U	XV	3.4	0	3.4	1.22
9207S6S045	9207S6S045A	-1.24	U	XV	3.37	0	3.37	1.21
9207W1S022	9207W1S022A	2.93	U	XV	3.28	0	3.28	1.19
9210S2S037	9210S2S037A	1.45	U	XV	3.28	0	3.28	1.19
9210C1S003	9210C1S003AD	1.82	U	U	3.27	0	3.27	1.18
9210S1S020	9210S1S020A	1.25	U	U	3.24	0	3.24	1.18
9401W1S004A	9401W1S004AA	0.411	U	U	3.18	0	3.18	1.16
9210S2S034	9210S2S034A	-0.847	U	XV	3.16	0	3.16	1.15
9207W2S023	9207W2S023A	2.13	U	XV	3.13	0	3.13	1.14
9210S1S021	9210S1S021A	0.308	U	U	3.13	0	3.13	1.14
9207S3S034	9207S3S034A	-1.53	U	XV	3.12	0	3.12	1.14
9207W2S025	9207W2S025A	1.14	U	XV	3.09	0	3.09	1.13
9207W2S024	9207W2S024A	1.6	U	XV	3.08	0	3.08	1.12
9207W1S021	9207W1S021A	1.04	U	XV	3.01	0	3.01	1.1
9207S5S043	9207S5S043A	-0.278	U	XV	3	0	3	1.1
9210F2S009	9210F2S009A	0.451	U	XV	2.96	0	2.96	1.09
9207W1S020	9207W1S020A	1.37	U	XV	2.92	0	2.92	1.07
9207S4S039	9207S4S039A	-0.819	U	XV	2.58	0	2.58	0.948

Table G.135
Statistical Summary for Technetium-99 (14133767) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S019	9210S1S019A	0.068	U	XV	2.58	0	2.58	0.948
9207S1S027	9207S1S027A	-0.913	U	XV	2.22	0	2.22	0.798
9207W3S029	9207W3S029AD	1.27		XV	7.1	1	1.27	0.239
9401W1S003	9401W1S003A	0.219	U	U	1.19	0	1.19	0.174
9401DC1S053	9401DC1S053A	-0.167	U	U	0.94	0	0.94	-0.062
9401DC1S042	9401DC1S042A	0.041	U	U	0.938	0	0.938	-0.064
9401DC1S043	9401DC1S043A	0.155	U	U	0.931	0	0.931	-0.071
9401DC1S057A	9401DC1S057AA	-0.118	U	U	0.738	0	0.738	-0.304
9207W4S030	9207W4S030A	0.113		XV	6.99	1	0.113	-2.18

Number of Samples	360
Number of Detects	14
Minimum	0.113
Median	5.68
Maximum	678
Arithmetic Average	7.6
Std Dev	35.5
PERT-Beta Expected Value	117
LN Mean	1.69
LN Std Dev	0.488
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.136
Statistical Summary for TCLP Tetrachloroethene (127184) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401R1B006	9401R1B006	0.005	J	J	0.003	1	0.005	-5.28
9401E1B003	9401E1B003C	0.01	U	U	0.003	0	0.002	-6.4
9401E1B005	9401E1B005C	0.01	U	U	0.003	0	0.002	-6.4

Number of Samples	3
Number of Detects	1
Minimum	0.002
Median	0.002
Maximum	0.005
Arithmetic Average	0.003
Std Dev	0.002
PERT-Beta Expected Value	0.002
LN Mean	-6.02
LN Std Dev	0.646
S-W p-value for normality	--
S-W p-value for lognormality	--

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	0.139	U	UJ	3.76	0	3.76	1.32
9210W1S011	9210W1S011A	2.82		XV	0.674	1	2.82	1.04
9207W6S037	9207W6S037A	2.4		XV	0.297	1	2.4	0.875
9207W3S028	9207W3S028A	2.14		XV	0.473	1	2.14	0.761
9207W3S029	9207W3S029A	1.95		XV	0.454	1	1.95	0.668
9210W1S015	9210W1S015A	1.93		XV	0.151	1	1.93	0.658
9207W6S038	9207W6S038A	1.82		XV	0.275	1	1.82	0.599
9401W1S021	9401W1S021A	1.76		XV	0.557	1	1.76	0.565
9210W1S013	9210W1S013A	1.61		XV	0.452	1	1.61	0.476
9207W4S032	9207W4S032A	1.56		XV	0.539	1	1.56	0.445
9207W5S034	9207W5S034A	1.53		XV	0.633	1	1.53	0.425
9207W4S030	9207W4S030A	1.49		XV	0.483	1	1.49	0.399
9207W2S024A	9207W2S024AAD	1.47		XV	0.422	1	1.47	0.385
9207W3S027	9207W3S027A	1.46		XV	0.319	1	1.46	0.378
9207F3S013	9207F3S013A	1.41		XV	1.18	1	1.41	0.344
9207H3S024	9207H3S024A	-0.0243	U	XV	1.38	0	1.38	0.322
9207D2S053	9207D2S053A	0.0772	U	XV	1.37	0	1.37	0.315
9210W1S019	9210W1S019A	1.37		=	0.321	1	1.37	0.315
9401DC1S036	9401DC1S036A	1.36		XV	0.431	1	1.36	0.307
9210W1S018	9210W1S018A	1.35		XV	0.375	1	1.35	0.300
9207W5S035	9207W5S035A	1.34		XV	0.271	1	1.34	0.293
9210H1S006	9210H1S006A	0.119	U	XV	1.33	0	1.33	0.285
9210W1S017	9210W1S017A	1.32		XV	0.568	1	1.32	0.278
9210F3S018	9210F3S018A	0.0357	U	XV	1.31	0	1.31	0.270
9207H3S018	9207H3S018A	0.0706	U	XV	1.29	0	1.29	0.255
9210W1S009	9210W1S009A	1.29		XV	0.166	1	1.29	0.255
9207W1S039	9207W1S039A	1.28		XV	0.483	1	1.28	0.247
9401W1S009	9401W1S009A	1.27		J	1.01	1	1.27	0.239
9207W6S036	9207W6S036A	1.26		XV	0.313	1	1.26	0.231
9210H1S005	9210H1S005A	0.225	U	XV	1.25	0	1.25	0.223
9401W1S015	9401W1S015A	1.24		XV	0.621	1	1.24	0.215
9207W1S023A	9207W1S023AA	1.22		XV	0.399	1	1.22	0.199
9401DC1S049	9401DC1S049A	1.21		XV	0.562	1	1.21	0.191
9401W1S005	9401W1S005A	1.19		XV	0.545	1	1.19	0.174
9401W1S012	9401W1S012AD	1.17		J	0.785	1	1.17	0.157
9207W5S033	9207W5S033A	1.16		XV	0.423	1	1.16	0.148
9401W1S016	9401W1S016A	1.14		XV	0.617	1	1.14	0.131
9401DC1S051	9401DC1S051A	1.12		XV	0.753	1	1.12	0.113
9401W1S019	9401W1S019A	1.11		XV	0.784	1	1.11	0.104

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S022	9401DC1S022A	0.744	U	XV	1.1	0	1.1	0.095
9401DC1S027	9401DC1S027A	0.04	U	XV	1.09	0	1.09	0.086
9207H3S019	9207H3S019A	-0.01	U	XV	1.09	0	1.09	0.086
9207W3S026	9207W3S026A	1.09		XV	0.334	1	1.09	0.086
9401DC1S035	9401DC1S035AD	1.07		XV	0.762	1	1.07	0.068
9401W1S017	9401W1S017A	1.07		J	0.836	1	1.07	0.068
9207D5S057	9207D5S057A	-0.008	U	XV	1.05	0	1.05	0.049
9401DC1S050	9401DC1S050AD	0.784	U	XV	1.04	0	1.04	0.039
9207W3S040	9207W3S040A	1.04		XV	0.352	1	1.04	0.039
9401DC1S034	9401DC1S034A	0.821	U	XV	1.03	0	1.03	0.03
9401W1S014	9401W1S014A	1.03		J	0.922	1	1.03	0.03
9401W1S007	9401W1S007A	1.01		J	0.897	1	1.01	0.01
9401DC1S024	9401DC1S024A	0.995		XV	0.77	1	0.995	-0.005
9401DC1S023	9401DC1S023A	0.99		XV	0.563	1	0.99	-0.01
9207F3S018	9207F3S018A	0.066	U	UJ	0.984	0	0.984	-0.016
9207H3S023	9207H3S023A	0.061	U	XV	0.961	0	0.961	-0.04
9210RS012	9210RS012A	-0.012	U	XV	0.96	0	0.96	-0.041
9207H3S003A	9207H3S003AA	0.028	U	XV	0.958	0	0.958	-0.043
9210S2S032	9210S2S032A	0.047	U	XV	0.955	0	0.955	-0.046
9207H3S022	9207H3S022A	0.062	U	XV	0.95	0	0.95	-0.051
9401DC1S031	9401DC1S031A	0.948		XV	0.379	1	0.948	-0.053
9207H4S008	9207H4S008A	0.068	U	XV	0.934	0	0.934	-0.068
9210F1S002	9210F1S002A	0.094	U	XV	0.925	0	0.925	-0.078
9207C5S012A	9207C5S012AA	0.273	U	XV	0.92	0	0.92	-0.083
9207D2S052	9207D2S052A	-0.023	U	XV	0.915	0	0.915	-0.089
9207D1S046	9207D1S046A	0.034	U	XV	0.898	0	0.898	-0.108
9207D1S050	9207D1S050A	-0.007	U	XV	0.897	0	0.897	-0.109
9401W1S018	9401W1S018A	0.89		J	0.715	1	0.89	-0.117
9210S2S035	9210S2S035A	-0.042	U	XV	0.887	0	0.887	-0.12
9401DC1S024A	9401DC1S024AA	0.885		XV	0.17	1	0.885	-0.122
9207F3S022	9207F3S022A	0.117	U	XV	0.883	0	0.883	-0.124
9207D1S048	9207D1S048A	0.217	U	XV	0.876	0	0.876	-0.132
9207D4S054	9207D4S054A	-0.036	U	XV	0.873	0	0.873	-0.136
9210RS013	9210RS013A	0.055	U	XV	0.873	0	0.873	-0.136
9401DC1S029	9401DC1S029A	-0.052	U	XV	0.87	0	0.87	-0.139
9401DC1S044	9401DC1S044A	0.042	U	XV	0.866	0	0.866	-0.144
9210F3S017	9210F3S017A	0.001	U	XV	0.866	0	0.866	-0.144
9401R1B006	9401R1B006	0.049	U	UJ	0.866	0	0.866	-0.144
9210RS008	9210RS008A	0.075	U	XV	0.866	0	0.866	-0.144

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S052	9401DC1S052A	0.861		XV	0.561	1	0.861	-0.15
9207C1S003	9207C1S003A	-2.4E-04	U	XV	0.858	0	0.858	-0.153
9207C3S008	9207C3S008A	0.169	U	XV	0.851	0	0.851	-0.161
9401DC1S045	9401DC1S045A	-0.08	U	XV	0.841	0	0.841	-0.173
9210S1S020	9210S1S020A	-0.007	U	UJ	0.841	0	0.841	-0.173
9207RS019	9207RS019A	0.144	U	XV	0.834	0	0.834	-0.182
9207D5S058	9207D5S058A	-0.044	U	XV	0.831	0	0.831	-0.185
9210S1S021	9210S1S021A	-0.028	U	UJ	0.824	0	0.824	-0.194
9210D3S057	9210D3S057A	-0.094	U	XV	0.822	0	0.822	-0.196
9207F3S014	9207F3S014A	0.478	U	UJ	0.82	0	0.82	-0.198
9207D1S047	9207D1S047AD	0.022	U	XV	0.818	0	0.818	-0.201
9210F3S019	9210F3S019A	0.102	U	XV	0.815	0	0.815	-0.205
9401DC1S030	9401DC1S030A	0.813		XV	0.376	1	0.813	-0.207
9207H1S002	9207H1S002A	0.118	U	XV	0.807	0	0.807	-0.214
9207F3S015	9207F3S015A	0.372	U	UJ	0.806	0	0.806	-0.216
9210S1S019	9210S1S019A	-0.038	U	XV	0.806	0	0.806	-0.216
9207F3S023	9207F3S023A	0.246	U	XV	0.804	0	0.804	-0.218
9401DC1S022A	9401DC1S022AA	0.802		XV	0.16	1	0.802	-0.221
9207H3S020	9207H3S020A	-0.014	U	XV	0.802	0	0.802	-0.221
9210S2S034	9210S2S034A	-0.038	U	XV	0.801	0	0.801	-0.222
9207RS014	9207RS014A	0.157	U	XV	0.793	0	0.793	-0.232
9207F3S016	9207F3S016A	0.581	U	UJ	0.784	0	0.784	-0.243
9207C3S007	9207C3S007A	0.301	U	XV	0.783	0	0.783	-0.245
9401W1S020	9401W1S020A	0.001	U	XV	0.782	0	0.782	-0.246
9210D1S006A	9210D1S006AA	0.002	U	XV	0.779	0	0.779	-0.25
9207F3S021	9207F3S021A	0.246	U	XV	0.778	0	0.778	-0.251
9210RS006	9210RS006A	0.105	U	XV	0.778	0	0.778	-0.251
9401DC1S023A	9401DC1S023AA	0.776		XV	0.168	1	0.776	-0.254
9207H2S003	9207H2S003A	0.016	U	XV	0.774	0	0.774	-0.256
9401DC1S054	9401DC1S054A	0.763		XV	0.345	1	0.763	-0.27
9207S6S044	9207S6S044A	-0.033	U	XV	0.753	0	0.753	-0.284
9401DC1S047	9401DC1S047A	0.095	U	XV	0.748	0	0.748	-0.29
9207RS011	9207RS011A	0.748		XV	0.705	1	0.748	-0.29
9210F1S006	9210F1S006A	0.248	U	XV	0.745	0	0.745	-0.294
9401E1B002	9401E1B002A	-0.026	U	UJ	0.743	0	0.743	-0.297
9207F3S017	9207F3S017A	0.313	U	UJ	0.741	0	0.741	-0.3
9210RS005	9210RS005A	0.075	U	XV	0.741	0	0.741	-0.3
9210S1S024	9210S1S024A	-0.009	U	XV	0.74	0	0.74	-0.301
9210RS007	9210RS007A	0.066	U	XV	0.734	0	0.734	-0.309

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F4S030	9207F4S030A	0.413	U	XV	0.729	0	0.729	-0.316
9401W1S011	9401W1S011A	-0.026	U	XV	0.727	0	0.727	-0.319
9210RS009	9210RS009A	0.116	U	XV	0.725	0	0.725	-0.322
9401W1S013	9401W1S013A	0.626	U	UJ	0.717	0	0.717	-0.333
9207S5S043	9207S5S043A	0.066	U	XV	0.71	0	0.71	-0.342
9210S2S037	9210S2S037A	0.018	U	XV	0.703	0	0.703	-0.352
9207F3S024	9207F3S024A	0.136	U	XV	0.702	0	0.702	-0.354
9207RS015	9207RS015A	0.138	U	XV	0.702	0	0.702	-0.354
9401DC1S046	9401DC1S046A	-0.05	U	XV	0.699	0	0.699	-0.358
9207H5S009	9207H5S009A	-0.017	U	XV	0.699	0	0.699	-0.358
9401W1S001	9401W1S001A	0.036	U	UJ	0.695	0	0.695	-0.364
9207RS013	9207RS013A	0.062	U	XV	0.691	0	0.691	-0.37
9210D3S058	9210D3S058A	-0.009	U	XV	0.69	0	0.69	-0.371
9401DC1S039	9401DC1S039A	-0.007	U	XV	0.686	0	0.686	-0.377
9210S2S030	9210S2S030A	-0.025	U	XV	0.685	0	0.685	-0.378
9207C2S004A	9207C2S004AA	0.679		XV	0.328	1	0.679	-0.387
9207F5S033	9207F5S033A	0.073	U	XV	0.676	0	0.676	-0.392
9207F3S019	9207F3S019A	0.106	U	XV	0.673	0	0.673	-0.396
9207RS018	9207RS018A	0.059	U	XV	0.672	0	0.672	-0.397
9210S1S018	9210S1S018A	0.042	U	XV	0.669	0	0.669	-0.402
9207D4S055	9207D4S055A	-0.039	U	XV	0.66	0	0.66	-0.416
9207S5S029	9207S5S029A	-0.039	U	XV	0.658	0	0.658	-0.419
9210F3S015	9210F3S015A	0.081	U	XV	0.655	0	0.655	-0.423
9401W1S004	9401W1S004A	0.009	U	UJ	0.653	0	0.653	-0.426
9207W2S023	9207W2S023A	0.652		XV	0.637	1	0.652	-0.428
9210F1S005	9210F1S005A	0.415	U	XV	0.649	0	0.649	-0.432
9207C6S017	9207C6S017A	0.006	U	XV	0.647	0	0.647	-0.435
9401DC1S040	9401DC1S040A	0.033	U	XV	0.645	0	0.645	-0.439
9207RS001AA	9207RS001AA	0.11	U	XV	0.637	0	0.637	-0.451
9401DC1S033	9401DC1S033A	0.636		XV	0.581	1	0.636	-0.453
9210S1S017	9210S1S017AD	0.086	U	XV	0.636	0	0.636	-0.453
9210F1S001	9210F1S001A	0.633		XV	0.621	1	0.633	-0.457
9401DC1S056	9401DC1S056A	0.016	U	XV	0.631	0	0.631	-0.46
9207H1S012	9207H1S012A	0.115	U	UJ	0.626	0	0.626	-0.468
9207RS004	9207RS004A	0.055	U	XV	0.626	0	0.626	-0.468
9207F2S009	9207F2S009A	0.01	U	XV	0.624	0	0.624	-0.472
9210F2S010	9210F2S010A	0.153	U	XV	0.621	0	0.621	-0.476
9207RS017	9207RS017A	0.469	U	XV	0.62	0	0.62	-0.478
9207F5S036	9207F5S036A	0.211	U	XV	0.616	0	0.616	-0.485

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S041	9401DC1S041A	-0.022	U	XV	0.615	0	0.615	-0.486
9210F3S016	9210F3S016A	0.557	U	XV	0.613	0	0.613	-0.489
9401W1S004A	9401W1S004AA	-0.014	U	UJ	0.613	0	0.613	-0.489
9207RS016	9207RS016A	0.287	U	XV	0.613	0	0.613	-0.489
9207F2S012	9207F2S012A	0.496	U	UJ	0.611	0	0.611	-0.493
9207W2S024	9207W2S024A	0.144	U	XV	0.611	0	0.611	-0.493
9210S2S031	9210S2S031A	-0.016	U	XV	0.608	0	0.608	-0.498
9207D2S034A	9207D2S034AA	-0.01	U	XV	0.607	0	0.607	-0.499
9207W1S020	9207W1S020A	0.07	U	XV	0.607	0	0.607	-0.499
9210S2S025	9210S2S025A	-0.06	U	XV	0.606	0	0.606	-0.501
9207S2S032	9207S2S032A	-0.015	U	UJ	0.603	0	0.603	-0.506
9210F2S008	9210F2S008A	0.103	U	XV	0.6	0	0.6	-0.511
9207RS006	9207RS006A	0.022	U	XV	0.6	0	0.6	-0.511
9207S6S045	9207S6S045A	0.024	U	XV	0.6	0	0.6	-0.511
9401W1S002A	9401W1S002AA	0.148	U	UJ	0.599	0	0.599	-0.512
9210S1S023	9210S1S023A	0.002	U	XV	0.597	0	0.597	-0.516
9210S2S036	9210S2S036A	0.008	U	XV	0.597	0	0.597	-0.516
9210D1S053	9210D1S053A	0.023	U	XV	0.594	0	0.594	-0.521
9207F4S026	9207F4S026A	0.236	U	XV	0.594	0	0.594	-0.521
9210S2S029	9210S2S029A	-0.014	U	XV	0.594	0	0.594	-0.521
9401DC1S055	9401DC1S055AD	0.073	U	XV	0.592	0	0.592	-0.524
9401DC1S026	9401DC1S026A	0.591		XV	0.188	1	0.591	-0.526
9210F1S004	9210F1S004A	0.39	U	XV	0.589	0	0.589	-0.529
9207RS003	9207RS003A	0.06	U	XV	0.589	0	0.589	-0.529
9210S2S026	9210S2S026A	0.026	U	XV	0.589	0	0.589	-0.529
9401W1S003	9401W1S003A	0.123	U	UJ	0.588	0	0.588	-0.531
9207H2S014	9207H2S014A	0.022	U	XV	0.587	0	0.587	-0.533
9207H3S022A	9207H3S022AA	0.019	U	XV	0.585	0	0.585	-0.536
9207H2S015	9207H2S015A	-0.004	U	XV	0.581	0	0.581	-0.543
9401W1S002	9401W1S002A	0.029	U	UJ	0.581	0	0.581	-0.543
9207RS001	9207RS001A	0.021	U	XV	0.581	0	0.581	-0.543
9207S4S040	9207S4S040A	-5.0E-04	U	XV	0.578	0	0.578	-0.548
9207W1S022	9207W1S022A	0.236	U	XV	0.577	0	0.577	-0.55
9401DC1S038	9401DC1S038A	-0.014	U	XV	0.575	0	0.575	-0.553
9207RS002AA	9207RS002AA	8.0E-04	U	XV	0.575	0	0.575	-0.553
9210C1S001A	9210C1S001AA	0.093	U	XV	0.573	0	0.573	-0.557
9207H1S001A	9207H1S001AA	-0.039	U	XV	0.572	0	0.572	-0.559
9207RS010	9207RS010A	0.049	U	XV	0.572	0	0.572	-0.559
9207F4S029	9207F4S029A	0.254	U	XV	0.565	0	0.565	-0.571

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207D2S051	9207D2S051A	0.031	U	XV	0.564	0	0.564	-0.573
9210S2S038	9210S2S038AD	0.039	U	XV	0.564	0	0.564	-0.573
9207RS008	9207RS008A	0.076	U	XV	0.562	0	0.562	-0.576
9207F4S027	9207F4S027A	0.132	U	XV	0.56	0	0.56	-0.58
9207F1S003	9207F1S003A	0.367	U	XV	0.559	0	0.559	-0.582
9207H1S001	9207H1S001A	8.8E-04	U	UJ	0.559	0	0.559	-0.582
9207H3S021	9207H3S021A	0.018	U	XV	0.556	0	0.556	-0.587
9207S3S036	9207S3S036A	0.008	U	UJ	0.556	0	0.556	-0.587
9207H3S006	9207H3S006A	0.051	U	XV	0.555	0	0.555	-0.589
9207RS012	9207RS012A	0.061	U	XV	0.55	0	0.55	-0.598
9210F3S014	9210F3S014A	0.243	U	XV	0.549	0	0.549	-0.6
9210F1S003	9210F1S003A	0.196	U	XV	0.547	0	0.547	-0.603
9207W1S021	9207W1S021A	0.223	U	XV	0.545	0	0.545	-0.607
9401W1S001A	9401W1S001AA	0.121	U	UJ	0.545	0	0.545	-0.607
9401DC1S037	9401DC1S037A	0.542		XV	0.381	1	0.542	-0.612
9401W1B001	9401W1B001A	0.065	U	UJ	0.541	0	0.541	-0.614
9207H3S005	9207H3S005AD	-0.009	U	XV	0.539	0	0.539	-0.618
9207F5S035	9207F5S035A	0.536		XV	0.274	1	0.536	-0.624
9210S1S001A	9210S1S001AA	-0.013	U	XV	0.534	0	0.534	-0.627
9207F4S028	9207F4S028A	0.2	U	XV	0.523	0	0.523	-0.648
9207RS007	9207RS007A	0.148	U	XV	0.52	0	0.52	-0.654
9207F4S025	9207F4S025A	0.203	U	XV	0.516	0	0.516	-0.662
9210S3S043	9210S3S043A	0.022	U	XV	0.516	0	0.516	-0.662
9207D4S056	9207D4S056A	0.015	U	XV	0.512	0	0.512	-0.669
9207H5S026	9207H5S026A	0.025	U	XV	0.505	0	0.505	-0.683
9207H5S010	9207H5S010A	-2.3E-04	U	XV	0.503	0	0.503	-0.687
9210F2S007	9210F2S007AD	0.255	U	XV	0.497	0	0.497	-0.699
9210S3S040	9210S3S040A	7.3E-04	U	XV	0.496	0	0.496	-0.701
9210S3S044	9210S3S044A	-0.043	U	XV	0.491	0	0.491	-0.711
9207W2S025	9207W2S025A	0.036	U	XV	0.49	0	0.49	-0.713
9207C1S001	9207C1S001A	-0.025	U	XV	0.487	0	0.487	-0.719
9210D1S052	9210D1S052A	0.007	U	XV	0.481	0	0.481	-0.732
9207H3S017	9207H3S017A	0.048	U	XV	0.48	0	0.48	-0.734
9210S1S022	9210S1S022A	0.06	U	UJ	0.477	0	0.477	-0.74
9207C5S016	9207C5S016A	-5.9E-04	U	XV	0.47	0	0.47	-0.755
9401DC1S057A	9401DC1S057AA	-8.8E-04	U	UJ	0.47	0	0.47	-0.755
9207H3S004	9207H3S004A	-0.12	U	XV	0.467	0	0.467	-0.761
9207F2S008	9207F2S008A	0.203	U	U	0.464	0	0.464	-0.768
9210H3S014	9210H3S014A	0.114	U	XV	0.462	0	0.462	-0.772

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S027	9210S2S027A	0.013	U	XV	0.457	0	0.457	-0.783
9210C2S004	9210C2S004A	0.455		XV	0.342	1	0.455	-0.787
9210RS014	9210RS014A	0.02	U	XV	0.454	0	0.454	-0.79
9210RS011	9210RS011A	0.07	U	XV	0.448	0	0.448	-0.803
9401DC1S028	9401DC1S028A	0.033	U	XV	0.447	0	0.447	-0.805
9207C5S015	9207C5S015A	0.337	U	XV	0.441	0	0.441	-0.819
9207H1S013	9207H1S013A	0.014	U	XV	0.439	0	0.439	-0.823
9210RS002	9210RS002A	0.019	U	XV	0.438	0	0.438	-0.826
9401DC1S025	9401DC1S025A	-0.05	U	XV	0.432	0	0.432	-0.839
9207S5S042	9207S5S042A	-3.8E-04	U	XV	0.43	0	0.43	-0.844
9210H1S004	9210H1S004A	-0.001	U	U	0.427	0	0.427	-0.851
9207C2S004	9207C2S004A	0.287	U	XV	0.423	0	0.423	-0.86
9210H3S013	9210H3S013A	0.018	U	XV	0.423	0	0.423	-0.86
9207S4S041	9207S4S041A	0.021	U	XV	0.421	0	0.421	-0.865
9207F1S006	9207F1S006A	0.234	U	XV	0.418	0	0.418	-0.872
9207F1S005	9207F1S005A	0.324	U	XV	0.417	0	0.417	-0.875
9210C1S002	9210C1S002A	0.14	U	XV	0.415	0	0.415	-0.879
9401DC1S048	9401DC1S048A	-0.01	U	XV	0.415	0	0.415	-0.879
9210H2S010	9210H2S010A	-0.01	U	U	0.414	0	0.414	-0.882
9207F5S032	9207F5S032AD	0.409		=	0.263	1	0.409	-0.894
9207F1S002	9207F1S002A	0.394	U	XV	0.404	0	0.404	-0.906
9207F6S040	9207F6S040A	0.187	U	XV	0.403	0	0.403	-0.909
9207C2S006	9207C2S006A	0.304	U	XV	0.398	0	0.398	-0.921
9210H2S009	9210H2S009A	-0.037	U	XV	0.394	0	0.394	-0.931
9210H3S015	9210H3S015A	0.017	U	XV	0.394	0	0.394	-0.931
9210D1S048	9210D1S048A	-0.018	U	XV	0.39	0	0.39	-0.942
9207H3S016	9207H3S016A	-0.014	U	XV	0.389	0	0.389	-0.944
9207H3S007	9207H3S007A	0.07	U	XV	0.386	0	0.386	-0.952
9207S1S030	9207S1S030A	0.011	U	XV	0.386	0	0.386	-0.952
9210C2S005	9210C2S005A	0.195	U	XV	0.384	0	0.384	-0.957
9210C3S008	9210C3S008A	0.086	U	XV	0.384	0	0.384	-0.957
9210RS003	9210RS003A	-0.053	U	XV	0.384	0	0.384	-0.957
9210RS010	9210RS010A	0.104	U	XV	0.383	0	0.383	-0.96
9401E1B003	9401E1B003A	-0.01	U	U	0.381	0	0.381	-0.965
9207D5S059	9207D5S059A	0.012	U	XV	0.379	0	0.379	-0.97
9207F6S039	9207F6S039A	0.379		XV	0.273	1	0.379	-0.97
9210S2S002A	9210S2S002AA	-0.009	U	XV	0.378	0	0.378	-0.973
9210D1S049	9210D1S049A	-0.009	U	XV	0.375	0	0.375	-0.981
9207S1S031	9207S1S031A	0.046	U	XV	0.374	0	0.374	-0.983

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401D1B010	9401D1B010	0.044	U	U	0.373	0	0.373	-0.986
9210S2S033	9210S2S033A	-0.014	U	XV	0.372	0	0.372	-0.989
9401DC1S032	9401DC1S032A	0.255	U	XV	0.366	0	0.366	-1.01
9207S2S033	9207S2S033A	0.053	U	XV	0.364	0	0.364	-1.01
9401DC1S043	9401DC1S043A	0.024	U	U	0.363	0	0.363	-1.01
9401DC1S053	9401DC1S053A	0.015	U	U	0.363	0	0.363	-1.01
9207C1S002	9207C1S002A	-0.011	U	UJ	0.357	0	0.357	-1.03
9207F2S007	9207F2S007A	0.277	U	U	0.357	0	0.357	-1.03
9210W1S012	9210W1S012A	0.031	U	XV	0.357	0	0.357	-1.03
9207S4S028	9207S4S028A	-0.054	U	XV	0.357	0	0.357	-1.03
9207C4S013	9207C4S013A	0.34	U	XV	0.355	0	0.355	-1.04
9210H3S011	9210H3S011A	0.023	U	XV	0.352	0	0.352	-1.04
9207C4S010A	9207C4S010AA	0.205	U	XV	0.348	0	0.348	-1.06
9207F1S001	9207F1S001AD	0.151	U	U	0.347	0	0.347	-1.06
9210H2S008	9210H2S008A	-0.024	U	XV	0.345	0	0.345	-1.06
9207S4S038	9207S4S038A	-0.017	U	XV	0.342	0	0.342	-1.07
9207S3S037	9207S3S037A	-0.034	U	XV	0.341	0	0.341	-1.08
9207F2S010	9207F2S010A	0.189	U	U	0.338	0	0.338	-1.08
9207RS002	9207RS002AD	0.189	U	XV	0.337	0	0.337	-1.09
9207C3S009	9207C3S009A	0.162	U	XV	0.318	0	0.318	-1.15
9207F5S031	9207F5S031A	0.223	U	XV	0.317	0	0.317	-1.15
9210D1S047	9210D1S047A	-0.029	U	U	0.314	0	0.314	-1.16
9210H3S012	9210H3S012A	0.007	U	U	0.314	0	0.314	-1.16
9210D1S055	9210D1S055A	-4.8E-04	U	U	0.313	0	0.313	-1.16
9207C4S011	9207C4S011A	-6.4E-04	U	XV	0.311	0	0.311	-1.17
9210D3S059	9210D3S059A	-0.069	U	XV	0.311	0	0.311	-1.17
9401E1B005	9401E1B005A	0.254	U	U	0.311	0	0.311	-1.17
9207F3S020	9207F3S020A	0.089	U	XV	0.311	0	0.311	-1.17
9207F6S042	9207F6S042A	0.238	U	XV	0.305	0	0.305	-1.19
9207F6S038	9207F6S038A	0.304		XV	0.271	1	0.304	-1.19
9210D1S056	9210D1S056A	-0.008	U	XV	0.3	0	0.3	-1.2
9210C1S003	9210C1S003AD	0.154	U	U	0.299	0	0.299	-1.21
9207F5S034	9207F5S034A	0.231	U	XV	0.299	0	0.299	-1.21
9210C3S007	9210C3S007A	0.298		XV	0.236	1	0.298	-1.21
9207W4S031	9207W4S031A	0.043	U	XV	0.298	0	0.298	-1.21
9401D1B011	9401D1B011	-0.022	U	U	0.295	0	0.295	-1.22
9207F1S004	9207F1S004A	0.035	U	XV	0.29	0	0.29	-1.24
9207C3S010	9207C3S010A	0.097	U	XV	0.287	0	0.287	-1.25
9210D1S050	9210D1S050A	-0.027	U	U	0.287	0	0.287	-1.25

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401D1B012	9401D1B012	-0.022	U	U	0.286	0	0.286	-1.25
9207C6S019	9207C6S019A	0.248	U	XV	0.284	0	0.284	-1.26
9210D1S051	9210D1S051A	-3.7E-04	U	U	0.283	0	0.283	-1.26
9207F6S037	9207F6S037A	0.261	U	XV	0.281	0	0.281	-1.27
9207F6S041	9207F6S041A	0.222	U	XV	0.277	0	0.277	-1.28
9401DC1S042	9401DC1S042A	-0.031	U	U	0.27	0	0.27	-1.31
9207C6S018	9207C6S018A	0.079	U	XV	0.258	0	0.258	-1.35
9210W1S014	9210W1S014A	0.257		XV	0.154	1	0.257	-1.36
9207F2S011	9207F2S011A	0.256		=	0.206	1	0.256	-1.36
9210C3S006	9210C3S006A	0.241	U	XV	0.253	0	0.253	-1.37
9210D1S046	9210D1S046A	-3.8E-04	U	U	0.25	0	0.25	-1.39
9207S4S039	9207S4S039A	-0.006	U	XV	0.238	0	0.238	-1.44
9207S3S034	9207S3S034A	-0.012	U	XV	0.234	0	0.234	-1.45
9210F2S011	9210F2S011A	0.232		XV	0.171	1	0.232	-1.46
9210F2S012	9210F2S012A	0.225		XV	0.188	1	0.225	-1.49
9210W1S016	9210W1S016A	0.223		XV	0.187	1	0.223	-1.5
9210S2S028	9210S2S028A	-0.023	U	XV	0.217	0	0.217	-1.53
9210RS004	9210RS004A	0.154	U	XV	0.215	0	0.215	-1.54
9207S1S027	9207S1S027A	-0.015	U	XV	0.203	0	0.203	-1.59
9210RS001	9210RS001A	0.147	U	XV	0.194	0	0.194	-1.64
9210F2S013	9210F2S013A	0.169	U	XV	0.193	0	0.193	-1.65
9210F2S009	9210F2S009A	0.191	U	XV	0.192	0	0.192	-1.65
9210W1S010	9210W1S010A	0.111	U	XV	0.155	0	0.155	-1.86
9210S3S042	9210S3S042A	0.006	U	XV	0.092	0	0.092	-2.39
9210S3S041	9210S3S041A	0.002	U	XV	0.082	0	0.082	-2.5

Number of Samples	337
Number of Detects	66
Minimum	0.082
Median	0.6
Maximum	3.76
Arithmetic Average	0.687
Std Dev	0.408
PERT-Beta Expected Value	1.04
LN Mean	-0.517
LN Std Dev	0.534

Table G.137
Statistical Summary for Thorium-228 (14274829) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Lilliefors p-value for normality		0.01						
Lilliefors p-value for lognormality		0.018						

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S019	9401W1S019A	3.2		XV	0.596	1	3.2	1.16
9401W1B013	9401W1B013	0.723	U	UJ	3.09	0	3.09	1.13
9210W1S011	9210W1S011A	2.91		XV	0.51	1	2.91	1.07
9207W5S033	9207W5S033A	2.08		XV	0.452	1	2.08	0.732
9207W3S028	9207W3S028A	2.07		XV	0.506	1	2.07	0.728
9210F1S002	9210F1S002A	1.94		XV	0.703	1	1.94	0.663
9207W3S040	9207W3S040A	1.9		XV	0.376	1	1.9	0.642
9401W1S021	9401W1S021A	1.89		XV	0.423	1	1.89	0.637
9210W1S013	9210W1S013A	1.88		XV	0.342	1	1.88	0.631
9210W1S015	9210W1S015A	1.83		XV	0.114	1	1.83	0.604
9207W3S029	9207W3S029A	1.77		XV	0.486	1	1.77	0.571
9207W6S037	9207W6S037A	1.73		XV	0.317	1	1.73	0.548
9401W1S015	9401W1S015A	1.68		XV	0.472	1	1.68	0.519
9401DC1S036	9401DC1S036A	1.62		XV	0.326	1	1.62	0.482
9207W6S038	9207W6S038A	1.62		XV	0.294	1	1.62	0.482
9207F3S013	9207F3S013A	1.6		XV	1.26	1	1.6	0.47
9210W1S019	9210W1S019A	1.59		=	0.243	1	1.59	0.464
9207W3S026	9207W3S026A	1.56		XV	0.357	1	1.56	0.445
9207W3S027	9207W3S027A	1.49		XV	0.341	1	1.49	0.399
9210F1S001	9210F1S001A	1.43		XV	0.472	1	1.43	0.358
9401DC1S052	9401DC1S052A	1.42		XV	0.427	1	1.42	0.351
9401DC1S034	9401DC1S034A	1.4		XV	0.78	1	1.4	0.336
9210RS014	9210RS014A	1.38		XV	0.344	1	1.38	0.322
9401W1S013	9401W1S013A	1.37		J	0.545	1	1.37	0.315
9401DC1S035	9401DC1S035AD	1.36		XV	0.579	1	1.36	0.307
9207W2S024A	9207W2S024AAD	1.35		XV	0.451	1	1.35	0.3
9207W4S030	9207W4S030A	1.33		XV	0.517	1	1.33	0.285
9210F1S005	9210F1S005A	1.29		XV	0.494	1	1.29	0.255
9207W1S039	9207W1S039A	1.28		XV	0.517	1	1.28	0.247
9207W5S035	9207W5S035A	1.27		XV	0.29	1	1.27	0.239
9401DC1S031	9401DC1S031A	1.22		XV	0.287	1	1.22	0.199
9401DC1S050	9401DC1S050A	1.21		XV	0.872	1	1.21	0.191
9207F3S024	9207F3S024A	1.21		XV	0.75	1	1.21	0.191
9401W1S009	9401W1S009A	1.18		J	0.766	1	1.18	0.166
9401DC1S049	9401DC1S049A	1.16		XV	0.428	1	1.16	0.148
9401DC1S022	9401DC1S022A	1.14		XV	0.834	1	1.14	0.131
9207D2S053	9207D2S053A	0.104	U	XV	1.13	0	1.13	0.122
9207H3S024	9207H3S024A	0.046	U	XV	1.13	0	1.13	0.122
9401W1S012	9401W1S012A	1.13		J	0.719	1	1.13	0.122

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S023	9401DC1S023A	1.12		XV	0.428	1	1.12	0.113
9207W4S032	9207W4S032A	1.11		XV	0.442	1	1.11	0.104
9401DC1S051	9401DC1S051A	1.1		XV	0.573	1	1.1	0.095
9210F1S004	9210F1S004A	1.1		XV	0.448	1	1.1	0.095
9401W1S005	9401W1S005A	1.09		XV	0.414	1	1.09	0.086
9210W1S018	9210W1S018A	1.08		XV	0.401	1	1.08	0.077
9207F4S028	9207F4S028A	1.08		XV	0.397	1	1.08	0.077
9207W5S034	9207W5S034A	1.08		XV	0.52	1	1.08	0.077
9207H3S018	9207H3S018A	0.077	U	XV	1.06	0	1.06	0.058
9207F3S018	9207F3S018A	0.278	U	UJ	1.05	0	1.05	0.049
9210H1S005	9210H1S005A	0.142	U	XV	1.03	0	1.03	0.03
9207W6S036	9207W6S036A	1.03		XV	0.335	1	1.03	0.03
9401DC1S022A	9401DC1S022AA	1.01		XV	0.12	1	1.01	0.01
9210H1S006	9210H1S006A	0.186	U	XV	1.01	0	1.01	0.01
9210F3S018	9210F3S018A	0.683	U	XV	0.995	0	0.995	-0.005
9401DC1S024	9401DC1S024A	0.987		XV	0.586	1	0.987	-0.013
9210W1S009	9210W1S009A	0.986		XV	0.125	1	0.986	-0.014
9401DC1S030	9401DC1S030A	0.981		XV	0.284	1	0.981	-0.019
9401W1S014	9401W1S014A	0.979		J	0.701	1	0.979	-0.021
9401DC1S024A	9401DC1S024AA	0.965		XV	0.128	1	0.965	-0.036
9401DC1S026	9401DC1S026A	0.951		XV	0.141	1	0.951	-0.05
9401W1S017	9401W1S017A	0.948		J	0.636	1	0.948	-0.053
9401DC1S023A	9401DC1S023AA	0.945		XV	0.126	1	0.945	-0.057
9207F3S022	9207F3S022A	0.201	U	XV	0.943	0	0.943	-0.059
9401R1B006	9401R1B006	0.361	U	UJ	0.924	0	0.924	-0.079
9207F3S021	9207F3S021A	0.899		XV	0.831	1	0.899	-0.106
9401W1S007	9401W1S007A	0.895		J	0.682	1	0.895	-0.111
9207H3S019	9207H3S019A	0.084	U	XV	0.894	0	0.894	-0.112
9210D3S057	9210D3S057A	0.111	U	XV	0.878	0	0.878	-0.13
9207F3S014	9207F3S014A	0.145	U	UJ	0.876	0	0.876	-0.132
9207D5S057	9207D5S057A	-0.013	U	XV	0.865	0	0.865	-0.145
9207W1S023A	9207W1S023AA	0.864		XV	0.426	1	0.864	-0.146
9207F3S015	9207F3S015A	0.138	U	UJ	0.861	0	0.861	-0.15
9207F3S023	9207F3S023A	0.334	U	XV	0.859	0	0.859	-0.152
9401W1S001	9401W1S001A	0.857		J	0.528	1	0.857	-0.154
9210W1S017	9210W1S017A	0.85		XV	0.606	1	0.85	-0.163
9207F3S016	9207F3S016A	0.371	U	UJ	0.837	0	0.837	-0.178
9401DC1S027	9401DC1S027A	0.111	U	XV	0.826	0	0.826	-0.191
9207F1S005	9207F1S005A	0.822		XV	0.446	1	0.822	-0.196

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S018	9401W1S018A	0.821		J	0.543	1	0.821	-0.197
9210F1S003	9210F1S003A	0.812		XV	0.416	1	0.812	-0.208
9401W1S016	9401W1S016A	0.797		XV	0.469	1	0.797	-0.227
9207F3S017	9207F3S017A	0.242	U	UJ	0.791	0	0.791	-0.234
9207H3S023	9207H3S023A	0.224	U	XV	0.791	0	0.791	-0.234
9207H3S003A	9207H3S003AA	-0.054	U	XV	0.788	0	0.788	-0.238
9207H3S022	9207H3S022A	0.05	U	XV	0.782	0	0.782	-0.246
9207F4S030	9207F4S030A	0.445	U	XV	0.779	0	0.779	-0.25
9207H4S008	9207H4S008A	0.275	U	XV	0.769	0	0.769	-0.263
9207S5S043	9207S5S043A	-0.04	U	XV	0.758	0	0.758	-0.277
9207C5S012A	9207C5S012AA	0.519	U	XV	0.757	0	0.757	-0.278
9207F5S032	9207F5S032AD	0.757		J	0.281	1	0.757	-0.278
9207D2S052	9207D2S052A	0.131	U	XV	0.753	0	0.753	-0.284
9401DC1S037	9401DC1S037A	0.744		XV	0.289	1	0.744	-0.296
9207D1S046	9207D1S046A	0.243	U	XV	0.739	0	0.739	-0.302
9207D1S050	9207D1S050A	0.055	U	XV	0.739	0	0.739	-0.302
9210D3S058	9210D3S058A	0.177	U	XV	0.736	0	0.736	-0.307
9210RS012	9210RS012A	0.264	U	XV	0.73	0	0.73	-0.315
9207D1S047	9207D1S047A	0.191	U	XV	0.727	0	0.727	-0.319
9401DC1S054	9401DC1S054A	0.726		XV	0.261	1	0.726	-0.32
9210S2S032	9210S2S032A	0.076	U	XV	0.726	0	0.726	-0.32
9207F5S033	9207F5S033A	0.055	U	XV	0.722	0	0.722	-0.326
9207D1S048	9207D1S048A	0.345	U	XV	0.721	0	0.721	-0.327
9401W1S002A	9401W1S002AA	0.72		J	0.456	1	0.72	-0.329
9207F2S012	9207F2S012A	0.719		J	0.652	1	0.719	-0.33
9207F3S019	9207F3S019A	0.101	U	XV	0.719	0	0.719	-0.33
9207D4S054	9207D4S054A	0.114	U	XV	0.718	0	0.718	-0.331
9207C1S003	9207C1S003A	-0.009	U	XV	0.706	0	0.706	-0.348
9207C3S008	9207C3S008A	0.677	U	XV	0.701	0	0.701	-0.355
9207F6S039	9207F6S039A	0.687		XV	0.291	1	0.687	-0.375
9207D5S058	9207D5S058A	0.129	U	XV	0.684	0	0.684	-0.38
9210S2S035	9210S2S035A	-0.051	U	XV	0.674	0	0.674	-0.395
9207H1S012	9207H1S012A	0.035	U	UJ	0.669	0	0.669	-0.402
9207H1S002	9207H1S002A	0.001	U	XV	0.664	0	0.664	-0.409
9210RS013	9210RS013A	0.301	U	XV	0.663	0	0.663	-0.411
9401DC1S029	9401DC1S029A	0.496	U	XV	0.662	0	0.662	-0.412
9207H3S020	9207H3S020A	0.002	U	XV	0.66	0	0.66	-0.416
9210RS008	9210RS008A	0.386	U	XV	0.659	0	0.659	-0.417
9401DC1S044	9401DC1S044A	0.136	U	XV	0.658	0	0.658	-0.419

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S036	9207F5S036A	0.334	U	XV	0.658	0	0.658	-0.419
9210F3S017	9210F3S017A	0.592	U	XV	0.658	0	0.658	-0.419
9207F5S034	9207F5S034A	0.657		XV	0.32	1	0.657	-0.42
9210S2S031	9210S2S031A	0.036	U	XV	0.649	0	0.649	-0.432
9210S2S025	9210S2S025A	-0.11	U	XV	0.647	0	0.647	-0.435
9207C3S007	9207C3S007A	0.507	U	XV	0.644	0	0.644	-0.44
9207S2S032	9207S2S032A	0.04	U	UJ	0.644	0	0.644	-0.44
9210D1S006A	9210D1S006AA	0.162	U	XV	0.641	0	0.641	-0.445
9207S6S045	9207S6S045A	-0.002	U	XV	0.641	0	0.641	-0.445
9401DC1S045	9401DC1S045A	-0.057	U	XV	0.639	0	0.639	-0.448
9210S1S020	9210S1S020A	-0.057	U	UJ	0.639	0	0.639	-0.448
9207H2S003	9207H2S003A	0.296	U	XV	0.637	0	0.637	-0.451
9207RS019	9207RS019A	0.265	U	XV	0.634	0	0.634	-0.456
9210S1S017	9210S1S017A	0.176	U	XV	0.631	0	0.631	-0.46
9207F4S026	9207F4S026A	0.63		XV	0.452	1	0.63	-0.462
9210S2S026	9210S2S026A	0.22	U	XV	0.629	0	0.629	-0.464
9210S1S021	9210S1S021A	0.293	U	UJ	0.626	0	0.626	-0.468
9207RS007	9207RS007A	0.623		XV	0.395	1	0.623	-0.473
9210F3S019	9210F3S019A	0.31	U	XV	0.62	0	0.62	-0.478
9207S6S044	9207S6S044A	0.29	U	XV	0.62	0	0.62	-0.478
9210S1S019	9210S1S019A	0.16	U	XV	0.613	0	0.613	-0.489
9401E1B002	9401E1B002A	0.082	U	UJ	0.611	0	0.611	-0.493
9210S2S034	9210S2S034A	-0.049	U	XV	0.609	0	0.609	-0.496
9210RS001	9210RS001A	0.607		XV	0.146	1	0.607	-0.499
9207F4S029	9207F4S029A	0.313	U	XV	0.603	0	0.603	-0.506
9207RS014	9207RS014A	0.164	U	XV	0.603	0	0.603	-0.506
9210S2S038	9210S2S038AD	0.222	U	XV	0.603	0	0.603	-0.506
9207F1S003	9207F1S003A	0.441	U	XV	0.598	0	0.598	-0.514
9207C2S004	9207C2S004A	0.165	U	XV	0.597	0	0.597	-0.516
9207H1S001	9207H1S001A	0.019	U	UJ	0.597	0	0.597	-0.516
9401W1S020	9401W1S020A	0.298	U	XV	0.594	0	0.594	-0.521
9207S3S036	9207S3S036A	-0.075	U	UJ	0.594	0	0.594	-0.521
9207F1S001	9207F1S001A	0.591		=	0.361	1	0.591	-0.526
9210RS006	9210RS006A	0.089	U	XV	0.591	0	0.591	-0.526
9207C6S018	9207C6S018A	0.589		XV	0.364	1	0.589	-0.529
9210C1S003	9210C1S003A	0.581		=	0.245	1	0.581	-0.543
9210W1S012	9210W1S012A	0.58		XV	0.27	1	0.58	-0.545
9401W1B001	9401W1B001A	0.172	U	UJ	0.577	0	0.577	-0.55
9207H5S009	9207H5S009A	0.153	U	XV	0.575	0	0.575	-0.553

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS011	9207RS011A	0.569		XV	0.536	1	0.569	-0.564
9401DC1S047	9401DC1S047A	0.248	U	XV	0.568	0	0.568	-0.566
9210F1S006	9210F1S006A	0.567		XV	0.567	1	0.567	-0.567
9210RS005	9210RS005A	0.18	U	XV	0.564	0	0.564	-0.573
9207H1S013	9207H1S013A	0.562		XV	0.36	1	0.562	-0.576
9210S1S024	9210S1S024A	0.128	U	XV	0.562	0	0.562	-0.576
9207C2S006	9207C2S006A	0.421	U	XV	0.561	0	0.561	-0.578
9207F2S008	9207F2S008A	0.558		=	0.496	1	0.558	-0.583
9210RS007	9210RS007A	0.264	U	XV	0.558	0	0.558	-0.583
9401DC1S056	9401DC1S056A	0.555		XV	0.48	1	0.555	-0.589
9401W1S011	9401W1S011A	0.049	U	XV	0.553	0	0.553	-0.592
9210F3S015	9210F3S015A	0.552		XV	0.498	1	0.552	-0.594
9210RS009	9210RS009A	0.436	U	XV	0.551	0	0.551	-0.596
9210S3S043	9210S3S043A	0.166	U	XV	0.551	0	0.551	-0.596
9210C1S001A	9210C1S001AA	0.547		XV	0.436	1	0.547	-0.603
9207D4S055	9207D4S055A	0.277	U	XV	0.543	0	0.543	-0.611
9207F1S006	9207F1S006A	0.543		XV	0.447	1	0.543	-0.611
9207S5S029	9207S5S029A	0.03	U	XV	0.542	0	0.542	-0.612
9210C2S005	9210C2S005A	0.228	U	XV	0.541	0	0.541	-0.614
9207F4S025	9207F4S025A	0.541		XV	0.392	1	0.541	-0.614
9207RS015	9207RS015A	0.187	U	XV	0.534	0	0.534	-0.627
9210S2S037	9210S2S037A	-0.07	U	XV	0.534	0	0.534	-0.627
9207F2S011	9207F2S011AD	0.533		=	0.474	1	0.533	-0.629
9207C6S017	9207C6S017A	0.064	U	XV	0.532	0	0.532	-0.631
9401DC1S046	9401DC1S046A	0.169	U	XV	0.531	0	0.531	-0.633
9207F3S020	9207F3S020A	0.529		XV	0.332	1	0.529	-0.637
9210S3S040	9210S3S040A	0.174	U	XV	0.529	0	0.529	-0.637
9207RS013	9207RS013A	0.107	U	XV	0.525	0	0.525	-0.644
9210S3S044	9210S3S044A	0.47	U	XV	0.525	0	0.525	-0.644
9401DC1S039	9401DC1S039A	0.269	U	XV	0.522	0	0.522	-0.65
9207C1S001	9207C1S001A	0.253	U	XV	0.521	0	0.521	-0.652
9210S2S030	9210S2S030A	0.408	U	XV	0.52	0	0.52	-0.654
9207RS018	9207RS018A	0.199	U	XV	0.511	0	0.511	-0.671
9210S1S018	9210S1S018A	0.204	U	XV	0.508	0	0.508	-0.677
9207F6S041	9207F6S041A	0.505		XV	0.296	1	0.505	-0.683
9207C4S013	9207C4S013A	0.471	U	XV	0.501	0	0.501	-0.691
9207D2S034A	9207D2S034AA	-0.012	U	XV	0.499	0	0.499	-0.695
9207F6S038	9207F6S038A	0.496		XV	0.29	1	0.496	-0.701
9401W1S004	9401W1S004A	0.132	U	UJ	0.496	0	0.496	-0.701

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S040	9401DC1S040A	0.117	U	XV	0.491	0	0.491	-0.711
9207C4S010A	9207C4S010AA	0.365	U	XV	0.49	0	0.49	-0.713
9210S2S027	9210S2S027A	0.162	U	XV	0.488	0	0.488	-0.717
9401E1B005	9401E1B005A	0.487		=	0.332	1	0.487	-0.719
9207F5S035	9207F5S035A	0.487		XV	0.293	1	0.487	-0.719
9210W1S014	9210W1S014A	0.487		XV	0.116	1	0.487	-0.719
9207W2S023	9207W2S023A	0.312	U	XV	0.485	0	0.485	-0.724
9207RS001AA	9207RS001AA	0.284	U	XV	0.484	0	0.484	-0.726
9207H2S014	9207H2S014A	0.056	U	XV	0.483	0	0.483	-0.728
9210C2S004	9210C2S004A	0.315	U	XV	0.482	0	0.482	-0.73
9401D1B012	9401D1B012	0.482		=	0.305	1	0.482	-0.73
9207H3S022A	9207H3S022AA	0.025	U	XV	0.481	0	0.481	-0.732
9207F1S002	9207F1S002A	0.479		XV	0.432	1	0.479	-0.736
9207H2S015	9207H2S015A	0.032	U	XV	0.478	0	0.478	-0.738
9207RS004	9207RS004A	0.346	U	XV	0.476	0	0.476	-0.742
9207S4S040	9207S4S040A	-0.026	U	XV	0.475	0	0.475	-0.744
9207F2S009	9207F2S009A	0.245	U	XV	0.474	0	0.474	-0.747
9210F2S010	9210F2S010A	0.068	U	XV	0.472	0	0.472	-0.751
9401W1S001A	9401W1S001AA	0.472		J	0.414	1	0.472	-0.751
9207RS017	9207RS017A	0.318	U	XV	0.472	0	0.472	-0.751
9207C6S019	9207C6S019A	0.47		XV	0.401	1	0.47	-0.755
9207H1S001A	9207H1S001AA	-0.002	U	XV	0.469	0	0.469	-0.757
9207C3S010	9207C3S010A	0.467		XV	0.306	1	0.467	-0.761
9401DC1S041	9401DC1S041A	0.044	U	XV	0.467	0	0.467	-0.761
9210F3S016	9210F3S016A	0.369	U	XV	0.466	0	0.466	-0.764
9401W1S004A	9401W1S004AA	-0.009	U	UJ	0.466	0	0.466	-0.764
9207RS016	9207RS016A	0.263	U	XV	0.466	0	0.466	-0.764
9207D2S051	9207D2S051A	0.091	U	XV	0.465	0	0.465	-0.766
9207W2S024	9207W2S024A	0.443	U	XV	0.465	0	0.465	-0.766
9207C2S004A	9207C2S004AA	0.33	U	XV	0.463	0	0.463	-0.77
9207W1S020	9207W1S020A	0.245	U	XV	0.461	0	0.461	-0.774
9207F2S007	9207F2S007A	0.458		=	0.381	1	0.458	-0.781
9210F2S007	9210F2S007A	0.458		XV	0.429	1	0.458	-0.781
9207H3S006	9207H3S006A	0.097	U	XV	0.457	0	0.457	-0.783
9210F2S008	9210F2S008A	0.041	U	XV	0.456	0	0.456	-0.785
9207H3S021	9207H3S021A	-0.03	U	XV	0.456	0	0.456	-0.785
9207RS006	9207RS006A	0.24	U	XV	0.456	0	0.456	-0.785
9210S1S023	9210S1S023A	0.334	U	XV	0.454	0	0.454	-0.79
9210S2S036	9210S2S036A	0.13	U	XV	0.454	0	0.454	-0.79

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D1S053	9210D1S053A	0.165	U	XV	0.452	0	0.452	-0.794
9210S2S029	9210S2S029A	0.217	U	XV	0.452	0	0.452	-0.794
9401DC1S055	9401DC1S055AD	0.246	U	XV	0.45	0	0.45	-0.799
9207C3S009	9207C3S009A	0.328	U	XV	0.448	0	0.448	-0.803
9207RS003	9207RS003A	0.315	U	XV	0.448	0	0.448	-0.803
9401W1S003	9401W1S003A	0.067	U	UJ	0.447	0	0.447	-0.805
9210F3S014	9210F3S014A	0.443		XV	0.417	1	0.443	-0.814
9207H3S005	9207H3S005AD	0.153	U	XV	0.443	0	0.443	-0.814
9401DC1S033	9401DC1S033A	0.411	U	XV	0.442	0	0.442	-0.816
9401W1S002	9401W1S002A	0.033	U	UJ	0.442	0	0.442	-0.816
9207RS001	9207RS001A	0.158	U	XV	0.442	0	0.442	-0.816
9210F2S013	9210F2S013A	0.441		XV	0.145	1	0.441	-0.819
9207F6S037	9207F6S037A	0.44		XV	0.301	1	0.44	-0.821
9207W1S022	9207W1S022A	0.415	U	XV	0.439	0	0.439	-0.823
9207F6S042	9207F6S042A	0.438		XV	0.326	1	0.438	-0.826
9401DC1S038	9401DC1S038A	0.184	U	XV	0.437	0	0.437	-0.828
9207RS002AA	9207RS002AA	0.274	U	XV	0.437	0	0.437	-0.828
9207RS010	9207RS010A	0.17	U	XV	0.435	0	0.435	-0.832
9207RS008	9207RS008A	0.223	U	XV	0.427	0	0.427	-0.851
9207F4S027	9207F4S027A	0.221	U	XV	0.425	0	0.425	-0.856
9207D4S056	9207D4S056A	0.123	U	XV	0.421	0	0.421	-0.865
9207RS012	9207RS012A	0.354	U	XV	0.418	0	0.418	-0.872
9207H5S026	9207H5S026A	0.016	U	XV	0.415	0	0.415	-0.879
9207W1S021	9207W1S021A	0.329	U	XV	0.414	0	0.414	-0.882
9207H5S010	9207H5S010A	0.086	U	XV	0.413	0	0.413	-0.884
9401E1B003	9401E1B003A	-0.026	U	U	0.408	0	0.408	-0.896
9210C3S007	9210C3S007A	0.407		XV	0.333	1	0.407	-0.899
9210C3S006	9210C3S006A	0.406		XV	0.357	1	0.406	-0.901
9210S1S001A	9210S1S001AA	0.073	U	XV	0.404	0	0.404	-0.906
9401D1B010	9401D1B010	0.221	U	U	0.399	0	0.399	-0.919
9210S2S033	9210S2S033A	0.244	U	XV	0.397	0	0.397	-0.924
9207C5S015	9207C5S015A	0.394		XV	0.362	1	0.394	-0.931
9207H3S017	9207H3S017A	5.1E-04	U	XV	0.394	0	0.394	-0.931
9207S2S033	9207S2S033A	0.171	U	XV	0.389	0	0.389	-0.944
9207F6S040	9207F6S040A	0.387		XV	0.331	1	0.387	-0.949
9207C5S016	9207C5S016A	0.089	U	XV	0.386	0	0.386	-0.952
9207H3S004	9207H3S004A	0.216	U	XV	0.385	0	0.385	-0.955
9207S4S028	9207S4S028A	0.091	U	XV	0.382	0	0.382	-0.962
9207C1S002	9207C1S002A	0.14	U	UJ	0.381	0	0.381	-0.965

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W1S010	9210W1S010A	0.374		XV	0.117	1	0.374	-0.983
9207W2S025	9207W2S025A	0.207	U	XV	0.372	0	0.372	-0.989
9210F2S009	9210F2S009A	0.366		XV	0.145	1	0.366	-1.01
9210D1S052	9210D1S052A	0.141	U	XV	0.365	0	0.365	-1.01
9207S3S037	9207S3S037A	0.083	U	XV	0.365	0	0.365	-1.01
9207S4S038	9207S4S038A	0.035	U	XV	0.365	0	0.365	-1.01
9210S1S022	9210S1S022A	-0.029	U	UJ	0.362	0	0.362	-1.02
9207F2S010	9207F2S010A	0.264	U	U	0.361	0	0.361	-1.02
9207RS002	9207RS002AD	0.328	U	XV	0.36	0	0.36	-1.02
9401DC1S057A	9401DC1S057AA	0.037	U	UJ	0.356	0	0.356	-1.03
9210F2S011	9210F2S011A	0.356		XV	0.129	1	0.356	-1.03
9207S5S042	9207S5S042A	0.026	U	XV	0.353	0	0.353	-1.04
9210H3S014	9210H3S014A	0.239	U	XV	0.35	0	0.35	-1.05
9210RS004	9210RS004A	0.348		XV	0.161	1	0.348	-1.06
9207S4S041	9207S4S041A	0.092	U	XV	0.346	0	0.346	-1.06
9401DC1S028	9401DC1S028A	0.191	U	XV	0.34	0	0.34	-1.08
9210RS011	9210RS011A	0.338	U	XV	0.339	0	0.339	-1.08
9207F5S031	9207F5S031A	0.301	U	XV	0.338	0	0.338	-1.08
9210D1S055	9210D1S055A	0.042	U	U	0.335	0	0.335	-1.09
9210D3S059	9210D3S059A	0.182	U	XV	0.332	0	0.332	-1.1
9210RS002	9210RS002A	-0.049	U	XV	0.332	0	0.332	-1.1
9401DC1S032	9401DC1S032A	0.331		XV	0.277	1	0.331	-1.11
9401DC1S025	9401DC1S025A	0.047	U	XV	0.327	0	0.327	-1.12
9210H1S004	9210H1S004A	0.148	U	U	0.323	0	0.323	-1.13
9210D1S056	9210D1S056A	0.3	U	XV	0.32	0	0.32	-1.14
9207H3S016	9207H3S016A	0.249	U	XV	0.32	0	0.32	-1.14
9210H3S013	9210H3S013A	0.261	U	XV	0.32	0	0.32	-1.14
9207W4S031	9207W4S031A	0.306	U	XV	0.318	0	0.318	-1.15
9207H3S007	9207H3S007A	0.24	U	XV	0.317	0	0.317	-1.15
9401D1B011	9401D1B011	0.204	U	U	0.315	0	0.315	-1.16
9210C1S002	9210C1S002A	0.247	U	XV	0.314	0	0.314	-1.16
9401DC1S048	9401DC1S048A	0.088	U	XV	0.314	0	0.314	-1.16
9210H2S010	9210H2S010A	0.144	U	U	0.314	0	0.314	-1.16
9207D5S059	9207D5S059A	0.03	U	XV	0.311	0	0.311	-1.17
9207F1S004	9207F1S004A	0.162	U	XV	0.31	0	0.31	-1.17
9210H2S009	9210H2S009A	0.119	U	XV	0.298	0	0.298	-1.21
9210H3S015	9210H3S015A	0.165	U	XV	0.298	0	0.298	-1.21
9210D1S048	9210D1S048A	0.034	U	XV	0.295	0	0.295	-1.22
9210W1S016	9210W1S016A	0.294		XV	0.141	1	0.294	-1.22

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S1S030	9207S1S030A	0.01	U	XV	0.294	0	0.294	-1.22
9210F2S012	9210F2S012A	0.291		XV	0.142	1	0.291	-1.23
9210C3S008	9210C3S008A	0.216	U	XV	0.29	0	0.29	-1.24
9210RS003	9210RS003A	0.138	U	XV	0.29	0	0.29	-1.24
9210RS010	9210RS010A	0.208	U	XV	0.29	0	0.29	-1.24
9210S2S002A	9210S2S002AA	0.072	U	XV	0.286	0	0.286	-1.25
9210D1S049	9210D1S049A	0.145	U	XV	0.284	0	0.284	-1.26
9207S1S031	9207S1S031A	0.129	U	XV	0.284	0	0.284	-1.26
9401DC1S053	9401DC1S053A	0.108	U	U	0.275	0	0.275	-1.29
9401DC1S043	9401DC1S043A	0.084	U	U	0.274	0	0.274	-1.29
9210D1S047	9210D1S047A	0.267		=	0.238	1	0.267	-1.32
9210H3S011	9210H3S011A	0.01	U	XV	0.266	0	0.266	-1.32
9210H2S008	9210H2S008A	-0.026	U	XV	0.261	0	0.261	-1.34
9207C4S011	9207C4S011A	0.175	U	XV	0.255	0	0.255	-1.37
9207S4S039	9207S4S039A	0.026	U	XV	0.254	0	0.254	-1.37
9207S3S034	9207S3S034A	0.061	U	XV	0.25	0	0.25	-1.39
9210H3S012	9210H3S012A	0.133	U	U	0.237	0	0.237	-1.44
9210D1S050	9210D1S050A	0.073	U	U	0.217	0	0.217	-1.53
9207S1S027	9207S1S027A	0.135	U	XV	0.217	0	0.217	-1.53
9210D1S051	9210D1S051A	0.041	U	U	0.214	0	0.214	-1.54
9401DC1S042	9401DC1S042A	0.123	U	U	0.205	0	0.205	-1.58
9210D1S046	9210D1S046A	0.124	U	U	0.189	0	0.189	-1.67
9210S2S028	9210S2S028A	0.003	U	XV	0.165	0	0.165	-1.8
9210S3S042	9210S3S042A	0.038	U	XV	0.07	0	0.07	-2.66
9210S3S041	9210S3S041A	0.026	U	XV	0.063	0	0.063	-2.77

Number of Samples	337
Number of Detects	116
Minimum	0.063
Median	0.551
Maximum	3.2
Arithmetic Average	0.676
Std Dev	0.43
PERT-Beta Expected Value	0.911
LN Mean	-0.543
LN Std Dev	0.538

Table G.138
Statistical Summary for Thorium-230 (14269637) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Lilliefors p-value for normality		0.01						
Lilliefors p-value for lognormality		0.01						

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	-0.073	U	UJ	2.68	0	2.68	0.986
9207W3S028	9207W3S028A	2.36		XV	0.378	1	2.36	0.859
9210W1S011	9210W1S011A	2.28		XV	0.49	1	2.28	0.824
9207W4S032	9207W4S032A	1.91		XV	0.382	1	1.91	0.647
9207W6S038	9207W6S038A	1.86		XV	0.22	1	1.86	0.621
9207W6S037	9207W6S037A	1.83		XV	0.237	1	1.83	0.604
9401W1S012	9401W1S012A	1.8		J	0.691	1	1.8	0.588
9207W3S029	9207W3S029A	1.76		XV	0.362	1	1.76	0.565
9210W1S015	9210W1S015A	1.72		XV	0.109	1	1.72	0.542
9207F3S013	9207F3S013A	1.61		XV	0.942	1	1.61	0.476
9210W1S013	9210W1S013A	1.59		XV	0.328	1	1.59	0.464
9207W4S030	9207W4S030A	1.57		XV	0.386	1	1.57	0.451
9401W1S019	9401W1S019A	1.53		XV	0.572	1	1.53	0.425
9401W1S021	9401W1S021A	1.52		XV	0.407	1	1.52	0.419
9401W1S015	9401W1S015A	1.51		XV	0.454	1	1.51	0.412
9401W1S016	9401W1S016A	1.51		XV	0.45	1	1.51	0.412
9207W5S034	9207W5S034A	1.5		XV	0.449	1	1.5	0.405
9207W2S024A	9207W2S024AAD	1.4		XV	0.337	1	1.4	0.336
9210W1S018	9210W1S018A	1.4		XV	0.299	1	1.4	0.336
9401DC1S036	9401DC1S036A	1.38		XV	0.313	1	1.38	0.322
9210W1S019	9210W1S019A	1.37		=	0.233	1	1.37	0.315
9207W1S039	9207W1S039A	1.33		XV	0.386	1	1.33	0.285
9207W5S033	9207W5S033A	1.32		XV	0.337	1	1.32	0.278
9401W1S014	9401W1S014A	1.31		J	0.673	1	1.31	0.27
9207W1S023A	9207W1S023AA	1.3		XV	0.318	1	1.3	0.262
9401W1S005	9401W1S005A	1.25		XV	0.398	1	1.25	0.223
9401W1S007	9401W1S007A	1.23		J	0.655	1	1.23	0.207
9207W3S026	9207W3S026A	1.2		XV	0.267	1	1.2	0.182
9207W6S036	9207W6S036A	1.2		XV	0.25	1	1.2	0.182
9401DC1S022	9401DC1S022A	1.19		XV	0.801	1	1.19	0.174
9207W3S027	9207W3S027A	1.19		XV	0.254	1	1.19	0.174
9210W1S017	9210W1S017A	1.18		XV	0.455	1	1.18	0.166
9207W5S035	9207W5S035A	1.18		XV	0.216	1	1.18	0.166
9210W1S009	9210W1S009A	1.16		XV	0.12	1	1.16	0.148
9401DC1S031	9401DC1S031A	1.15		XV	0.275	1	1.15	0.14
9401W1S017	9401W1S017A	1.15		J	0.611	1	1.15	0.14
9401DC1S035	9401DC1S035AD	1.13		XV	0.556	1	1.13	0.122
9401DC1S050	9401DC1S050A	1.08		XV	0.838	1	1.08	0.077
9401DC1S051	9401DC1S051A	1.08		XV	0.55	1	1.08	0.077

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S013	9401W1S013A	1.02		J	0.524	1	1.02	0.02
9401DC1S023	9401DC1S023A	1.01		XV	0.411	1	1.01	0.01
9401W1S009	9401W1S009A	0.985		J	0.736	1	0.985	-0.015
9207H3S024	9207H3S024A	0.033	U	XV	0.98	0	0.98	-0.02
9207D2S053	9207D2S053A	-0.016	U	XV	0.979	0	0.979	-0.021
9401W1S018	9401W1S018A	0.979		J	0.522	1	0.979	-0.021
9401DC1S049	9401DC1S049A	0.972		XV	0.411	1	0.972	-0.028
9210H1S006	9210H1S006A	0.054	U	XV	0.969	0	0.969	-0.031
9210F3S018	9210F3S018A	0.169	U	XV	0.956	0	0.956	-0.045
9401DC1S054	9401DC1S054A	0.937		XV	0.251	1	0.937	-0.065
9207H3S018	9207H3S018A	0.042	U	XV	0.918	0	0.918	-0.086
9210H1S005	9210H1S005A	0.306	U	XV	0.892	0	0.892	-0.114
9207W3S040	9207W3S040A	0.882		XV	0.281	1	0.882	-0.126
9401DC1S026	9401DC1S026A	0.835		XV	0.136	1	0.835	-0.18
9401DC1S022A	9401DC1S022AA	0.829		XV	0.115	1	0.829	-0.188
9401DC1S034	9401DC1S034A	0.819		XV	0.75	1	0.819	-0.2
9401DC1S027	9401DC1S027A	-0.004	U	XV	0.794	0	0.794	-0.231
9207F3S018	9207F3S018A	0.136	U	UJ	0.788	0	0.788	-0.238
9401DC1S024A	9401DC1S024AA	0.787		XV	0.122	1	0.787	-0.24
9401DC1S037	9401DC1S037A	0.785		XV	0.277	1	0.785	-0.242
9401DC1S030	9401DC1S030A	0.781		XV	0.273	1	0.781	-0.247
9401DC1S052	9401DC1S052A	0.774		XV	0.41	1	0.774	-0.256
9207H3S019	9207H3S019A	0.035	U	XV	0.773	0	0.773	-0.257
9207D5S057	9207D5S057A	0.173	U	XV	0.748	0	0.748	-0.29
9207F2S012	9207F2S012A	0.746		J	0.489	1	0.746	-0.293
9401DC1S023A	9401DC1S023AA	0.74		XV	0.121	1	0.74	-0.301
9207F3S022	9207F3S022A	0.224	U	XV	0.707	0	0.707	-0.347
9210F3S016	9210F3S016A	0.707		XV	0.447	1	0.707	-0.347
9210RS012	9210RS012A	0.088	U	XV	0.701	0	0.701	-0.355
9210S2S032	9210S2S032A	-0.015	U	XV	0.698	0	0.698	-0.36
9401R1B006	9401R1B006	0.019	U	UJ	0.693	0	0.693	-0.367
9207H3S023	9207H3S023A	0.056	U	XV	0.685	0	0.685	-0.378
9207H3S003A	9207H3S003AA	-0.012	U	XV	0.682	0	0.682	-0.383
9401DC1S024	9401DC1S024A	0.678		XV	0.563	1	0.678	-0.389
9207H3S022	9207H3S022A	0.156	U	XV	0.677	0	0.677	-0.39
9210F1S002	9210F1S002A	0.571	U	XV	0.676	0	0.676	-0.392
9207H4S008	9207H4S008A	0.03	U	XV	0.666	0	0.666	-0.406
9210D3S057	9210D3S057A	0.071	U	XV	0.658	0	0.658	-0.419
9207F3S014	9207F3S014A	0.579	U	UJ	0.657	0	0.657	-0.42

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C5S012A	9207C5S012AA	0.169	U	XV	0.655	0	0.655	-0.423
9207D2S052	9207D2S052A	0.127	U	XV	0.652	0	0.652	-0.428
9207W1S022	9207W1S022A	0.652		XV	0.421	1	0.652	-0.428
9210S2S035	9210S2S035A	0.039	U	XV	0.648	0	0.648	-0.434
9207F3S015	9207F3S015A	0.454	U	UJ	0.645	0	0.645	-0.439
9207F3S023	9207F3S023A	0.152	U	XV	0.644	0	0.644	-0.44
9207D1S046	9207D1S046A	-0.004	U	XV	0.64	0	0.64	-0.446
9207D1S050	9207D1S050A	0.013	U	XV	0.639	0	0.639	-0.448
9210RS013	9210RS013A	0.122	U	XV	0.638	0	0.638	-0.449
9401DC1S029	9401DC1S029A	-0.004	U	XV	0.636	0	0.636	-0.453
9207C2S004A	9207C2S004AA	0.635		XV	0.311	1	0.635	-0.454
9210F3S017	9210F3S017A	0.183	U	XV	0.633	0	0.633	-0.457
9210RS008	9210RS008A	0.049	U	XV	0.633	0	0.633	-0.457
9401DC1S044	9401DC1S044A	-0.004	U	XV	0.632	0	0.632	-0.459
9207RS011	9207RS011A	0.63		XV	0.515	1	0.63	-0.462
9207D1S047	9207D1S047A	0.083	U	XV	0.629	0	0.629	-0.464
9207F3S016	9207F3S016A	0.431	U	UJ	0.628	0	0.628	-0.465
9207F5S035	9207F5S035A	0.627		XV	0.218	1	0.627	-0.467
9207D1S048	9207D1S048A	0.144	U	XV	0.624	0	0.624	-0.472
9207D4S054	9207D4S054A	-0.01	U	XV	0.622	0	0.622	-0.475
9207F3S021	9207F3S021A	0.107	U	XV	0.62	0	0.62	-0.478
9401DC1S045	9401DC1S045A	-0.023	U	XV	0.614	0	0.614	-0.488
9210S1S020	9210S1S020A	0.008	U	UJ	0.614	0	0.614	-0.488
9207C1S003	9207C1S003A	0.088	U	XV	0.611	0	0.611	-0.493
9207RS019	9207RS019A	0.186	U	XV	0.61	0	0.61	-0.494
9207C3S008	9207C3S008A	0.238	U	XV	0.606	0	0.606	-0.501
9210S1S021	9210S1S021A	0.026	U	UJ	0.602	0	0.602	-0.507
9210F3S019	9210F3S019A	0.406	U	XV	0.595	0	0.595	-0.519
9207F3S017	9207F3S017A	0.313	U	UJ	0.593	0	0.593	-0.523
9207D5S058	9207D5S058A	-0.011	U	XV	0.592	0	0.592	-0.524
9210S1S019	9210S1S019A	-0.003	U	XV	0.589	0	0.589	-0.529
9210S2S034	9210S2S034A	0.018	U	XV	0.585	0	0.585	-0.536
9207F4S030	9207F4S030A	0.259	U	XV	0.584	0	0.584	-0.538
9207RS014	9207RS014A	0.3	U	XV	0.58	0	0.58	-0.545
9207H1S002	9207H1S002A	0.125	U	XV	0.575	0	0.575	-0.553
9401W1S020	9401W1S020A	0.165	U	XV	0.571	0	0.571	-0.56
9207H3S020	9207H3S020A	0.082	U	XV	0.571	0	0.571	-0.56
9210RS006	9210RS006A	0.127	U	XV	0.568	0	0.568	-0.566
9207S5S043	9207S5S043A	-0.021	U	XV	0.568	0	0.568	-0.566

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S033	9401DC1S033A	0.566		XV	0.424	1	0.566	-0.569
9207F3S024	9207F3S024A	0.179	U	XV	0.56	0	0.56	-0.58
9207C3S007	9207C3S007A	0.232	U	XV	0.558	0	0.558	-0.583
9210D1S006A	9210D1S006AA	0.051	U	XV	0.555	0	0.555	-0.589
9210D3S058	9210D3S058A	-0.004	U	XV	0.552	0	0.552	-0.594
9207H2S003	9207H2S003A	0.045	U	XV	0.551	0	0.551	-0.596
9401DC1S047	9401DC1S047A	0.042	U	XV	0.546	0	0.546	-0.605
9210F1S006	9210F1S006A	0.042	U	XV	0.544	0	0.544	-0.609
9207F5S033	9207F5S033A	-0.037	U	XV	0.541	0	0.541	-0.614
9210RS005	9210RS005A	0.173	U	XV	0.541	0	0.541	-0.614
9210S1S024	9210S1S024A	0.051	U	XV	0.54	0	0.54	-0.616
9207F3S019	9207F3S019A	0.135	U	XV	0.539	0	0.539	-0.618
9207RS017	9207RS017A	0.539		XV	0.453	1	0.539	-0.618
9207S6S044	9207S6S044A	0.096	U	XV	0.537	0	0.537	-0.622
9210RS007	9210RS007A	0.085	U	XV	0.536	0	0.536	-0.624
9401W1S011	9401W1S011A	0.1	U	XV	0.531	0	0.531	-0.633
9401E1B002	9401E1B002A	0.023	U	UJ	0.529	0	0.529	-0.637
9210RS009	9210RS009A	0.169	U	XV	0.529	0	0.529	-0.637
9207RS015	9207RS015A	0.063	U	XV	0.513	0	0.513	-0.667
9210S2S037	9210S2S037A	0.023	U	XV	0.513	0	0.513	-0.667
9401DC1S046	9401DC1S046A	0.039	U	XV	0.51	0	0.51	-0.673
9401W1S001	9401W1S001A	0.188	U	UJ	0.508	0	0.508	-0.677
9401DC1S055	9401DC1S055A	0.046	U	XV	0.505	0	0.505	-0.683
9207RS013	9207RS013A	0.212	U	XV	0.505	0	0.505	-0.683
9401DC1S039	9401DC1S039A	0.088	U	XV	0.501	0	0.501	-0.691
9207H1S012	9207H1S012A	0.005	U	UJ	0.501	0	0.501	-0.691
9207W2S023	9207W2S023A	0.5		XV	0.466	1	0.5	-0.693
9210S2S030	9210S2S030A	0.062	U	XV	0.5	0	0.5	-0.693
9207H5S009	9207H5S009A	0.065	U	XV	0.498	0	0.498	-0.697
9207F5S036	9207F5S036A	0.171	U	XV	0.493	0	0.493	-0.707
9207RS018	9207RS018A	0.206	U	XV	0.491	0	0.491	-0.711
9210S1S018	9210S1S018A	0.156	U	XV	0.488	0	0.488	-0.717
9210S2S031	9210S2S031A	0.028	U	XV	0.487	0	0.487	-0.719
9210S2S025	9210S2S025A	-0.019	U	XV	0.485	0	0.485	-0.724
9401E1B005	9401E1B005A	0.483		=	0.248	1	0.483	-0.728
9207S2S032	9207S2S032A	0.028	U	UJ	0.483	0	0.483	-0.728
9207S6S045	9207S6S045A	0.083	U	XV	0.481	0	0.481	-0.732
9210F3S015	9210F3S015A	0.2	U	XV	0.478	0	0.478	-0.738
9401W1S004	9401W1S004A	0.021	U	UJ	0.477	0	0.477	-0.74

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F1S005	9210F1S005A	0.4	U	XV	0.474	0	0.474	-0.747
9210S2S026	9210S2S026A	0.043	U	XV	0.472	0	0.472	-0.751
9401DC1S040	9401DC1S040A	-0.033	U	XV	0.471	0	0.471	-0.753
9207D4S055	9207D4S055A	0.021	U	XV	0.47	0	0.47	-0.755
9207S5S029	9207S5S029A	0.015	U	XV	0.469	0	0.469	-0.757
9207RS001AA	9207RS001AA	0.286	U	XV	0.465	0	0.465	-0.766
9210S1S017	9210S1S017AD	0.005	U	XV	0.464	0	0.464	-0.768
9207F1S005	9207F1S005A	0.462		XV	0.333	1	0.462	-0.772
9207C6S017	9207C6S017A	0.008	U	XV	0.461	0	0.461	-0.774
9401DC1S056	9401DC1S056A	0.026	U	XV	0.461	0	0.461	-0.774
9207RS016	9207RS016A	0.458		XV	0.448	1	0.458	-0.781
9207RS004	9207RS004A	0.109	U	XV	0.457	0	0.457	-0.783
9207F2S009	9207F2S009A	0.108	U	XV	0.456	0	0.456	-0.785
9210F1S001	9210F1S001A	0.435	U	XV	0.454	0	0.454	-0.79
9210F2S010	9210F2S010A	0.16	U	XV	0.454	0	0.454	-0.79
9207F4S029	9207F4S029A	0.128	U	XV	0.452	0	0.452	-0.794
9210S2S038	9210S2S038AD	0.048	U	XV	0.452	0	0.452	-0.794
9401DC1S041	9401DC1S041A	0.026	U	XV	0.449	0	0.449	-0.801
9207H3S005	9207H3S005A	0.031	U	XV	0.448	0	0.448	-0.803
9401W1S004A	9401W1S004AA	0.005	U	UJ	0.448	0	0.448	-0.803
9207H1S001	9207H1S001A	0.018	U	UJ	0.447	0	0.447	-0.805
9207F1S003	9207F1S003A	0.381	U	XV	0.446	0	0.446	-0.807
9207W2S024	9207W2S024A	0.158	U	XV	0.446	0	0.446	-0.807
9207S3S036	9207S3S036A	-0.003	U	UJ	0.445	0	0.445	-0.81
9207W1S020	9207W1S020A	0.149	U	XV	0.443	0	0.443	-0.814
9210F1S003	9210F1S003A	0.441		XV	0.4	1	0.441	-0.819
9210F2S008	9210F2S008A	0.148	U	XV	0.438	0	0.438	-0.826
9401W1S002A	9401W1S002AA	0.168	U	UJ	0.438	0	0.438	-0.826
9207RS006	9207RS006A	0.141	U	XV	0.438	0	0.438	-0.826
9210S1S023	9210S1S023A	0.054	U	XV	0.436	0	0.436	-0.83
9210S2S036	9210S2S036A	0.041	U	XV	0.436	0	0.436	-0.83
9210D1S053	9210D1S053A	0.124	U	XV	0.434	0	0.434	-0.835
9207F4S026	9207F4S026A	0.359	U	XV	0.434	0	0.434	-0.835
9210S2S029	9210S2S029A	0.019	U	XV	0.434	0	0.434	-0.835
9401W1B001	9401W1B001A	-0.024	U	UJ	0.433	0	0.433	-0.837
9207D2S034A	9207D2S034AA	-0.002	U	XV	0.432	0	0.432	-0.839
9210F1S004	9210F1S004A	0.314	U	XV	0.43	0	0.43	-0.844
9207RS003	9207RS003A	0.074	U	XV	0.43	0	0.43	-0.844
9401W1S003	9401W1S003A	0.096	U	UJ	0.429	0	0.429	-0.846

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S002	9401W1S002A	0.024	U	UJ	0.425	0	0.425	-0.856
9207RS001	9207RS001A	0.156	U	XV	0.424	0	0.424	-0.858
9207F4S025	9207F4S025A	0.422		XV	0.377	1	0.422	-0.863
9401DC1S038	9401DC1S038A	-0.003	U	XV	0.42	0	0.42	-0.868
9207RS002AA	9207RS002AA	0.114	U	XV	0.42	0	0.42	-0.868
9210C1S001A	9210C1S001AA	0.319	U	XV	0.419	0	0.419	-0.87
9207F4S027	9207F4S027A	0.418		XV	0.409	1	0.418	-0.872
9207H2S014	9207H2S014A	0.018	U	XV	0.418	0	0.418	-0.872
9207RS010	9207RS010A	0.025	U	XV	0.418	0	0.418	-0.872
9207H3S022A	9207H3S022AA	-0.004	U	XV	0.415	0	0.415	-0.879
9207H2S015	9207H2S015A	0.023	U	XV	0.414	0	0.414	-0.882
9210S3S043	9210S3S043A	0.011	U	XV	0.413	0	0.413	-0.884
9210F2S007	9210F2S007A	0.239	U	XV	0.412	0	0.412	-0.887
9207RS008	9207RS008A	0.097	U	XV	0.41	0	0.41	-0.892
9207S4S040	9207S4S040A	-0.004	U	XV	0.41	0	0.41	-0.892
9207F1S002	9207F1S002A	0.409		XV	0.322	1	0.409	-0.894
9207F4S028	9207F4S028A	0.409		XV	0.382	1	0.409	-0.894
9207H1S001A	9207H1S001AA	0.024	U	XV	0.405	0	0.405	-0.904
9207D2S051	9207D2S051A	0.003	U	XV	0.402	0	0.402	-0.911
9207RS012	9207RS012A	0.22	U	XV	0.402	0	0.402	-0.911
9210F3S014	9210F3S014A	0.206	U	XV	0.401	0	0.401	-0.914
9207C2S004	9207C2S004A	0.29	U	XV	0.4	0	0.4	-0.916
9207W1S021	9207W1S021A	0.12	U	XV	0.398	0	0.398	-0.921
9401W1S001A	9401W1S001AA	-0.016	U	UJ	0.398	0	0.398	-0.921
9210S3S040	9210S3S040A	0.112	U	XV	0.397	0	0.397	-0.924
9207H3S006	9207H3S006A	-0.012	U	XV	0.395	0	0.395	-0.929
9207H3S021	9207H3S021A	0.005	U	XV	0.394	0	0.394	-0.931
9210S3S044	9210S3S044A	0.118	U	XV	0.393	0	0.393	-0.934
9207C1S001	9207C1S001A	0.041	U	XV	0.39	0	0.39	-0.942
9210S1S001A	9210S1S001AA	0.102	U	XV	0.388	0	0.388	-0.947
9207F5S032	9207F5S032AD	0.383		J	0.21	1	0.383	-0.96
9207RS007	9207RS007A	0.233	U	XV	0.38	0	0.38	-0.968
9207C2S006	9207C2S006A	0.372	U	XV	0.376	0	0.376	-0.978
9207F2S008	9207F2S008A	0.073	U	U	0.37	0	0.37	-0.994
9210S2S027	9210S2S027A	0.004	U	XV	0.366	0	0.366	-1.01
9207D4S056	9207D4S056A	0.011	U	XV	0.365	0	0.365	-1.01
9210C2S005	9210C2S005A	0.252	U	XV	0.363	0	0.363	-1.01
9210H2S008	9210H2S008AD	0.061	U	XV	0.36	0	0.36	-1.02
9207H5S026	9207H5S026A	0.013	U	XV	0.358	0	0.358	-1.03

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W2S025	9207W2S025A	0.079	U	XV	0.358	0	0.358	-1.03
9207H5S010	9207H5S010A	-0.003	U	XV	0.357	0	0.357	-1.03
9207RS002	9207RS002A	0.216	U	XV	0.352	0	0.352	-1.04
9210D1S052	9210D1S052A	0.152	U	XV	0.351	0	0.351	-1.05
9210S1S022	9210S1S022A	0.037	U	UJ	0.348	0	0.348	-1.06
9401DC1S057A	9401DC1S057AA	0.018	U	UJ	0.342	0	0.342	-1.07
9207H3S017	9207H3S017A	0.012	U	XV	0.341	0	0.341	-1.08
9207C4S013	9207C4S013A	0.233	U	XV	0.336	0	0.336	-1.09
9210H3S014	9210H3S014A	0.087	U	XV	0.336	0	0.336	-1.09
9207C5S016	9207C5S016A	0.012	U	XV	0.333	0	0.333	-1.1
9207F1S006	9207F1S006A	0.294	U	XV	0.333	0	0.333	-1.1
9207H3S004	9207H3S004A	-0.018	U	XV	0.333	0	0.333	-1.1
9207C3S010	9207C3S010A	0.33		XV	0.229	1	0.33	-1.11
9210RS014	9210RS014A	0.066	U	XV	0.33	0	0.33	-1.11
9207C4S010A	9207C4S010AA	0.267	U	XV	0.329	0	0.329	-1.11
9401DC1S028	9401DC1S028A	-0.003	U	XV	0.326	0	0.326	-1.12
9210RS011	9210RS011A	0.124	U	XV	0.326	0	0.326	-1.12
9210C2S004	9210C2S004A	0.243	U	XV	0.324	0	0.324	-1.13
9210RS002	9210RS002A	0.054	U	XV	0.318	0	0.318	-1.15
9401DC1S025	9401DC1S025A	0.082	U	XV	0.314	0	0.314	-1.16
9207C5S015	9207C5S015A	0.26	U	XV	0.313	0	0.313	-1.16
9207H1S013	9207H1S013A	0.046	U	XV	0.311	0	0.311	-1.17
9210H1S004	9210H1S004A	0.137	U	U	0.31	0	0.31	-1.17
9210W1S016	9210W1S016A	0.309		XV	0.135	1	0.309	-1.17
9210H3S013	9210H3S013A	0.061	U	XV	0.308	0	0.308	-1.18
9207S5S042	9207S5S042A	0.011	U	XV	0.305	0	0.305	-1.19
9401E1B003	9401E1B003A	0.023	U	U	0.304	0	0.304	-1.19
9210C1S002	9210C1S002A	0.133	U	XV	0.302	0	0.302	-1.2
9401DC1S048	9401DC1S048A	0.042	U	XV	0.302	0	0.302	-1.2
9207C3S009	9207C3S009A	0.102	U	XV	0.301	0	0.301	-1.2
9210H2S010	9210H2S010A	0.096	U	U	0.301	0	0.301	-1.2
9207S4S041	9207S4S041A	0.024	U	XV	0.299	0	0.299	-1.21
9210S2S033	9210S2S033A	-0.008	U	XV	0.298	0	0.298	-1.21
9401D1B010	9401D1B010	0.12	U	U	0.297	0	0.297	-1.21
9207F6S039	9207F6S039A	0.294		XV	0.217	1	0.294	-1.22
9207S2S033	9207S2S033A	0.117	U	XV	0.29	0	0.29	-1.24
9207C1S002	9207C1S002A	0.049	U	UJ	0.286	0	0.286	-1.25
9401DC1S032	9401DC1S032A	0.286		XV	0.266	1	0.286	-1.25
9207F6S040	9207F6S040A	0.185	U	XV	0.286	0	0.286	-1.25

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H2S009	9210H2S009A	0.048	U	XV	0.286	0	0.286	-1.25
9210H3S015	9210H3S015A	0.065	U	XV	0.286	0	0.286	-1.25
9210C1S003	9210C1S003AD	0.285		=	0.217	1	0.285	-1.26
9207F1S001	9207F1S001AD	0.285		=	0.277	1	0.285	-1.26
9207S4S028	9207S4S028A	0.149	U	XV	0.285	0	0.285	-1.26
9207F2S007	9207F2S007A	0.174	U	U	0.284	0	0.284	-1.26
9210D1S048	9210D1S048A	-0.012	U	XV	0.283	0	0.283	-1.26
9207S1S030	9207S1S030A	0.068	U	XV	0.282	0	0.282	-1.27
9210C3S008	9210C3S008A	0.081	U	XV	0.279	0	0.279	-1.28
9210RS003	9210RS003A	0.08	U	XV	0.279	0	0.279	-1.28
9210RS010	9210RS010A	0.148	U	XV	0.278	0	0.278	-1.28
9207H3S016	9207H3S016A	-0.017	U	XV	0.276	0	0.276	-1.29
9210S2S002A	9210S2S002AA	0.104	U	XV	0.275	0	0.275	-1.29
9207H3S007	9207H3S007A	0.046	U	XV	0.274	0	0.274	-1.29
9210D1S049	9210D1S049A	0.104	U	XV	0.273	0	0.273	-1.3
9207S1S031	9207S1S031A	0.029	U	XV	0.273	0	0.273	-1.3
9207S4S038	9207S4S038A	0.045	U	XV	0.273	0	0.273	-1.3
9207S3S037	9207S3S037A	0.078	U	XV	0.272	0	0.272	-1.3
9207C6S019	9207C6S019A	0.154	U	XV	0.269	0	0.269	-1.31
9207D5S059	9207D5S059A	0.021	U	XV	0.269	0	0.269	-1.31
9207F2S010	9207F2S010A	0.244	U	U	0.269	0	0.269	-1.31
9401DC1S043	9401DC1S043A	0.012	U	U	0.264	0	0.264	-1.33
9401DC1S053	9401DC1S053A	0.02	U	U	0.264	0	0.264	-1.33
9210F2S011	9210F2S011A	0.262		XV	0.124	1	0.262	-1.34
9210W1S012	9210W1S012A	0.169	U	XV	0.259	0	0.259	-1.35
9210C3S007	9210C3S007A	0.258		XV	0.223	1	0.258	-1.35
9210H3S011	9210H3S011A	0.02	U	XV	0.256	0	0.256	-1.36
9207F5S031	9207F5S031A	0.116	U	XV	0.252	0	0.252	-1.38
9210D1S055	9210D1S055A	-0.019	U	U	0.25	0	0.25	-1.39
9207F6S037	9207F6S037A	0.25		XV	0.224	1	0.25	-1.39
9210D3S059	9210D3S059A	0.107	U	XV	0.248	0	0.248	-1.39
9207F3S020	9207F3S020A	0.21	U	XV	0.248	0	0.248	-1.39
9207C6S018	9207C6S018A	0.204	U	XV	0.244	0	0.244	-1.41
9207F6S042	9207F6S042A	0.177	U	XV	0.243	0	0.243	-1.41
9207F6S041	9207F6S041A	0.24		XV	0.221	1	0.24	-1.43
9210C3S006	9210C3S006A	0.193	U	XV	0.239	0	0.239	-1.43
9210D1S056	9210D1S056A	0.01	U	XV	0.239	0	0.239	-1.43
9207F5S034	9207F5S034A	0.209	U	XV	0.239	0	0.239	-1.43
9207W4S031	9207W4S031A	0.11	U	XV	0.237	0	0.237	-1.44

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401D1B011	9401D1B011	0.129	U	U	0.235	0	0.235	-1.45
9207F1S004	9207F1S004A	0.024	U	XV	0.231	0	0.231	-1.47
9207F2S011	9207F2S011A	0.231		=	0.164	1	0.231	-1.47
9210D1S047	9210D1S047A	0.059	U	U	0.228	0	0.228	-1.48
9401D1B012	9401D1B012	0.104	U	U	0.228	0	0.228	-1.48
9210H3S012	9210H3S012A	0.031	U	U	0.228	0	0.228	-1.48
9207C4S011	9207C4S011A	0.068	U	XV	0.22	0	0.22	-1.51
9210W1S010	9210W1S010A	0.219		XV	0.112	1	0.219	-1.52
9207F6S038	9207F6S038A	0.17	U	XV	0.216	0	0.216	-1.53
9210D1S050	9210D1S050A	0.034	U	U	0.208	0	0.208	-1.57
9210D1S051	9210D1S051A	0.134	U	U	0.206	0	0.206	-1.58
9210W1S014	9210W1S014A	0.199		XV	0.111	1	0.199	-1.61
9401DC1S042	9401DC1S042A	0.05	U	U	0.196	0	0.196	-1.63
9207S4S039	9207S4S039A	0.031	U	XV	0.189	0	0.189	-1.67
9207S3S034	9207S3S034A	0.036	U	XV	0.187	0	0.187	-1.68
9210F2S012	9210F2S012A	0.186		XV	0.136	1	0.186	-1.68
9210F2S013	9210F2S013A	0.184		XV	0.139	1	0.184	-1.69
9210D1S046	9210D1S046A	0.09	U	U	0.181	0	0.181	-1.71
9210RS001	9210RS001A	0.162		XV	0.14	1	0.162	-1.82
9207S1S027	9207S1S027A	0.06	U	XV	0.162	0	0.162	-1.82
9210S2S028	9210S2S028A	-0.006	U	XV	0.159	0	0.159	-1.84
9210RS004	9210RS004A	0.138	U	XV	0.155	0	0.155	-1.86
9210F2S009	9210F2S009A	0.13	U	XV	0.139	0	0.139	-1.97
9210S3S042	9210S3S042A	0.008	U	XV	0.067	0	0.067	-2.7
9210S3S041	9210S3S041A	0.003	U	XV	0.06	0	0.06	-2.81

Number of Samples	337
Number of Detects	88
Minimum	0.06
Median	0.456
Maximum	2.68
Arithmetic Average	0.576
Std Dev	0.393
PERT-Beta Expected Value	0.761
LN Mean	-0.73
LN Std Dev	0.579

Table G.139
Statistical Summary for Thorium-232 (N2608) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
Lilliefors p-value for normality		0.01						
Lilliefors p-value for lognormality		0.01						

Table G.140
Statistical Summary for Tin (7440315) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S012	9207H1S012A	132		XV	12.2	1	132	4.88
9401DC1S057A	9401DC1S057AA	37.9		=	5.3	1	37.9	3.63
9401DC1S045	9401DC1S045A	30	J	XV	15	1	30	3.4
9210D1S052	9210D1S052A	10.2		XV	2.72	1	10.2	2.32
9207H1S001A	9207H1S001AA	10	*	XV	0.278	1	10	2.3
9210F1S006	9210F1S006A	7.85	J	XV	2.96	1	7.85	2.06
9207F3S015	9207F3S015A	7.57	J	XV	2.92	1	7.57	2.02
9210D3S059	9210D3S059A	6.91	J	XV	2.75	1	6.91	1.93
9401W1S001	9401W1S001A	6.36	J	J	2.6	1	6.36	1.85
9207C6S017	9207C6S017AD	5.96	J	XV	2.02	1	5.96	1.79
9210RS014	9210RS014A	5.56	J	XV	2.95	1	5.56	1.72
9210RS002	9210RS002A	5.28	J	XV	2.89	1	5.28	1.66
9210C1S003	9210C1S003A	5.19	J	J	2.78	1	5.19	1.65
9210W1S016	9210W1S016A	4.77	J	XV	2.76	1	4.77	1.56
9207F2S009	9207F2S009A	4.71	J	XV	2.94	1	4.71	1.55
9401DC1S032	9401DC1S032A	4.16	J	XV	3	1	4.16	1.43
9207RS016	9207RS016A	4.12	J	XV	2.75	1	4.12	1.42
9210F3S014	9210F3S014A	4.11	J	XV	2.73	1	4.11	1.41
9401DC1S028	9401DC1S028A	3.72	J	XV	2.69	1	3.72	1.31
9401DC1S024A	9401DC1S024AA	3.37	J	XV	2.8	1	3.37	1.21
9207D1S047	9207D1S047A	3.18		XV	0.261	1	3.18	1.16
9207H5S009	9207H5S009A	2.85		XV	0.312	1	2.85	1.05
9207C1S001	9207C1S001A	3.5	U	XV	3.5	0	1.75	0.56
9210S2S038	9210S2S038AD	1.65		XV	0.179	1	1.65	0.501
9207F4S027	9207F4S027A	2.99	U	XV	2.99	0	1.5	0.402
9207RS002	9207RS002A	1.36		XV	0.284	1	1.36	0.307
9207H3S005	9207H3S005A	1.17		XV	0.257	1	1.17	0.157
9401W1S020	9401W1S020A	0.992	J	XV	0.302	1	0.992	-0.008
9401W1S012	9401W1S012A	0.823	J	J	0.268	1	0.823	-0.195
9210H2S008	9210H2S008A	0.745	J	XV	0.261	1	0.745	-0.294
9207W3S029	9207W3S029A	0.582	J	XV	0.286	1	0.582	-0.541
9210S1S017	9210S1S017AD	0.361	J	XV	0.223	1	0.361	-1.02
9207S2S032	9207S2S032A	0.296	U	XV	0.296	0	0.148	-1.91
9207S4S041	9207S4S041A	0.295	U	XV	0.295	0	0.148	-1.91
9207W5S034	9207W5S034A	0.292	U	XV	0.292	0	0.146	-1.92
9207F6S039	9207F6S039A	0.287	U	XV	0.287	0	0.144	-1.94
9207F1S001	9207F1S001AD	0.282	U	UJ	0.282	0	0.141	-1.96
9207W2S024A	9207W2S024AA	0.28	U	XV	0.28	0	0.14	-1.97
9210S3S044	9210S3S044A	0.247	U	XV	0.247	0	0.124	-2.09

Table G.140
Statistical Summary for Tin (7440315) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207D5S057	9207D5S057A	0.188	U	XV	0.188	0	0.094	-2.36
9207H5S026	9207H5S026AD	0.158	U	XV	0.158	0	0.079	-2.54

Number of Samples	41
Number of Detects	30
Minimum	0.079
Median	3.18
Maximum	132
Arithmetic Average	7.75
Std Dev	21.2
PERT-Beta Expected Value	24.1
LN Mean	0.6
LN Std Dev	1.8
S-W p-value for normality	2.4E-12
S-W p-value for lognormality	0.034

Table G.141
Statistical Summary for TCLP Trichloroethene (79016) (mg/L) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401R1B006	9401R1B006	0.024		=	0.003	1	0.024	-3.74
9401E1B003	9401E1B003C	0.01	U	U	0.003	0	0.002	-6.4
9401E1B005	9401E1B005C	0.01	U	U	0.003	0	0.002	-6.4

Number of Samples	3
Number of Detects	1
Minimum	0.002
Median	0.002
Maximum	0.024
Arithmetic Average	0.009
Std Dev	0.013
PERT-Beta Expected Value	0.005
LN Mean	-5.51
LN Std Dev	1.53
S-W p-value for normality	--
S-W p-value for lognormality	--

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	679		J	192	1	679	6.52
9207E1B004	9207E1B004	223		J	1.67	1	223	5.41
9207F1B011	9207F1B011	81.5		J	0.757	1	81.5	4.4
9207RS007	9207RS007A	52.5		XV	0.448	1	52.5	3.96
9207F1B012	9207F1B012	31.7		=	0.587	1	31.7	3.46
9401W1S020	9401W1S020A	30.3		XV	2.7	1	30.3	3.41
9207RS019	9207RS019A	28.8		XV	0.504	1	28.8	3.36
9207RS003	9207RS003A	22.6		XV	0.515	1	22.6	3.12
9207RS014	9207RS014A	20.3		XV	0.613	1	20.3	3.01
9207RS018	9207RS018A	17.4		XV	0.494	1	17.4	2.86
9210RS001	9210RS001A	17.2		XV	0.477	1	17.2	2.84
9207F1S006	9207F1S006A	14.8		XV	0.41	1	14.8	2.69
9207F6S038	9207F6S038A	12.7		XV	0.249	1	12.7	2.54
9207RS008	9207RS008A	12.3		XV	0.478	1	12.3	2.51
9207RS015	9207RS015A	12		XV	0.556	1	12	2.48
9767D1B001	9767D1B001	11.9		J	0.438	1	11.9	2.48
9210RS009	9210RS009A	11.7		XV	1	1	11.7	2.46
9207RS013	9207RS013A	10.7		XV	0.529	1	10.7	2.37
9210RS011	9210RS011A	10.6		XV	0.475	1	10.6	2.36
9207RS001	9207RS001A	10.4		XV	0.61	1	10.4	2.34
9210RS014	9210RS014AD	10.2		XV	0.498	1	10.2	2.32
9210RS008	9210RS008A	10.1		XV	1.05	1	10.1	2.31
9207F5B013	9207F5B013	9.14		=	0.693	1	9.14	2.21
9210RS012	9210RS012A	8.94		XV	1.03	1	8.94	2.19
9767D1B003	9767D1B003	8.55		J	0.836	1	8.55	2.15
9207RS001AA	9207RS001AA	7.87		XV	0.486	1	7.87	2.06
9210RS002	9210RS002A	7.62		XV	0.662	1	7.62	2.03
9207RS012	9207RS012A	7.61		XV	0.494	1	7.61	2.03
9210RS010	9210RS010A	7.55		XV	0.655	1	7.55	2.02
9210RS004	9210RS004A	7.36		XV	0.558	1	7.36	2.0
9207E1B010	9207E1B010	6.78		=	0.768	1	6.78	1.91
9767D1B002	9767D1B002	6.6		J	0.519	1	6.6	1.89
9207RS006	9207RS006A	6.57		XV	0.799	1	6.57	1.88
9210F1S003	9210F1S003A	6.13		XV	0.497	1	6.13	1.81
9210RS013	9210RS013A	6.11		XV	0.602	1	6.11	1.81
9207RS002	9207RS002A	5.98		XV	0.437	1	5.98	1.79
9207D2S052	9207D2S052A	5.86		XV	0.615	1	5.86	1.77
9210RS007	9210RS007A	5.83		XV	0.772	1	5.83	1.76
9210RS005	9210RS005A	5.71		XV	1.03	1	5.71	1.74

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002AA	9207RS002AA	5.61		XV	0.498	1	5.61	1.72
9207RS011	9207RS011A	4.92		XV	0.713	1	4.92	1.59
9207F3S013	9207F3S013A	4.69		XV	0.42	1	4.69	1.55
9207RS017	9207RS017A	3.45		XV	0.792	1	3.45	1.24
9207F5S035	9207F5S035A	3.28		XV	0.271	1	3.28	1.19
9207D1S048	9207D1S048A	3.2		XV	0.768	1	3.2	1.16
9207S1S027	9207S1S027A	3.09		XV	0.208	1	3.09	1.13
9207RS016	9207RS016A	3		XV	0.592	1	3	1.1
9210W1S011	9210W1S011A	2.72		XV	0.524	1	2.72	1.0
9207RS004	9207RS004A	2.49		XV	0.518	1	2.49	0.912
9401R1B006	9401R1B006	2.4		J	0.897	1	2.4	0.875
9207RS010	9207RS010A	2.35		XV	0.491	1	2.35	0.854
9207H4S008	9207H4S008A	2.27		XV	0.502	1	2.27	0.82
9767D1B004	9767D1B004	2.14		J	0.907	1	2.14	0.761
9207W3S028	9207W3S028A	2.09		XV	0.452	1	2.09	0.737
9210W1S015	9210W1S015A	1.98		XV	0.351	1	1.98	0.683
9207W6S037	9207W6S037A	1.82		XV	0.244	1	1.82	0.599
9210W1S013	9210W1S013A	1.73		XV	0.404	1	1.73	0.548
9207W3S029	9207W3S029A	1.69		XV	0.446	1	1.69	0.525
9401W1S021	9401W1S021A	1.66		XV	0.515	1	1.66	0.507
9207W5S033	9207W5S033A	1.63		XV	0.667	1	1.63	0.489
9207W6S038	9207W6S038A	1.63		XV	0.234	1	1.63	0.489
9210RS003	9210RS003A	1.63		XV	0.661	1	1.63	0.489
9207H1B001	9207H1B001	1.6		=	0.385	1	1.6	0.47
9207W5S034	9207W5S034A	1.58		XV	0.496	1	1.58	0.457
9207H1S001A	9207H1S001AA	1.57		XV	0.275	1	1.57	0.451
9207W4S032	9207W4S032A	1.54		XV	0.449	1	1.54	0.432
9401DC1S049	9401DC1S049A	1.52		XV	0.383	1	1.52	0.419
9207W3S040	9207W3S040A	1.49		XV	0.397	1	1.49	0.399
9207W1S039	9207W1S039A	1.47		XV	0.52	1	1.47	0.385
9207F6S039	9207F6S039A	1.47		XV	0.25	1	1.47	0.385
9210S2S028	9210S2S028A	1.39		XV	0.314	1	1.39	0.329
9210RS006	9210RS006A	1.33		XV	0.949	1	1.33	0.285
9207F1S002	9207F1S002A	1.32		XV	0.433	1	1.32	0.278
9401DC1S051	9401DC1S051A	1.31		XV	0.41	1	1.31	0.27
9207D4B006	9207D4B006	1.31		=	0.699	1	1.31	0.27
9207W4S030	9207W4S030A	1.3		XV	0.34	1	1.3	0.262
9401DC1S036	9401DC1S036A	1.27		XV	0.478	1	1.27	0.239
9207W2S024A	9207W2S024AAD	1.26		XV	0.236	1	1.26	0.231

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W1S019	9210W1S019A	1.24		=	0.526	1	1.24	0.215
9401W1S019	9401W1S019A	1.22		XV	0.366	1	1.22	0.199
9210W1S018	9210W1S018A	1.21		XV	0.447	1	1.21	0.191
9210S2S032	9210S2S032A	0.099	U	XV	1.19	0	1.19	0.174
9207W3S026	9207W3S026A	1.17		XV	0.406	1	1.17	0.157
9207H1S013	9207H1S013A	0.285	U	XV	1.16	0	1.16	0.148
9210S2S035	9210S2S035A	0.113	U	XV	1.16	0	1.16	0.148
9401D1B010	9401D1B010	1.15		=	0.272	1	1.15	0.14
9210F1S006	9210F1S006A	1.15		XV	0.569	1	1.15	0.14
9207H3S016	9207H3S016A	0.718	U	XV	1.14	0	1.14	0.131
9207H2S015	9207H2S015A	1.1		XV	0.502	1	1.1	0.095
9401W1S015	9401W1S015A	1.1		XV	0.36	1	1.1	0.095
9401DC1S035	9401DC1S035AD	1.09		XV	0.471	1	1.09	0.086
9207F5S033	9207F5S033A	0.094	U	XV	1.08	0	1.08	0.077
9207F5S036	9207F5S036A	0.384	U	XV	1.08	0	1.08	0.077
9401W1S017	9401W1S017A	1.08		=	0.525	1	1.08	0.077
9210S2S026	9210S2S026A	0.315	U	XV	1.06	0	1.06	0.058
9207W1S023A	9207W1S023AA	1.05		XV	0.457	1	1.05	0.049
9401W1S016	9401W1S016A	1.05		XV	0.804	1	1.05	0.049
9210W1S009	9210W1S009A	1.04		XV	0.448	1	1.04	0.039
9207D2S053	9207D2S053A	1.02		XV	0.805	1	1.02	0.02
9401W1S007	9401W1S007A	1		=	0.519	1	1	0
9210S2S038	9210S2S038AD	0.299	U	XV	1	0	1	0
9401DC1S057A	9401DC1S057AA	0.995		J	0.53	1	0.995	-0.005
9401DC1S052	9401DC1S052A	0.987		XV	0.374	1	0.987	-0.013
9210S2S025	9210S2S025A	0.101	U	XV	0.983	0	0.983	-0.017
9210W1S017	9210W1S017A	0.979		XV	0.548	1	0.979	-0.021
9207H3S007	9207H3S007A	0.108	U	XV	0.977	0	0.977	-0.023
9401DC1S050	9401DC1S050AD	0.968		XV	0.463	1	0.968	-0.033
9207W6S036	9207W6S036A	0.961		XV	0.271	1	0.961	-0.04
9210S3S043	9210S3S043A	0.155	U	XV	0.96	0	0.96	-0.041
9210H3S014	9210H3S014A	0.08	U	XV	0.95	0	0.95	-0.051
9401W1S005	9401W1S005A	0.942		XV	0.269	1	0.942	-0.06
9401DC1S023	9401DC1S023A	0.94		XV	0.462	1	0.94	-0.062
9401W1S001A	9401W1S001AA	0.09	U	U	0.889	0	0.889	-0.118
9210S2S027	9210S2S027A	0.15	U	XV	0.886	0	0.886	-0.121
9207D6B008	9207D6B008	0.861		=	0.479	1	0.861	-0.15
9401DC1S034	9401DC1S034A	0.859		XV	0.719	1	0.859	-0.152
9210S2S030	9210S2S030A	0.147	U	XV	0.853	0	0.853	-0.159

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S019	9210S1S019A	0.226	U	XV	0.841	0	0.841	-0.173
9207W3S027	9207W3S027A	0.823		XV	0.467	1	0.823	-0.195
9207W5S035	9207W5S035A	0.812		XV	0.275	1	0.812	-0.208
9207C5S016	9207C5S016A	0.804		XV	0.39	1	0.804	-0.218
9207F1S005	9207F1S005A	0.798		XV	0.441	1	0.798	-0.226
9401W1S001	9401W1S001A	0.261	U	U	0.796	0	0.796	-0.228
9401DC1S029	9401DC1S029A	0.054	U	XV	0.795	0	0.795	-0.229
9210S1S018	9210S1S018A	0.097	U	XV	0.795	0	0.795	-0.229
9210F1S001	9210F1S001A	0.793		XV	0.413	1	0.793	-0.232
9207F2S011	9207F2S011AD	0.784		=	0.319	1	0.784	-0.243
9401D1B011	9401D1B011	0.781		=	0.265	1	0.781	-0.247
9210F1S002	9210F1S002A	0.777		XV	0.526	1	0.777	-0.252
9210S2S037	9210S2S037A	0.1	U	XV	0.777	0	0.777	-0.252
9401DC1S024A	9401DC1S024AA	0.768		XV	0.322	1	0.768	-0.264
9401W1S018	9401W1S018A	0.767		=	0.53	1	0.767	-0.265
9207E1B002	9207E1B002	0.761		J	0.574	1	0.761	-0.273
9210S2S029	9210S2S029A	0.142	U	XV	0.761	0	0.761	-0.273
9210S2S033	9210S2S033A	0.033	U	XV	0.76	0	0.76	-0.274
9210S3S044	9210S3S044A	0.053	U	XV	0.758	0	0.758	-0.277
9401DC1S054	9401DC1S054A	0.756		XV	0.475	1	0.756	-0.28
9207F3S017	9207F3S017A	0.756		J	0.392	1	0.756	-0.28
9401DC1S023A	9401DC1S023AA	0.753		XV	0.355	1	0.753	-0.284
9401W1S012	9401W1S012AD	0.753		=	0.528	1	0.753	-0.284
9401DC1S024	9401DC1S024A	0.752		XV	0.652	1	0.752	-0.285
9401DC1S030	9401DC1S030A	0.749		XV	0.503	1	0.749	-0.289
9401W1S002A	9401W1S002AA	0.112	U	U	0.748	0	0.748	-0.29
9207F4S027	9207F4S027A	0.458	U	XV	0.733	0	0.733	-0.311
9207F3S023	9207F3S023A	0.728		XV	0.412	1	0.728	-0.317
9210F3S018	9210F3S018A	0.355	U	XV	0.727	0	0.727	-0.319
9207H3S024	9207H3S024A	0.725		XV	0.565	1	0.725	-0.322
9207F3S020	9207F3S020A	0.724		XV	0.248	1	0.724	-0.323
9210H1S006	9210H1S006A	0.166	U	XV	0.723	0	0.723	-0.324
9401DC1S022	9401DC1S022A	0.72		XV	0.617	1	0.72	-0.329
9210F3S017	9210F3S017A	0.377	U	XV	0.713	0	0.713	-0.338
9210S1S017	9210S1S017AD	0.086	U	XV	0.707	0	0.707	-0.347
9401W1S011	9401W1S011A	0.191	U	XV	0.703	0	0.703	-0.352
9207F3S014	9207F3S014A	0.702		=	0.432	1	0.702	-0.354
9210C1S002	9210C1S002A	0.407	U	XV	0.697	0	0.697	-0.361
9210F3S016	9210F3S016A	0.444	U	XV	0.696	0	0.696	-0.362

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S2S036	9210S2S036A	0.203	U	XV	0.696	0	0.696	-0.362
9207F4S026	9207F4S026A	0.538	U	XV	0.695	0	0.695	-0.364
9401DC1S026	9401DC1S026A	0.694		XV	0.351	1	0.694	-0.365
9207W1S020	9207W1S020A	0.32	U	XV	0.694	0	0.694	-0.365
9210F1S005	9210F1S005A	0.693		XV	0.496	1	0.693	-0.367
9401DC1S041	9401DC1S041A	0.692		XV	0.491	1	0.692	-0.368
9207F4S025	9207F4S025A	0.531	U	XV	0.687	0	0.687	-0.375
9401W1S009	9401W1S009A	0.687		=	0.569	1	0.687	-0.375
9207C3S010	9207C3S010A	0.684		XV	0.278	1	0.684	-0.38
9401DC1S037	9401DC1S037A	0.684		XV	0.455	1	0.684	-0.38
9207F4S028	9207F4S028A	0.555	U	XV	0.681	0	0.681	-0.384
9207W1S022	9207W1S022A	0.332	U	XV	0.68	0	0.68	-0.386
9401W1S014	9401W1S014A	0.679		=	0.525	1	0.679	-0.387
9207F6S041	9207F6S041A	0.677		XV	0.278	1	0.677	-0.39
9207H3S019	9207H3S019A	0.123	U	XV	0.673	0	0.673	-0.396
9207H3S018	9207H3S018A	0.184	U	XV	0.67	0	0.67	-0.4
9401W1S013	9401W1S013A	0.67		=	0.478	1	0.67	-0.4
9210C1S001A	9210C1S001AA	0.335	U	XV	0.665	0	0.665	-0.408
9207F3S019	9207F3S019A	0.665		XV	0.537	1	0.665	-0.408
9207C1S001	9207C1S001A	0.082	U	XV	0.664	0	0.664	-0.409
9207W1S021	9207W1S021A	0.442	U	XV	0.664	0	0.664	-0.409
9401DC1S033	9401DC1S033A	0.663		XV	0.575	1	0.663	-0.411
9207F5S034	9207F5S034A	0.663		XV	0.241	1	0.663	-0.411
9207H3S023	9207H3S023A	0.507	U	XV	0.655	0	0.655	-0.423
9210S1S020	9210S1S020A	0.177	U	U	0.654	0	0.654	-0.425
9207F2S009	9207F2S009A	0.398	U	XV	0.65	0	0.65	-0.431
9401DC1S031	9401DC1S031A	0.647		XV	0.479	1	0.647	-0.435
9207W2S024	9207W2S024A	0.272	U	XV	0.646	0	0.646	-0.437
9210F3S015	9210F3S015A	0.338	U	XV	0.638	0	0.638	-0.449
9207D2S034A	9207D2S034AA	0.125	U	XV	0.636	0	0.636	-0.453
9207F2S012	9207F2S012A	0.633		=	0.412	1	0.633	-0.457
9210S1S021	9210S1S021A	0.069	U	U	0.632	0	0.632	-0.459
9210S2S034	9210S2S034A	0.076	U	XV	0.632	0	0.632	-0.459
9401DC1S022A	9401DC1S022AA	0.63		XV	0.343	1	0.63	-0.462
9210D1S053	9210D1S053A	0.136	U	XV	0.625	0	0.625	-0.47
9401W1S002	9401W1S002A	0.237	U	U	0.624	0	0.624	-0.472
9210F2S010	9210F2S010A	0.194	U	XV	0.623	0	0.623	-0.473
9207H3S022	9207H3S022A	0.309	U	XV	0.621	0	0.621	-0.476
9207F2S008	9207F2S008A	0.619		=	0.231	1	0.619	-0.48

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W2S025	9207W2S025A	0.16	U	XV	0.619	0	0.619	-0.48
9207F6S042	9207F6S042A	0.615		XV	0.262	1	0.615	-0.486
9207F1S001	9207F1S001A	0.613		=	0.312	1	0.613	-0.489
9207C3S007	9207C3S007A	0.61		XV	0.385	1	0.61	-0.494
9207F3S016	9207F3S016A	0.61		=	0.44	1	0.61	-0.494
9207W2S023	9207W2S023A	0.609		XV	0.531	1	0.609	-0.496
9401DC1S043	9401DC1S043A	0.603		J	0.534	1	0.603	-0.506
9207D4S054	9207D4S054A	0.172	U	XV	0.595	0	0.595	-0.519
9210H2S010	9210H2S010A	0.201	U	UJ	0.588	0	0.588	-0.531
9401DC1S032	9401DC1S032A	0.43	U	XV	0.587	0	0.587	-0.533
9207D4B005	9207D4B005	0.354	U	U	0.587	0	0.587	-0.533
9401DC1S055	9401DC1S055A	0.405	U	XV	0.585	0	0.585	-0.536
9207F3S015	9207F3S015A	0.585		=	0.423	1	0.585	-0.536
9401DC1S027	9401DC1S027A	0.158	U	XV	0.584	0	0.584	-0.538
9207F5S032	9207F5S032A	0.584		=	0.297	1	0.584	-0.538
9401D1B012	9401D1B012	0.582		=	0.367	1	0.582	-0.541
9210H3S015	9210H3S015A	0.119	U	XV	0.581	0	0.581	-0.543
9207D1S050	9207D1S050A	0.561	U	XV	0.579	0	0.579	-0.546
9401W1S003	9401W1S003A	0.298	U	U	0.577	0	0.577	-0.55
9210C3S008	9210C3S008A	0.524	U	XV	0.576	0	0.576	-0.552
9207F4S030	9207F4S030A	0.574		XV	0.464	1	0.574	-0.555
9210F2S011	9210F2S011A	0.568		XV	0.384	1	0.568	-0.566
9401DC1S028	9401DC1S028A	0.026	U	XV	0.566	0	0.566	-0.569
9207F5S031	9207F5S031A	0.565		XV	0.406	1	0.565	-0.571
9401DC1S045	9401DC1S045A	0.335	U	XV	0.563	0	0.563	-0.574
9210F2S007	9210F2S007A	0.412	U	XV	0.562	0	0.562	-0.576
9210F3S019	9210F3S019A	0.534	U	XV	0.562	0	0.562	-0.576
9210S1S023	9210S1S023A	0.282	U	XV	0.562	0	0.562	-0.576
9401E1B005	9401E1B005A	0.561		=	0.311	1	0.561	-0.578
9207F2S007	9207F2S007A	0.56		=	0.274	1	0.56	-0.58
9210F1B004	9210F1B004	0.492	U	U	0.554	0	0.554	-0.591
9401DC1S053	9401DC1S053A	0.398	U	UJ	0.552	0	0.552	-0.594
9207D5S058	9207D5S058A	0.351	U	XV	0.547	0	0.547	-0.603
9207F3S018	9207F3S018A	0.547		=	0.442	1	0.547	-0.603
9210F3S014	9210F3S014A	0.215	U	XV	0.546	0	0.546	-0.605
9401W1B001	9401W1B001A	0.034	U	U	0.542	0	0.542	-0.612
9210S1S022	9210S1S022A	0.103	U	U	0.541	0	0.541	-0.614
9207C1S003	9207C1S003A	0.227	U	XV	0.54	0	0.54	-0.616
9401DC1S039	9401DC1S039A	0.133	U	XV	0.539	0	0.539	-0.618

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2B005	9210F2B005	0.427	U	U	0.537	0	0.537	-0.622
9207F4S029	9207F4S029A	0.536		XV	0.466	1	0.536	-0.624
9210C2S004	9210C2S004A	0.48	U	XV	0.535	0	0.535	-0.625
9401DC1S038	9401DC1S038A	0.309	U	XV	0.534	0	0.534	-0.627
9207C5S015	9207C5S015A	0.533		XV	0.413	1	0.533	-0.629
9207S6S044	9207S6S044A	0.13	U	XV	0.526	0	0.526	-0.642
9210S3S040	9210S3S040A	0.106	U	XV	0.526	0	0.526	-0.642
9210D1S052	9210D1S052AD	0.142	U	XV	0.524	0	0.524	-0.646
9207S2S032	9207S2S032A	0.114	U	U	0.523	0	0.523	-0.648
9401W1S004A	9401W1S004AA	0.219	U	U	0.519	0	0.519	-0.656
9210H3S013	9210H3S013A	0.136	U	XV	0.518	0	0.518	-0.658
9210S2S031	9210S2S031A	0.113	U	XV	0.518	0	0.518	-0.658
9207D1S046	9207D1S046A	0.236	U	XV	0.514	0	0.514	-0.666
9207E1B003	9207E1B003	0.335	U	U	0.512	0	0.512	-0.669
9210F2S012	9210F2S012A	0.511		XV	0.37	1	0.511	-0.671
9207D5S057	9207D5S057A	0.126	U	XV	0.508	0	0.508	-0.677
9210F1S004	9210F1S004A	0.508		XV	0.481	1	0.508	-0.677
9207C4S013	9207C4S013A	0.504		XV	0.422	1	0.504	-0.685
9210S1S001A	9210S1S001AA	0.277	U	XV	0.502	0	0.502	-0.689
9401DC1S044	9401DC1S044A	0.064	U	XV	0.5	0	0.5	-0.693
9207S3S036	9207S3S036A	0.039	U	U	0.499	0	0.499	-0.695
9210F2S008	9210F2S008A	0.311	U	XV	0.498	0	0.498	-0.697
9210C1S003	9210C1S003AD	0.494		=	0.402	1	0.494	-0.705
9210W1S016	9210W1S016A	0.493		XV	0.37	1	0.493	-0.707
9207H3S021	9207H3S021A	0.116	U	XV	0.491	0	0.491	-0.711
9207C3S009	9207C3S009A	0.283	U	XV	0.489	0	0.489	-0.715
9210H1S004	9210H1S004A	0.214	U	UJ	0.488	0	0.488	-0.717
9401DC1S047	9401DC1S047A	0.202	U	XV	0.484	0	0.484	-0.726
9210F2S013	9210F2S013A	0.483		XV	0.349	1	0.483	-0.728
9401DC1S056	9401DC1S056A	0.193	U	XV	0.482	0	0.482	-0.73
9401DC1S048	9401DC1S048A	0.128	U	XV	0.481	0	0.481	-0.732
9207H2S014	9207H2S014A	0.25	U	XV	0.477	0	0.477	-0.74
9207D4S055	9207D4S055A	0.13	U	XV	0.474	0	0.474	-0.747
9210D1S050	9210D1S050A	0.269	U	U	0.467	0	0.467	-0.761
9207H3S006	9207H3S006A	0.176	U	XV	0.463	0	0.463	-0.77
9401DC1S040	9401DC1S040A	0.388	U	XV	0.462	0	0.462	-0.772
9207F3S021	9207F3S021A	0.455		XV	0.327	1	0.455	-0.787
9207F6S037	9207F6S037A	0.455		XV	0.321	1	0.455	-0.787
9207C5S012A	9207C5S012AA	0.453		XV	0.419	1	0.453	-0.792

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S4S041	9207S4S041A	0.084	U	XV	0.452	0	0.452	-0.794
9401DC1S042	9401DC1S042A	0.401	U	UJ	0.45	0	0.45	-0.799
9207C4S010A	9207C4S010AA	0.402	U	XV	0.449	0	0.449	-0.801
9210C2S005	9210C2S005A	0.343	U	XV	0.448	0	0.448	-0.803
9207S4S028	9207S4S028A	0.26	U	XV	0.448	0	0.448	-0.803
9210S2S002A	9210S2S002AA	0.09	U	XV	0.448	0	0.448	-0.803
9210W2B006	9210W2B006	0.102	U	U	0.447	0	0.447	-0.805
9207F2S010	9207F2S010A	0.447		=	0.309	1	0.447	-0.805
9210C3S006	9210C3S006A	0.383	U	XV	0.446	0	0.446	-0.807
9207C2S006	9207C2S006A	0.39	U	XV	0.445	0	0.445	-0.81
9207C2S004A	9207C2S004AA	0.323	U	XV	0.444	0	0.444	-0.812
9210C3S007	9210C3S007A	0.405	U	XV	0.443	0	0.443	-0.814
9767D1B006	9767D1B006	0.126	U	U	0.442	0	0.442	-0.816
9207D2S051	9207D2S051A	0.12	U	XV	0.437	0	0.437	-0.828
9210H3S011	9210H3S011A	0.159	U	XV	0.436	0	0.436	-0.83
9207H5S009	9207H5S009A	0.04	U	XV	0.435	0	0.435	-0.832
9207C6S018	9207C6S018A	0.379	U	XV	0.432	0	0.432	-0.839
9207C6S019	9207C6S019A	0.371	U	XV	0.432	0	0.432	-0.839
9210D1S006A	9210D1S006AA	0.229	U	XV	0.432	0	0.432	-0.839
9207F1S003	9207F1S003A	0.432		XV	0.407	1	0.432	-0.839
9210H2S008	9210H2S008AD	0.113	U	XV	0.432	0	0.432	-0.839
9207S4S040	9207S4S040A	-0.026	U	XV	0.431	0	0.431	-0.842
9207F3S022	9207F3S022A	0.43		XV	0.381	1	0.43	-0.844
9210H2S009	9210H2S009A	0.166	U	XV	0.429	0	0.429	-0.846
9210F2S009	9210F2S009A	0.427		XV	0.366	1	0.427	-0.851
9401DC1S025	9401DC1S025A	0.137	U	XV	0.426	0	0.426	-0.853
9401DC1S046	9401DC1S046A	0.02	U	XV	0.42	0	0.42	-0.868
9207D4S056	9207D4S056A	0.23	U	XV	0.419	0	0.419	-0.87
9210W1S012	9210W1S012A	0.389	U	XV	0.416	0	0.416	-0.877
9401W1S004	9401W1S004A	0.123	U	U	0.414	0	0.414	-0.882
9207S3S037	9207S3S037A	0.143	U	XV	0.414	0	0.414	-0.882
9207F3S024	9207F3S024A	0.297	U	XV	0.413	0	0.413	-0.884
9207H3S003A	9207H3S003AA	0.217	U	XV	0.411	0	0.411	-0.889
9210D1S048	9210D1S048A	0.223	U	XV	0.41	0	0.41	-0.892
9210D1S049	9210D1S049A	0.223	U	XV	0.41	0	0.41	-0.892
9210D1S051	9210D1S051A	0.222	U	UJ	0.409	0	0.409	-0.894
9207S4S038	9207S4S038A	0.267	U	XV	0.409	0	0.409	-0.894
9207C3S008	9207C3S008A	0.393	U	XV	0.407	0	0.407	-0.899
9210D3S057	9210D3S057A	0.299	U	XV	0.404	0	0.404	-0.906

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210S1S024	9210S1S024A	0.142	U	XV	0.404	0	0.404	-0.906
9207F6S040	9207F6S040A	0.403		XV	0.368	1	0.403	-0.909
9207H5S010	9207H5S010A	-0.007	U	XV	0.402	0	0.402	-0.911
9210D3S058	9210D3S058A	0.261	U	XV	0.4	0	0.4	-0.916
9207S1S031	9207S1S031A	0.14	U	XV	0.398	0	0.398	-0.921
9207C6S017	9207C6S017AD	0.337	U	XV	0.396	0	0.396	-0.926
9207C2S004	9207C2S004A	0.345	U	XV	0.393	0	0.393	-0.934
9210W1S014	9210W1S014A	0.392		XV	0.316	1	0.392	-0.936
9207S1S030	9207S1S030A	0.121	U	XV	0.387	0	0.387	-0.949
9207S5S043	9207S5S043A	0.187	U	XV	0.385	0	0.385	-0.955
9210H1S005	9210H1S005A	0.325	U	XV	0.383	0	0.383	-0.96
9207W4S031	9207W4S031A	0.208	U	XV	0.381	0	0.381	-0.965
9207C4S011	9207C4S011A	0.194	U	XV	0.375	0	0.375	-0.981
9210D1S047	9210D1S047A	0.192	U	UJ	0.372	0	0.372	-0.989
9210H3S012	9210H3S012A	0.246	U	U	0.37	0	0.37	-0.994
9401E1B003	9401E1B003A	0.322	U	U	0.369	0	0.369	-0.997
9207H3S022A	9207H3S022AA	0.019	U	XV	0.369	0	0.369	-0.997
9207H3S005	9207H3S005AD	0.053	U	XV	0.366	0	0.366	-1.01
9207H3S017	9207H3S017A	0.077	U	XV	0.365	0	0.365	-1.01
9207D5S059	9207D5S059A	0.042	U	XV	0.361	0	0.361	-1.02
9207S5S042	9207S5S042A	0.067	U	XV	0.359	0	0.359	-1.02
9210D1S046	9210D1S046A	0.283	U	U	0.356	0	0.356	-1.03
9207H3S004	9207H3S004A	0.042	U	XV	0.353	0	0.353	-1.04
9210W1S010	9210W1S010A	0.318	U	XV	0.352	0	0.352	-1.04
9767D1B005	9767D1B005	0.169	U	U	0.351	0	0.351	-1.05
9207H2S003	9207H2S003A	0.2	U	XV	0.349	0	0.349	-1.05
9210D1S055	9210D1S055A	0.294	U	U	0.347	0	0.347	-1.06
9207S5S029	9207S5S029A	0.144	U	XV	0.346	0	0.346	-1.06
9207H1S002	9207H1S002A	0.15	U	XV	0.344	0	0.344	-1.07
9207D5B007	9207D5B007	0.169	U	U	0.338	0	0.338	-1.08
9207D1S047	9207D1S047AD	0.137	U	XV	0.337	0	0.337	-1.09
9207C1S002	9207C1S002A	0.101	U	UJ	0.327	0	0.327	-1.12
9207S6S045	9207S6S045A	0.237	U	XV	0.326	0	0.326	-1.12
9207H5S026	9207H5S026AD	0.021	U	XV	0.323	0	0.323	-1.13
9210D3B002	9210D3B002	0.056	U	U	0.321	0	0.321	-1.14
9401E1B002	9401E1B002A	0.089	U	UJ	0.321	0	0.321	-1.14
9207S4S039	9207S4S039A	0.316		XV	0.236	1	0.316	-1.15
9207F1S004	9207F1S004A	0.243	U	XV	0.296	0	0.296	-1.22
9210H3B001	9210H3B001	0.098	U	U	0.292	0	0.292	-1.23

Table G.142
Statistical Summary for Uranium-233/234 (NS632) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S2S033	9207S2S033A	0.228	U	XV	0.288	0	0.288	-1.24
9210D1S056	9210D1S056A	0.281	U	XV	0.286	0	0.286	-1.25
9210D3S059	9210D3S059A	0.283		XV	0.259	1	0.283	-1.26
9207H3S020	9207H3S020A	0.117	U	XV	0.242	0	0.242	-1.42
9207H1S001	9207H1S001A	0.025	U	UJ	0.228	0	0.228	-1.48
9207H1S012	9207H1S012A	0.145	U	U	0.228	0	0.228	-1.48
9207S3S034	9207S3S034A	0.221		XV	0.218	1	0.221	-1.51
9210S3S042	9210S3S042A	0.011	U	XV	0.094	0	0.094	-2.37
9210S3S041	9210S3S041A	0.012	U	XV	0.067	0	0.067	-2.7

Number of Samples	360
Number of Detects	175
Minimum	0.067
Median	0.655
Maximum	679
Arithmetic Average	4.74
Std Dev	38.0
PERT-Beta Expected Value	114
LN Mean	-0.093
LN Std Dev	1.14
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.143
Statistical Summary for Uranium-234 (13966295) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	796		=	24	1	796	6.68
9401E1B005	9401E1B005A	1.64	U	UJ	2.04	0	2.04	0.713
9401D1B010	9401D1B010	1.17	U	UJ	1.97	0	1.97	0.678
9401D1B011	9401D1B011	0.752	U	UJ	1.81	0	1.81	0.593
9401D1B012	9401D1B012	0.406	U	UJ	1.75	0	1.75	0.56
9401E1B003	9401E1B003A	-2.4E-04	U	UJ	1.64	0	1.64	0.495
9401E1B002	9401E1B002A	-0.008	U	U	1.19	0	1.19	0.174

Number of Samples	7
Number of Detects	1
Minimum	1.19
Median	1.81
Maximum	796
Arithmetic Average	115
Std Dev	300
PERT-Beta Expected Value	134
LN Mean	1.41
LN Std Dev	2.33
S-W p-value for normality	4.2E-06
S-W p-value for lognormality	3.5E-05

Table G.144
Statistical Summary for Uranium-235 (15117961) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	75.3		=	1.43	1	75.3	4.32
9401E1B005	9401E1B005A	0.066		=	2.2E-04	1	0.066	-2.71
9401D1B010	9401D1B010	0.034		=	2.1E-04	1	0.034	-3.38
9401D1B011	9401D1B011	0.024		=	1.9E-04	1	0.024	-3.75
9401D1B012	9401D1B012	0.014		=	2.0E-04	1	0.014	-4.24
9401E1B003	9401E1B003A	0.001		=	2.0E-04	1	0.001	-6.52
9401E1B002	9401E1B002A	2.8E-05	U	U	1.4E-04	0	1.4E-04	-8.85

Number of Samples	7
Number of Detects	6
Minimum	1.4E-04
Median	0.024
Maximum	75.3
Arithmetic Average	10.8
Std Dev	28.5
PERT-Beta Expected Value	12.6
LN Mean	-3.59
LN Std Dev	4.08
S-W p-value for normality	4.2E-06
S-W p-value for lognormality	0.32

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	94.4	U	UJ	211	0	211	5.35
9207E1B004	9207E1B004	15.2		J	1.83	1	15.2	2.72
9207F1B011	9207F1B011	5.64		J	0.832	1	5.64	1.73
9207RS007	9207RS007A	4.13		XV	0.52	1	4.13	1.42
9401W1S020	9401W1S020A	3.38		XV	3.13	1	3.38	1.22
9207F1B012	9207F1B012	2.35		=	0.644	1	2.35	0.854
9207RS019	9207RS019A	2.28		XV	0.585	1	2.28	0.824
9207RS014	9207RS014A	2.03		XV	0.711	1	2.03	0.708
9207RS018	9207RS018A	1.6		XV	0.573	1	1.6	0.47
9207RS003	9207RS003A	1.53		XV	0.597	1	1.53	0.425
9210RS001	9210RS001A	1.4		XV	0.554	1	1.4	0.336
9207F5S033	9207F5S033A	0.047	U	XV	1.38	0	1.38	0.322
9210S2S032	9210S2S032A	0.063	U	XV	1.38	0	1.38	0.322
9207F5S036	9207F5S036A	0.11	U	XV	1.37	0	1.37	0.315
9210S2S026	9210S2S026A	0.144	U	XV	1.35	0	1.35	0.3
9210S2S035	9210S2S035A	0.104	U	XV	1.35	0	1.35	0.3
9207H1S013	9207H1S013A	0.301	U	XV	1.28	0	1.28	0.247
9210S2S038	9210S2S038AD	0.197	U	XV	1.28	0	1.28	0.247
9207H3S016	9207H3S016A	0.188	U	XV	1.25	0	1.25	0.223
9210S2S025	9210S2S025A	0.159	U	XV	1.25	0	1.25	0.223
9767D1B002	9767D1B002	1.22		J	0.57	1	1.22	0.199
9210S3S043	9210S3S043A	0.025	U	XV	1.22	0	1.22	0.199
9210RS008	9210RS008A	0.47	U	XV	1.21	0	1.21	0.191
9210RS012	9210RS012A	1.09	U	XV	1.2	0	1.2	0.182
9210RS005	9210RS005A	0.392	U	XV	1.19	0	1.19	0.174
9210RS009	9210RS009A	0.697	U	XV	1.16	0	1.16	0.148
9401R1B006	9401R1B006	0.21	U	UJ	1.14	0	1.14	0.131
9210S2S027	9210S2S027A	0.017	U	XV	1.13	0	1.13	0.122
9210H3S014	9210H3S014A	0.195	U	XV	1.1	0	1.1	0.095
9210RS006	9210RS006A	0.045	U	XV	1.1	0	1.1	0.095
9207H3S007	9207H3S007A	0.107	U	XV	1.07	0	1.07	0.068
9401W1S001A	9401W1S001AA	0.12	U	UJ	1.03	0	1.03	0.03
9767D1B004	9767D1B004	0.143	U	UJ	0.997	0	0.997	-0.003
9210S2S030	9210S2S030A	0.197	U	XV	0.988	0	0.988	-0.012
9767D1B001	9767D1B001	0.985		=	0.481	1	0.985	-0.015
9210S1S019	9210S1S019A	0.175	U	XV	0.974	0	0.974	-0.026
9210S2S033	9210S2S033A	0.013	U	XV	0.968	0	0.968	-0.033
9210S3S044	9210S3S044A	0.059	U	XV	0.966	0	0.966	-0.035
9401W1S016	9401W1S016A	0.076	U	XV	0.933	0	0.933	-0.069

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS006	9207RS006A	0.675	U	XV	0.927	0	0.927	-0.076
9401W1S001	9401W1S001A	0.017	U	UJ	0.924	0	0.924	-0.079
9210S1S018	9210S1S018A	0.065	U	XV	0.922	0	0.922	-0.081
9401DC1S029	9401DC1S029A	-0.017	U	XV	0.921	0	0.921	-0.082
9207RS017	9207RS017A	0.335	U	XV	0.919	0	0.919	-0.084
9767D1B003	9767D1B003	0.73	U	UJ	0.918	0	0.918	-0.086
9210S2S037	9210S2S037A	0.077	U	XV	0.901	0	0.901	-0.104
9210RS007	9210RS007A	0.347	U	XV	0.895	0	0.895	-0.111
9207D2S053	9207D2S053A	0.095	U	XV	0.884	0	0.884	-0.123
9210S2S029	9210S2S029A	0.097	U	XV	0.882	0	0.882	-0.126
9401W1S002A	9401W1S002AA	0.049	U	UJ	0.869	0	0.869	-0.14
9207W5S033	9207W5S033A	0.225	U	XV	0.852	0	0.852	-0.16
9207RS008	9207RS008A	0.852		XV	0.554	1	0.852	-0.16
9207F4S027	9207F4S027A	0.19	U	XV	0.85	0	0.85	-0.163
9207C1S001	9207C1S001A	0.062	U	XV	0.848	0	0.848	-0.165
9207D1S048	9207D1S048A	0.232	U	XV	0.844	0	0.844	-0.17
9210F3S018	9210F3S018A	0.049	U	XV	0.844	0	0.844	-0.17
9207E1B010	9207E1B010	0.646	U	U	0.843	0	0.843	-0.171
9210H1S006	9210H1S006A	0.037	U	XV	0.839	0	0.839	-0.176
9401DC1S034	9401DC1S034A	0.186	U	XV	0.834	0	0.834	-0.182
9210F3S017	9210F3S017A	0.117	U	XV	0.827	0	0.827	-0.19
9207RS011	9207RS011A	0.078	U	XV	0.827	0	0.827	-0.19
9210S1S017	9210S1S017AD	0.096	U	XV	0.82	0	0.82	-0.198
9401W1S011	9401W1S011A	0.23	U	XV	0.816	0	0.816	-0.203
9210C1S002	9210C1S002A	0.152	U	XV	0.809	0	0.809	-0.212
9210F3S016	9210F3S016A	0.104	U	XV	0.807	0	0.807	-0.214
9207F4S026	9207F4S026A	0.113	U	XV	0.806	0	0.806	-0.216
9210S2S036	9210S2S036A	0.115	U	XV	0.806	0	0.806	-0.216
9207W1S020	9207W1S020A	0.236	U	XV	0.805	0	0.805	-0.217
9207RS013	9207RS013A	0.8		XV	0.614	1	0.8	-0.223
9207F4S025	9207F4S025A	0.225	U	XV	0.796	0	0.796	-0.228
9207F4S028	9207F4S028A	0.158	U	XV	0.79	0	0.79	-0.236
9207W1S022	9207W1S022A	0.167	U	XV	0.788	0	0.788	-0.238
9210C1S001A	9210C1S001AA	0.091	U	XV	0.771	0	0.771	-0.26
9207W1S021	9207W1S021A	0.181	U	XV	0.77	0	0.77	-0.261
9210RS002	9210RS002A	0.586	U	XV	0.769	0	0.769	-0.263
9207D4B006	9207D4B006	0.542	U	U	0.768	0	0.768	-0.264
9210RS003	9210RS003A	0.135	U	XV	0.767	0	0.767	-0.265
9207F5B013	9207F5B013	0.739	U	U	0.762	0	0.762	-0.272

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210RS010	9210RS010A	0.453	U	XV	0.761	0	0.761	-0.273
9210S1S020	9210S1S020A	0.16	U	U	0.759	0	0.759	-0.276
9401DC1S024	9401DC1S024A	0.115	U	XV	0.757	0	0.757	-0.278
9207F2S009	9207F2S009A	0.08	U	XV	0.754	0	0.754	-0.282
9207W2S024	9207W2S024A	0.141	U	XV	0.75	0	0.75	-0.288
9210F3S015	9210F3S015A	0.052	U	XV	0.74	0	0.74	-0.301
9207H3S019	9207H3S019A	0.044	U	XV	0.739	0	0.739	-0.302
9207H3S018	9207H3S018A	0.079	U	XV	0.736	0	0.736	-0.307
9210S1S021	9210S1S021A	0.138	U	U	0.734	0	0.734	-0.309
9210S2S034	9210S2S034A	0.071	U	XV	0.732	0	0.732	-0.312
9210D1S053	9210D1S053A	0.162	U	XV	0.725	0	0.725	-0.322
9401W1S002	9401W1S002A	0.144	U	U	0.724	0	0.724	-0.323
9210F2S010	9210F2S010A	0.068	U	XV	0.723	0	0.723	-0.324
9207RS001	9207RS001A	0.722		XV	0.707	1	0.722	-0.326
9207H3S023	9207H3S023A	0.052	U	XV	0.72	0	0.72	-0.329
9207W2S025	9207W2S025A	0.219	U	XV	0.718	0	0.718	-0.331
9401DC1S022	9401DC1S022A	0.151	U	XV	0.715	0	0.715	-0.335
9207D2S034A	9207D2S034AA	0.008	U	XV	0.699	0	0.699	-0.358
9210W1S017	9210W1S017A	0.179	U	XV	0.699	0	0.699	-0.358
9210RS013	9210RS013A	0.431	U	XV	0.699	0	0.699	-0.358
9401W1B001	9401W1B001A	0.085	U	U	0.692	0	0.692	-0.368
9401DC1S035	9401DC1S035A	0.081	U	XV	0.69	0	0.69	-0.371
9207F1S006	9207F1S006A	0.69		XV	0.525	1	0.69	-0.371
9207F3S019	9207F3S019A	0.272	U	XV	0.687	0	0.687	-0.375
9207RS016	9207RS016A	0.073	U	XV	0.686	0	0.686	-0.377
9207RS002	9207RS002AD	0.685		XV	0.606	1	0.685	-0.378
9210H2S010	9210H2S010A	0.211	U	U	0.683	0	0.683	-0.381
9207H3S022	9207H3S022A	0.106	U	XV	0.682	0	0.682	-0.383
9401DC1S032	9401DC1S032A	0.183	U	XV	0.68	0	0.68	-0.386
9210RS004	9210RS004A	0.68		XV	0.648	1	0.68	-0.386
9401DC1S055	9401DC1S055A	0.287	U	XV	0.679	0	0.679	-0.387
9401DC1S027	9401DC1S027A	0.135	U	XV	0.677	0	0.677	-0.39
9207D2S052	9207D2S052A	0.469	U	XV	0.675	0	0.675	-0.393
9210H3S015	9210H3S015A	0.03	U	XV	0.674	0	0.674	-0.395
9210S3S040	9210S3S040A	0.065	U	XV	0.671	0	0.671	-0.399
9401W1S003	9401W1S003A	0.118	U	U	0.67	0	0.67	-0.4
9210C3S008	9210C3S008A	0.338	U	XV	0.669	0	0.669	-0.402
9207S2S032	9207S2S032A	0.041	U	U	0.668	0	0.668	-0.403
9401DC1S033	9401DC1S033A	0.164	U	XV	0.667	0	0.667	-0.405

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207W1S039	9207W1S039A	0.397	U	XV	0.665	0	0.665	-0.408
9210F1S006	9210F1S006A	0.175	U	XV	0.661	0	0.661	-0.414
9210S2S031	9210S2S031A	0.105	U	XV	0.661	0	0.661	-0.414
9401W1S009	9401W1S009A	0.012	U	UJ	0.66	0	0.66	-0.416
9401DC1S028	9401DC1S028A	-0.012	U	XV	0.656	0	0.656	-0.422
9207D4S054	9207D4S054A	0.219	U	XV	0.654	0	0.654	-0.425
9401DC1S045	9401DC1S045A	0.014	U	XV	0.654	0	0.654	-0.425
9210F3S019	9210F3S019A	0.199	U	XV	0.652	0	0.652	-0.428
9210S1S023	9210S1S023A	0.13	U	XV	0.652	0	0.652	-0.428
9207D4B005	9207D4B005	0.332	U	U	0.645	0	0.645	-0.439
9207RS015	9207RS015A	0.573	U	XV	0.645	0	0.645	-0.439
9207RS001AA	9207RS001AA	0.642		XV	0.563	1	0.642	-0.443
9401DC1S053	9401DC1S053A	0.23	U	UJ	0.639	0	0.639	-0.448
9207S3S036	9207S3S036A	0.031	U	U	0.637	0	0.637	-0.451
9207D1S050	9207D1S050A	0.099	U	XV	0.636	0	0.636	-0.453
9210F3S014	9210F3S014A	0.03	U	XV	0.634	0	0.634	-0.456
9207F6S038	9207F6S038A	0.633		XV	0.318	1	0.633	-0.457
9207E1B002	9207E1B002	0.211	U	UJ	0.631	0	0.631	-0.46
9210S1S022	9210S1S022A	0.125	U	U	0.628	0	0.628	-0.465
9401DC1S039	9401DC1S039A	-0.003	U	XV	0.625	0	0.625	-0.47
9210RS014	9210RS014AD	0.625		XV	0.578	1	0.625	-0.47
9207H3S024	9207H3S024A	0.104	U	XV	0.62	0	0.62	-0.478
9401DC1S038	9401DC1S038A	0.1	U	XV	0.619	0	0.619	-0.48
9401DC1S043	9401DC1S043A	0.211	U	UJ	0.619	0	0.619	-0.48
9207W2S023	9207W2S023A	0.167	U	XV	0.617	0	0.617	-0.483
9401W1S018	9401W1S018A	0.135	U	UJ	0.615	0	0.615	-0.486
9401DC1S057A	9401DC1S057AA	0.252	U	UJ	0.614	0	0.614	-0.488
9401W1S012	9401W1S012AD	0.093	U	UJ	0.613	0	0.613	-0.489
9210W1S019	9210W1S019A	0.418	U	U	0.611	0	0.611	-0.493
9210F1S002	9210F1S002A	0.21	U	XV	0.61	0	0.61	-0.494
9210F1B004	9210F1B004	0.082	U	U	0.609	0	0.609	-0.496
9401W1S014	9401W1S014A	0.098	U	UJ	0.609	0	0.609	-0.496
9401W1S017	9401W1S017A	0.111	U	UJ	0.609	0	0.609	-0.496
9210W1S011	9210W1S011A	0.303	U	XV	0.608	0	0.608	-0.498
9401W1S004A	9401W1S004AA	0.17	U	U	0.603	0	0.603	-0.506
9401W1S007	9401W1S007A	0.154	U	UJ	0.602	0	0.602	-0.507
9207D5S058	9207D5S058A	0.035	U	XV	0.601	0	0.601	-0.509
9210H3S013	9210H3S013A	0.136	U	XV	0.601	0	0.601	-0.509
9207RS004	9207RS004A	0.176	U	XV	0.601	0	0.601	-0.509

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1S021	9401W1S021A	0.503	U	XV	0.597	0	0.597	-0.516
9207W3S027	9207W3S027A	0.223	U	XV	0.597	0	0.597	-0.516
9207F4S029	9207F4S029A	0.264	U	XV	0.596	0	0.596	-0.518
9207F4S030	9207F4S030A	0.235	U	XV	0.593	0	0.593	-0.523
9210F2B005	9210F2B005	0.051	U	U	0.59	0	0.59	-0.528
9210D1S052	9210D1S052A	0.083	U	XV	0.587	0	0.587	-0.533
9210RS011	9210RS011A	0.585		XV	0.552	1	0.585	-0.536
9401DC1S030	9401DC1S030A	0.116	U	XV	0.584	0	0.584	-0.538
9207W1S023A	9207W1S023AA	0.145	U	XV	0.584	0	0.584	-0.538
9210S1S001A	9210S1S001AA	0.154	U	XV	0.583	0	0.583	-0.54
9401DC1S044	9401DC1S044A	-0.004	U	XV	0.579	0	0.579	-0.546
9210F2S008	9210F2S008A	0.075	U	XV	0.578	0	0.578	-0.548
9207RS002AA	9207RS002AA	0.522	U	XV	0.578	0	0.578	-0.548
9207S6S044	9207S6S044A	0.007	U	XV	0.578	0	0.578	-0.548
9210F1S003	9210F1S003A	0.402	U	XV	0.577	0	0.577	-0.55
9207W3S028	9207W3S028A	0.305	U	XV	0.577	0	0.577	-0.55
9210F1S005	9210F1S005A	0.334	U	XV	0.576	0	0.576	-0.552
9207RS012	9207RS012A	0.411	U	XV	0.573	0	0.573	-0.557
9207S4S028	9207S4S028A	0.142	U	XV	0.572	0	0.572	-0.559
9210W1S018	9210W1S018A	0.446	U	XV	0.571	0	0.571	-0.56
9207W3S029	9207W3S029A	0.318	U	XV	0.57	0	0.57	-0.562
9401DC1S041	9401DC1S041A	0.081	U	XV	0.569	0	0.569	-0.564
9207RS010	9207RS010A	0.18	U	XV	0.569	0	0.569	-0.564
9210H1S004	9210H1S004A	0.241	U	U	0.567	0	0.567	-0.567
9207D1S046	9207D1S046A	0.142	U	XV	0.565	0	0.565	-0.571
9207F3S018	9207F3S018A	0.198	U	U	0.565	0	0.565	-0.571
9207F1S005	9207F1S005A	0.263	U	XV	0.564	0	0.564	-0.573
9207E1B003	9207E1B003	0.208	U	U	0.562	0	0.562	-0.576
9207F3S016	9207F3S016A	0.326	U	U	0.562	0	0.562	-0.576
9401DC1S047	9401DC1S047A	0.069	U	XV	0.561	0	0.561	-0.578
9401DC1S056	9401DC1S056A	0.078	U	XV	0.56	0	0.56	-0.58
9210F1S004	9210F1S004A	0.333	U	XV	0.559	0	0.559	-0.582
9401DC1S048	9401DC1S048A	0.111	U	XV	0.558	0	0.558	-0.583
9207D5S057	9207D5S057A	0.02	U	XV	0.557	0	0.557	-0.585
9401DC1S031	9401DC1S031A	0.216	U	XV	0.556	0	0.556	-0.587
9401W1S013	9401W1S013A	0.077	U	UJ	0.555	0	0.555	-0.589
9401DC1S036	9401DC1S036A	0.114	U	XV	0.554	0	0.554	-0.591
9207F1S002	9207F1S002A	0.181	U	XV	0.554	0	0.554	-0.591
9401DC1S054	9401DC1S054A	0.219	U	XV	0.552	0	0.552	-0.594

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F3S014	9207F3S014A	0.119	U	UJ	0.552	0	0.552	-0.594
9207H2S015	9207H2S015A	0.152	U	XV	0.552	0	0.552	-0.594
9207H4S008	9207H4S008A	0.35	U	XV	0.551	0	0.551	-0.596
9207W5S034	9207W5S034A	0.196	U	XV	0.545	0	0.545	-0.607
9210D1S050	9210D1S050A	0.216	U	U	0.543	0	0.543	-0.611
9207F3S015	9207F3S015A	0.239	U	U	0.541	0	0.541	-0.614
9207H3S021	9207H3S021A	0.007	U	XV	0.539	0	0.539	-0.618
9207F3S013	9207F3S013A	0.387	U	XV	0.537	0	0.537	-0.622
9401DC1S023	9401DC1S023A	0.031	U	XV	0.536	0	0.536	-0.624
9207D6B008	9207D6B008D	0.205	U	U	0.536	0	0.536	-0.624
9401DC1S040	9401DC1S040A	0.086	U	XV	0.536	0	0.536	-0.624
9207S4S041	9207S4S041AD	0.027	U	XV	0.53	0	0.53	-0.635
9207S3S037	9207S3S037A	0.132	U	XV	0.529	0	0.529	-0.637
9401DC1S037	9401DC1S037A	0.082	U	XV	0.528	0	0.528	-0.639
9207F3S024	9207F3S024A	0.161	U	XV	0.528	0	0.528	-0.639
9207F2S012	9207F2S012A	0.276	U	U	0.526	0	0.526	-0.642
9207F3S023	9207F3S023A	0.185	U	XV	0.526	0	0.526	-0.642
9207D1S047	9207D1S047A	0.126	U	XV	0.525	0	0.525	-0.644
9207H2S014	9207H2S014A	0.113	U	XV	0.524	0	0.524	-0.646
9207S4S038	9207S4S038A	0.13	U	XV	0.523	0	0.523	-0.648
9401DC1S042	9401DC1S042A	0.094	U	UJ	0.522	0	0.522	-0.65
9207F1S003	9207F1S003A	0.165	U	XV	0.521	0	0.521	-0.652
9207D4S055	9207D4S055A	0.137	U	XV	0.52	0	0.52	-0.654
9210W1S009	9210W1S009A	0.161	U	XV	0.52	0	0.52	-0.654
9210S2S002A	9210S2S002AA	0.015	U	XV	0.52	0	0.52	-0.654
9207F5S031	9207F5S031A	0.203	U	XV	0.519	0	0.519	-0.656
9207W3S026	9207W3S026A	0.289	U	XV	0.519	0	0.519	-0.656
9401DC1S050	9401DC1S050A	0.091	U	XV	0.516	0	0.516	-0.662
9210D3S057	9210D3S057A	0.181	U	XV	0.516	0	0.516	-0.662
9210D3S058	9210D3S058A	0.245	U	XV	0.511	0	0.511	-0.671
9207H3S006	9207H3S006A	0.012	U	XV	0.508	0	0.508	-0.677
9207W3S040	9207W3S040A	0.155	U	XV	0.507	0	0.507	-0.679
9210H3S011	9210H3S011A	0.19	U	XV	0.506	0	0.506	-0.681
9207F3S017	9207F3S017A	0.138	U	UJ	0.501	0	0.501	-0.691
9210H2S008	9210H2S008AD	0.07	U	XV	0.501	0	0.501	-0.691
9210H2S009	9210H2S009A	0.047	U	XV	0.498	0	0.498	-0.697
9401DC1S025	9401DC1S025A	0.058	U	XV	0.495	0	0.495	-0.703
9207W4S032	9207W4S032A	0.162	U	XV	0.494	0	0.494	-0.705
9207S5S043	9207S5S043A	0.127	U	XV	0.492	0	0.492	-0.709

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W2B006	9210W2B006	0.035	U	U	0.491	0	0.491	-0.711
9401DC1S046	9401DC1S046A	8.4E-09	U	XV	0.488	0	0.488	-0.717
9207F3S022	9207F3S022A	0.204	U	XV	0.487	0	0.487	-0.719
9207W4S031	9207W4S031A	0.104	U	XV	0.487	0	0.487	-0.719
9767D1B006	9767D1B006	0.105	U	U	0.486	0	0.486	-0.722
9210W1S012	9210W1S012A	0.182	U	XV	0.482	0	0.482	-0.73
9207D2S051	9207D2S051A	0.063	U	XV	0.48	0	0.48	-0.734
9210F1S001	9210F1S001A	0.374	U	XV	0.48	0	0.48	-0.734
9401W1S004	9401W1S004A	0.164	U	U	0.48	0	0.48	-0.734
9207H5S009	9207H5S009A	-2.3E-04	U	XV	0.477	0	0.477	-0.74
9401DC1S051	9401DC1S051A	0.329	U	XV	0.476	0	0.476	-0.742
9210D1S048	9210D1S048A	0.252	U	XV	0.476	0	0.476	-0.742
9210D1S049	9210D1S049A	0.066	U	XV	0.476	0	0.476	-0.742
9210D1S006A	9210D1S006AA	0.1	U	XV	0.475	0	0.475	-0.744
9210D1S051	9210D1S051A	0.248	U	U	0.475	0	0.475	-0.744
9207S4S040	9207S4S040A	0.02	U	XV	0.474	0	0.474	-0.747
9401E1B003	9401E1B003A	0.303	U	U	0.472	0	0.472	-0.751
9401D1B012	9401D1B012	0.181	U	UJ	0.47	0	0.47	-0.755
9210W1S013	9210W1S013A	0.368	U	XV	0.469	0	0.469	-0.757
9210S1S024	9210S1S024A	0.093	U	XV	0.468	0	0.468	-0.759
9210C1S003	9210C1S003AD	0.24	U	U	0.466	0	0.466	-0.764
9207S1S031	9207S1S031A	0.114	U	XV	0.461	0	0.461	-0.774
9207C5S012A	9207C5S012AA	0.097	U	XV	0.46	0	0.46	-0.777
9207D4S056	9207D4S056A	0.044	U	XV	0.46	0	0.46	-0.777
9210F2S007	9210F2S007AD	0.129	U	XV	0.459	0	0.459	-0.779
9207C5S015	9207C5S015A	0.047	U	XV	0.454	0	0.454	-0.79
9207H3S003A	9207H3S003AA	0.227	U	XV	0.452	0	0.452	-0.794
9207S1S030	9207S1S030A	0.137	U	XV	0.449	0	0.449	-0.801
9207C3S008	9207C3S008A	0.066	U	XV	0.447	0	0.447	-0.805
9207C6S017	9207C6S017A	0.075	U	XV	0.447	0	0.447	-0.805
9210F2S011	9210F2S011A	0.156	U	XV	0.447	0	0.447	-0.805
9401DC1S049	9401DC1S049A	0.195	U	XV	0.444	0	0.444	-0.812
9210D1S055	9210D1S055A	0.19	U	UJ	0.444	0	0.444	-0.812
9210C2S004	9210C2S004A	0.05	U	XV	0.443	0	0.443	-0.814
9207H5S010	9207H5S010A	0.03	U	XV	0.442	0	0.442	-0.816
9207W4S030	9207W4S030A	0.373	U	XV	0.436	0	0.436	-0.83
9401DC1S052	9401DC1S052A	0.232	U	XV	0.434	0	0.434	-0.835
9210D1S047	9210D1S047A	0.232	U	U	0.432	0	0.432	-0.839
9210H3S012	9210H3S012A	0.095	U	UJ	0.43	0	0.43	-0.844

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210W1S016	9210W1S016A	0.141	U	XV	0.43	0	0.43	-0.844
9207C5S016	9207C5S016A	0.119	U	XV	0.429	0	0.429	-0.846
9210F2S012	9210F2S012A	0.15	U	XV	0.429	0	0.429	-0.846
9207F1S001	9207F1S001AD	0.21	U	UJ	0.427	0	0.427	-0.851
9210F2S009	9210F2S009A	0.175	U	XV	0.425	0	0.425	-0.856
9401W1S019	9401W1S019A	0.363	U	XV	0.425	0	0.425	-0.856
9207H1B001	9207H1B001	0.329	U	U	0.424	0	0.424	-0.858
9207C3S007	9207C3S007A	0.08	U	XV	0.423	0	0.423	-0.86
9210H1S005	9210H1S005A	0.106	U	XV	0.421	0	0.421	-0.865
9207F3S021	9207F3S021A	0.211	U	XV	0.418	0	0.418	-0.872
9401W1S015	9401W1S015A	0.166	U	XV	0.418	0	0.418	-0.872
9207C1S002	9207C1S002A	0.01	U	UJ	0.417	0	0.417	-0.875
9207S6S045	9207S6S045A	0.232	U	XV	0.417	0	0.417	-0.875
9207W6S037	9207W6S037A	0.414		XV	0.312	1	0.414	-0.882
9401DC1S023A	9401DC1S023AA	0.195	U	XV	0.413	0	0.413	-0.884
9210D1S046	9210D1S046A	0.148	U	UJ	0.413	0	0.413	-0.884
9207C4S011	9207C4S011A	0.107	U	XV	0.412	0	0.412	-0.887
9207F6S037	9207F6S037A	0.132	U	XV	0.411	0	0.411	-0.889
9207C1S003	9207C1S003AD	0.064	U	XV	0.41	0	0.41	-0.892
9401DC1S026	9401DC1S026A	0.218	U	XV	0.408	0	0.408	-0.896
9207F2S011	9207F2S011AD	0.131	U	U	0.408	0	0.408	-0.896
9210W1S010	9210W1S010A	0.134	U	XV	0.408	0	0.408	-0.896
9210W1S015	9210W1S015A	0.285	U	XV	0.407	0	0.407	-0.899
9210F2S013	9210F2S013A	0.092	U	XV	0.406	0	0.406	-0.901
9207H3S022A	9207H3S022AA	-0.008	U	XV	0.406	0	0.406	-0.901
9207C3S009	9207C3S009A	0.018	U	XV	0.405	0	0.405	-0.904
9207F6S040	9207F6S040A	0.03	U	XV	0.404	0	0.404	-0.906
9207H3S005	9207H3S005AD	0.053	U	XV	0.402	0	0.402	-0.911
9207H3S017	9207H3S017A	0.032	U	XV	0.401	0	0.401	-0.914
9401DC1S022A	9401DC1S022AA	0.164	U	XV	0.399	0	0.399	-0.919
9401E1B005	9401E1B005A	0.264	U	U	0.398	0	0.398	-0.921
9207D5S059	9207D5S059A	0.025	U	XV	0.397	0	0.397	-0.924
9207F2S010	9207F2S010A	0.085	U	U	0.396	0	0.396	-0.926
9207S5S042	9207S5S042A	0.011	U	XV	0.395	0	0.395	-0.929
9207H3S004	9207H3S004A	-0.005	U	XV	0.388	0	0.388	-0.947
9767D1B005	9767D1B005	0.165	U	U	0.385	0	0.385	-0.955
9207H2S003	9207H2S003A	0.064	U	XV	0.383	0	0.383	-0.96
9207H5S026	9207H5S026A	0.027	U	XV	0.383	0	0.383	-0.96
9207F5S032	9207F5S032A	0.26	U	UJ	0.38	0	0.38	-0.968

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S5S029	9207S5S029A	0.046	U	XV	0.38	0	0.38	-0.968
9207F1S004	9207F1S004A	0.122	U	XV	0.379	0	0.379	-0.97
9207H1S002	9207H1S002A	0.063	U	XV	0.378	0	0.378	-0.973
9207S1S027	9207S1S027A	0.376		XV	0.266	1	0.376	-0.978
9401DC1S024A	9401DC1S024AA	0.192	U	XV	0.374	0	0.374	-0.983
9207C4S010A	9207C4S010AA	0.059	U	XV	0.372	0	0.372	-0.989
9207D5B007	9207D5B007	0.076	U	U	0.372	0	0.372	-0.989
9210C2S005	9210C2S005A	0.034	U	XV	0.371	0	0.371	-0.992
9210C3S006	9210C3S006A	0.075	U	XV	0.37	0	0.37	-0.994
9207C2S004A	9207C2S004AA	0.025	U	XV	0.368	0	0.368	-1.0
9207C2S006	9207C2S006A	0.075	U	XV	0.368	0	0.368	-1.0
9210W1S014	9210W1S014A	0.083	U	XV	0.368	0	0.368	-1.0
9207S2S033	9207S2S033A	0.307	U	XV	0.368	0	0.368	-1.0
9210C3S007	9210C3S007A	0.075	U	XV	0.367	0	0.367	-1.0
9210D1S056	9210D1S056A	0.227	U	XV	0.366	0	0.366	-1.01
9210S2S028	9210S2S028A	0.08	U	XV	0.364	0	0.364	-1.01
9207C6S018	9207C6S018A	0.065	U	XV	0.358	0	0.358	-1.03
9207C6S019	9207C6S019A	0.081	U	XV	0.357	0	0.357	-1.03
9207C3S010	9207C3S010A	0.267	U	XV	0.356	0	0.356	-1.03
9207F6S041	9207F6S041A	0.114	U	XV	0.356	0	0.356	-1.03
9210D3B002	9210D3B002	0.041	U	U	0.353	0	0.353	-1.04
9401E1B002	9401E1B002A	0.052	U	U	0.353	0	0.353	-1.04
9207W5S035	9207W5S035A	0.272	U	XV	0.353	0	0.353	-1.04
9207C4S013	9207C4S013A	0.198	U	XV	0.35	0	0.35	-1.05
9207F2S007	9207F2S007A	0.165	U	U	0.35	0	0.35	-1.05
9401D1B010	9401D1B010	0.297	U	U	0.348	0	0.348	-1.06
9207F5S035	9207F5S035A	0.311	U	XV	0.347	0	0.347	-1.06
9207W6S036	9207W6S036A	0.17	U	XV	0.346	0	0.346	-1.06
9401D1B011	9401D1B011	0.29	U	U	0.339	0	0.339	-1.08
9207F6S042	9207F6S042A	0.079	U	XV	0.335	0	0.335	-1.09
9210D3S059	9210D3S059A	0.248	U	XV	0.331	0	0.331	-1.11
9207C2S004	9207C2S004A	0.029	U	XV	0.325	0	0.325	-1.12
9210H3B001	9210H3B001	0.059	U	U	0.321	0	0.321	-1.14
9207F6S039	9207F6S039A	0.308	U	XV	0.32	0	0.32	-1.14
9207F3S020	9207F3S020A	0.292	U	XV	0.317	0	0.317	-1.15
9401W1S005	9401W1S005A	0.096	U	XV	0.312	0	0.312	-1.16
9207W2S024A	9207W2S024AA	0.272	U	XV	0.31	0	0.31	-1.17
9207F5S034	9207F5S034A	0.257	U	XV	0.308	0	0.308	-1.18
9207S4S039	9207S4S039A	0.24	U	XV	0.303	0	0.303	-1.19

Table G.145
Statistical Summary for Uranium-235/236 (N1047) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H1S001A	9207H1S001AA	0.098	U	XV	0.302	0	0.302	-1.2
9207W6S038	9207W6S038A	0.25	U	XV	0.299	0	0.299	-1.21
9207F2S008	9207F2S008A	0.127	U	U	0.296	0	0.296	-1.22
9207H1S001	9207H1S001A	0.046	U	UJ	0.291	0	0.291	-1.23
9207H1S012	9207H1S012A	0.011	U	U	0.291	0	0.291	-1.23
9207S3S034	9207S3S034A	0.144	U	XV	0.28	0	0.28	-1.27
9207H3S020	9207H3S020A	0.045	U	XV	0.266	0	0.266	-1.32
9210S3S042	9210S3S042A	0.004	U	XV	0.109	0	0.109	-2.22
9210S3S041	9210S3S041A	0.004	U	XV	0.078	0	0.078	-2.55

Number of Samples	360
Number of Detects	24
Minimum	0.078
Median	0.566
Maximum	211
Arithmetic Average	1.28
Std Dev	11.1
PERT-Beta Expected Value	35.6
LN Mean	-0.514
LN Std Dev	0.563
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.146
Statistical Summary for Uranium-236 (13982702) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	34.5		=	0.823	1	34.5	3.54
9401E1B005	9401E1B005A	0.03		=	0.007	1	0.03	-3.52
9401D1B010	9401D1B010	0.023		=	0.007	1	0.023	-3.76
9401D1B011	9401D1B011	0.019		=	0.006	1	0.019	-3.95
9401D1B012	9401D1B012	0.009		=	0.007	1	0.009	-4.71
9401E1B003	9401E1B003A	7.6E-04	U	U	0.007	0	0.007	-5.0
9401E1B002	9401E1B002A	4.9E-04	U	U	0.005	0	0.005	-5.27

Number of Samples	7
Number of Detects	5
Minimum	0.005
Median	0.019
Maximum	34.5
Arithmetic Average	4.94
Std Dev	13.0
PERT-Beta Expected Value	5.76
LN Mean	-3.24
LN Std Dev	3.06
S-W p-value for normality	4.2E-06
S-W p-value for lognormality	0.001

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401W1B013	9401W1B013	5660		=	17.5	1	5660	8.64
9207E1B004	9207E1B004	204		J	1.52	1	204	5.32
9401W1S020	9401W1S020A	182		XV	2.47	1	182	5.2
9207F1B011	9207F1B011	57.9		J	0.691	1	57.9	4.06
9207RS007	9207RS007A	25.9		XV	0.41	1	25.9	3.25
9207F1B012	9207F1B012	18.9		=	0.535	1	18.9	2.94
9207RS019	9207RS019A	13.7		XV	0.461	1	13.7	2.62
9210RS001	9210RS001A	13.2		XV	0.436	1	13.2	2.58
9207RS014	9207RS014A	11.6		XV	0.56	1	11.6	2.45
9210RS009	9210RS009A	9.56		XV	0.918	1	9.56	2.26
9207RS018	9207RS018A	9.41		XV	0.452	1	9.41	2.24
9207RS003	9207RS003A	8.66		XV	0.471	1	8.66	2.16
9210RS008	9210RS008A	8.46		XV	0.958	1	8.46	2.14
9207F1S006	9207F1S006A	8.34		XV	0.384	1	8.34	2.12
9207RS012	9207RS012A	7.2		XV	0.452	1	7.2	1.97
9210RS002	9210RS002A	7.18		XV	0.606	1	7.18	1.97
9207RS015	9207RS015A	6.77		XV	0.509	1	6.77	1.91
9210RS011	9210RS011A	6.71		XV	0.435	1	6.71	1.9
9401DC1S057A	9401DC1S057AA	6.63		J	0.485	1	6.63	1.89
9207RS008	9207RS008A	6.25		XV	0.437	1	6.25	1.83
9207RS001AA	9207RS001AA	6.17		XV	0.444	1	6.17	1.82
9210RS005	9210RS005A	5.92		XV	0.94	1	5.92	1.78
9210RS007	9210RS007A	5.44		XV	0.706	1	5.44	1.69
9401R1B006	9401R1B006	5.07		J	0.839	1	5.07	1.62
9210RS013	9210RS013A	4.95		XV	0.55	1	4.95	1.6
9210RS004	9210RS004A	4.9		XV	0.51	1	4.9	1.59
9207RS013	9207RS013A	4.72		XV	0.484	1	4.72	1.55
9210RS010	9210RS010A	4.64		XV	0.599	1	4.64	1.53
9210RS014	9210RS014AD	4.58		XV	0.455	1	4.58	1.52
9207F6S038	9207F6S038A	4.49		XV	0.232	1	4.49	1.5
9207F5B013	9207F5B013	4.25		=	0.632	1	4.25	1.45
9207RS002AA	9207RS002AA	3.83		XV	0.456	1	3.83	1.34
9767D1B002	9767D1B002	2.86		J	0.473	1	2.86	1.05
9767D1B001	9767D1B001	2.85		J	0.399	1	2.85	1.05
9207RS004	9207RS004A	2.76		XV	0.474	1	2.76	1.02
9767D1B003	9767D1B003	2.58		J	0.762	1	2.58	0.948
9207E1B010	9207E1B010	2.49		=	0.7	1	2.49	0.912
9207RS011	9207RS011A	2.45		XV	0.652	1	2.45	0.896
9210W1S011	9210W1S011A	2.27		XV	0.479	1	2.27	0.82

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401E1B005	9401E1B005A	2.08		=	0.003	1	2.08	0.732
9207RS001	9207RS001A	1.88		XV	0.558	1	1.88	0.631
9207RS010	9207RS010A	1.87		XV	0.449	1	1.87	0.626
9207F3S013	9207F3S013A	1.85		XV	0.393	1	1.85	0.615
9207W3S028	9207W3S028A	1.84		XV	0.422	1	1.84	0.61
9207W6S038	9207W6S038A	1.69		XV	0.219	1	1.69	0.525
9207RS002	9207RS002A	1.69		XV	0.409	1	1.69	0.525
9207W6S037	9207W6S037A	1.67		XV	0.228	1	1.67	0.513
9210W1S013	9210W1S013A	1.65		XV	0.37	1	1.65	0.501
9210RS012	9210RS012A	1.64		XV	0.943	1	1.64	0.495
9210W1S015	9210W1S015A	1.62		XV	0.321	1	1.62	0.482
9207W4S032	9207W4S032A	1.61		XV	0.41	1	1.61	0.476
9207F5S035	9207F5S035A	1.58		XV	0.253	1	1.58	0.457
9207W3S029	9207W3S029AD	1.57		XV	0.251	1	1.57	0.451
9207RS017	9207RS017A	1.5		XV	0.725	1	1.5	0.405
9210W1S019	9210W1S019A	1.46		=	0.481	1	1.46	0.378
9207W1S039	9207W1S039A	1.43		XV	0.487	1	1.43	0.358
9210RS006	9210RS006A	1.42		XV	0.867	1	1.42	0.351
9207W3S040	9207W3S040A	1.41		XV	0.371	1	1.41	0.344
9207RS016	9207RS016A	1.35		XV	0.541	1	1.35	0.3
9401W1S021	9401W1S021A	1.27		XV	0.471	1	1.27	0.239
9207W4S030	9207W4S030A	1.27		XV	0.318	1	1.27	0.239
9207W5S033	9207W5S033A	1.27		XV	0.624	1	1.27	0.239
9207D4B006	9207D4B006	1.25		=	0.638	1	1.25	0.223
9207RS006	9207RS006A	1.22		XV	0.731	1	1.22	0.199
9401DC1S052	9401DC1S052A	1.16		XV	0.342	1	1.16	0.148
9207W1S023A	9207W1S023AA	1.15		XV	0.427	1	1.15	0.14
9401DC1S049	9401DC1S049A	1.14		XV	0.35	1	1.14	0.131
9401W1S007	9401W1S007A	1.13		=	0.474	1	1.13	0.122
9207W5S034	9207W5S034A	1.11		XV	0.453	1	1.11	0.104
9210RS003	9210RS003A	1.09		XV	0.604	1	1.09	0.086
9210S2S032	9210S2S032A	0.116	U	XV	1.09	0	1.09	0.086
9207H1S013	9207H1S013A	0.152	U	XV	1.06	0	1.06	0.058
9210S2S035	9210S2S035A	0.035	U	XV	1.06	0	1.06	0.058
9767D1B004	9767D1B004	1.05		J	0.827	1	1.05	0.049
9401DC1S051	9401DC1S051A	1.04		XV	0.375	1	1.04	0.039
9207H3S016	9207H3S016A	0.099	U	XV	1.04	0	1.04	0.039
9207W3S026	9207W3S026A	1.02		XV	0.38	1	1.02	0.02
9207W2S024A	9207W2S024AAD	1.01		XV	0.221	1	1.01	0.01

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207F5S033	9207F5S033A	0.211	U	XV	1.01	0	1.01	0.01
9207F5S036	9207F5S036A	0.401	U	XV	1.01	0	1.01	0.01
9401W1S018	9401W1S018A	1		=	0.485	1	1	0
9401DC1S036	9401DC1S036A	0.999		XV	0.437	1	0.999	-0.001
9401W1S017	9401W1S017A	0.996		=	0.48	1	0.996	-0.004
9210F1S003	9210F1S003A	0.992		XV	0.455	1	0.992	-0.008
9210S2S026	9210S2S026A	0.127	U	XV	0.992	0	0.992	-0.008
9210W1S009	9210W1S009A	0.971		XV	0.409	1	0.971	-0.029
9401DC1S035	9401DC1S035AD	0.952		XV	0.431	1	0.952	-0.049
9401DC1S050	9401DC1S050AD	0.952		XV	0.423	1	0.952	-0.049
9210S2S038	9210S2S038AD	0.068	U	XV	0.941	0	0.941	-0.061
9210S2S025	9210S2S025A	0.143	U	XV	0.921	0	0.921	-0.082
9210W1S018	9210W1S018A	0.918		XV	0.418	1	0.918	-0.086
9401DC1S054	9401DC1S054A	0.914		XV	0.435	1	0.914	-0.09
9210S3S043	9210S3S043A	0.155	U	XV	0.899	0	0.899	-0.106
9207H3S007	9207H3S007A	0.113	U	XV	0.892	0	0.892	-0.114
9401W1S013	9401W1S013A	0.871		=	0.437	1	0.871	-0.138
9210H3S014	9210H3S014A	0	U	XV	0.869	0	0.869	-0.14
9401DC1S024A	9401DC1S024AA	0.867		XV	0.295	1	0.867	-0.143
9401W1S015	9401W1S015A	0.859		XV	0.329	1	0.859	-0.152
9207W3S027	9207W3S027A	0.85		XV	0.437	1	0.85	-0.163
9401W1S019	9401W1S019A	0.835		XV	0.335	1	0.835	-0.18
9210S2S027	9210S2S027A	0.129	U	XV	0.829	0	0.829	-0.188
9401W1S001A	9401W1S001AA	0.188	U	U	0.813	0	0.813	-0.207
9401DC1S030	9401DC1S030A	0.809		XV	0.46	1	0.809	-0.212
9210F1S002	9210F1S002A	0.806		XV	0.481	1	0.806	-0.216
9207W6S036	9207W6S036A	0.798		XV	0.253	1	0.798	-0.226
9207W5S035	9207W5S035A	0.797		XV	0.258	1	0.797	-0.227
9207F3S016	9207F3S016A	0.788		=	0.411	1	0.788	-0.238
9401DC1S026	9401DC1S026A	0.786		XV	0.321	1	0.786	-0.241
9210S2S030	9210S2S030A	0.095	U	XV	0.781	0	0.781	-0.247
9401DC1S023	9401DC1S023A	0.778		XV	0.422	1	0.778	-0.251
9401DC1S034	9401DC1S034A	0.771		XV	0.658	1	0.771	-0.26
9210S1S019	9210S1S019A	0.195	U	XV	0.77	0	0.77	-0.261
9401W1S012	9401W1S012AD	0.755		=	0.483	1	0.755	-0.281
9401DC1S023A	9401DC1S023AA	0.753		XV	0.325	1	0.753	-0.284
9401W1S005	9401W1S005A	0.737		XV	0.246	1	0.737	-0.305
9401W1S016	9401W1S016A	0.644	U	XV	0.736	0	0.736	-0.307
9207D2S053	9207D2S053A	0.348	U	XV	0.734	0	0.734	-0.309

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9401DC1S029	9401DC1S029A	-0.011	U	XV	0.728	0	0.728	-0.317
9401W1S001	9401W1S001A	0.102	U	U	0.728	0	0.728	-0.317
9210S1S018	9210S1S018A	0.022	U	XV	0.727	0	0.727	-0.319
9207F1S005	9207F1S005A	0.723		XV	0.413	1	0.723	-0.324
9207F6S039	9207F6S039A	0.723		XV	0.234	1	0.723	-0.324
9210S2S033	9210S2S033A	0.059	U	XV	0.712	0	0.712	-0.34
9210S2S037	9210S2S037A	9.2E-04	U	XV	0.712	0	0.712	-0.34
9210S3S044	9210S3S044A	0.122	U	XV	0.71	0	0.71	-0.342
9401DC1S022A	9401DC1S022AA	0.704		XV	0.314	1	0.704	-0.351
9401DC1S022	9401DC1S022A	0.703		XV	0.564	1	0.703	-0.352
9207D1S048	9207D1S048A	0.332	U	XV	0.701	0	0.701	-0.355
9210S2S029	9210S2S029A	0.097	U	XV	0.697	0	0.697	-0.361
9401W1S002A	9401W1S002AA	0.311	U	U	0.684	0	0.684	-0.38
9207C3S007	9207C3S007A	0.681		XV	0.35	1	0.681	-0.384
9401DC1S033	9401DC1S033A	0.679		XV	0.526	1	0.679	-0.387
9401DC1S031	9401DC1S031A	0.677		XV	0.438	1	0.677	-0.39
9207F4S027	9207F4S027A	0.497	U	XV	0.67	0	0.67	-0.4
9210F3S018	9210F3S018A	0.415	U	XV	0.666	0	0.666	-0.406
9207F6S042	9207F6S042A	0.665		XV	0.245	1	0.665	-0.408
9210H1S006	9210H1S006A	0.166	U	XV	0.661	0	0.661	-0.414
9210F3S017	9210F3S017A	0.416	U	XV	0.652	0	0.652	-0.428
9401W1S014	9401W1S014A	0.647		=	0.48	1	0.647	-0.435
9210S1S017	9210S1S017AD	0.096	U	XV	0.647	0	0.647	-0.435
9207D2S052	9207D2S052A	0.645		XV	0.561	1	0.645	-0.439
9401W1S011	9401W1S011A	0.124	U	XV	0.644	0	0.644	-0.44
9207F5S032	9207F5S032AD	0.639		=	0.281	1	0.639	-0.448
9210C1S002	9210C1S002A	0.313	U	XV	0.638	0	0.638	-0.449
9210F3S016	9210F3S016A	0.283	U	XV	0.637	0	0.637	-0.451
9210S2S036	9210S2S036A	0.036	U	XV	0.637	0	0.637	-0.451
9207F4S026	9207F4S026A	0.349	U	XV	0.636	0	0.636	-0.453
9207W1S020	9207W1S020A	0.245	U	XV	0.635	0	0.635	-0.454
9207F1S002	9207F1S002A	0.633		XV	0.405	1	0.633	-0.457
9207F3S020	9207F3S020A	0.63		XV	0.232	1	0.63	-0.462
9207F4S025	9207F4S025A	0.457	U	XV	0.628	0	0.628	-0.465
9210F1S004	9210F1S004A	0.627		XV	0.44	1	0.627	-0.467
9207F3S014	9207F3S014A	0.626		=	0.404	1	0.626	-0.468
9207F4S028	9207F4S028A	0.296	U	XV	0.623	0	0.623	-0.473
9207C1S001	9207C1S001A	0.01	U	XV	0.622	0	0.622	-0.475
9207W1S022	9207W1S022A	0.351	U	XV	0.622	0	0.622	-0.475

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H3S019	9207H3S019A	-1.8E-04	U	XV	0.614	0	0.614	-0.488
9207H3S018	9207H3S018A	0.211	U	XV	0.611	0	0.611	-0.493
9210C1S001A	9210C1S001AA	0.389	U	XV	0.608	0	0.608	-0.498
9207F6S041	9207F6S041A	0.608		XV	0.26	1	0.608	-0.498
9207W1S021	9207W1S021A	0.315	U	XV	0.607	0	0.607	-0.499
9210S1S020	9210S1S020A	0.071	U	U	0.599	0	0.599	-0.512
9401DC1S024	9401DC1S024A	0.593	U	XV	0.597	0	0.597	-0.516
9207H3S023	9207H3S023A	0.146	U	XV	0.597	0	0.597	-0.516
9207F2S009	9207F2S009A	0.407	U	XV	0.595	0	0.595	-0.519
9207H1B001	9207H1B001	0.594		=	0.351	1	0.594	-0.521
9207W2S024	9207W2S024A	0.228	U	XV	0.591	0	0.591	-0.526
9210F3S015	9210F3S015A	0.537	U	XV	0.584	0	0.584	-0.538
9207F3S015	9207F3S015A	0.583		=	0.396	1	0.583	-0.54
9210C1S003	9210C1S003AD	0.58		=	0.367	1	0.58	-0.545
9207D2S034A	9207D2S034AA	0.017	U	XV	0.58	0	0.58	-0.545
9210S1S021	9210S1S021A	0.077	U	U	0.579	0	0.579	-0.546
9210S2S034	9210S2S034A	0.024	U	XV	0.579	0	0.579	-0.546
9210D1S053	9210D1S053A	0.11	U	XV	0.572	0	0.572	-0.559
9401W1S002	9401W1S002A	0.194	U	U	0.571	0	0.571	-0.56
9207C5S015	9207C5S015A	0.57		XV	0.376	1	0.57	-0.562
9210W1S017	9210W1S017A	0.57		XV	0.513	1	0.57	-0.562
9210F2S010	9210F2S010A	0.211	U	XV	0.57	0	0.57	-0.562
9207H3S022	9207H3S022A	0.163	U	XV	0.566	0	0.566	-0.569
9207W2S025	9207W2S025A	0.261	U	XV	0.566	0	0.566	-0.569
9207F2S012	9207F2S012A	0.561		=	0.385	1	0.561	-0.578
9207F3S023	9207F3S023A	0.557		XV	0.385	1	0.557	-0.585
9207F2S007	9207F2S007A	0.553		=	0.256	1	0.553	-0.592
9207F3S021	9207F3S021A	0.55		XV	0.306	1	0.55	-0.598
9207D4S054	9207D4S054A	0.179	U	XV	0.543	0	0.543	-0.611
9207C3S008	9207C3S008A	0.542		XV	0.37	1	0.542	-0.612
9207E1B002	9207E1B002	0.542		J	0.524	1	0.542	-0.612
9207F2S011	9207F2S011AD	0.54		=	0.298	1	0.54	-0.616
9210H2S010	9210H2S010A	0.245	U	U	0.538	0	0.538	-0.62
9401DC1S032	9401DC1S032A	0.486	U	XV	0.537	0	0.537	-0.622
9401DC1S055	9401DC1S055A	0.35	U	XV	0.536	0	0.536	-0.624
9207D4B005	9207D4B005	0.3	U	U	0.536	0	0.536	-0.624
9401DC1S027	9401DC1S027A	0.063	U	XV	0.534	0	0.534	-0.627
9210F1S001	9210F1S001A	0.534		XV	0.378	1	0.534	-0.627
9207F2S008	9207F2S008A	0.531		=	0.216	1	0.531	-0.633

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210H3S015	9210H3S015A	0.068	U	XV	0.531	0	0.531	-0.633
9401W1S009	9401W1S009A	0.531		=	0.52	1	0.531	-0.633
9210C3S008	9210C3S008A	0.219	U	XV	0.528	0	0.528	-0.639
9207D1S050	9207D1S050A	0.273	U	XV	0.528	0	0.528	-0.639
9401W1S003	9401W1S003A	0.204	U	U	0.528	0	0.528	-0.639
9207W2S023	9207W2S023A	0.523		XV	0.486	1	0.523	-0.648
9207F3S017	9207F3S017A	0.522		J	0.366	1	0.522	-0.65
9210F1S006	9210F1S006A	0.353	U	XV	0.521	0	0.521	-0.652
9401DC1S037	9401DC1S037A	0.518		XV	0.416	1	0.518	-0.658
9401DC1S028	9401DC1S028A	-0.012	U	XV	0.518	0	0.518	-0.658
9207H3S024	9207H3S024A	0.274	U	XV	0.515	0	0.515	-0.664
9401DC1S045	9401DC1S045A	0.241	U	XV	0.514	0	0.514	-0.666
9210F2S007	9210F2S007A	0.328	U	XV	0.514	0	0.514	-0.666
9210F3S019	9210F3S019A	0.32	U	XV	0.514	0	0.514	-0.666
9210S1S023	9210S1S023A	0.16	U	XV	0.514	0	0.514	-0.666
9210C2S004	9210C2S004A	0.21	U	XV	0.512	0	0.512	-0.669
9207F5S034	9207F5S034A	0.512		XV	0.225	1	0.512	-0.669
9210W1S016	9210W1S016A	0.511		XV	0.338	1	0.511	-0.671
9401W1B001	9401W1B001A	0.092	U	U	0.507	0	0.507	-0.679
9401DC1S053	9401DC1S053A	0.504	U	UJ	0.505	0	0.505	-0.683
9210F1B004	9210F1B004	0.492	U	U	0.505	0	0.505	-0.683
9207F1S001	9207F1S001A	0.503		=	0.292	1	0.503	-0.687
9207F3S019	9207F3S019A	0.476	U	XV	0.503	0	0.503	-0.687
9210F2S012	9210F2S012A	0.502		XV	0.338	1	0.502	-0.689
9210F3S014	9210F3S014A	0.349	U	XV	0.5	0	0.5	-0.693
9207D5S058	9207D5S058A	0.201	U	XV	0.499	0	0.499	-0.695
9207F4S029	9207F4S029A	0.495		XV	0.436	1	0.495	-0.703
9210S1S022	9210S1S022A	0.066	U	U	0.495	0	0.495	-0.703
9207C3S010	9207C3S010A	0.494		XV	0.26	1	0.494	-0.705
9401DC1S039	9401DC1S039A	0.172	U	XV	0.494	0	0.494	-0.705
9207H1S001A	9207H1S001AA	0.494		XV	0.251	1	0.494	-0.705
9207C1S003	9207C1S003A	0.184	U	XV	0.493	0	0.493	-0.707
9210S3S040	9210S3S040A	0.041	U	XV	0.492	0	0.492	-0.709
9207S2S032	9207S2S032A	0.024	U	U	0.49	0	0.49	-0.713
9401DC1S038	9401DC1S038A	0.179	U	XV	0.489	0	0.489	-0.715
9401DC1S043	9401DC1S043A	0.226	U	UJ	0.489	0	0.489	-0.715
9210F2B005	9210F2B005	0.278	U	U	0.489	0	0.489	-0.715
9210S2S031	9210S2S031A	0.08	U	XV	0.485	0	0.485	-0.724
9210F1S005	9210F1S005A	0.483		XV	0.454	1	0.483	-0.728

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210F2S013	9210F2S013A	0.483		XV	0.319	1	0.483	-0.728
9207S6S044	9207S6S044A	-0.015	U	XV	0.48	0	0.48	-0.734
9210D1S052	9210D1S052AD	0.128	U	XV	0.479	0	0.479	-0.736
9401W1S004A	9401W1S004AA	0.113	U	U	0.475	0	0.475	-0.744
9210H3S013	9210H3S013A	0.043	U	XV	0.473	0	0.473	-0.749
9207D1S046	9207D1S046A	0.249	U	XV	0.469	0	0.469	-0.757
9207C3S009	9207C3S009A	0.274	U	XV	0.467	0	0.467	-0.761
9207E1B003	9207E1B003	0.154	U	U	0.467	0	0.467	-0.761
9207F5S031	9207F5S031A	0.467		XV	0.38	1	0.467	-0.761
9207S3S036	9207S3S036A	0.031	U	U	0.467	0	0.467	-0.761
9207D5S057	9207D5S057A	0.14	U	XV	0.463	0	0.463	-0.77
9210S1S001A	9210S1S001AA	0.046	U	XV	0.459	0	0.459	-0.779
9401DC1S044	9401DC1S044A	0.053	U	XV	0.458	0	0.458	-0.781
9207H2S015	9207H2S015A	0.329	U	XV	0.458	0	0.458	-0.781
9207H4S008	9207H4S008A	0.421	U	XV	0.458	0	0.458	-0.781
9207F2S010	9207F2S010A	0.456		=	0.289	1	0.456	-0.785
9207F4S030	9207F4S030A	0.456		XV	0.434	1	0.456	-0.785
9210F2S008	9210F2S008A	0.25	U	XV	0.456	0	0.456	-0.785
9210F2S009	9210F2S009A	0.453		XV	0.334	1	0.453	-0.792
9401DC1S041	9401DC1S041A	0.393	U	XV	0.449	0	0.449	-0.801
9207H3S021	9207H3S021A	0.001	U	XV	0.448	0	0.448	-0.803
9210H1S004	9210H1S004A	0.24	U	U	0.446	0	0.446	-0.807
9207F1S003	9207F1S003A	0.444		XV	0.381	1	0.444	-0.812
9401DC1S047	9401DC1S047A	0.141	U	XV	0.443	0	0.443	-0.814
9207F3S018	9207F3S018A	0.443		=	0.413	1	0.443	-0.814
9401DC1S056	9401DC1S056A	0.063	U	XV	0.441	0	0.441	-0.819
9207C2S004	9207C2S004A	0.44		XV	0.376	1	0.44	-0.821
9401DC1S048	9401DC1S048A	0.126	U	XV	0.44	0	0.44	-0.821
9207S4S041	9207S4S041AD	0.019	U	XV	0.44	0	0.44	-0.821
9207F6S040	9207F6S040A	0.438		XV	0.335	1	0.438	-0.826
9207D6B008	9207D6B008	0.289	U	U	0.437	0	0.437	-0.828
9207H2S014	9207H2S014A	0.075	U	XV	0.435	0	0.435	-0.832
9207D4S055	9207D4S055A	0.118	U	XV	0.432	0	0.432	-0.839
9210F2S011	9210F2S011A	0.43		XV	0.351	1	0.43	-0.844
9207C4S010A	9207C4S010AA	0.419	U	XV	0.429	0	0.429	-0.846
9210C2S005	9210C2S005A	0.318	U	XV	0.428	0	0.428	-0.849
9210C3S006	9210C3S006A	0.317	U	XV	0.427	0	0.427	-0.851
9210D1S050	9210D1S050A	0.275	U	U	0.427	0	0.427	-0.851
9207C2S006	9207C2S006A	0.373	U	XV	0.425	0	0.425	-0.856

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207C2S004A	9207C2S004AA	0.373	U	XV	0.424	0	0.424	-0.858
9210C3S007	9210C3S007A	0.174	U	XV	0.424	0	0.424	-0.858
9401DC1S040	9401DC1S040A	0.216	U	XV	0.423	0	0.423	-0.86
9207H3S006	9207H3S006A	0.006	U	XV	0.422	0	0.422	-0.863
9207S4S028	9207S4S028A	0.17	U	XV	0.419	0	0.419	-0.87
9207C6S018	9207C6S018A	0.339	U	XV	0.413	0	0.413	-0.884
9207C6S019	9207C6S019A	0.314	U	XV	0.413	0	0.413	-0.884
9401DC1S042	9401DC1S042A	0.307	U	UJ	0.412	0	0.412	-0.887
9210S2S002A	9210S2S002AA	0.038	U	XV	0.41	0	0.41	-0.892
9210W2B006	9210W2B006	0.176	U	U	0.408	0	0.408	-0.896
9207C4S013	9207C4S013A	0.355	U	XV	0.404	0	0.404	-0.906
9767D1B006	9767D1B006	0.069	U	U	0.403	0	0.403	-0.909
9401E1B003	9401E1B003A	0.403		=	0.345	1	0.403	-0.909
9210H3S011	9210H3S011A	0.041	U	XV	0.399	0	0.399	-0.919
9207D2S051	9207D2S051A	0.046	U	XV	0.398	0	0.398	-0.921
9207H5S009	9207H5S009A	-0.018	U	XV	0.396	0	0.396	-0.926
9210H2S008	9210H2S008AD	0.066	U	XV	0.395	0	0.395	-0.929
9210D1S006A	9210D1S006AA	0.139	U	XV	0.394	0	0.394	-0.931
9210H2S009	9210H2S009A	0.069	U	XV	0.393	0	0.393	-0.934
9207S4S040	9207S4S040A	-0.055	U	XV	0.393	0	0.393	-0.934
9401DC1S025	9401DC1S025A	0.047	U	XV	0.39	0	0.39	-0.942
9207F3S024	9207F3S024A	0.343	U	XV	0.387	0	0.387	-0.949
9207S3S037	9207S3S037A	0.185	U	XV	0.387	0	0.387	-0.949
9401DC1S046	9401DC1S046A	0.05	U	XV	0.384	0	0.384	-0.957
9207S4S038	9207S4S038A	0.174	U	XV	0.383	0	0.383	-0.96
9207C5S012A	9207C5S012AA	0.376	U	XV	0.382	0	0.382	-0.962
9207D4S056	9207D4S056A	0.099	U	XV	0.382	0	0.382	-0.962
9210W1S012	9210W1S012A	0.285	U	XV	0.38	0	0.38	-0.968
9401W1S004	9401W1S004A	0.107	U	U	0.379	0	0.379	-0.97
9210D3S057	9210D3S057A	0.248	U	XV	0.378	0	0.378	-0.973
9401D1B010	9401D1B010	0.378		=	0.254	1	0.378	-0.973
9210D1S048	9210D1S048A	0.134	U	XV	0.375	0	0.375	-0.981
9210D1S049	9210D1S049A	0.094	U	XV	0.375	0	0.375	-0.981
9210D1S051	9210D1S051A	0.251	U	U	0.374	0	0.374	-0.983
9210D3S058	9210D3S058A	0.214	U	XV	0.374	0	0.374	-0.983
9207F3S022	9207F3S022A	0.374		XV	0.357	1	0.374	-0.983
9207H3S003A	9207H3S003AA	0.255	U	XV	0.374	0	0.374	-0.983
9210S1S024	9210S1S024A	0.049	U	XV	0.369	0	0.369	-0.997
9207H5S010	9207H5S010A	-0.029	U	XV	0.367	0	0.367	-1.0

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207S1S031	9207S1S031A	0.065	U	XV	0.364	0	0.364	-1.01
9207C6S017	9207C6S017AD	0.146	U	XV	0.361	0	0.361	-1.02
9210H1S005	9210H1S005A	0.361		XV	0.349	1	0.361	-1.02
9207S5S043	9207S5S043A	0.119	U	XV	0.36	0	0.36	-1.02
9207C5S016	9207C5S016A	0.201	U	XV	0.356	0	0.356	-1.03
9207W4S031	9207W4S031A	0.197	U	XV	0.356	0	0.356	-1.03
9207S1S030	9207S1S030A	0.058	U	XV	0.354	0	0.354	-1.04
9401D1B011	9401D1B011	0.347		=	0.248	1	0.347	-1.06
9207C4S011	9207C4S011A	0.197	U	XV	0.342	0	0.342	-1.07
9210D1S047	9210D1S047A	0.165	U	U	0.34	0	0.34	-1.08
9210H3S012	9210H3S012A	0.053	U	U	0.339	0	0.339	-1.08
9207H3S022A	9207H3S022AA	0.017	U	XV	0.336	0	0.336	-1.09
9207H3S005	9207H3S005AD	0.019	U	XV	0.334	0	0.334	-1.1
9207H3S017	9207H3S017A	0.05	U	XV	0.333	0	0.333	-1.1
9207D5S059	9207D5S059A	0.014	U	XV	0.329	0	0.329	-1.11
9207S5S042	9207S5S042A	0.275	U	XV	0.327	0	0.327	-1.12
9210D1S046	9210D1S046A	0.149	U	U	0.326	0	0.326	-1.12
9210D1S055	9210D1S055A	0.237	U	U	0.325	0	0.325	-1.12
9207S1S027	9207S1S027A	0.323		XV	0.194	1	0.323	-1.13
9207H3S004	9207H3S004A	0.009	U	XV	0.322	0	0.322	-1.13
9210W1S010	9210W1S010A	0.268	U	XV	0.321	0	0.321	-1.14
9767D1B005	9767D1B005	0.104	U	U	0.32	0	0.32	-1.14
9207H2S003	9207H2S003A	0.168	U	XV	0.318	0	0.318	-1.15
9207S5S029	9207S5S029A	0.084	U	XV	0.315	0	0.315	-1.16
9207H1S002	9207H1S002A	0.087	U	XV	0.313	0	0.313	-1.16
9207D5B007	9207D5B007	0.151	U	U	0.309	0	0.309	-1.17
9207D1S047	9207D1S047AD	0.115	U	XV	0.308	0	0.308	-1.18
9207C1S002	9207C1S002A	0.031	U	UJ	0.306	0	0.306	-1.18
9207S6S045	9207S6S045A	0.139	U	XV	0.305	0	0.305	-1.19
9207F6S037	9207F6S037A	0.298	U	XV	0.3	0	0.3	-1.2
9207H5S026	9207H5S026AD	0.042	U	XV	0.295	0	0.295	-1.22
9210D3B002	9210D3B002	0.018	U	U	0.293	0	0.293	-1.23
9401E1B002	9401E1B002A	0.059	U	U	0.292	0	0.292	-1.23
9210W1S014	9210W1S014A	0.241	U	XV	0.289	0	0.289	-1.24
9210S2S028	9210S2S028A	0.009	U	XV	0.288	0	0.288	-1.24
9207F1S004	9207F1S004A	0.081	U	XV	0.277	0	0.277	-1.28
9207S2S033	9207S2S033A	0.204	U	XV	0.269	0	0.269	-1.31
9210D1S056	9210D1S056A	0.203	U	XV	0.268	0	0.268	-1.32
9210H3B001	9210H3B001	0.032	U	U	0.266	0	0.266	-1.32

Table G.147
Statistical Summary for Uranium-238 (24678828) (pCi/g) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9210D3S059	9210D3S059A	0.17	U	XV	0.242	0	0.242	-1.42
9207S4S039	9207S4S039A	0.2	U	XV	0.221	0	0.221	-1.51
9207H3S020	9207H3S020A	0.089	U	XV	0.22	0	0.22	-1.51
9207H1S001	9207H1S001A	0.025	U	UJ	0.214	0	0.214	-1.54
9207H1S012	9207H1S012A	-0.007	U	U	0.213	0	0.213	-1.55
9207S3S034	9207S3S034A	0.107	U	XV	0.204	0	0.204	-1.59
9401D1B012	9401D1B012	0.106		=	0.003	1	0.106	-2.24
9210S3S042	9210S3S042A	0.01	U	XV	0.086	0	0.086	-2.46
9210S3S041	9210S3S041A	0.002	U	XV	0.061	0	0.061	-2.79

Number of Samples	360
Number of Detects	158
Minimum	0.061
Median	0.564
Maximum	5660
Arithmetic Average	18.2
Std Dev	299
PERT-Beta Expected Value	944
LN Mean	-0.283
LN Std Dev	1.09
Lilliefors p-value for normality	0.01
Lilliefors p-value for lognormality	0.01

Table G.148
Statistical Summary for Vanadium (7440622) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207RS002	9207RS002A	173		XV	0.288	1	173	5.15
9207H1S001A	9207H1S001AA	59.6		XV	1.46	1	59.6	4.09
9207F6S039	9207F6S039A	43.8	* E	XV	0.295	1	43.8	3.78
9401DC1S032	9401DC1S032A	23.2		XV	0.296	1	23.2	3.14
9210RS014	9210RS014A	22.5	N	XV	0.282	1	22.5	3.11
9207W2S024A	9207W2S024AA	16.2	* E	XV	0.298	1	16.2	2.79
9210F3S014	9210F3S014A	13.7	N	XV	0.279	1	13.7	2.62
9401DC1S024A	9401DC1S024AA	13.5	* N	XV	0.299	1	13.5	2.6
9207F4S027	9207F4S027A	13.5		XV	0.292	1	13.5	2.6
9207F3S015	9207F3S015A	12.7		XV	0.292	1	12.7	2.54
9207F2S009	9207F2S009A	11.1		XV	0.28	1	11.1	2.41
9210C1S003	9210C1S003A	10.5		=	0.272	1	10.5	2.35
9207RS016	9207RS016A	9.97		XV	0.297	1	9.97	2.3
9210W1S016	9210W1S016A	9.5	* N	XV	0.298	1	9.5	2.25
9207F1S001	9207F1S001AD	9.02	N	J	0.273	1	9.02	2.2
9210F1S006	9210F1S006A	6.08		XV	0.284	1	6.08	1.81
9210RS002	9210RS002A	3.65	N	XV	0.275	1	3.65	1.29
9401W1S020	9401W1S020A	2.8		XV	0.302	1	2.8	1.03
9401W1S001	9401W1S001A	2.42	J	J	1.33	1	2.42	0.884
9207W5S034	9207W5S034A	1.83		XV	0.284	1	1.83	0.604
9207H5S009	9207H5S009A	1.36		XV	0.312	1	1.36	0.307
9210S2S038	9210S2S038AD	0.914		XV	0.179	1	0.914	-0.09
9401W1S012	9401W1S012A	0.881	J	J	0.298	1	0.881	-0.127
9207W3S029	9207W3S029AD	0.786	J	XV	0.292	1	0.786	-0.241
9401DC1S045	9401DC1S045A	1.5	U	XV	1.5	0	0.75	-0.288
9207H1S012	9207H1S012A	1.22	U	XV	1.22	0	0.61	-0.494
9207C6S017	9207C6S017AD	0.554	J	XV	0.202	1	0.554	-0.591
9207S2S032	9207S2S032A	0.296	U	XV	0.296	0	0.148	-1.91
9207S4S041	9207S4S041A	0.295	U	XV	0.295	0	0.148	-1.91
9210D3S059	9210D3S059A	0.275	U	XV	0.275	0	0.138	-1.98
9401DC1S028	9401DC1S028A	0.269	U	XV	0.269	0	0.135	-2.01
9401DC1S057A	9401DC1S057AA	0.265	U	UJ	0.265	0	0.133	-2.02
9207D1S047	9207D1S047AD	0.252	U	XV	0.252	0	0.126	-2.07
9210S3S044	9210S3S044A	0.247	U	XV	0.247	0	0.124	-2.09
9210D1S052	9210D1S052AD	0.244	U	XV	0.244	0	0.122	-2.1
9210H2S008	9210H2S008AD	0.238	U * N	XV	0.238	0	0.119	-2.13
9207C1S001	9207C1S001A	0.113	J	XV	0.07	1	0.113	-2.18
9207H3S005	9207H3S005AD	0.216	U	XV	0.216	0	0.108	-2.23
9207D5S057	9207D5S057A	0.188	U	XV	0.188	0	0.094	-2.36

Table G.148
Statistical Summary for Vanadium (7440622) (mg/kg) for Y-12 Biology Complex

Location ID	Sample ID	Result	Result Qualifier	Validation Qualifier	Detection Limit	Detect = 1, ND = 0	Proxy Value	LN Proxy Value
9207H5S026	9207H5S026AD	0.158	U	XV	0.158	0	0.079	-2.54
9210S1S017	9210S1S017A	0.142	U	XV	0.142	0	0.071	-2.65

Number of Samples	41
Number of Detects	26
Minimum	0.071
Median	1.36
Maximum	173
Arithmetic Average	11.4
Std Dev	28.6
PERT-Beta Expected Value	29.8
LN Mean	0.435
LN Std Dev	2.26
S-W p-value for normality	1.2E-11
S-W p-value for lognormality	0.003

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