TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-18665-1
Client Project/Site: ORNL Y-12 Outfall 200 Characterization

For:
Alliant Corporation
320 N Cedar Bluff Road
Suite 200
Knoxville, Tennessee 37923

Attn: Doug Milloway

Authorized for release by:
9/13/2016 5:45:03 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-18665-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Alliant Corporation

Project: ORNL Y-12 Outfall 200 Characterization

Report Number: 160-18665-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 8/17/2016 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8º C and 1.3º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Per client phone call on 8/18, the trip blank IDs were changed for samples YMTFA 9404 TB-2 (160-18665-2)

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples YMTFA 9720 EB (160-18665-1), YMTFA 9404 TB-2 (160-18665-2) and YMTFA 9404 FB (160-18665-3) were analyzed for Volatile Organic Compounds (GC/MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 08/18/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD). A LCS/LCSD were performed to demonstrate accuracy and replicate precision.

Job ID: 160-18665-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The continuing calibration verification (CCV) recovered above the upper control limit for Chloroethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.(CCVIS 160-265386/4).

The continuing calibration verification (CCV) recovered outside acceptance criteria, low biased, for 2- Chloroethyl vinyl ether. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data has been reported.(CCVIS 160-265386/4)

The following compound did not meet the minimum relative response factor limits in the continuing calibration verification (CCV) associated with batch 265386: Acetone, Methyl acetate, 2- Butanone, n- Butanol, 1,4- Dioxane and 2- Hexanone. A low level CCV was analyzed at the reporting limit (1ug/L) and the affected analytes were detected. The associated sample was not detected above the reporting limit for the affected analytes.(CCVIS 160-265386/4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA Method 625. The samples were prepared on 08/18/2016 and analyzed on 08/24/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD). An LCS/LCSD has been provided.

The laboratory control sample duplicate (LCSD) recovered outside control limits for the following analytes: 3,3'-Dichlorobenzidine and/or 4-Nitrophenol. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 608. The samples were prepared on 08/18/2016 and analyzed on 08/23/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD). An LCS/LCSD has been provided.

Compound DCB Decachlorobiphenyl (Surr) and the internal standard eluted outside the retention time window on the column for the following CCV: (CCVIS 160-266032/13). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED PESTICIDES

Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for chlorinated pesticides in accordance with EPA Method 608. The samples were prepared on 08/18/2016 and analyzed on 08/23/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD). An LCS/LCSD has been provided.

The initial calibration verification (ICV) result was above the upper control limit for Toxaphene on the primary column. The ICV for Toxaphene was within the acceptable QC control limits on the secondary column. Sample results were ND on the secondary column; therefore confirmation is not needed. The secondary results will be reported. (ICV 160-259943/10)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICPMS)

Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 08/30/2016 and analyzed on 09/07/2016 and 09/08/2016.

Calcium, Lead and Lithium were detected in method blank MB 160-267270/1-A at levels that were above the method detection limit but

Job ID: 160-18665-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

below the reporting limit. The values should be considered estimates, and have been flagged.

Due to linear range check (LRC) failures, the linear range for boron has been lowered to the concentration of the highest calibration standard (400ppb). The LCS and MS/MSD were above the linear range, but were within acceptable limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 08/31/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

PH
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for pH in accordance with EPA Method 150.1. The samples were analyzed on 08/17/2016.

The following samples are flagged with an "HF" flag to indicate that the hold time for this analysis is immediate and expired in the field: YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL SUSPENDED SOLIDS
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for total suspended solids in accordance with EPA Method 160.2. The samples were analyzed on 08/22/2016.

A laboratory control sample duplicate (LCSD) was performed to demonstrate acceptable batch duplicate, as sufficient sample volume was unavailable to perform a sample duplicate (DU): YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

1664A
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for 1664A in accordance with EPA Method 1664A. The samples were prepared and analyzed on 09/01/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD): YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3)

Analysis for Hexane Extractable Material (HEM) was performed for the following samples: YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3). Since the HEM result(s) was below the reporting limit (RL), the result(s) for Silica Gel Treated - Hexane Extractable Material (SGT-HEM) was reported as a non-detect. All HEM quality control criteria were met.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS, ION CHROMATOGRAPHY
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Anions, Ion Chromatography in accordance with EPA Method 300.0. The samples were analyzed on 08/17/2016.

Chloride exceeded the RPD limit for the duplicate of sample YMTFA 9720 EBDU (160-18665-1). Refer to the QC report for details.

The following matrix spike (MS) recovered outside control limits for Nitrite (80%) in Anion batch 160-265338: (160-18665-S-1 MS). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 160-18665-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

TOTAL RECOVERABLE PHENOLS
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for total recoverable phenols in accordance with EPA Method 420.4. The samples were prepared on 08/29/2016 and analyzed on 08/30/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

CYANIDE, TOTAL
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Cyanide, Total in accordance with EPA SW-846 Method 9012B. The samples were prepared and analyzed on 08/24/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL ORGANIC CARBON
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 08/27/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

ACIDITY
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for acidity in accordance with SM 2310B. The samples were analyzed on 08/30/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GROSS ALPHA AND GROSS BETA RADIOACTIVITY
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Gross Alpha and Gross Beta Radioactivity in accordance with USEPA Method 900.0. The samples were prepared on 08/31/2016 and analyzed on 09/03/2016.

The gross alpha detection goal (3.00 pCi/L) was not met for the following samples due to a reduction of the sample size attributed to high residual mass: (160-18561-B-1-G DU). Analytical results are reported with the detection limit achieved.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared on 08/19/2016 and analyzed on 08/22/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

STRONTIUM-90 (GFPC)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Strontium-90 (GFPC) in accordance with EPA 905.0. The samples were prepared on 08/18/2016 and analyzed on 08/26/2016.

Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC AMERICIUM 241 (ALPHA SPECTROMETRY)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Isotopic Americium 241 (Alpha Spectrometry) in accordance with A_01R. The samples were prepared on 08/19/2016 and analyzed on 08/30/2016.

Lab control sample and lab control sample duplicate were used instead of a sample duplicate.

Job ID: 160-18665-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC NEPTUNIUM (ALPHA SPECTROMETRY)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Isotopic Neptunium (Alpha Spectrometry) in accordance with DOE A01R_Np. The samples were prepared on 08/19/2016 and analyzed on 08/28/2016.

Lab control sample and lab control sample duplicate were used instead of a sample duplicate.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC PLUTONIUM (ALPHA SPECTROMETRY)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Isotopic Plutonium (Alpha Spectrometry) in accordance with USDOE. The samples were prepared on 08/19/2016 and analyzed on 08/26/2016.

Lab control sample and lab control sample duplicate were used instead of a sample duplicate.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC THORIUM (ALPHA SPECTROMETRY)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Isotopic Thorium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 08/19/2016 and analyzed on 08/25/2016 and 08/26/2016.

Lab control sample and lab control sample duplicate were used instead of a sample duplicate.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 08/19/2016 and analyzed on 08/29/2016.

Lab control sample and lab control sample duplicate were used instead of a sample duplicate.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TECHNETIUM-99 (LSC)
Samples YMTFA 9720 EB (160-18665-1) and YMTFA 9404 FB (160-18665-3) were analyzed for Technetium-99 (LSC) in accordance with TC_02_RC. The samples were prepared on 08/29/2016 and analyzed on 09/06/2016.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Matt Frost
Company: Alliant Corporation
Address: 320 N Cedar Bluff Road Suite 200
City: Knoxville
State, Zip: TN, 37923
Phone:
Email: mfrost@alliantcorp.com
Project Name: ORNL Y-12 Outfall 200 Characterization
Site:

Sampler: R. STOUT
Phone: 865 255 5540
Due Date Requested:
TAT Requested (days): By contract
PO #: 16-PO-001581
WO #: 4326
Project #: 16005502
SSOW#:

Lab PM: Gish, Erika K
E-Mail: erika.gish@testamericainc.com
Carrier Tracking No(s): Fed EX 8100 3192 5470 8100 3192 5489
COC No: 160-4416-2171.2
Page: Page 2 of 4
Job #:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	~~A-01_R_Am_Cm_A01R_No_A01R_Pu_A01R_Th_A01R_U_SR-03_RC_Tot_Sr_T0-02_RC~~	C_01_1, DOE_H3_04_RC	8260B ~~+ TCL~~ VOC (HCl)	~~8151A - TCLP Herbicides~~ Pesticides	~~GA-01_RC_Ra_Gamma_Radium226/228~~ GROSS α & β (HNO3)	8082A - PCB	8270D - ~~TCLP BNAs~~ SVOCs	6010C, 7470A (HNO3)	~~8021A - PCBs~~ Cyanide (NaOH)	TOC (H2SO4)	Phenolics (H2SO4)	Acidity, Anions, pH & TSS	Oil & Grease (HCL)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	N	N	N	N						
YMTFA 9720 EB	8-16-16	0910	G	W			6		2	1	1	1	1	1	1	1	1	2	1		Equipment Rinsate
YMTFA 9404 TB		0940							2												Trip Blank
YMTFA 9404 FB		1015					6		2	1	1	1	1	1	1	1	1	2	1		Field Blank

160-18665 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	8-16-16/1600		[signature]	8/17/16 09:5	TA

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gish, Erika K	Carrier Tracking No(s):	COC No: 160-91566.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: erika.gish@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.				Job #: 160-18665-1
Address: 4955 Yarrow Street, .	Due Date Requested: 8/29/2016			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: ORNL Y-12 Outfall 200 Characterization	Project #: 16005502			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM2310B	1664A/1664A_SPE	420.4/Distill_Phenol	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
YMTFA 9720 EB (160-18665-1)	8/16/16	09:10 Eastern		Water			X	X	X	3	
YMTFA 9404 FB (160-18665-3)	8/16/16	10:15 Eastern		Water			X	X	X	3	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time:	Company	Received by: Reed Pitts	Date/Time: 8-19-16 0930	Company TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 1.1, IR#5 0.0 Transfer RP 8-19-16

Login Sample Receipt Checklist

Client: Alliant Corporation

Job Number: 160-18665-1

Login Number: 18665
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in YMTFA 9404 TB.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Alliant Corporation

Job Number: 160-18665-1

Login Number: 18665
List Number: 2
Creator: Pottruff, Reed W

List Source: TestAmerica Denver
List Creation: 08/19/16 02:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
N	LCS, LCSD: Recovery exceeds upper or lower control limits.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

HPLC/IC

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
N	MS, MSD: Spike recovery is outside acceptance limits.

Metals

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL SL
625	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL SL
608	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL SL
608	Organochlorine Pesticides in Water	40CFR136A	TAL SL
300.0	Anions, Ion Chromatography	MCAWW	TAL SL
6020A	Metals (ICP/MS)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
150.1	pH (Electrometric)	MCAWW	TAL SL
160.2	Solids, Total Suspended (TSS)	MCAWW	TAL SL
1664A	HEM and SGT-HEM	1664A	TAL DEN
420.4	Phenolics, Total Recoverable	MCAWW	TAL DEN
9012B	Cyanide, Total andor Amenable	SW846	TAL SL
9060	Organic Carbon, Total (TOC)	SW846	TAL SL
SM 2310B	Acidity	SM	TAL DEN
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
A-01-R	Isotopic Curium and/or Americium 241 (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Neptunium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Thorium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Plutonium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
TC-02-RC	Technetium-99 (LSC)	DOE	TAL SL

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-18665-1	YMTFA 9720 EB	Water	08/16/16 09:10	08/17/16 09:15
160-18665-2	YMTFA 9404 TB-2	Water	08/16/16 09:40	08/17/16 09:15
160-18665-3	YMTFA 9404 FB	Water	08/16/16 10:15	08/17/16 09:15

Detection Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB — Lab Sample ID: 160-18665-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bromide	0.028	J	0.25	0.025	mg/L	1		300.0	Total/NA
Nitrate as N	0.0070	J	0.020	0.0070	mg/L	1		300.0	Total/NA
Chloride	0.027	J	0.20	0.020	mg/L	1		300.0	Total/NA
Barium	0.00038	J	0.0020	0.00022	mg/L	2		6020A	Total/NA
Boron	0.031	J	0.10	0.021	mg/L	2		6020A	Total/NA
Calcium	0.12	B	0.10	0.068	mg/L	2		6020A	Total/NA
Lead	0.00021	J B	0.0030	0.00017	mg/L	2		6020A	Total/NA
Lithium	0.0017	J B	0.0050	0.0011	mg/L	2		6020A	Total/NA
Potassium	0.077	J	0.10	0.042	mg/L	2		6020A	Total/NA
Sodium	0.072		0.050	0.024	mg/L	2		6020A	Total/NA
pH	4.7	HF	0.1	0.1	SU	1		150.1	Total/NA
Acidity	2.0	J	10	2.0	mg/L	1		SM 2310B	Total/NA

Client Sample ID: YMTFA 9404 TB-2 — Lab Sample ID: 160-18665-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrahydrofuran	6.8	J	10	0.50	ug/L	1		8260C	Total/NA

Client Sample ID: YMTFA 9404 FB — Lab Sample ID: 160-18665-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.13	J	1.0	0.10	ug/L	1		8260C	Total/NA
Methylene Chloride	15		1.0	0.27	ug/L	1		8260C	Total/NA
Nitrate as N	0.039		0.020	0.0070	mg/L	1		300.0	Total/NA
Boron	0.022	J	0.10	0.021	mg/L	2		6020A	Total/NA
Lithium	0.0014	J B	0.0050	0.0011	mg/L	2		6020A	Total/NA
Sodium	0.071		0.050	0.024	mg/L	2		6020A	Total/NA
pH	4.5	HF	0.1	0.1	SU	1		150.1	Total/NA
Acidity	8.0	J	10	2.0	mg/L	1		SM 2310B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB

Date Collected: 08/16/16 09:10
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			08/18/16 08:58	1
1,1,2,2-Tetrachloroethane	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			08/18/16 08:58	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			08/18/16 08:58	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			08/18/16 08:58	1
1,2-Dichloroethene, Total	0.14	U	2.0	0.14	ug/L			08/18/16 08:58	1
1,2-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
2-Chloroethyl vinyl ether	0.24	U	2.0	0.24	ug/L			08/18/16 08:58	1
Acrolein	2.8	U	10	2.8	ug/L			08/18/16 08:58	1
Acrylonitrile	0.73	U	10	0.73	ug/L			08/18/16 08:58	1
Benzene	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
Bromoform	0.17	U	1.0	0.17	ug/L			08/18/16 08:58	1
Bromomethane	0.25	U	2.0	0.25	ug/L			08/18/16 08:58	1
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			08/18/16 08:58	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 08:58	1
Chloroethane	0.16	U	2.0	0.16	ug/L			08/18/16 08:58	1
Chloroform	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
Chloromethane	0.10	U	2.0	0.10	ug/L			08/18/16 08:58	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			08/18/16 08:58	1
Dibromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 08:58	1
Dichlorobromomethane	0.14	U	1.0	0.14	ug/L			08/18/16 08:58	1
Dichlorodifluoromethane	0.14	U	2.0	0.14	ug/L			08/18/16 08:58	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			08/18/16 08:58	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			08/18/16 08:58	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			08/18/16 08:58	1
Toluene	0.14	U	1.0	0.14	ug/L			08/18/16 08:58	1
trans-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
trans-1,3-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 08:58	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			08/18/16 08:58	1
Trichlorofluoromethane	0.11	U	1.0	0.11	ug/L			08/18/16 08:58	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			08/18/16 08:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 129*		*08/18/16 08:58*	*1*
4-Bromofluorobenzene (Surr)	*110*		*81 - 130*		*08/18/16 08:58*	*1*
Dibromofluoromethane (Surr)	*102*		*81 - 124*		*08/18/16 08:58*	*1*
Toluene-d8 (Surr)	*109*		*87 - 128*		*08/18/16 08:58*	*1*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Acenaphthylene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Azobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Benzo[a]anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Benzo[b]fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Benzo[k]fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Benzo[g,h,i]perylene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Benzo[a]pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1

Client Sample ID: YMTFA 9720 EB

Lab Sample ID: 160-18665-1

Date Collected: 08/16/16 09:10

Matrix: Water

Date Received: 08/17/16 09:15

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	4.1	U	20	4.1	ug/L		08/18/16 12:02	08/24/16 03:56	1
Bis(2-chloroethoxy)methane	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Bis(2-chloroethyl)ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Bis(2-ethylhexyl) phthalate	0.38	U	2.0	0.38	ug/L		08/18/16 12:02	08/24/16 03:56	1
4-Bromophenyl phenyl ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Butyl benzyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
4-Chloro-3-methylphenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
2-Chloronaphthalene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
2-Chlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
4-Chlorophenyl phenyl ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Chrysene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Dibenz(a,h)anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Di-n-butyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
1,2-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
1,3-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
1,4-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
3,3'-Dichlorobenzidine	0.26	U N	10	0.26	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,4-Dichlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Diethyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,4-Dimethylphenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Dimethyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
4,6-Dinitro-2-methylphenol	0.26	U	10	0.26	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,4-Dinitrophenol	0.41	U	10	0.41	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,4-Dinitrotoluene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,6-Dinitrotoluene	0.44	U	2.0	0.44	ug/L		08/18/16 12:02	08/24/16 03:56	1
Di-n-octyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Fluorene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Hexachlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Hexachlorobutadiene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Hexachlorocyclopentadiene	0.20	U	10	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Hexachloroethane	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Indeno[1,2,3-cd]pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Isophorone	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Naphthalene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Nitrobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
N-Nitrosodimethylamine	0.41	U	2.0	0.41	ug/L		08/18/16 12:02	08/24/16 03:56	1
2-Nitrophenol	0.31	U	2.0	0.31	ug/L		08/18/16 12:02	08/24/16 03:56	1
4-Nitrophenol	0.41	U N	10	0.41	ug/L		08/18/16 12:02	08/24/16 03:56	1
N-Nitrosodiphenylamine	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
N-Nitrosodi-n-propylamine	0.31	U	2.0	0.31	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,2'-oxybis[1-chloropropane]	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Pentachlorophenol	0.26	U	10	0.26	ug/L		08/18/16 12:02	08/24/16 03:56	1
Phenanthrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
Phenol	0.41	U	2.0	0.41	ug/L		08/18/16 12:02	08/24/16 03:56	1
Pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
1,2,4-Trichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1
2,4,6-Trichlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/24/16 03:56	1

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB

Date Collected: 08/16/16 09:10
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-1

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	34		23 - 82	08/18/16 12:02	08/24/16 03:56	1
Phenol-d5 (Surr)	23		14 - 68	08/18/16 12:02	08/24/16 03:56	1
Nitrobenzene-d5 (Surr)	76		36 - 98	08/18/16 12:02	08/24/16 03:56	1
2,4,6-Tribromophenol (Surr)	80		41 - 109	08/18/16 12:02	08/24/16 03:56	1
Terphenyl-d14 (Surr)	84		43 - 107	08/18/16 12:02	08/24/16 03:56	1
2-Fluorobiphenyl (Surr)	73		31 - 103	08/18/16 12:02	08/24/16 03:56	1

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
alpha-BHC	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
beta-BHC	0.013	U	0.051	0.013	ug/L		08/18/16 12:14	08/23/16 16:18	1
delta-BHC	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
gamma-BHC (Lindane)	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
4,4'-DDD	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
4,4'-DDE	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
4,4'-DDT	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Dieldrin	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Endosulfan I	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Endosulfan II	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Endosulfan sulfate	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Endrin	0.017	U	0.051	0.017	ug/L		08/18/16 12:14	08/23/16 16:18	1
Endrin aldehyde	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Heptachlor	0.010	U	0.051	0.010	ug/L		08/18/16 12:14	08/23/16 16:18	1
Heptachlor epoxide	0.017	U	0.051	0.017	ug/L		08/18/16 12:14	08/23/16 16:18	1
Toxaphene	0.27	U	2.0	0.27	ug/L		08/18/16 12:14	08/23/16 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	48		40 - 130	08/18/16 12:14	08/23/16 16:18	1
Tetrachloro-m-xylene	79		63 - 115	08/18/16 12:14	08/23/16 16:18	1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.36	U	1.0	0.36	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1221	0.36	U	1.0	0.36	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1232	0.36	U	1.0	0.36	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1242	0.36	U	1.0	0.36	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1248	0.36	U	1.0	0.36	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1254	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 19:54	1
PCB-1260	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 19:54	1
Polychlorinated biphenyls, Total	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	110		24 - 126	08/18/16 12:09	08/23/16 19:54	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**0.028**	**J**	0.25	0.025	mg/L			08/17/16 14:13	1
Nitrate as N	**0.0070**	**J**	0.020	0.0070	mg/L			08/17/16 14:13	1
Fluoride	0.010	U	0.10	0.010	mg/L			08/17/16 14:13	1
Nitrite as N	0.0070	U	0.020	0.0070	mg/L			08/17/16 14:13	1

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB

Date Collected: 08/16/16 09:10
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-1

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate	0.26	U	0.50	0.26	mg/L			08/17/16 14:13	1
Sulfate	0.050	U	0.50	0.050	mg/L			08/17/16 14:13	1
Chloride	**0.027**	**J**	0.20	0.020	mg/L			08/17/16 14:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.017	U	0.050	0.017	mg/L		08/30/16 11:29	09/07/16 17:26	2
Antimony	0.0017	U	0.0050	0.0017	mg/L		08/30/16 11:29	09/07/16 17:26	2
Arsenic	0.0012	U	0.010	0.0012	mg/L		08/30/16 11:29	09/07/16 17:26	2
Barium	**0.00038**	**J**	0.0020	0.00022	mg/L		08/30/16 11:29	09/07/16 17:26	2
Beryllium	0.00035	U	0.00050	0.00035	mg/L		08/30/16 11:29	09/07/16 17:26	2
Boron	**0.031**	**J**	0.10	0.021	mg/L		08/30/16 11:29	09/08/16 19:41	2
Cadmium	0.00010	U	0.00050	0.00010	mg/L		08/30/16 11:29	09/07/16 17:26	2
Calcium	**0.12**	**B**	0.10	0.068	mg/L		08/30/16 11:29	09/07/16 17:26	2
Chromium	0.0010	U	0.010	0.0010	mg/L		08/30/16 11:29	09/07/16 17:26	2
Copper	0.00068	U	0.0010	0.00068	mg/L		08/30/16 11:29	09/08/16 19:41	2
Iron	0.033	U	0.050	0.033	mg/L		08/30/16 11:29	09/07/16 17:26	2
Lead	**0.00021**	**J B**	0.0030	0.00017	mg/L		08/30/16 11:29	09/07/16 17:26	2
Lithium	**0.0017**	**J B**	0.0050	0.0011	mg/L		08/30/16 11:29	09/07/16 17:26	2
Nickel	0.00080	U	0.0050	0.00080	mg/L		08/30/16 11:29	09/07/16 17:26	2
Potassium	**0.077**	**J**	0.10	0.042	mg/L		08/30/16 11:29	09/07/16 17:26	2
Selenium	0.0016	U	0.0050	0.0016	mg/L		08/30/16 11:29	09/07/16 17:26	2
Silver	0.00082	U	0.0020	0.00082	mg/L		08/30/16 11:29	09/07/16 17:26	2
Sodium	**0.072**		0.050	0.024	mg/L		08/30/16 11:29	09/07/16 17:26	2
Uranium	0.00023	U	0.0010	0.00023	mg/L		08/30/16 11:29	09/07/16 17:26	2
Zinc	0.0093	U	0.020	0.0093	mg/L		08/30/16 11:29	09/07/16 17:26	2

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000060	U	0.00020	0.000060	mg/L		08/31/16 08:39	08/31/16 18:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**4.7**	**HF**	0.1	0.1	SU			08/17/16 22:51	1
Total Suspended Solids	4.0	U	4.0	4.0	mg/L			08/22/16 10:12	1
HEM	1.6	U	5.1	1.6	mg/L		09/01/16 09:39	09/01/16 14:38	1
SGT-HEM	2.8	U	6.1	2.8	mg/L		09/01/16 09:39	09/01/16 14:38	1
Phenols, Total	0.0068	U	0.010	0.0068	mg/L		08/29/16 11:52	08/30/16 11:52	1
Cyanide, Total	0.0031	U	0.010	0.0031	mg/L		08/24/16 17:45	08/24/16 20:34	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			08/27/16 04:32	1
Acidity	**2.0**	**J**	10	2.0	mg/L			08/30/16 01:12	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.409	U	0.521	0.523	3.00	0.867	pCi/L	08/31/16 09:52	09/03/16 09:13	1
Gross Beta	0.723	U	0.557	0.562	4.00	0.869	pCi/L	08/31/16 09:52	09/03/16 09:13	1

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB

Date Collected: 08/16/16 09:10
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-1

Matrix: Water

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.17	U	6.12	6.12	20.0	10.7	pCi/L	08/19/16 15:34	08/22/16 14:31	1
Cobalt-60	2.59	U	6.45	6.45		14.0	pCi/L	08/19/16 15:34	08/22/16 14:31	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0324	U	0.158	0.158	3.00	0.288	pCi/L	08/18/16 13:29	08/26/16 18:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*90.5*		*40 - 110*	*08/18/16 13:29*	*08/26/16 18:37*	*1*
Y Carrier	*92.3*		*40 - 110*	*08/18/16 13:29*	*08/26/16 18:37*	*1*

Method: A-01-R - Isotopic Curium and/or Americium 241 (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	0.0809	U	0.105	0.105	1.00	0.173	pCi/L	08/19/16 11:58	08/30/16 13:20	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Americium-243	*36.8*		*30 - 110*	*08/19/16 11:58*	*08/30/16 13:20*	*1*

Method: A-01-R - Isotopic Neptunium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Neptunium-237	0.000	U	0.0178	0.0178	1.00	0.0427	pCi/L	08/19/16 12:00	08/28/16 15:01	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Neptunium-239	*90.6*		*30 - 110*	*08/19/16 12:00*	*08/28/16 15:01*	*1*

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-238	-0.00821	U	0.0829	0.0829	1.00	0.191	pCi/L	08/19/16 11:58	08/26/16 19:03	1
Plutonium-239/240	0.0329	U	0.0593	0.0593	1.00	0.110	pCi/L	08/19/16 11:58	08/26/16 19:03	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Pu-242 (T)	*93.0*		*30 - 110*	*08/19/16 11:58*	*08/26/16 19:03*	*1*

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.0745	U	0.112	0.112	1.00	0.193	pCi/L	08/19/16 12:00	08/26/16 18:55	1
Thorium-230	**0.189**		0.120	0.121	1.00	0.0901	pCi/L	08/19/16 12:00	08/26/16 18:55	1
Thorium-232	-0.00927	U	0.0131	0.0131	1.00	0.104	pCi/L	08/19/16 12:00	08/26/16 18:55	1

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9720 EB

Lab Sample ID: 160-18665-1
Date Collected: 08/16/16 09:10
Matrix: Water
Date Received: 08/17/16 09:15

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Thorium-229	*82.7*		*30 - 110*	*08/19/16 12:00*	*08/26/16 18:55*	*1*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.0529	U	0.0799	0.0800	1.00	0.137	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-235/236	-0.00598	U	0.0120	0.0120	1.00	0.116	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-238	0.000	U	0.00960	0.00960	1.00	0.0576	pCi/L	08/19/16 11:58	08/29/16 14:45	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*79.7*		*30 - 110*	*08/19/16 11:58*	*08/29/16 14:45*	*1*

Method: TC-02-RC - Technetium-99 (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium-99	-0.699	U	1.16	1.16	3.00	2.01	pCi/L	08/29/16 17:31	09/06/16 20:10	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tc-99m	*100*		*30 - 110*	*08/29/16 17:31*	*09/06/16 20:10*	*1*

Client Sample ID: YMTFA 9404 TB-2

Lab Sample ID: 160-18665-2
Date Collected: 08/16/16 09:40
Matrix: Water
Date Received: 08/17/16 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.12	U	1.0	0.12	ug/L			08/18/16 09:22	1
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
1,1,2,2-Tetrachloroethane	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			08/18/16 09:22	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			08/18/16 09:22	1
1,1-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,2,3-Trichlorobenzene	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
1,2,3-Trichloropropane	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
1,2,4-Trichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,2,4-Trimethylbenzene	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
1,2-Dibromo-3-Chloropropane	0.41	U	1.0	0.41	ug/L			08/18/16 09:22	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.18	U	4.0	0.18	ug/L			08/18/16 09:22	1
1,2-Dichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			08/18/16 09:22	1
1,2-Dichloroethene, Total	0.14	U	2.0	0.14	ug/L			08/18/16 09:22	1
1,2-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,3,5-Trimethylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 09:22	1
1,3-Dichlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 09:22	1
1,3-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,4-Dichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
1,4-Dioxane	11	U	80	11	ug/L			08/18/16 09:22	1

Client Sample ID: YMTFA 9404 TB-2

Lab Sample ID: 160-18665-2

Date Collected: 08/16/16 09:40

Matrix: Water

Date Received: 08/17/16 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
2-Butanone (MEK)	0.47	U	5.0	0.47	ug/L			08/18/16 09:22	1
2-Chloro-1,3-butadiene	0.16	U	1.0	0.16	ug/L			08/18/16 09:22	1
2-Chloroethyl vinyl ether	0.24	U	2.0	0.24	ug/L			08/18/16 09:22	1
2-Chlorotoluene	0.15	U	1.0	0.15	ug/L			08/18/16 09:22	1
2-Hexanone	0.25	U	5.0	0.25	ug/L			08/18/16 09:22	1
2-Nitropropane	0.40	U	10	0.40	ug/L			08/18/16 09:22	1
Allyl chloride	0.10	U	2.0	0.10	ug/L			08/18/16 09:22	1
4-Chlorotoluene	0.15	U	1.0	0.15	ug/L			08/18/16 09:22	1
4-Isopropyltoluene	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
4-Methyl-2-pentanone (MIBK)	0.22	U	5.0	0.22	ug/L			08/18/16 09:22	1
Acetone	0.55	U	2.0	0.55	ug/L			08/18/16 09:22	1
Acetonitrile	3.7	U	10	3.7	ug/L			08/18/16 09:22	1
Acrolein	2.8	U	10	2.8	ug/L			08/18/16 09:22	1
Acrylonitrile	0.73	U	10	0.73	ug/L			08/18/16 09:22	1
Benzene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
Bromobenzene	0.12	U	1.0	0.12	ug/L			08/18/16 09:22	1
Bromoform	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
Bromomethane	0.25	U	2.0	0.25	ug/L			08/18/16 09:22	1
Carbon disulfide	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 09:22	1
Bromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 09:22	1
Dibromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 09:22	1
Chloroethane	0.16	U	2.0	0.16	ug/L			08/18/16 09:22	1
Chloroform	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
Chloromethane	0.10	U	2.0	0.10	ug/L			08/18/16 09:22	1
cis-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			08/18/16 09:22	1
Cyclohexane	0.14	U	1.0	0.14	ug/L			08/18/16 09:22	1
Cyclohexanone	5.8	U	20	5.8	ug/L			08/18/16 09:22	1
Dibromomethane	0.21	U	1.0	0.21	ug/L			08/18/16 09:22	1
Dichlorobromomethane	0.14	U	1.0	0.14	ug/L			08/18/16 09:22	1
Dichlorodifluoromethane	0.14	U	2.0	0.14	ug/L			08/18/16 09:22	1
Ethyl acetate	0.18	U	2.0	0.18	ug/L			08/18/16 09:22	1
Ethyl ether	0.26	U	1.0	0.26	ug/L			08/18/16 09:22	1
Ethyl methacrylate	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			08/18/16 09:22	1
1,2-Dibromoethane (EDB)	0.13	U	1.0	0.13	ug/L			08/18/16 09:22	1
Hexachlorobutadiene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
Hexane	0.15	U	4.0	0.15	ug/L			08/18/16 09:22	1
Iodomethane	0.10	U	2.0	0.10	ug/L			08/18/16 09:22	1
Isobutanol	8.3	U	80	8.3	ug/L			08/18/16 09:22	1
Isopropylbenzene	0.17	U	1.0	0.17	ug/L			08/18/16 09:22	1
Methacrylonitrile	1.2	U	10	1.2	ug/L			08/18/16 09:22	1
Methyl acetate	0.76	U	25	0.76	ug/L			08/18/16 09:22	1
Methyl methacrylate	0.27	U	2.0	0.27	ug/L			08/18/16 09:22	1
Methyl tert-butyl ether	0.15	U	2.0	0.15	ug/L			08/18/16 09:22	1
Methylcyclohexane	0.16	U	4.0	0.16	ug/L			08/18/16 09:22	1

Client Sample ID: YMTFA 9404 TB-2

Lab Sample ID: 160-18665-2

Date Collected: 08/16/16 09:40

Matrix: Water

Date Received: 08/17/16 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	0.27	U	1.0	0.27	ug/L			08/18/16 09:22	1
m-Xylene & p-Xylene	0.15	U	2.0	0.15	ug/L			08/18/16 09:22	1
Naphthalene	0.21	U	1.0	0.21	ug/L			08/18/16 09:22	1
1-Butanol	12	U	50	12	ug/L			08/18/16 09:22	1
n-Butylbenzene	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
N-Propylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 09:22	1
o-Xylene	0.13	U	1.0	0.13	ug/L			08/18/16 09:22	1
Propionitrile	1.4	U	10	1.4	ug/L			08/18/16 09:22	1
sec-Butylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 09:22	1
Styrene	0.13	U	1.0	0.13	ug/L			08/18/16 09:22	1
tert-Butylbenzene	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			08/18/16 09:22	1
Tetrahydrofuran	**6.8**	**J**	10	0.50	ug/L			08/18/16 09:22	1
Toluene	0.14	U	1.0	0.14	ug/L			08/18/16 09:22	1
trans-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
trans-1,3-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 09:22	1
trans-1,4-Dichloro-2-butene	0.29	U	2.0	0.29	ug/L			08/18/16 09:22	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			08/18/16 09:22	1
Trichlorofluoromethane	0.11	U	1.0	0.11	ug/L			08/18/16 09:22	1
Vinyl acetate	0.18	U	2.0	0.18	ug/L			08/18/16 09:22	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			08/18/16 09:22	1
Xylenes, Total	0.26	U	3.0	0.26	ug/L			08/18/16 09:22	1
Nonanal	0.41	U	5.0	0.41	ug/L			08/18/16 09:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 129*		*08/18/16 09:22*	*1*
4-Bromofluorobenzene (Surr)	*112*		*81 - 130*		*08/18/16 09:22*	*1*
Dibromofluoromethane (Surr)	*106*		*81 - 124*		*08/18/16 09:22*	*1*
Toluene-d8 (Surr)	*109*		*87 - 128*		*08/18/16 09:22*	*1*

Client Sample ID: YMTFA 9404 FB

Lab Sample ID: 160-18665-3

Date Collected: 08/16/16 10:15

Matrix: Water

Date Received: 08/17/16 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			08/18/16 09:46	1
1,1,2,2-Tetrachloroethane	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			08/18/16 09:46	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			08/18/16 09:46	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			08/18/16 09:46	1
1,2-Dichloroethene, Total	0.14	U	2.0	0.14	ug/L			08/18/16 09:46	1
1,2-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
2-Chloroethyl vinyl ether	0.24	U	2.0	0.24	ug/L			08/18/16 09:46	1
Acrolein	2.8	U	10	2.8	ug/L			08/18/16 09:46	1
Acrylonitrile	0.73	U	10	0.73	ug/L			08/18/16 09:46	1
Benzene	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
Bromoform	0.17	U	1.0	0.17	ug/L			08/18/16 09:46	1
Bromomethane	0.25	U	2.0	0.25	ug/L			08/18/16 09:46	1

Client Sample ID: YMTFA 9404 FB

Date Collected: 08/16/16 10:15
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			08/18/16 09:46	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 09:46	1
Chloroethane	0.16	U	2.0	0.16	ug/L			08/18/16 09:46	1
Chloroform	**0.13**	**J**	1.0	0.10	ug/L			08/18/16 09:46	1
Chloromethane	0.10	U	2.0	0.10	ug/L			08/18/16 09:46	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			08/18/16 09:46	1
Dibromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 09:46	1
Dichlorobromomethane	0.14	U	1.0	0.14	ug/L			08/18/16 09:46	1
Dichlorodifluoromethane	0.14	U	2.0	0.14	ug/L			08/18/16 09:46	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			08/18/16 09:46	1
Methylene Chloride	**15**		1.0	0.27	ug/L			08/18/16 09:46	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			08/18/16 09:46	1
Toluene	0.14	U	1.0	0.14	ug/L			08/18/16 09:46	1
trans-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
trans-1,3-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 09:46	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			08/18/16 09:46	1
Trichlorofluoromethane	0.11	U	1.0	0.11	ug/L			08/18/16 09:46	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			08/18/16 09:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 129*		*08/18/16 09:46*	*1*
4-Bromofluorobenzene (Surr)	*115*		*81 - 130*		*08/18/16 09:46*	*1*
Dibromofluoromethane (Surr)	*110*		*81 - 124*		*08/18/16 09:46*	*1*
Toluene-d8 (Surr)	*112*		*87 - 128*		*08/18/16 09:46*	*1*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Acenaphthylene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Anthracene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Azobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzo[a]anthracene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzo[b]fluoranthene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzo[k]fluoranthene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzo[g,h,i]perylene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzo[a]pyrene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Benzidine	3.8	U	19	3.8	ug/L		08/18/16 12:02	08/24/16 04:29	1
Bis(2-chloroethoxy)methane	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Bis(2-chloroethyl)ether	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Bis(2-ethylhexyl) phthalate	0.36	U	1.9	0.36	ug/L		08/18/16 12:02	08/24/16 04:29	1
4-Bromophenyl phenyl ether	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Butyl benzyl phthalate	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
4-Chloro-3-methylphenol	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
2-Chloronaphthalene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
2-Chlorophenol	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
4-Chlorophenyl phenyl ether	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Chrysene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Dibenz(a,h)anthracene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Di-n-butyl phthalate	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
1,2-Dichlorobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1

Client Sample ID: YMTFA 9404 FB

Lab Sample ID: 160-18665-3

Date Collected: 08/16/16 10:15

Matrix: Water

Date Received: 08/17/16 09:15

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
1,4-Dichlorobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
3,3'-Dichlorobenzidine	0.25	U N	9.6	0.25	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,4-Dichlorophenol	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Diethyl phthalate	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,4-Dimethylphenol	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Dimethyl phthalate	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
4,6-Dinitro-2-methylphenol	0.24	U	9.6	0.24	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,4-Dinitrophenol	0.38	U	9.6	0.38	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,4-Dinitrotoluene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,6-Dinitrotoluene	0.41	U	1.9	0.41	ug/L		08/18/16 12:02	08/24/16 04:29	1
Di-n-octyl phthalate	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Fluoranthene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Fluorene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Hexachlorobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Hexachlorobutadiene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Hexachlorocyclopentadiene	0.19	U	9.6	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Hexachloroethane	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Indeno[1,2,3-cd]pyrene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Isophorone	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Naphthalene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Nitrobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
N-Nitrosodimethylamine	0.38	U	1.9	0.38	ug/L		08/18/16 12:02	08/24/16 04:29	1
2-Nitrophenol	0.29	U	1.9	0.29	ug/L		08/18/16 12:02	08/24/16 04:29	1
4-Nitrophenol	0.38	U N	9.6	0.38	ug/L		08/18/16 12:02	08/24/16 04:29	1
N-Nitrosodiphenylamine	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
N-Nitrosodi-n-propylamine	0.29	U	1.9	0.29	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,2'-oxybis[1-chloropropane]	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Pentachlorophenol	0.24	U	9.6	0.24	ug/L		08/18/16 12:02	08/24/16 04:29	1
Phenanthrene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
Phenol	0.38	U	1.9	0.38	ug/L		08/18/16 12:02	08/24/16 04:29	1
Pyrene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
1,2,4-Trichlorobenzene	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1
2,4,6-Trichlorophenol	0.19	U	1.9	0.19	ug/L		08/18/16 12:02	08/24/16 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*34*		*23 - 82*	*08/18/16 12:02*	*08/24/16 04:29*	*1*
Phenol-d5 (Surr)	*23*		*14 - 68*	*08/18/16 12:02*	*08/24/16 04:29*	*1*
Nitrobenzene-d5 (Surr)	*76*		*36 - 98*	*08/18/16 12:02*	*08/24/16 04:29*	*1*
2,4,6-Tribromophenol (Surr)	*74*		*41 - 109*	*08/18/16 12:02*	*08/24/16 04:29*	*1*
Terphenyl-d14 (Surr)	*86*		*43 - 107*	*08/18/16 12:02*	*08/24/16 04:29*	*1*
2-Fluorobiphenyl (Surr)	*75*		*31 - 103*	*08/18/16 12:02*	*08/24/16 04:29*	*1*

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
alpha-BHC	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
beta-BHC	0.013	U	0.048	0.013	ug/L		08/18/16 12:14	08/23/16 16:38	1
delta-BHC	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
gamma-BHC (Lindane)	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9404 FB

Date Collected: 08/16/16 10:15
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-3

Matrix: Water

Method: 608 - Organochlorine Pesticides in Water (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
4,4'-DDE	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
4,4'-DDT	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Dieldrin	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Endosulfan I	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Endosulfan II	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Endosulfan sulfate	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Endrin	0.016	U	0.048	0.016	ug/L		08/18/16 12:14	08/23/16 16:38	1
Endrin aldehyde	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Heptachlor	0.0097	U	0.048	0.0097	ug/L		08/18/16 12:14	08/23/16 16:38	1
Heptachlor epoxide	0.016	U	0.048	0.016	ug/L		08/18/16 12:14	08/23/16 16:38	1
Toxaphene	0.26	U	1.9	0.26	ug/L		08/18/16 12:14	08/23/16 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*55*		*40 - 130*	*08/18/16 12:14*	*08/23/16 16:38*	*1*
Tetrachloro-m-xylene	*88*		*63 - 115*	*08/18/16 12:14*	*08/23/16 16:38*	*1*

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.34	U	0.98	0.34	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1221	0.34	U	0.98	0.34	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1232	0.34	U	0.98	0.34	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1242	0.34	U	0.98	0.34	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1248	0.34	U	0.98	0.34	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1254	0.21	U	0.98	0.21	ug/L		08/18/16 12:09	08/23/16 20:16	1
PCB-1260	0.21	U	0.98	0.21	ug/L		08/18/16 12:09	08/23/16 20:16	1
Polychlorinated biphenyls, Total	0.21	U	0.98	0.21	ug/L		08/18/16 12:09	08/23/16 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*99*		*24 - 126*	*08/18/16 12:09*	*08/23/16 20:16*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.025	U	0.25	0.025	mg/L			08/17/16 14:58	1
Nitrate as N	**0.039**		0.020	0.0070	mg/L			08/17/16 14:58	1
Fluoride	0.010	U	0.10	0.010	mg/L			08/17/16 14:58	1
Nitrite as N	0.0070	U	0.020	0.0070	mg/L			08/17/16 14:58	1
Orthophosphate	0.26	U	0.50	0.26	mg/L			08/17/16 14:58	1
Sulfate	0.050	U	0.50	0.050	mg/L			08/17/16 14:58	1
Chloride	0.020	U	0.20	0.020	mg/L			08/17/16 14:58	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.017	U	0.050	0.017	mg/L		08/30/16 11:29	09/07/16 17:32	2
Antimony	0.0017	U	0.0050	0.0017	mg/L		08/30/16 11:29	09/07/16 17:32	2
Arsenic	0.0012	U	0.010	0.0012	mg/L		08/30/16 11:29	09/07/16 17:32	2
Barium	0.00022	U	0.0020	0.00022	mg/L		08/30/16 11:29	09/07/16 17:32	2
Beryllium	0.00035	U	0.00050	0.00035	mg/L		08/30/16 11:29	09/07/16 17:32	2
Boron	**0.022**	**J**	0.10	0.021	mg/L		08/30/16 11:29	09/08/16 19:45	2
Cadmium	0.00010	U	0.00050	0.00010	mg/L		08/30/16 11:29	09/07/16 17:32	2
Calcium	0.068	U	0.10	0.068	mg/L		08/30/16 11:29	09/07/16 17:32	2

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Client Sample ID: YMTFA 9404 FB

Date Collected: 08/16/16 10:15
Date Received: 08/17/16 09:15

Lab Sample ID: 160-18665-3

Matrix: Water

Method: 6020A - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.0010	U	0.010	0.0010	mg/L		08/30/16 11:29	09/07/16 17:32	2
Copper	0.00068	U	0.0010	0.00068	mg/L		08/30/16 11:29	09/08/16 19:45	2
Iron	0.033	U	0.050	0.033	mg/L		08/30/16 11:29	09/07/16 17:32	2
Lead	0.00017	U	0.0030	0.00017	mg/L		08/30/16 11:29	09/07/16 17:32	2
Lithium	**0.0014**	**J B**	0.0050	0.0011	mg/L		08/30/16 11:29	09/07/16 17:32	2
Nickel	0.00080	U	0.0050	0.00080	mg/L		08/30/16 11:29	09/07/16 17:32	2
Potassium	0.042	U	0.10	0.042	mg/L		08/30/16 11:29	09/07/16 17:32	2
Selenium	0.0016	U	0.0050	0.0016	mg/L		08/30/16 11:29	09/07/16 17:32	2
Silver	0.00082	U	0.0020	0.00082	mg/L		08/30/16 11:29	09/07/16 17:32	2
Sodium	**0.071**		0.050	0.024	mg/L		08/30/16 11:29	09/07/16 17:32	2
Uranium	0.00023	U	0.0010	0.00023	mg/L		08/30/16 11:29	09/07/16 17:32	2
Zinc	0.0093	U	0.020	0.0093	mg/L		08/30/16 11:29	09/07/16 17:32	2

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000060	U	0.00020	0.000060	mg/L		08/31/16 08:39	08/31/16 18:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**4.5**	**HF**	0.1	0.1	SU			08/17/16 22:56	1
Total Suspended Solids	4.0	U	4.0	4.0	mg/L			08/22/16 10:12	1
HEM	1.5	U	4.8	1.5	mg/L		09/01/16 09:39	09/01/16 14:38	1
SGT-HEM	2.6	U	5.7	2.6	mg/L		09/01/16 09:39	09/01/16 14:38	1
Phenols, Total	0.0068	U	0.010	0.0068	mg/L		08/29/16 11:52	08/30/16 11:55	1
Cyanide, Total	0.0031	U	0.010	0.0031	mg/L		08/24/16 17:45	08/24/16 20:37	1
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			08/27/16 04:44	1
Acidity	**8.0**	**J**	10	2.0	mg/L			08/30/16 01:12	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.0728	U	0.391	0.391	3.00	0.766	pCi/L	08/31/16 09:52	09/03/16 09:13	1
Gross Beta	0.329	U	0.471	0.472	4.00	0.788	pCi/L	08/31/16 09:52	09/03/16 09:13	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-5.17	U	7.13	7.15	20.0	18.5	pCi/L	08/19/16 15:34	08/22/16 15:52	1
Cobalt-60	-3.29	U	12.4	12.4		14.0	pCi/L	08/19/16 15:34	08/22/16 15:52	1

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.00145	U	0.142	0.142	3.00	0.256	pCi/L	08/18/16 13:38	08/26/16 18:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*94.0*		*40 - 110*	*08/18/16 13:38*	*08/26/16 18:37*	*1*
Y Carrier	*94.6*		*40 - 110*	*08/18/16 13:38*	*08/26/16 18:37*	*1*

Client Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method: A-01-R - Isotopic Curium and/or Americium 241 (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.00752	U	0.0464	0.0464	1.00	0.112	pCi/L	08/19/16 11:58	08/30/16 13:20	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Americium-243	*57.5*		*30 - 110*	*08/19/16 11:58*	*08/30/16 13:20*	*1*

Method: A-01-R - Isotopic Neptunium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Neptunium-237	-0.0517	U	0.0431	0.0433	1.00	0.102	pCi/L	08/19/16 12:00	08/28/16 15:01	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Neptunium-239	*85.5*		*30 - 110*	*08/19/16 12:00*	*08/28/16 15:01*	*1*

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-238	0.0404	U	0.0947	0.0948	1.00	0.182	pCi/L	08/19/16 11:58	08/26/16 19:03	1
Plutonium-239/240	0.0180	U	0.0540	0.0540	1.00	0.120	pCi/L	08/19/16 11:58	08/26/16 19:03	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Pu-242 (T)	*81.6*		*30 - 110*	*08/19/16 11:58*	*08/26/16 19:03*	*1*

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.0132	U	0.0893	0.0894	1.00	0.192	pCi/L	08/19/16 12:00	08/25/16 20:55	1
Thorium-230	0.0957	U	0.0905	0.0909	1.00	0.113	pCi/L	08/19/16 12:00	08/25/16 20:55	1
Thorium-232	0.0316	U	0.0519	0.0519	1.00	0.0874	pCi/L	08/19/16 12:00	08/25/16 20:55	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Thorium-229	*83.0*		*30 - 110*	*08/19/16 12:00*	*08/25/16 20:55*	*1*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.0895	U	0.104	0.104	1.00	0.143	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-235/236	0.0636	U	0.0900	0.0901	1.00	0.0954	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-238	0.0446	U	0.0733	0.0734	1.00	0.123	pCi/L	08/19/16 11:58	08/29/16 14:45	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*58.5*		*30 - 110*	*08/19/16 11:58*	*08/29/16 14:45*	*1*

Method: TC-02-RC - Technetium-99 (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium-99	-1.15	U	1.29	1.29	3.00	2.29	pCi/L	08/29/16 17:31	09/06/16 21:51	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tc-99m	*91.8*		*30 - 110*	*08/29/16 17:31*	*09/06/16 21:51*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-265386/8
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.12	U	1.0	0.12	ug/L			08/18/16 08:34	1
1,1,1-Trichloroethane	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
1,1,2,2-Tetrachloroethane	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,1,2-Trichloroethane	0.13	U	1.0	0.13	ug/L			08/18/16 08:34	1
1,1-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,1-Dichloroethane	0.070	U	1.0	0.070	ug/L			08/18/16 08:34	1
1,1-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,2,3-Trichlorobenzene	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
1,2,3-Trichloropropane	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
1,2,4-Trichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,2,4-Trimethylbenzene	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
1,2-Dibromo-3-Chloropropane	0.41	U	1.0	0.41	ug/L			08/18/16 08:34	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.18	U	4.0	0.18	ug/L			08/18/16 08:34	1
1,2-Dichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,2-Dichloroethane	0.22	U	1.0	0.22	ug/L			08/18/16 08:34	1
1,2-Dichloroethene, Total	0.14	U	2.0	0.14	ug/L			08/18/16 08:34	1
1,2-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,3,5-Trimethylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 08:34	1
1,3-Dichlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 08:34	1
1,3-Dichloropropane	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,4-Dichlorobenzene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
1,4-Dioxane	11	U	80	11	ug/L			08/18/16 08:34	1
2,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
2-Butanone (MEK)	0.47	U	5.0	0.47	ug/L			08/18/16 08:34	1
2-Chloro-1,3-butadiene	0.16	U	1.0	0.16	ug/L			08/18/16 08:34	1
2-Chloroethyl vinyl ether	0.24	U	2.0	0.24	ug/L			08/18/16 08:34	1
2-Chlorotoluene	0.15	U	1.0	0.15	ug/L			08/18/16 08:34	1
2-Hexanone	0.25	U	5.0	0.25	ug/L			08/18/16 08:34	1
2-Nitropropane	0.40	U	10	0.40	ug/L			08/18/16 08:34	1
Allyl chloride	0.10	U	2.0	0.10	ug/L			08/18/16 08:34	1
4-Chlorotoluene	0.15	U	1.0	0.15	ug/L			08/18/16 08:34	1
4-Isopropyltoluene	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
4-Methyl-2-pentanone (MIBK)	0.22	U	5.0	0.22	ug/L			08/18/16 08:34	1
Acetone	0.55	U	2.0	0.55	ug/L			08/18/16 08:34	1
Acetonitrile	3.7	U	10	3.7	ug/L			08/18/16 08:34	1
Acrolein	2.8	U	10	2.8	ug/L			08/18/16 08:34	1
Acrylonitrile	0.73	U	10	0.73	ug/L			08/18/16 08:34	1
Benzene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
Bromobenzene	0.12	U	1.0	0.12	ug/L			08/18/16 08:34	1
Bromoform	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
Bromomethane	0.25	U	2.0	0.25	ug/L			08/18/16 08:34	1
Carbon disulfide	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
Carbon tetrachloride	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
Chlorobenzene	0.11	U	1.0	0.11	ug/L			08/18/16 08:34	1
Bromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 08:34	1
Dibromochloromethane	0.14	U	1.0	0.14	ug/L			08/18/16 08:34	1
Chloroethane	0.16	U	2.0	0.16	ug/L			08/18/16 08:34	1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-265386/8
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
Chloromethane	0.10	U	2.0	0.10	ug/L			08/18/16 08:34	1
cis-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			08/18/16 08:34	1
Cyclohexane	0.14	U	1.0	0.14	ug/L			08/18/16 08:34	1
Cyclohexanone	5.8	U	20	5.8	ug/L			08/18/16 08:34	1
Dibromomethane	0.21	U	1.0	0.21	ug/L			08/18/16 08:34	1
Dichlorobromomethane	0.14	U	1.0	0.14	ug/L			08/18/16 08:34	1
Dichlorodifluoromethane	0.14	U	2.0	0.14	ug/L			08/18/16 08:34	1
Ethyl acetate	0.18	U	2.0	0.18	ug/L			08/18/16 08:34	1
Ethyl ether	0.26	U	1.0	0.26	ug/L			08/18/16 08:34	1
Ethyl methacrylate	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
Ethylbenzene	0.12	U	1.0	0.12	ug/L			08/18/16 08:34	1
1,2-Dibromoethane (EDB)	0.13	U	1.0	0.13	ug/L			08/18/16 08:34	1
Hexachlorobutadiene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
Hexane	0.15	U	4.0	0.15	ug/L			08/18/16 08:34	1
Iodomethane	0.10	U	2.0	0.10	ug/L			08/18/16 08:34	1
Isobutanol	8.3	U	80	8.3	ug/L			08/18/16 08:34	1
Isopropylbenzene	0.17	U	1.0	0.17	ug/L			08/18/16 08:34	1
Methacrylonitrile	1.2	U	10	1.2	ug/L			08/18/16 08:34	1
Methyl acetate	0.76	U	25	0.76	ug/L			08/18/16 08:34	1
Methyl methacrylate	0.27	U	2.0	0.27	ug/L			08/18/16 08:34	1
Methyl tert-butyl ether	0.15	U	2.0	0.15	ug/L			08/18/16 08:34	1
Methylcyclohexane	0.16	U	4.0	0.16	ug/L			08/18/16 08:34	1
Methylene Chloride	0.27	U	1.0	0.27	ug/L			08/18/16 08:34	1
m-Xylene & p-Xylene	0.15	U	2.0	0.15	ug/L			08/18/16 08:34	1
Naphthalene	0.21	U	1.0	0.21	ug/L			08/18/16 08:34	1
1-Butanol	12	U	50	12	ug/L			08/18/16 08:34	1
n-Butylbenzene	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
N-Propylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 08:34	1
o-Xylene	0.13	U	1.0	0.13	ug/L			08/18/16 08:34	1
Propionitrile	1.4	U	10	1.4	ug/L			08/18/16 08:34	1
sec-Butylbenzene	0.16	U	1.0	0.16	ug/L			08/18/16 08:34	1
Styrene	0.13	U	1.0	0.13	ug/L			08/18/16 08:34	1
tert-Butylbenzene	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
Tetrachloroethene	0.18	U	1.0	0.18	ug/L			08/18/16 08:34	1
Tetrahydrofuran	0.50	U	10	0.50	ug/L			08/18/16 08:34	1
Toluene	0.14	U	1.0	0.14	ug/L			08/18/16 08:34	1
trans-1,2-Dichloroethene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
trans-1,3-Dichloropropene	0.10	U	1.0	0.10	ug/L			08/18/16 08:34	1
trans-1,4-Dichloro-2-butene	0.29	U	2.0	0.29	ug/L			08/18/16 08:34	1
Trichloroethene	0.25	U	1.0	0.25	ug/L			08/18/16 08:34	1
Trichlorofluoromethane	0.11	U	1.0	0.11	ug/L			08/18/16 08:34	1
Vinyl acetate	0.18	U	2.0	0.18	ug/L			08/18/16 08:34	1
Vinyl chloride	0.19	U	2.0	0.19	ug/L			08/18/16 08:34	1
Xylenes, Total	0.26	U	3.0	0.26	ug/L			08/18/16 08:34	1
Nonanal	0.41	U	5.0	0.41	ug/L			08/18/16 08:34	1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-265386/8
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 129*		*08/18/16 08:34*	*1*
4-Bromofluorobenzene (Surr)	*106*		*81 - 130*		*08/18/16 08:34*	*1*
Dibromofluoromethane (Surr)	*103*		*81 - 124*		*08/18/16 08:34*	*1*
Toluene-d8 (Surr)	*120*		*87 - 128*		*08/18/16 08:34*	*1*

Lab Sample ID: LCS 160-265386/5
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	10.0	9.45		ug/L		95	80 - 120
1,1,1-Trichloroethane	10.0	10.2		ug/L		102	85 - 116
1,1,2,2-Tetrachloroethane	10.0	9.58		ug/L		96	80 - 120
1,1,2-Trichloroethane	10.0	9.58		ug/L		96	80 - 120
1,1-Dichloroethene	10.0	10.3		ug/L		103	80 - 120
1,1-Dichloroethane	10.0	10.2		ug/L		102	80 - 120
1,1-Dichloropropene	10.0	10.3		ug/L		103	82 - 125
1,2,3-Trichlorobenzene	10.0	8.68		ug/L		87	61 - 133
1,2,3-Trichloropropane	10.0	10.8		ug/L		108	77 - 117
1,2,4-Trichlorobenzene	10.0	9.00		ug/L		90	75 - 121
1,2,4-Trimethylbenzene	10.0	9.67		ug/L		97	87 - 126
1,2-Dibromo-3-Chloropropane	10.0	7.61		ug/L		76	73 - 123
1,2-Dichloro-1,1,2,2-tetrafluoroethane	10.0	11.7		ug/L		117	45 - 140
1,2-Dichlorobenzene	10.0	8.86		ug/L		89	80 - 120
1,2-Dichloroethane	10.0	10.2		ug/L		102	80 - 115
1,2-Dichloroethene, Total	20.0	19.3		ug/L		96	80 - 120
1,2-Dichloropropane	10.0	11.0		ug/L		110	80 - 120
1,3,5-Trimethylbenzene	10.0	10.4		ug/L		104	85 - 129
1,3-Dichlorobenzene	10.0	9.83		ug/L		98	80 - 120
1,3-Dichloropropane	10.0	9.08		ug/L		91	80 - 120
1,4-Dichlorobenzene	10.0	9.58		ug/L		96	80 - 120
1,4-Dioxane	200	200		ug/L		100	61 - 130
2,2-Dichloropropane	10.0	10.4		ug/L		104	81 - 128
2-Butanone (MEK)	10.0	9.33		ug/L		93	67 - 127
2-Chloro-1,3-butadiene	10.0	10.8		ug/L		108	79 - 132
2-Chloroethyl vinyl ether	10.0	8.77		ug/L		88	33 - 140
2-Chlorotoluene	10.0	9.50		ug/L		95	81 - 124
2-Hexanone	10.0	9.39		ug/L		94	70 - 123
2-Nitropropane	20.0	18.5		ug/L		92	57 - 136
Allyl chloride	10.0	9.92		ug/L		99	25 - 140
4-Chlorotoluene	10.0	9.77		ug/L		98	81 - 127
4-Isopropyltoluene	10.0	9.84		ug/L		98	82 - 134
4-Methyl-2-pentanone (MIBK)	10.0	10.8		ug/L		108	75 - 126
Acetone	10.0	11.0		ug/L		110	69 - 129
Acetonitrile	100	97.7		ug/L		98	67 - 122
Acrolein	50.0	42.4		ug/L		85	58 - 140
Acrylonitrile	100	102		ug/L		102	80 - 122

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-265386/5
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 120
Bromobenzene	10.0	9.36		ug/L		94	80 - 120
Bromoform	10.0	9.46		ug/L		95	80 - 120
Bromomethane	10.0	11.1		ug/L		111	70 - 124
Carbon disulfide	10.0	10.5		ug/L		105	80 - 121
Carbon tetrachloride	10.0	10.5		ug/L		105	83 - 125
Chlorobenzene	10.0	9.72		ug/L		97	80 - 120
Bromochloromethane	10.0	9.63		ug/L		96	80 - 120
Dibromochloromethane	10.0	9.17		ug/L		92	80 - 120
Chloroethane	10.0	11.5		ug/L		115	73 - 119
Chloroform	10.0	10.1		ug/L		101	80 - 120
Chloromethane	10.0	10.2		ug/L		102	72 - 124
cis-1,2-Dichloroethene	10.0	9.66		ug/L		97	80 - 120
cis-1,3-Dichloropropene	10.0	11.5		ug/L		115	80 - 120
Cyclohexane	10.0	10.5		ug/L		105	82 - 129
Cyclohexanone	100	99.3		ug/L		99	38 - 140
Dibromomethane	10.0	10.9		ug/L		109	80 - 120
Dichlorobromomethane	10.0	11.5		ug/L		115	80 - 120
Dichlorodifluoromethane	10.0	11.3		ug/L		113	24 - 140
Ethyl acetate	20.0	20.0		ug/L		100	75 - 124
Ethyl ether	10.0	10.4		ug/L		104	80 - 120
Ethyl methacrylate	10.0	10.9		ug/L		109	69 - 123
Ethylbenzene	10.0	9.46		ug/L		95	80 - 120
1,2-Dibromoethane (EDB)	10.0	9.10		ug/L		91	80 - 120
Hexachlorobutadiene	10.0	8.27		ug/L		83	59 - 140
Hexane	10.0	10.5		ug/L		105	73 - 140
Iodomethane	10.0	10.1		ug/L		101	69 - 129
Isobutanol	250	253		ug/L		101	64 - 124
Isopropylbenzene	10.0	9.55		ug/L		95	84 - 130
Methacrylonitrile	100	102		ug/L		102	79 - 126
Methyl acetate	50.0	48.0		ug/L		96	69 - 119
Methyl methacrylate	20.0	23.2		ug/L		116	70 - 123
Methyl tert-butyl ether	10.0	10.3		ug/L		103	78 - 121
Methylcyclohexane	10.0	10.6		ug/L		106	71 - 140
Methylene Chloride	10.0	9.15		ug/L		91	80 - 120
m-Xylene & p-Xylene	10.0	9.83		ug/L		98	80 - 120
Naphthalene	10.0	8.83		ug/L		88	72 - 128
1-Butanol	250	215		ug/L		86	62 - 128
n-Butylbenzene	10.0	9.74		ug/L		97	78 - 132
N-Propylbenzene	10.0	9.67		ug/L		97	80 - 134
o-Xylene	10.0	9.73		ug/L		97	80 - 120
Propionitrile	100	102		ug/L		102	77 - 121
sec-Butylbenzene	10.0	9.76		ug/L		98	76 - 134
Styrene	10.0	10.9		ug/L		109	81 - 133
tert-Butylbenzene	10.0	9.71		ug/L		97	84 - 129
Tetrachloroethene	10.0	9.36		ug/L		94	83 - 123
Tetrahydrofuran	20.0	20.0		ug/L		100	71 - 124
Toluene	10.0	9.96		ug/L		100	80 - 120

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-265386/5
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,2-Dichloroethene	10.0	9.63		ug/L		96	80 - 120
trans-1,3-Dichloropropene	10.0	9.46		ug/L		95	82 - 124
trans-1,4-Dichloro-2-butene	10.0	8.85		ug/L		89	64 - 137
Trichloroethene	10.0	9.96		ug/L		100	80 - 120
Trichlorofluoromethane	10.0	11.1		ug/L		111	71 - 132
Vinyl acetate	10.0	10.2		ug/L		102	63 - 140
Vinyl chloride	10.0	9.95		ug/L		99	77 - 122
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 129*
4-Bromofluorobenzene (Surr)	*99*		*81 - 130*
Dibromofluoromethane (Surr)	*107*		*81 - 124*
Toluene-d8 (Surr)	*96*		*87 - 128*

Lab Sample ID: LCSD 160-265386/6
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	10.0	9.93		ug/L		99	80 - 120	5	20
1,1,1-Trichloroethane	10.0	10.7		ug/L		107	85 - 116	5	20
1,1,2,2-Tetrachloroethane	10.0	10.1		ug/L		101	80 - 120	5	20
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	80 - 120	6	20
1,1-Dichloroethene	10.0	10.5		ug/L		105	80 - 120	2	20
1,1-Dichloroethane	10.0	10.4		ug/L		104	80 - 120	2	20
1,1-Dichloropropene	10.0	10.6		ug/L		106	82 - 125	3	20
1,2,3-Trichlorobenzene	10.0	10.2		ug/L		102	61 - 133	16	20
1,2,3-Trichloropropane	10.0	11.2		ug/L		112	77 - 117	3	20
1,2,4-Trichlorobenzene	10.0	10.6		ug/L		106	75 - 121	16	20
1,2,4-Trimethylbenzene	10.0	10.0		ug/L		100	87 - 126	3	20
1,2-Dibromo-3-Chloropropane	10.0	8.80		ug/L		88	73 - 123	14	20
1,2-Dichloro-1,1,2,2-tetrafluoroethane	10.0	12.1		ug/L		121	45 - 140	4	20
1,2-Dichlorobenzene	10.0	9.64		ug/L		96	80 - 120	8	20
1,2-Dichloroethane	10.0	10.4		ug/L		104	80 - 115	2	20
1,2-Dichloroethene, Total	20.0	19.6		ug/L		98	80 - 120	1	20
1,2-Dichloropropane	10.0	9.74		ug/L		97	80 - 120	12	20
1,3,5-Trimethylbenzene	10.0	10.7		ug/L		107	85 - 129	3	20
1,3-Dichlorobenzene	10.0	10.1		ug/L		101	80 - 120	2	20
1,3-Dichloropropane	10.0	9.90		ug/L		99	80 - 120	9	20
1,4-Dichlorobenzene	10.0	9.97		ug/L		100	80 - 120	4	20
1,4-Dioxane	200	187		ug/L		93	61 - 130	7	20
2,2-Dichloropropane	10.0	10.4		ug/L		104	81 - 128	0	20
2-Butanone (MEK)	10.0	9.37		ug/L		94	67 - 127	0	20
2-Chloro-1,3-butadiene	10.0	11.2		ug/L		112	79 - 132	3	20
2-Chloroethyl vinyl ether	10.0	7.34		ug/L		73	33 - 140	18	20
2-Chlorotoluene	10.0	9.88		ug/L		99	81 - 124	4	20

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 160-265386/6
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	10.0	9.47		ug/L		95	70 - 123	1	20
2-Nitropropane	20.0	19.7		ug/L		98	57 - 136	6	20
Allyl chloride	10.0	10.3		ug/L		103	25 - 140	4	20
4-Chlorotoluene	10.0	9.81		ug/L		98	81 - 127	0	20
4-Isopropyltoluene	10.0	10.4		ug/L		104	82 - 134	5	20
4-Methyl-2-pentanone (MIBK)	10.0	11.2		ug/L		112	75 - 126	4	20
Acetone	10.0	10.8		ug/L		108	69 - 129	1	20
Acetonitrile	100	92.0		ug/L		92	67 - 122	6	20
Acrolein	50.0	42.9		ug/L		86	58 - 140	1	20
Acrylonitrile	100	103		ug/L		103	80 - 122	0	20
Benzene	10.0	10.3		ug/L		103	80 - 120	2	20
Bromobenzene	10.0	9.64		ug/L		96	80 - 120	3	20
Bromoform	10.0	9.67		ug/L		97	80 - 120	2	20
Bromomethane	10.0	10.5		ug/L		105	70 - 124	6	20
Carbon disulfide	10.0	10.8		ug/L		108	80 - 121	3	20
Carbon tetrachloride	10.0	10.4		ug/L		104	83 - 125	1	20
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120	5	20
Bromochloromethane	10.0	9.71		ug/L		97	80 - 120	1	20
Dibromochloromethane	10.0	9.92		ug/L		99	80 - 120	8	20
Chloroethane	10.0	10.7		ug/L		107	73 - 119	7	20
Chloroform	10.0	9.74		ug/L		97	80 - 120	4	20
Chloromethane	10.0	10.5		ug/L		105	72 - 124	3	20
cis-1,2-Dichloroethene	10.0	9.58		ug/L		96	80 - 120	1	20
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	80 - 120	11	20
Cyclohexane	10.0	10.8		ug/L		108	82 - 129	3	20
Cyclohexanone	100	100		ug/L		100	38 - 140	1	20
Dibromomethane	10.0	9.66		ug/L		97	80 - 120	12	20
Dichlorobromomethane	10.0	10.8		ug/L		108	80 - 120	7	20
Dichlorodifluoromethane	10.0	11.2		ug/L		112	24 - 140	0	20
Ethyl acetate	20.0	19.8		ug/L		99	75 - 124	1	20
Ethyl ether	10.0	9.81		ug/L		98	80 - 120	6	20
Ethyl methacrylate	10.0	11.7		ug/L		117	69 - 123	7	20
Ethylbenzene	10.0	9.98		ug/L		100	80 - 120	5	20
1,2-Dibromoethane (EDB)	10.0	9.60		ug/L		96	80 - 120	5	20
Hexachlorobutadiene	10.0	9.71		ug/L		97	59 - 140	16	20
Hexane	10.0	10.6		ug/L		106	73 - 140	1	20
Iodomethane	10.0	10.4		ug/L		104	69 - 129	3	20
Isobutanol	250	223		ug/L		89	64 - 124	13	20
Isopropylbenzene	10.0	9.94		ug/L		99	84 - 130	4	20
Methacrylonitrile	100	101		ug/L		101	79 - 126	1	20
Methyl acetate	50.0	47.2		ug/L		94	69 - 119	2	20
Methyl methacrylate	20.0	20.7		ug/L		104	70 - 123	11	20
Methyl tert-butyl ether	10.0	10.1		ug/L		101	78 - 121	2	20
Methylcyclohexane	10.0	10.6		ug/L		106	71 - 140	0	20
Methylene Chloride	10.0	9.25		ug/L		92	80 - 120	1	20
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120	4	20
Naphthalene	10.0	10.5		ug/L		105	72 - 128	17	20
1-Butanol	250	228		ug/L		91	62 - 128	6	20

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 160-265386/6
Matrix: Water
Analysis Batch: 265386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
n-Butylbenzene			10.0	10.6		ug/L		106	78 - 132	9	20
N-Propylbenzene			10.0	9.80		ug/L		98	80 - 134	1	20
o-Xylene			10.0	10.7		ug/L		107	80 - 120	9	20
Propionitrile			100	97.4		ug/L		97	77 - 121	4	20
sec-Butylbenzene			10.0	10.7		ug/L		107	76 - 134	9	20
Styrene			10.0	11.4		ug/L		114	81 - 133	5	20
tert-Butylbenzene			10.0	10.0		ug/L		100	84 - 129	3	20
Tetrachloroethene			10.0	11.1		ug/L		111	83 - 123	17	20
Tetrahydrofuran			20.0	17.7		ug/L		88	71 - 124	13	20
Toluene			10.0	11.3		ug/L		113	80 - 120	12	20
trans-1,2-Dichloroethene			10.0	10.0		ug/L		100	80 - 120	4	20
trans-1,3-Dichloropropene			10.0	10.5		ug/L		105	82 - 124	10	20
trans-1,4-Dichloro-2-butene			10.0	8.46		ug/L		85	64 - 137	5	20
Trichloroethene			10.0	10.4		ug/L		104	80 - 120	4	20
Trichlorofluoromethane			10.0	11.0		ug/L		110	71 - 132	1	20
Vinyl acetate			10.0	10.7		ug/L		107	63 - 140	5	20
Vinyl chloride			10.0	10.5		ug/L		105	77 - 122	5	20
Xylenes, Total			20.0	21.0		ug/L		105	80 - 120	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 129*
4-Bromofluorobenzene (Surr)	*104*		*81 - 130*
Dibromofluoromethane (Surr)	*107*		*81 - 124*
Toluene-d8 (Surr)	*102*		*87 - 128*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-265425/1-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265425

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Acenaphthylene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Azobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzo[a]anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzo[b]fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzo[k]fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzo[g,h,i]perylene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzo[a]pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Benzidine	4.0	U	20	4.0	ug/L		08/18/16 12:02	08/23/16 15:49	1
Bis(2-chloroethoxy)methane	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Bis(2-chloroethyl)ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Bis(2-ethylhexyl) phthalate	0.37	U	2.0	0.37	ug/L		08/18/16 12:02	08/23/16 15:49	1
4-Bromophenyl phenyl ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Butyl benzyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
4-Chloro-3-methylphenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-265425/1-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265425

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
2-Chlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
4-Chlorophenyl phenyl ether	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Chrysene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Dibenz(a,h)anthracene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Di-n-butyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
1,2-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
1,3-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
1,4-Dichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
3,3'-Dichlorobenzidine	0.26	U	10	0.26	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,4-Dichlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Diethyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,4-Dimethylphenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Dimethyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
4,6-Dinitro-2-methylphenol	0.25	U	10	0.25	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,4-Dinitrophenol	0.40	U	10	0.40	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,4-Dinitrotoluene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,6-Dinitrotoluene	0.43	U	2.0	0.43	ug/L		08/18/16 12:02	08/23/16 15:49	1
Di-n-octyl phthalate	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Fluoranthene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Fluorene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Hexachlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Hexachlorobutadiene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Hexachlorocyclopentadiene	0.20	U	10	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Hexachloroethane	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Indeno[1,2,3-cd]pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Isophorone	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Naphthalene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Nitrobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
N-Nitrosodimethylamine	0.40	U	2.0	0.40	ug/L		08/18/16 12:02	08/23/16 15:49	1
2-Nitrophenol	0.30	U	2.0	0.30	ug/L		08/18/16 12:02	08/23/16 15:49	1
4-Nitrophenol	0.40	U	10	0.40	ug/L		08/18/16 12:02	08/23/16 15:49	1
N-Nitrosodiphenylamine	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
N-Nitrosodi-n-propylamine	0.30	U	2.0	0.30	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,2'-oxybis[1-chloropropane]	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Pentachlorophenol	0.25	U	10	0.25	ug/L		08/18/16 12:02	08/23/16 15:49	1
Phenanthrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
Phenol	0.40	U	2.0	0.40	ug/L		08/18/16 12:02	08/23/16 15:49	1
Pyrene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
1,2,4-Trichlorobenzene	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1
2,4,6-Trichlorophenol	0.20	U	2.0	0.20	ug/L		08/18/16 12:02	08/23/16 15:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*38*		*23 - 82*	*08/18/16 12:02*	*08/23/16 15:49*	*1*
Phenol-d5 (Surr)	*33*		*14 - 68*	*08/18/16 12:02*	*08/23/16 15:49*	*1*
Nitrobenzene-d5 (Surr)	*63*		*36 - 98*	*08/18/16 12:02*	*08/23/16 15:49*	*1*
2,4,6-Tribromophenol (Surr)	*61*		*41 - 109*	*08/18/16 12:02*	*08/23/16 15:49*	*1*
Terphenyl-d14 (Surr)	*86*		*43 - 107*	*08/18/16 12:02*	*08/23/16 15:49*	*1*

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-265425/1-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265425

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*31 - 103*	*08/18/16 12:02*	*08/23/16 15:49*	*1*

Lab Sample ID: LCS 160-265425/2-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 265425

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	100	76.8		ug/L		77	51 - 89
Acenaphthylene	100	78.9		ug/L		79	46 - 98
Anthracene	100	84.5		ug/L		85	54 - 111
Benzo[a]anthracene	100	88.6		ug/L		89	68 - 108
Benzo[b]fluoranthene	100	98.6		ug/L		99	57 - 114
Benzo[k]fluoranthene	100	88.2		ug/L		88	59 - 112
Benzo[g,h,i]perylene	100	93.8		ug/L		94	58 - 120
Benzo[a]pyrene	100	92.0		ug/L		92	55 - 108
Bis(2-chloroethoxy)methane	100	77.5		ug/L		78	53 - 99
Bis(2-chloroethyl)ether	100	74.4		ug/L		74	50 - 97
Bis(2-ethylhexyl) phthalate	100	96.1		ug/L		96	54 - 116
4-Bromophenyl phenyl ether	100	81.8		ug/L		82	54 - 111
Butyl benzyl phthalate	100	95.0		ug/L		95	52 - 126
4-Chloro-3-methylphenol	100	75.3		ug/L		75	45 - 106
2-Chloronaphthalene	100	75.6		ug/L		76	45 - 95
2-Chlorophenol	100	66.7		ug/L		67	56 - 93
4-Chlorophenyl phenyl ether	100	81.5		ug/L		81	53 - 100
Chrysene	100	87.0		ug/L		87	58 - 112
Dibenz(a,h)anthracene	100	94.8		ug/L		95	56 - 122
Di-n-butyl phthalate	100	92.1		ug/L		92	57 - 108
3,3'-Dichlorobenzidine	100	76.1		ug/L		76	26 - 77
2,4-Dichlorophenol	100	73.4		ug/L		73	46 - 103
Diethyl phthalate	100	87.5		ug/L		87	60 - 101
2,4-Dimethylphenol	100	67.0		ug/L		67	40 - 105
Dimethyl phthalate	100	84.7		ug/L		85	57 - 101
4,6-Dinitro-2-methylphenol	100	86.9		ug/L		87	61 - 120
2,4-Dinitrophenol	100	71.0		ug/L		71	42 - 146
2,4-Dinitrotoluene	100	87.0		ug/L		87	62 - 101
2,6-Dinitrotoluene	100	82.1		ug/L		82	62 - 103
Di-n-octyl phthalate	100	99.2		ug/L		99	57 - 118
Fluoranthene	100	88.9		ug/L		89	55 - 114
Fluorene	100	83.1		ug/L		83	59 - 96
Hexachlorobenzene	100	82.7		ug/L		83	56 - 110
Hexachlorobutadiene	100	63.4		ug/L		63	36 - 84
Hexachlorocyclopentadiene	100	50.9		ug/L		51	16 - 86
Hexachloroethane	100	64.4		ug/L		64	40 - 77
Indeno[1,2,3-cd]pyrene	100	92.7		ug/L		93	55 - 124
Isophorone	100	68.0		ug/L		68	50 - 107
Naphthalene	100	72.4		ug/L		72	42 - 82
Nitrobenzene	100	76.7		ug/L		77	48 - 96
2-Nitrophenol	100	77.2		ug/L		77	51 - 98

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-265425/2-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 265425

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Nitrophenol	100	45.4		ug/L		45	25 - 45
N-Nitrosodi-n-propylamine	100	79.2		ug/L		79	57 - 113
2,2'-oxybis[1-chloropropane]	100	78.0		ug/L		78	42 - 102
Pentachlorophenol	100	82.1		ug/L		82	56 - 126
Phenanthrene	100	86.3		ug/L		86	54 - 110
Phenol	100	34.7		ug/L		35	27 - 43
Pyrene	100	83.6		ug/L		84	53 - 117
1,2,4-Trichlorobenzene	100	64.9		ug/L		65	44 - 84
2,4,6-Trichlorophenol	100	80.3		ug/L		80	54 - 105

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*47*		*23 - 82*
Phenol-d5 (Surr)	*37*		*14 - 68*
Nitrobenzene-d5 (Surr)	*78*		*36 - 98*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 109*
Terphenyl-d14 (Surr)	*86*		*43 - 107*
2-Fluorobiphenyl (Surr)	*77*		*31 - 103*

Lab Sample ID: LCSD 160-265425/3-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265425

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	100	82.4		ug/L		82	51 - 89	7	20
Acenaphthylene	100	84.1		ug/L		84	46 - 98	6	20
Anthracene	100	88.6		ug/L		89	54 - 111	5	20
Benzo[a]anthracene	100	92.7		ug/L		93	68 - 108	5	20
Benzo[b]fluoranthene	100	103		ug/L		103	57 - 114	4	20
Benzo[k]fluoranthene	100	92.1		ug/L		92	59 - 112	4	20
Benzo[g,h,i]perylene	100	101		ug/L		101	58 - 120	8	20
Benzo[a]pyrene	100	97.6		ug/L		98	55 - 108	6	20
Bis(2-chloroethoxy)methane	100	82.9		ug/L		83	53 - 99	7	20
Bis(2-chloroethyl)ether	100	80.5		ug/L		81	50 - 97	8	20
Bis(2-ethylhexyl) phthalate	100	101		ug/L		101	54 - 116	5	20
4-Bromophenyl phenyl ether	100	86.7		ug/L		87	54 - 111	6	20
Butyl benzyl phthalate	100	100		ug/L		100	52 - 126	5	20
4-Chloro-3-methylphenol	100	82.2		ug/L		82	45 - 106	9	20
2-Chloronaphthalene	100	80.9		ug/L		81	45 - 95	7	20
2-Chlorophenol	100	73.3		ug/L		73	56 - 93	10	20
4-Chlorophenyl phenyl ether	100	86.8		ug/L		87	53 - 100	6	20
Chrysene	100	90.2		ug/L		90	58 - 112	4	20
Dibenz(a,h)anthracene	100	101		ug/L		101	56 - 122	6	20
Di-n-butyl phthalate	100	96.5		ug/L		97	57 - 108	5	20
3,3'-Dichlorobenzidine	100	78.5	N	ug/L		79	26 - 77	3	20
2,4-Dichlorophenol	100	78.6		ug/L		79	46 - 103	7	20
Diethyl phthalate	100	92.5		ug/L		92	60 - 101	6	20
2,4-Dimethylphenol	100	75.3		ug/L		75	40 - 105	12	20
Dimethyl phthalate	100	90.4		ug/L		90	57 - 101	7	20

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 160-265425/3-A
Matrix: Water
Analysis Batch: 266068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265425

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,6-Dinitro-2-methylphenol	100	93.1		ug/L		93	61 - 120	7	20
2,4-Dinitrophenol	100	75.9		ug/L		76	42 - 146	7	20
2,4-Dinitrotoluene	100	92.8		ug/L		93	62 - 101	6	20
2,6-Dinitrotoluene	100	88.9		ug/L		89	62 - 103	8	20
Di-n-octyl phthalate	100	105		ug/L		105	57 - 118	6	20
Fluoranthene	100	91.8		ug/L		92	55 - 114	3	20
Fluorene	100	88.1		ug/L		88	59 - 96	6	20
Hexachlorobenzene	100	87.2		ug/L		87	56 - 110	5	20
Hexachlorobutadiene	100	66.6		ug/L		67	36 - 84	5	20
Hexachlorocyclopentadiene	100	53.6		ug/L		54	16 - 86	5	20
Hexachloroethane	100	67.5		ug/L		68	40 - 77	5	20
Indeno[1,2,3-cd]pyrene	100	100		ug/L		100	55 - 124	8	20
Isophorone	100	73.7		ug/L		74	50 - 107	8	20
Naphthalene	100	76.6		ug/L		77	42 - 82	6	20
Nitrobenzene	100	82.1		ug/L		82	48 - 96	7	20
2-Nitrophenol	100	84.5		ug/L		85	51 - 98	9	20
4-Nitrophenol	100	50.5	N	ug/L		51	25 - 45	11	20
N-Nitrosodi-n-propylamine	100	86.7		ug/L		87	57 - 113	9	20
2,2'-oxybis[1-chloropropane]	100	84.1		ug/L		84	42 - 102	7	20
Pentachlorophenol	100	87.5		ug/L		88	56 - 126	6	20
Phenanthrene	100	90.0		ug/L		90	54 - 110	4	20
Phenol	100	40.0		ug/L		40	27 - 43	14	20
Pyrene	100	87.4		ug/L		87	53 - 117	4	20
1,2,4-Trichlorobenzene	100	68.3		ug/L		68	44 - 84	5	20
2,4,6-Trichlorophenol	100	87.1		ug/L		87	54 - 105	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*52*		*23 - 82*
Phenol-d5 (Surr)	*42*		*14 - 68*
Nitrobenzene-d5 (Surr)	*84*		*36 - 98*
2,4,6-Tribromophenol (Surr)	*91*		*41 - 109*
Terphenyl-d14 (Surr)	*91*		*43 - 107*
2-Fluorobiphenyl (Surr)	*83*		*31 - 103*

Method: 608 - Organochlorine Pesticides in Water

Lab Sample ID: MB 160-265429/1-A
Matrix: Water
Analysis Batch: 266065

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265429

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
alpha-BHC	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
beta-BHC	0.013	U	0.050	0.013	ug/L		08/18/16 12:14	08/23/16 13:19	1
delta-BHC	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
gamma-BHC (Lindane)	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
4,4'-DDD	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
4,4'-DDE	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 160-265429/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266065 — **Prep Batch: 265429**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Dieldrin	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Endosulfan I	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Endosulfan II	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Endosulfan sulfate	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Endrin	0.017	U	0.050	0.017	ug/L		08/18/16 12:14	08/23/16 13:19	1
Endrin aldehyde	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Heptachlor	0.010	U	0.050	0.010	ug/L		08/18/16 12:14	08/23/16 13:19	1
Heptachlor epoxide	0.017	U	0.050	0.017	ug/L		08/18/16 12:14	08/23/16 13:19	1
Toxaphene	0.27	U	2.0	0.27	ug/L		08/18/16 12:14	08/23/16 13:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*88*		*40 - 130*	*08/18/16 12:14*	*08/23/16 13:19*	*1*
Tetrachloro-m-xylene	*83*		*63 - 115*	*08/18/16 12:14*	*08/23/16 13:19*	*1*

Lab Sample ID: LCS 160-265429/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266065 — **Prep Batch: 265429**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.500	0.383		ug/L		77	42 - 122
alpha-BHC	0.500	0.488		ug/L		98	37 - 134
beta-BHC	0.500	0.466		ug/L		93	17 - 147
delta-BHC	0.500	0.506		ug/L		101	19 - 140
gamma-BHC (Lindane)	0.501	0.483		ug/L		97	32 - 127
4,4'-DDD	0.500	0.500		ug/L		100	31 - 141
4,4'-DDE	0.501	0.452		ug/L		90	30 - 145
4,4'-DDT	0.500	0.495		ug/L		99	25 - 160
Dieldrin	0.501	0.479		ug/L		96	36 - 146
Endosulfan I	0.500	0.397		ug/L		79	45 - 153
Endosulfan II	0.500	0.419		ug/L		84	10 - 140
Endosulfan sulfate	0.500	0.472		ug/L		94	26 - 144
Endrin	0.501	0.478		ug/L		96	30 - 147
Endrin aldehyde	0.500	0.493		ug/L		99	40 - 139
Heptachlor	0.500	0.376		ug/L		75	34 - 111
Heptachlor epoxide	0.500	0.463		ug/L		93	37 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*92*		*40 - 130*
Tetrachloro-m-xylene	*85*		*63 - 115*

Lab Sample ID: LCSD 160-265429/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266065 — **Prep Batch: 265429**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	0.500	0.374		ug/L		75	42 - 122	2	20
alpha-BHC	0.500	0.481		ug/L		96	37 - 134	2	20

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCSD 160-265429/3-A
Matrix: Water
Analysis Batch: 266065

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265429

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
beta-BHC	0.500	0.453		ug/L		91	17 - 147	3	20
delta-BHC	0.500	0.492		ug/L		98	19 - 140	3	20
gamma-BHC (Lindane)	0.501	0.472		ug/L		94	32 - 127	2	20
4,4'-DDD	0.500	0.476		ug/L		95	31 - 141	5	20
4,4'-DDE	0.501	0.442		ug/L		88	30 - 145	2	20
4,4'-DDT	0.500	0.469		ug/L		94	25 - 160	5	20
Dieldrin	0.501	0.466		ug/L		93	36 - 146	3	20
Endosulfan I	0.500	0.385		ug/L		77	45 - 153	3	20
Endosulfan II	0.500	0.401		ug/L		80	10 - 140	5	20
Endosulfan sulfate	0.500	0.454		ug/L		91	26 - 144	4	20
Endrin	0.501	0.458		ug/L		92	30 - 147	4	20
Endrin aldehyde	0.500	0.456		ug/L		91	40 - 139	8	20
Heptachlor	0.500	0.361	J	ug/L		72	34 - 111	4	20
Heptachlor epoxide	0.500	0.450		ug/L		90	37 - 142	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*84*		*40 - 130*
Tetrachloro-m-xylene	*86*		*63 - 115*

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 160-265426/1-A
Matrix: Water
Analysis Batch: 266032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265426

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.35	U	1.0	0.35	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1221	0.35	U	1.0	0.35	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1232	0.35	U	1.0	0.35	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1242	0.35	U	1.0	0.35	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1248	0.35	U	1.0	0.35	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1254	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 16:31	1
PCB-1260	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 16:31	1
Polychlorinated biphenyls, Total	0.22	U	1.0	0.22	ug/L		08/18/16 12:09	08/23/16 16:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*104*		*24 - 126*	*08/18/16 12:09*	*08/23/16 16:31*	*1*

Lab Sample ID: LCS 160-265426/2-A
Matrix: Water
Analysis Batch: 266032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 265426

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	5.00	3.99		ug/L		80	50 - 114
PCB-1260	5.00	4.22		ug/L		84	80 - 127

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCS 160-265426/2-A
Matrix: Water
Analysis Batch: 266032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 265426

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*103*		*24 - 126*

Lab Sample ID: LCSD 160-265426/3-A
Matrix: Water
Analysis Batch: 266032

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265426

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			5.00	4.10		ug/L		82	50 - 114	3	20
PCB-1260			5.00	4.38		ug/L		88	80 - 127	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*100*		*24 - 126*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 160-265337/9
Matrix: Water
Analysis Batch: 265337

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.025	U	0.25	0.025	mg/L			08/17/16 13:43	1
Fluoride	0.010	U	0.10	0.010	mg/L			08/17/16 13:43	1
Sulfate	0.050	U	0.50	0.050	mg/L			08/17/16 13:43	1
Chloride	0.020	U	0.20	0.020	mg/L			08/17/16 13:43	1

Lab Sample ID: LCS 160-265337/10
Matrix: Water
Analysis Batch: 265337

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide			2.00	2.05		mg/L		102	90 - 110		
Fluoride			1.00	1.03		mg/L		103	90 - 110		
Sulfate			8.00	7.95		mg/L		99	90 - 110		
Chloride			2.00	2.00		mg/L		100	90 - 110		

Lab Sample ID: 160-18665-1 MS
Matrix: Water
Analysis Batch: 265337

Client Sample ID: YMTFA 9720 EB
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide	0.028	J	2.00	2.00		mg/L		99	90 - 110		
Fluoride	0.010	U	2.00	2.02		mg/L		101	90 - 110		
Sulfate	0.050	U	4.00	3.90		mg/L		98	90 - 110		
Chloride	0.027	J	2.00	1.98		mg/L		98	90 - 110		

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 160-18665-1 DU — **Client Sample ID: YMTFA 9720 EB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265337

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bromide	0.028	J	0.025	U	mg/L		NC	20
Fluoride	0.010	U	0.010	U	mg/L		NC	20
Sulfate	0.050	U	0.050	U	mg/L		NC	20
Chloride	0.027	J	0.0332	J	mg/L		22	20

Lab Sample ID: MB 160-265338/9 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265338

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.0070	U	0.020	0.0070	mg/L			08/17/16 13:43	1
Nitrite as N	0.0070	U	0.020	0.0070	mg/L			08/17/16 13:43	1
Orthophosphate	0.26	U	0.50	0.26	mg/L			08/17/16 13:43	1

Lab Sample ID: LCS 160-265338/10 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265338

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.400	0.408		mg/L		102	90 - 110
Nitrite as N	0.160	0.153		mg/L		96	90 - 110
Orthophosphate	8.00	8.17		mg/L		102	90 - 110

Lab Sample ID: 160-18665-1 MS — **Client Sample ID: YMTFA 9720 EB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265338

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.0070	J	0.400	0.403		mg/L		99	90 - 110
Nitrite as N	0.0070	U	0.100	0.0803	N	mg/L		80	90 - 110
Orthophosphate	0.26	U	4.00	3.90		mg/L		98	90 - 110

Lab Sample ID: 160-18665-1 DU — **Client Sample ID: YMTFA 9720 EB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265338

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.0070	J	0.0070	U	mg/L		NC	20
Nitrite as N	0.0070	U	0.0070	U	mg/L		NC	20
Orthophosphate	0.26	U	0.26	U	mg/L		NC	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-267270/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268443 — **Prep Batch: 267270**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.017	U	0.050	0.017	mg/L		08/30/16 11:29	09/07/16 16:39	2

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 160-267270/1-A
Matrix: Water
Analysis Batch: 268443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 267270

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0017	U	0.0050	0.0017	mg/L		08/30/16 11:29	09/07/16 16:39	2
Arsenic	0.0012	U	0.010	0.0012	mg/L		08/30/16 11:29	09/07/16 16:39	2
Barium	0.00022	U	0.0020	0.00022	mg/L		08/30/16 11:29	09/07/16 16:39	2
Beryllium	0.00035	U	0.00050	0.00035	mg/L		08/30/16 11:29	09/07/16 16:39	2
Cadmium	0.00010	U	0.00050	0.00010	mg/L		08/30/16 11:29	09/07/16 16:39	2
Calcium	0.0747	J	0.10	0.068	mg/L		08/30/16 11:29	09/07/16 16:39	2
Chromium	0.0010	U	0.010	0.0010	mg/L		08/30/16 11:29	09/07/16 16:39	2
Iron	0.033	U	0.050	0.033	mg/L		08/30/16 11:29	09/07/16 16:39	2
Lead	0.000326	J	0.0030	0.00017	mg/L		08/30/16 11:29	09/07/16 16:39	2
Lithium	0.00214	J	0.0050	0.0011	mg/L		08/30/16 11:29	09/07/16 16:39	2
Nickel	0.00080	U	0.0050	0.00080	mg/L		08/30/16 11:29	09/07/16 16:39	2
Potassium	0.042	U	0.10	0.042	mg/L		08/30/16 11:29	09/07/16 16:39	2
Selenium	0.0016	U	0.0050	0.0016	mg/L		08/30/16 11:29	09/07/16 16:39	2
Silver	0.00082	U	0.0020	0.00082	mg/L		08/30/16 11:29	09/07/16 16:39	2
Sodium	0.024	U	0.050	0.024	mg/L		08/30/16 11:29	09/07/16 16:39	2
Uranium	0.00023	U	0.0010	0.00023	mg/L		08/30/16 11:29	09/07/16 16:39	2
Zinc	0.0093	U	0.020	0.0093	mg/L		08/30/16 11:29	09/07/16 16:39	2

Lab Sample ID: MB 160-267270/1-A
Matrix: Water
Analysis Batch: 268640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 267270

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.021	U	0.10	0.021	mg/L		08/30/16 11:29	09/08/16 18:57	2
Copper	0.00068	U	0.0010	0.00068	mg/L		08/30/16 11:29	09/08/16 18:57	2

Lab Sample ID: LCS 160-267270/2-A
Matrix: Water
Analysis Batch: 268443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 267270

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.83		mg/L		98	80 - 120
Antimony	0.500	0.501		mg/L		100	80 - 120
Arsenic	1.00	1.00		mg/L		100	80 - 120
Barium	1.00	0.992		mg/L		99	80 - 120
Beryllium	1.00	1.04		mg/L		104	80 - 120
Cadmium	1.00	1.03		mg/L		104	80 - 120
Calcium	10.0	10.3		mg/L		103	80 - 120
Chromium	1.00	1.00		mg/L		100	80 - 120
Iron	10.0	9.95		mg/L		100	80 - 120
Lead	1.00	0.992		mg/L		99	80 - 120
Lithium	1.00	1.02		mg/L		102	80 - 120
Nickel	1.00	1.07		mg/L		107	80 - 120
Potassium	10.0	9.95		mg/L		99	80 - 120
Selenium	0.500	0.499		mg/L		100	80 - 120
Silver	0.200	0.209		mg/L		104	80 - 120
Sodium	10.0	9.97		mg/L		100	80 - 120
Uranium	1.00	1.01		mg/L		101	80 - 120
Zinc	1.00	0.982		mg/L		98	80 - 120

QC Sample Results

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Lab Sample ID: LCS 160-267270/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268640 — **Prep Batch: 267270**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	2.00	2.41		mg/L		120	80 - 120
Copper	1.00	1.07		mg/L		107	80 - 120

Lab Sample ID: 300-3847-A-14-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268443 — **Prep Batch: 267270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	0.043	J	10.0	9.86		mg/L		98	75 - 125
Antimony	0.0017	U	0.500	0.502		mg/L		100	75 - 125
Arsenic	0.0012	U	1.00	1.01		mg/L		101	75 - 125
Barium	0.025		1.00	1.01		mg/L		98	75 - 125
Beryllium	0.00035	U	1.00	1.02		mg/L		102	75 - 125
Cadmium	0.00010	U	1.00	1.04		mg/L		104	75 - 125
Calcium	17	B	10.0	27.1		mg/L		103	75 - 125
Chromium	0.0010	U	1.00	0.991		mg/L		99	75 - 125
Iron	0.033	U	10.0	9.92		mg/L		99	75 - 125
Lead	0.00026	J B	1.00	0.994		mg/L		99	75 - 125
Lithium	0.0030	J B	1.00	1.01		mg/L		101	75 - 125
Nickel	0.00080	U	1.00	1.06		mg/L		106	75 - 125
Potassium	0.68		10.0	10.5		mg/L		98	75 - 125
Selenium	0.0016	U	0.500	0.505		mg/L		101	75 - 125
Silver	0.00082	U	0.200	0.209		mg/L		104	75 - 125
Sodium	1.8		10.0	11.8		mg/L		99	75 - 125
Uranium	0.00047	J	1.00	1.01		mg/L		101	75 - 125
Zinc	0.0093	U	1.00	0.993		mg/L		99	75 - 125

Lab Sample ID: 300-3847-A-14-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268640 — **Prep Batch: 267270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.027	J	2.00	2.35		mg/L		116	75 - 125
Copper	0.00095	J	1.00	0.993		mg/L		99	75 - 125

Lab Sample ID: 300-3847-A-14-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268443 — **Prep Batch: 267270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	0.043	J	10.0	9.75		mg/L		97	75 - 125	1	20
Antimony	0.0017	U	0.500	0.499		mg/L		100	75 - 125	1	20
Arsenic	0.0012	U	1.00	0.994		mg/L		99	75 - 125	1	20
Barium	0.025		1.00	1.00		mg/L		98	75 - 125	0	20
Beryllium	0.00035	U	1.00	1.01		mg/L		101	75 - 125	1	20
Cadmium	0.00010	U	1.00	1.02		mg/L		103	75 - 125	1	20
Calcium	17	B	10.0	26.8		mg/L		100	75 - 125	1	20
Chromium	0.0010	U	1.00	0.989		mg/L		99	75 - 125	0	20
Iron	0.033	U	10.0	9.86		mg/L		99	75 - 125	1	20
Lead	0.00026	J B	1.00	0.987		mg/L		99	75 - 125	1	20
Lithium	0.0030	J B	1.00	1.00		mg/L		100	75 - 125	1	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 300-3847-A-14-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268443 — **Prep Batch: 267270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	0.00080	U	1.00	1.06		mg/L		106	75 - 125	1	20
Potassium	0.68		10.0	10.5		mg/L		98	75 - 125	0	20
Selenium	0.0016	U	0.500	0.489		mg/L		98	75 - 125	3	20
Silver	0.00082	U	0.200	0.206		mg/L		103	75 - 125	1	20
Sodium	1.8		10.0	11.7		mg/L		99	75 - 125	1	20
Uranium	0.00047	J	1.00	0.997		mg/L		100	75 - 125	1	20
Zinc	0.0093	U	1.00	0.982		mg/L		98	75 - 125	1	20

Lab Sample ID: 300-3847-A-14-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268640 — **Prep Batch: 267270**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.027	J	2.00	2.37		mg/L		117	75 - 125	1	20
Copper	0.00095	J	1.00	1.02		mg/L		102	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-267443/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267626 — **Prep Batch: 267443**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000060	U	0.00020	0.000060	mg/L		08/31/16 08:39	08/31/16 18:17	1

Lab Sample ID: LCS 160-267443/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267626 — **Prep Batch: 267443**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00476		mg/L		95	80 - 120

Lab Sample ID: 160-18659-C-11-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267626 — **Prep Batch: 267443**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.000060	U	0.00500	0.00484		mg/L		97	80 - 120

Lab Sample ID: 160-18659-C-11-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267626 — **Prep Batch: 267443**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.000060	U	0.00500	0.00486		mg/L		97	80 - 120	1	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: LCS 160-265383/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265383

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.0		SU		100	99.0 - 101.0		

Lab Sample ID: 160-18665-1 DU — **Client Sample ID: YMTFA 9720 EB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265383

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	4.7	HF		4.8		SU				2	5

Method: 160.2 - Solids, Total Suspended (TSS)

Lab Sample ID: MB 160-265941/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265941

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.0	U	4.0	4.0	mg/L			08/22/16 10:12	1

Lab Sample ID: LCS 160-265941/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265941

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			500	484		mg/L		97	78 - 124		

Lab Sample ID: LCSD 160-265941/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265941

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			500	497		mg/L		99	78 - 124	3	20

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 280-340443/3-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340515 — **Prep Batch: 340443**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	1.6	U	5.0	1.6	mg/L		09/01/16 09:39	09/01/16 14:38	1
SGT-HEM	2.8	U	6.0	2.8	mg/L		09/01/16 09:39	09/01/16 14:38	1

Lab Sample ID: LCS 280-340443/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340515 — **Prep Batch: 340443**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM			40.0	36.10		mg/L		90	78 - 114		

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 280-340443/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340515 — **Prep Batch: 340443**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
SGT-HEM	20.0	15.20		mg/L		76	64 - 132

Lab Sample ID: LCSD 280-340443/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340515 — **Prep Batch: 340443**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	40.0	33.80		mg/L		85	78 - 114	7	18
SGT-HEM	20.0	14.90		mg/L		75	64 - 132	2	34

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 280-339923/2-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340137 — **Prep Batch: 339923**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	0.0068	U	0.010	0.0068	mg/L		08/29/16 11:52	08/30/16 10:55	1

Lab Sample ID: LCS 280-339923/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340137 — **Prep Batch: 339923**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenols, Total	0.202	0.199		mg/L		99	90 - 110

Lab Sample ID: 160-18665-3 MS — **Client Sample ID: YMTFA 9404 FB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340137 — **Prep Batch: 339923**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenols, Total	0.0068	U	0.202	0.196		mg/L		97	72 - 118

Lab Sample ID: 160-18665-3 MSD — **Client Sample ID: YMTFA 9404 FB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340137 — **Prep Batch: 339923**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenols, Total	0.0068	U	0.202	0.197		mg/L		98	72 - 118	1	16

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 160-266439/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266767 — **Prep Batch: 266439**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0031	U	0.010	0.0031	mg/L		08/24/16 17:45	08/24/16 19:53	1

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: HLCS 160-266439/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266767 — **Prep Batch: 266439**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.412		mg/L		103	85 - 115

Lab Sample ID: LCS 160-266439/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266767 — **Prep Batch: 266439**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.200	0.212		mg/L		106	85 - 115

Method: 9012B - Cyanide, Total andor Amenable - RADL

Lab Sample ID: 160-18597-A-1-C MS ^2 — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266767 — **Prep Batch: 266439**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total - RADL	0.47		0.200	0.669		mg/L		98	66 - 120

Lab Sample ID: 160-18597-A-1-B DU ^2 — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266767 — **Prep Batch: 266439**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total - RADL	0.47		0.494		mg/L		4	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 160-267254/32 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267254

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.72	U	1.0	0.72	mg/L			08/26/16 23:58	1

Lab Sample ID: LCS 160-267254/33 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267254

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.53		mg/L		95	90 - 110

Lab Sample ID: 160-18640-P-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267254

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.3		5.00	9.17		mg/L		97	76 - 120

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 160-18640-P-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267254

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	4.3			4.31		mg/L				0.3	20

Method: SM 2310B - Acidity

Lab Sample ID: MB 280-340026/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340026

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acidity	2.0	U	10	2.0	mg/L			08/30/16 01:12	1

Lab Sample ID: LCS 280-340026/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340026

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acidity			100	100		mg/L		100	90 - 110		

Lab Sample ID: 280-87178-H-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 340026

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Acidity	2.0	U		2.0	U	mg/L				NC	10

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-267451/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.3214	U	0.592	0.593	3.00	1.03	pCi/L	08/31/16 09:52	09/03/16 09:12	1
Gross Beta	0.3005	U	0.578	0.579	4.00	0.975	pCi/L	08/31/16 09:52	09/03/16 09:12	1

Lab Sample ID: LCS 160-267451/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			49.9	44.65		6.52	3.00	1.87	pCi/L	89	73 - 133		

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: LCSB 160-267451/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	92.1	89.55		9.48	4.00	1.06	pCi/L	97	75 - 125

Lab Sample ID: 160-18561-B-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Alpha	5.17	U	145	112.6		17.2	3.00	5.17	pCi/L	78	60 - 140

Lab Sample ID: 160-18561-B-1-F MSBT — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Gross Beta	10.6		267	262.1		27.8	4.00	3.09	pCi/L	94	60 - 140

Lab Sample ID: 160-18561-B-1-G DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267949 — **Prep Batch: 267451**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Gross Alpha	5.17	U	7.581		4.07	3.00	5.26	pCi/L	0.28	1
Gross Beta	10.6		8.783		2.54	4.00	2.92	pCi/L	0.34	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-265718/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266158 — **Prep Batch: 265718**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	4.858	U	9.81	9.82	20.0	16.6	pCi/L	08/19/16 15:34	08/23/16 07:38	1
Cobalt-60	4.270	U	2.57	2.61		5.60	pCi/L	08/19/16 15:34	08/23/16 07:38	1

Lab Sample ID: LCS 160-265718/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 265821 — **Prep Batch: 265718**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	137000	134100		15500		424	pCi/L	98	90 - 111
Cesium-137	47600	46590		4670	20.0	153	pCi/L	98	90 - 111
Cobalt-60	42400	41110		4070		85.3	pCi/L	97	89 - 110

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-18665-1 DU — **Client Sample ID: YMTFA 9720 EB**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266008 — **Prep Batch: 265718**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Cesium-137	2.17	U		-5.237	U	10.2	20.0	17.2	pCi/L			0.45	1
Cobalt-60	2.59	U		2.612	U	6.60		9.84	pCi/L			0	1

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-265450/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266771 — **Prep Batch: 265450**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.2040	U	0.181	0.181	3.00	0.290	pCi/L	08/18/16 13:29	08/26/16 18:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*90.6*		*40 - 110*	*08/18/16 13:29*	*08/26/16 18:36*	*1*
Y Carrier	*90.1*		*40 - 110*	*08/18/16 13:29*	*08/26/16 18:36*	*1*

Lab Sample ID: LCS 160-265450/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266771 — **Prep Batch: 265450**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			8.60	7.851		0.816	3.00	0.247	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*90.8*		*40 - 110*
Y Carrier	*96.1*		*40 - 110*

Lab Sample ID: LCSD 160-265450/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266771 — **Prep Batch: 265450**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90			8.60	8.717		0.898	3.00	0.274	pCi/L	101	75 - 125	0.51	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Sr Carrier	*89.5*		*40 - 110*
Y Carrier	*93.1*		*40 - 110*

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Lab Sample ID: MB 160-265670/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266608 — **Prep Batch: 265670**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.09328	U	0.117	0.117	1.00	0.189	pCi/L	08/19/16 12:00	08/25/16 20:55	1
Thorium-230	0.1769		0.118	0.119	1.00	0.0590	pCi/L	08/19/16 12:00	08/25/16 20:55	1
Thorium-232	0.005698	U	0.0304	0.0304	1.00	0.0946	pCi/L	08/19/16 12:00	08/25/16 20:55	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Thorium-229	*73.6*		*30 - 110*	*08/19/16 12:00*	*08/25/16 20:55*	*1*

Lab Sample ID: LCS 160-265670/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266609 — **Prep Batch: 265670**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Thorium-230			8.03	8.797		1.12	1.00	0.0984	pCi/L	110	81 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Thorium-229	*69.8*		*30 - 110*

Lab Sample ID: LCSD 160-265670/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 266610 — **Prep Batch: 265670**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Thorium-230			8.03	8.536		1.13	1.00	0.125	pCi/L	106	81 - 125	0.12	1

Tracer	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Thorium-229	*69.8*		*30 - 110*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-265681/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267204 — **Prep Batch: 265681**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.03796	U	0.0623	0.0624	1.00	0.105	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-235/236	0.05398	U	0.0763	0.0765	1.00	0.0810	pCi/L	08/19/16 11:58	08/29/16 14:45	1
Uranium-238	0.03247	U	0.0631	0.0632	1.00	0.121	pCi/L	08/19/16 11:58	08/29/16 14:45	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*67.1*		*30 - 110*	*08/19/16 11:58*	*08/29/16 14:45*	*1*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-265681/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267205 — **Prep Batch: 265681**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	12.7	13.96		1.61	1.00	0.155	pCi/L	110	84 - 120
Uranium-238	13.0	13.70		1.59	1.00	0.105	pCi/L	105	83 - 121

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*65.3*		*30 - 110*

Lab Sample ID: LCSD 160-265681/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267206 — **Prep Batch: 265681**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-233/234	12.7	14.24		1.64	1.00	0.136	pCi/L	112	84 - 120	0.09	1
Uranium-238	13.0	13.86		1.61	1.00	0.136	pCi/L	106	83 - 121	0.05	1

Tracer	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Uranium-232	*69.9*		*30 - 110*

Method: A-01-R - Isotopic Neptunium (Alpha Spectrometry)

Lab Sample ID: MB 160-265658/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267055 — **Prep Batch: 265658**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Neptunium-237	-0.004440	U	0.00888	0.00889	1.00	0.0340	pCi/L	08/19/16 12:00	08/28/16 15:01	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Neptunium-239	*85.0*		*30 - 110*	*08/19/16 12:00*	*08/28/16 15:01*	*1*

Lab Sample ID: LCS 160-265658/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267225 — **Prep Batch: 265658**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Neptunium-237	7.75	7.602		0.735	1.00	0.0130	pCi/L	98	58 - 126

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Neptunium-239	*89.0*		*30 - 110*

Method: A-01-R - Isotopic Neptunium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCSD 160-265658/3-A
Matrix: Water
Analysis Batch: 267057

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265658

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Neptunium-237			7.75	6.792		0.663	1.00	0.0126	pCi/L	88	58 - 126	0.58	1

Tracer	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Neptunium-239	*82.4*		*30 - 110*

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Lab Sample ID: MB 160-265679/1-A
Matrix: Water
Analysis Batch: 266928

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 265679

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Plutonium-238	0.07838	U	0.117	0.118	1.00	0.203	pCi/L	08/19/16 11:58	08/27/16 15:24	1
Plutonium-239/240	0.0000	U	0.0390	0.0390	1.00	0.116	pCi/L	08/19/16 11:58	08/27/16 15:24	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Pu-242 (T)	*82.6*		*30 - 110*	*08/19/16 11:58*	*08/27/16 15:24*	*1*

Lab Sample ID: LCS 160-265679/2-A
Matrix: Water
Analysis Batch: 266846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 265679

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Plutonium-238			10.7	11.55		1.32	1.00	0.0982	pCi/L	107	79 - 115		
Plutonium-239/240			13.2	12.58		1.42	1.00	0.186	pCi/L	95	85 - 120		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Pu-242 (T)	*87.4*		*30 - 110*

Lab Sample ID: LCSD 160-265679/3-A
Matrix: Water
Analysis Batch: 266847

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 265679

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Plutonium-238			10.7	11.46		1.34	1.00	0.204	pCi/L	107	79 - 115	0.03	1
Plutonium-239/240			13.2	15.21		1.67	1.00	0.126	pCi/L	115	85 - 120	0.85	1

Tracer	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Pu-242 (T)	*76.4*		*30 - 110*

Method: A-01-R - Isotopic Curium and/or Americium 241 (Alpha Spectrometry)

Lab Sample ID: MB 160-265657/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267320 — **Prep Batch: 265657**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Americium-241	-0.01434	U	0.0466	0.0467	1.00	0.107	pCi/L	08/19/16 11:58	08/30/16 13:20	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Americium-243	*79.2*		*30 - 110*	*08/19/16 11:58*	*08/30/16 13:20*	*1*

Lab Sample ID: LCS 160-265657/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267321 — **Prep Batch: 265657**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			7.46	6.353		0.927	1.00	0.212	pCi/L	85	80 - 116		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Americium-243	*42.9*		*30 - 110*

Lab Sample ID: LCSD 160-265657/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 267322 — **Prep Batch: 265657**

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Americium-241			7.46	7.039		0.992	1.00	0.188	pCi/L	94	80 - 116	0.36	1

Tracer	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Americium-243	*43.7*		*30 - 110*

Method: TC-02-RC - Technetium-99 (LSC)

Lab Sample ID: MB 160-267144/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 268271 — **Prep Batch: 267144**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Technetium-99	-0.9208	U	1.23	1.23	3.00	2.15	pCi/L	08/29/16 17:31	09/06/16 18:29	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tc-99m	*93.8*		*30 - 110*	*08/29/16 17:31*	*09/06/16 18:29*	*1*

Method: TC-02-RC - Technetium-99 (LSC) (Continued)

Lab Sample ID: LCS 160-267144/2-A
Matrix: Water
Analysis Batch: 268271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 267144

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Technetium-99			206	212.5		20.9	3.00	2.15	pCi/L	103	75 - 125		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Tc-99m	*93.5*		*30 - 110*

Lab Sample ID: 160-18665-1 DU
Matrix: Water
Analysis Batch: 268271

Client Sample ID: YMTFA 9720 EB
Prep Type: Total/NA
Prep Batch: 267144

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Technetium-99	-0.699	U		0.05716	U	1.26	3.00	2.13	pCi/L			0.31	1

Tracer	*DU %Yield*	*DU Qualifier*	*Limits*
Tc-99m	*94.6*		*30 - 110*

QC Association Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

GC/MS VOA

Analysis Batch: 265386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	8260C	
160-18665-2	YMTFA 9404 TB-2	Total/NA	Water	8260C	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	8260C	
MB 160-265386/8	Method Blank	Total/NA	Water	8260C	
LCS 160-265386/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-265386/6	Lab Control Sample Dup	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 265425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	625	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	625	
MB 160-265425/1-A	Method Blank	Total/NA	Water	625	
LCS 160-265425/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 160-265425/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 266068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	625	265425
160-18665-3	YMTFA 9404 FB	Total/NA	Water	625	265425
MB 160-265425/1-A	Method Blank	Total/NA	Water	625	265425
LCS 160-265425/2-A	Lab Control Sample	Total/NA	Water	625	265425
LCSD 160-265425/3-A	Lab Control Sample Dup	Total/NA	Water	625	265425

GC Semi VOA

Prep Batch: 265426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	608	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	608	
MB 160-265426/1-A	Method Blank	Total/NA	Water	608	
LCS 160-265426/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 160-265426/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Prep Batch: 265429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	608	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	608	
MB 160-265429/1-A	Method Blank	Total/NA	Water	608	
LCS 160-265429/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 160-265429/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 266032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	608	265426
160-18665-3	YMTFA 9404 FB	Total/NA	Water	608	265426
MB 160-265426/1-A	Method Blank	Total/NA	Water	608	265426
LCS 160-265426/2-A	Lab Control Sample	Total/NA	Water	608	265426
LCSD 160-265426/3-A	Lab Control Sample Dup	Total/NA	Water	608	265426

GC Semi VOA (Continued)

Analysis Batch: 266065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	608	265429
160-18665-3	YMTFA 9404 FB	Total/NA	Water	608	265429
MB 160-265429/1-A	Method Blank	Total/NA	Water	608	265429
LCS 160-265429/2-A	Lab Control Sample	Total/NA	Water	608	265429
LCSD 160-265429/3-A	Lab Control Sample Dup	Total/NA	Water	608	265429

HPLC/IC

Analysis Batch: 265337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	300.0	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	300.0	
MB 160-265337/9	Method Blank	Total/NA	Water	300.0	
LCS 160-265337/10	Lab Control Sample	Total/NA	Water	300.0	
160-18665-1 MS	YMTFA 9720 EB	Total/NA	Water	300.0	
160-18665-1 DU	YMTFA 9720 EB	Total/NA	Water	300.0	

Analysis Batch: 265338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	300.0	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	300.0	
MB 160-265338/9	Method Blank	Total/NA	Water	300.0	
LCS 160-265338/10	Lab Control Sample	Total/NA	Water	300.0	
160-18665-1 MS	YMTFA 9720 EB	Total/NA	Water	300.0	
160-18665-1 DU	YMTFA 9720 EB	Total/NA	Water	300.0	

Metals

Prep Batch: 267270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	3010A	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	3010A	
MB 160-267270/1-A	Method Blank	Total/NA	Water	3010A	
LCS 160-267270/2-A	Lab Control Sample	Total/NA	Water	3010A	
300-3847-A-14-B MS	Matrix Spike	Total/NA	Water	3010A	
300-3847-A-14-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	

Prep Batch: 267443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	7470A	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	7470A	
MB 160-267443/1-A	Method Blank	Total/NA	Water	7470A	
LCS 160-267443/2-A	Lab Control Sample	Total/NA	Water	7470A	
160-18659-C-11-B MS	Matrix Spike	Total/NA	Water	7470A	
160-18659-C-11-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 267626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	7470A	267443
160-18665-3	YMTFA 9404 FB	Total/NA	Water	7470A	267443

Metals (Continued)

Analysis Batch: 267626 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-267443/1-A	Method Blank	Total/NA	Water	7470A	267443
LCS 160-267443/2-A	Lab Control Sample	Total/NA	Water	7470A	267443
160-18659-C-11-B MS	Matrix Spike	Total/NA	Water	7470A	267443
160-18659-C-11-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	267443

Analysis Batch: 268443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	6020A	267270
160-18665-3	YMTFA 9404 FB	Total/NA	Water	6020A	267270
MB 160-267270/1-A	Method Blank	Total/NA	Water	6020A	267270
LCS 160-267270/2-A	Lab Control Sample	Total/NA	Water	6020A	267270
300-3847-A-14-B MS	Matrix Spike	Total/NA	Water	6020A	267270
300-3847-A-14-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020A	267270

Analysis Batch: 268640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	6020A	267270
160-18665-3	YMTFA 9404 FB	Total/NA	Water	6020A	267270
MB 160-267270/1-A	Method Blank	Total/NA	Water	6020A	267270
LCS 160-267270/2-A	Lab Control Sample	Total/NA	Water	6020A	267270
300-3847-A-14-B MS	Matrix Spike	Total/NA	Water	6020A	267270
300-3847-A-14-C MSD	Matrix Spike Duplicate	Total/NA	Water	6020A	267270

General Chemistry

Analysis Batch: 265383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	150.1	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	150.1	
LCS 160-265383/5	Lab Control Sample	Total/NA	Water	150.1	
160-18665-1 DU	YMTFA 9720 EB	Total/NA	Water	150.1	

Analysis Batch: 265941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	160.2	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	160.2	
MB 160-265941/1	Method Blank	Total/NA	Water	160.2	
LCS 160-265941/2	Lab Control Sample	Total/NA	Water	160.2	
LCSD 160-265941/5	Lab Control Sample Dup	Total/NA	Water	160.2	

Prep Batch: 266439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	9010C	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	9010C	
MB 160-266439/1-A	Method Blank	Total/NA	Water	9010C	
HLCS 160-266439/3-A	Lab Control Sample	Total/NA	Water	9010C	
LCS 160-266439/2-A	Lab Control Sample	Total/NA	Water	9010C	
160-18597-A-1-C MS ^2 - RA	Matrix Spike	Total/NA	Water	9010C	
160-18597-A-1-B DU ^2 - RA	Duplicate	Total/NA	Water	9010C	

General Chemistry (Continued)

Analysis Batch: 266767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	9012B	266439
160-18665-3	YMTFA 9404 FB	Total/NA	Water	9012B	266439
MB 160-266439/1-A	Method Blank	Total/NA	Water	9012B	266439
HLCS 160-266439/3-A	Lab Control Sample	Total/NA	Water	9012B	266439
LCS 160-266439/2-A	Lab Control Sample	Total/NA	Water	9012B	266439
160-18597-A-1-C MS ^2 - RA	Matrix Spike	Total/NA	Water	9012B	266439
160-18597-A-1-B DU ^2 - RA	Duplicate	Total/NA	Water	9012B	266439

Analysis Batch: 267254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	9060	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	9060	
MB 160-267254/32	Method Blank	Total/NA	Water	9060	
LCS 160-267254/33	Lab Control Sample	Total/NA	Water	9060	
160-18640-P-1 MS	Matrix Spike	Total/NA	Water	9060	
160-18640-P-1 DU	Duplicate	Total/NA	Water	9060	

Prep Batch: 339923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	Distill/Phenol	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	Distill/Phenol	
MB 280-339923/2-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 280-339923/1-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
160-18665-3 MS	YMTFA 9404 FB	Total/NA	Water	Distill/Phenol	
160-18665-3 MSD	YMTFA 9404 FB	Total/NA	Water	Distill/Phenol	

Analysis Batch: 340026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	SM 2310B	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	SM 2310B	
MB 280-340026/3	Method Blank	Total/NA	Water	SM 2310B	
LCS 280-340026/2	Lab Control Sample	Total/NA	Water	SM 2310B	
280-87178-H-1 DU	Duplicate	Total/NA	Water	SM 2310B	

Analysis Batch: 340137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	420.4	339923
160-18665-3	YMTFA 9404 FB	Total/NA	Water	420.4	339923
MB 280-339923/2-A	Method Blank	Total/NA	Water	420.4	339923
LCS 280-339923/1-A	Lab Control Sample	Total/NA	Water	420.4	339923
160-18665-3 MS	YMTFA 9404 FB	Total/NA	Water	420.4	339923
160-18665-3 MSD	YMTFA 9404 FB	Total/NA	Water	420.4	339923

Prep Batch: 340443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	1664A	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	1664A	
MB 280-340443/3-A	Method Blank	Total/NA	Water	1664A	
LCS 280-340443/1-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 280-340443/2-A	Lab Control Sample Dup	Total/NA	Water	1664A	

General Chemistry (Continued)

Analysis Batch: 340515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	1664A	340443
160-18665-3	YMTFA 9404 FB	Total/NA	Water	1664A	340443
MB 280-340443/3-A	Method Blank	Total/NA	Water	1664A	340443
LCS 280-340443/1-A	Lab Control Sample	Total/NA	Water	1664A	340443
LCSD 280-340443/2-A	Lab Control Sample Dup	Total/NA	Water	1664A	340443

Rad

Prep Batch: 265450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	PrecSep-7	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	PrecSep-7	
MB 160-265450/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-265450/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-265450/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 265657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	ExtChrom	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	ExtChrom	
MB 160-265657/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-265657/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
LCSD 160-265657/3-A	Lab Control Sample Dup	Total/NA	Water	ExtChrom	

Prep Batch: 265658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	A-01-R	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	A-01-R	
MB 160-265658/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-265658/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
LCSD 160-265658/3-A	Lab Control Sample Dup	Total/NA	Water	ExtChrom	

Prep Batch: 265670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	ExtChrom	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	ExtChrom	
MB 160-265670/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-265670/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
LCSD 160-265670/3-A	Lab Control Sample Dup	Total/NA	Water	ExtChrom	

Prep Batch: 265679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	ExtChrom	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	ExtChrom	
MB 160-265679/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-265679/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
LCSD 160-265679/3-A	Lab Control Sample Dup	Total/NA	Water	ExtChrom	

Rad (Continued)

Prep Batch: 265681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	ExtChrom	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	ExtChrom	
MB 160-265681/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-265681/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
LCSD 160-265681/3-A	Lab Control Sample Dup	Total/NA	Water	ExtChrom	

Prep Batch: 265718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	Fill_Geo-0	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	Fill_Geo-0	
MB 160-265718/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-265718/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
160-18665-1 DU	YMTFA 9720 EB	Total/NA	Water	Fill_Geo-0	

Prep Batch: 267144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	Ext_Chrom_LSC	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	Ext_Chrom_LSC	
MB 160-267144/1-A	Method Blank	Total/NA	Water	Ext_Chrom_LSC	
LCS 160-267144/2-A	Lab Control Sample	Total/NA	Water	Ext_Chrom_LSC	
160-18665-1 DU	YMTFA 9720 EB	Total/NA	Water	Ext_Chrom_LSC	

Prep Batch: 267451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-18665-1	YMTFA 9720 EB	Total/NA	Water	Evaporation	
160-18665-3	YMTFA 9404 FB	Total/NA	Water	Evaporation	
MB 160-267451/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-267451/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-267451/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
160-18561-B-1-E MS	Matrix Spike	Total/NA	Water	Evaporation	
160-18561-B-1-F MSBT	Matrix Spike	Total/NA	Water	Evaporation	
160-18561-B-1-G DU	Duplicate	Total/NA	Water	Evaporation	

Surrogate Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-129)	(81-130)	(81-124)	(87-128)
160-18665-1	YMTFA 9720 EB	99	110	102	109
160-18665-2	YMTFA 9404 TB-2	99	112	106	109
160-18665-3	YMTFA 9404 FB	106	115	110	112
LCS 160-265386/5	Lab Control Sample	104	99	107	96
LCSD 160-265386/6	Lab Control Sample Dup	101	104	107	102
MB 160-265386/8	Method Blank	101	106	103	120

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	PHL	NBZ	TBP	TPH	FBP
Lab Sample ID	Client Sample ID	(23-82)	(14-68)	(36-98)	(41-109)	(43-107)	(31-103)
160-18665-1	YMTFA 9720 EB	34	23	76	80	84	73
160-18665-3	YMTFA 9404 FB	34	23	76	74	86	75
LCS 160-265425/2-A	Lab Control Sample	47	37	78	82	86	77
LCSD 160-265425/3-A	Lab Control Sample Dup	52	42	84	91	91	83
MB 160-265425/1-A	Method Blank	38	33	63	61	86	64

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPH = Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: 608 - Organochlorine Pesticides in Water

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX2
Lab Sample ID	Client Sample ID	(40-130)	(63-115)
160-18665-1	YMTFA 9720 EB	48	79

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method: 608 - Organochlorine Pesticides in Water

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB2	TCX2
Lab Sample ID	Client Sample ID	(40-130)	(63-115)
160-18665-3	YMTFA 9404 FB	55	88
LCS 160-265429/2-A	Lab Control Sample	92	85
LCSD 160-265429/3-A	Lab Control Sample Dup	84	86
MB 160-265429/1-A	Method Blank	88	83

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCB2
Lab Sample ID	Client Sample ID	(24-126)
160-18665-1	YMTFA 9720 EB	110
160-18665-3	YMTFA 9404 FB	99
LCS 160-265426/2-A	Lab Control Sample	103
LCSD 160-265426/3-A	Lab Control Sample Dup	100
MB 160-265426/1-A	Method Blank	104

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

Tracer/Carrier Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method: 905 - Strontium-90 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Sr (C) (40-110)	Y (40-110)						
160-18665-1	YMTFA 9720 EB	90.5	92.3						
160-18665-3	YMTFA 9404 FB	94.0	94.6						
LCS 160-265450/2-A	Lab Control Sample	90.8	96.1						
LCSD 160-265450/3-A	Lab Control Sample Dup	89.5	93.1						
MB 160-265450/1-A	Method Blank	90.6	90.1						

Tracer/Carrier Legend

Sr (C) = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Curium and/or Americium 241 (Alpha Spectrometry)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Am-243 (30-110)							
160-18665-1	YMTFA 9720 EB	36.8							
160-18665-3	YMTFA 9404 FB	57.5							
LCS 160-265657/2-A	Lab Control Sample	42.9							
LCSD 160-265657/3-A	Lab Control Sample Dup	43.7							
MB 160-265657/1-A	Method Blank	79.2							

Tracer/Carrier Legend

Am-243 = Americium-243

Method: A-01-R - Isotopic Neptunium (Alpha Spectrometry)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Np-239 (30-110)							
160-18665-1	YMTFA 9720 EB	90.6							
160-18665-3	YMTFA 9404 FB	85.5							
LCS 160-265658/2-A	Lab Control Sample	89.0							
LCSD 160-265658/3-A	Lab Control Sample Dup	82.4							
MB 160-265658/1-A	Method Blank	85.0							

Tracer/Carrier Legend

Np-239 = Neptunium-239

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Pu-242 (T) (30-110)							
160-18665-1	YMTFA 9720 EB	93.0							
160-18665-3	YMTFA 9404 FB	81.6							
LCS 160-265679/2-A	Lab Control Sample	87.4							
LCSD 160-265679/3-A	Lab Control Sample Dup	76.4							

Tracer/Carrier Summary

Client: Alliant Corporation
Project/Site: ORNL Y-12 Outfall 200 Characterization

TestAmerica Job ID: 160-18665-1

Method: A-01-R - Isotopic Plutonium (Alpha Spectrometry) (Continued)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Pu-242 (T) (30-110)
MB 160-265679/1-A	Method Blank	82.6

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

Pu-242 (T) = Pu-242 (T)

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Th-229 (30-110)
160-18665-1	YMTFA 9720 EB	82.7
160-18665-3	YMTFA 9404 FB	83.0
LCS 160-265670/2-A	Lab Control Sample	69.8
LCSD 160-265670/3-A	Lab Control Sample Dup	69.8
MB 160-265670/1-A	Method Blank	73.6

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

Th-229 = Thorium-229

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	U-232 (30-110)
160-18665-1	YMTFA 9720 EB	79.7
160-18665-3	YMTFA 9404 FB	58.5
LCS 160-265681/2-A	Lab Control Sample	65.3
LCSD 160-265681/3-A	Lab Control Sample Dup	69.9
MB 160-265681/1-A	Method Blank	67.1

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

U-232 = Uranium-232

Method: TC-02-RC - Technetium-99 (LSC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Tc-99m (30-110)
160-18665-1	YMTFA 9720 EB	100
160-18665-1 DU	YMTFA 9720 EB	94.6
160-18665-3	YMTFA 9404 FB	91.8
LCS 160-267144/2-A	Lab Control Sample	93.5
MB 160-267144/1-A	Method Blank	93.8

Percent Yield (Acceptance Limits)

Tracer/Carrier Legend

Tc-99m = Tc-99m