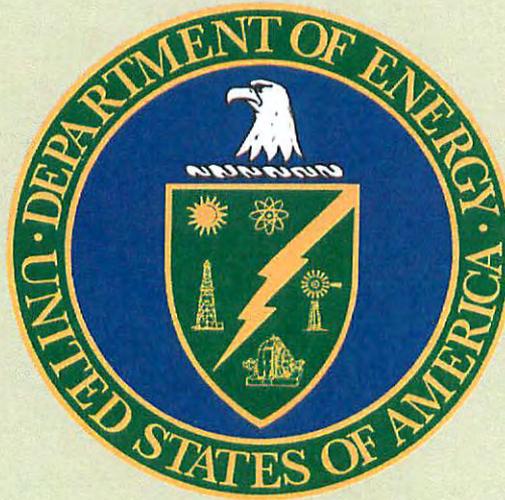


**U.S. Department of Energy
Portsmouth/Paducah Project Office**

**Protocol for the Environmental Regulatory Processes
for the Transfer of Real Property at the U.S. Department of
Energy Portsmouth and Paducah Sites**

VOLUME 1: Uncontaminated Property



This document has been approved for public release:

Jerry Spahn 4-15-2016
Classification & Information Control Officer Date

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VOLUME 1: Uncontaminated Property

Date Issued— March 2016

Prepared for
U.S. Department of Energy
Portsmouth/Paducah Project Office

Prepared by
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ACRONYMS

AEA	Atomic Energy Act of 1954, as Amended
ALARA	As Low As Reasonably Achievable
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as Amended
<i>CFR</i>	<i>Code of Federal Regulations</i>
CPD	clean parcel determination
CRS	Certified Realty Specialist
CRO	Community Reuse Organization
CX	categorical exclusion
D&D	Decontamination & Decommissioning
DFE&O	Director's Final Findings and Orders
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy Headquarters
DQO	data quality objective
EA	environmental assessment
EBS	Environmental Baseline Survey report
EM	Environmental Management
EMCBC	Environmental Management Consolidated Business Center
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
GSA	General Services Administration
HSA	Historical Site Assessment
KAR	Kentucky Administrative Regulations
KDEP	Kentucky Department of Environmental Protection
KNREPC	Kentucky Natural Resources and Environmental Protection Cabinet
KRS	Kentucky Revised Statutes
<i>MARSSIM</i>	<i>Multi-Agency Radiation Survey and Site Investigation Manual</i>
NEPA	National Environmental Policy Act of 1969
NPL	National Priorities List
PACRO	Paducah Area Community Reuse Organization
PAD	Paducah Gaseous Diffusion Plant
PORTS	Portsmouth Gaseous Diffusion Plant
PPPO	Portsmouth/Paducah Project Office
RMD	Risk Methods Document
SODI	Southern Ohio Diversification Initiative
<i>U.S.C.</i>	<i>United States Code</i>

INTRODUCTION

1. PURPOSE AND ORGANIZATION OF THE PROTOCOL

This document has been prepared to provide the reader with an understanding of the economic development property transfer process that will be used by the Portsmouth/Paducah Project Office (PPPO) for the Portsmouth Gaseous Diffusion Plant (PORTS) and the Paducah Gaseous Diffusion Plant (PAD) sites, with a focus on the environmental aspects of the process. Coordination between the PORTS and PAD sites, Portsmouth/Paducah Project Office (PPPO) management, and the other U.S. Department of Energy (DOE) organizations involved in property transfer and approval are discussed. The working relationships among PPPO and its regulators where property transfers are involved are also addressed. Regulatory agreements among PPPO and its regulators - e.g., the *Federal Facility Agreement (FFA) for the Paducah Gaseous Diffusion Plant* and the *Director's Final Findings and Orders (DFF&O) for the Portsmouth Gaseous Diffusion Plant* – include provisions regarding property transfer and are discussed in the protocol.

The majority of the protocol is devoted to the environmental due diligence process that is conducted for all transfers of real property from federal ownership. The requirements of the process originate in the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Section 120(h). The requirements of DOE Order 458.1 on Radiation Protection of the Public and the Environment (DOE 2011) are also triggered for property transfers and are explained. Requirements associated with the DOE National Environmental Policy Act (NEPA) implementing regulations, and sensitive resources are also discussed.

Appendices to the protocol include useful tools such as an annotated outline of the due diligence report that is prepared for transfer, a crosswalk of the CERCLA 120(h)(4) requirements and where they are addressed in the due diligence report, and templates for various transmittal letters.

1.1 SCOPE OF THE PROTOCOL

The process described in this protocol will be used by PPPO to meet the environmental requirements necessary to transfer title of real property. This document focuses on the environmental documentation required to obtain regulatory concurrence that the property is eligible for transfer as uncontaminated. The protocol is directed towards the transfer of land; however some buildings may also be able to be transferred as uncontaminated. A brief discussion of the balance of the transfer process that follows regulatory concurrence is included. The remaining steps would be coordinated by the PPPO Reuse Lead with the realty office in the Environmental Management Consolidated Business Center (EMCBC) and DOE-Headquarters (DOE-HQ) Environmental Management (EM) liaison for property transfers. PPPO will facilitate the completion of required activities by other DOE organizations, e.g., DOE-HQ, EMCBC and others that are needed to enable PPPO to transfer real property.

1.2 DOE AUTHORITY FOR TRANSFER OF REAL PROPERTY

The authority for DOE to transfer title to real property is found in the Atomic Energy Act of 1954 (AEA). Section 161(g) of the AEA authorizes DOE to “sell, lease, grant and dispose of such real and personal property as provided by the AEA.”

The implementation of DOE real property actions is carried out by Certified Realty Specialists (CRS or CRSs). The CRSs that support PPPO are located at the EMCBC and are key participants in the transfer process.

1.2.1 10 CFR 770 Economic Development Transfer Process

In February 2000, DOE issued an interim rule, which was finalized in November 2013, enabling the transfer of DOE property for economic development purposes. The authority for the rule—10 *Code of Federal Regulations (CFR)* Part 770, entitled “Transfer of Real Property at Defense Nuclear Facilities for Economic Development”—is the AEA Section 161(g). Transfers of real property under 10 *CFR* 770 are intended to offset negative impacts on communities caused by unemployment from related DOE downsizing, facility closeouts, and workforce restructuring at Defense Nuclear Facilities. Economic development is defined in 10 *CFR* 770.4 as “the use of transferred DOE real property in a way that enhances the production, distribution, or consumption of goods and services in the surrounding region(s) and furthers the public policy objectives of the laws governing the downsizing of DOE’s defense nuclear facilities.” PORTS and PAD are defense nuclear facilities as defined at 10 *CFR* 770.4 and therefore eligible to use the 10 *CFR* 770 process. Although there are several mechanisms available to DOE for transferring real property, it is anticipated that the process outlined in 10 *CFR* Part 770 for title transfers for economic development purposes will be the predominant process followed for transfers at PPPO sites.

10 *CFR* 770 provides for indemnification to transferees (per Section 3158 of the Defense Authorization Act of 1998) if requested in writing at the time of their proposal for transfer, and depending on availability of funding. Indemnification offered under 10 *CFR* 770 is for claims based on the release or threatened release of a hazardous substance or pollutant or contaminant resulting from DOE activities (10 *CFR* 770.7(a)(2)). Transfer at less than fair market value is also available for economic development transfers if considerable infrastructure improvements are needed to make it economically viable, or if a less than fair market value transfer would further the public policy objectives of the laws governing the downsizing of defense nuclear facilities (10 *CFR* 770.8).

Since 10 *CFR* 770 is the most likely path to be taken for future transfers, it is explained as the base case. Should a non-10 *CFR* 770 process transfer be pursued, the environmental due diligence tasks are the same as those for the 10 *CFR* 770 process. Differences occur in the realty-led aspects of the transfer and involved review processes. Coordination with the CRS at the EMCBC is needed for all PPPO real property transfers, regardless of the process followed.

It should be noted that CERCLA 120(h) and 10 *CFR* 770 address the transfer of real property and are not intended for use with personal property that is not attached to or associated with real property, or easements.

1.2.1.1 Transfer Process Steps

Consistent with the purpose of the 10 *CFR* 770 rule, it is intended that DOE will, over time and to varying degrees, make property available for transfer. Both PPPO sites are closure sites. In anticipation of future economic development requests or for mission needs potentially involving transfer for conservation or mitigation purposes, PPPO is committed to making property available pro-actively.

The transfer process, illustrated in Fig. 1 and found on Page 3, shows the PPPO process from planning in anticipation of real property transfers through to the execution of a quitclaim deed. An annotated summary of the transfer process is provided in Table 1 and is keyed to the numbered steps in Fig. 1.

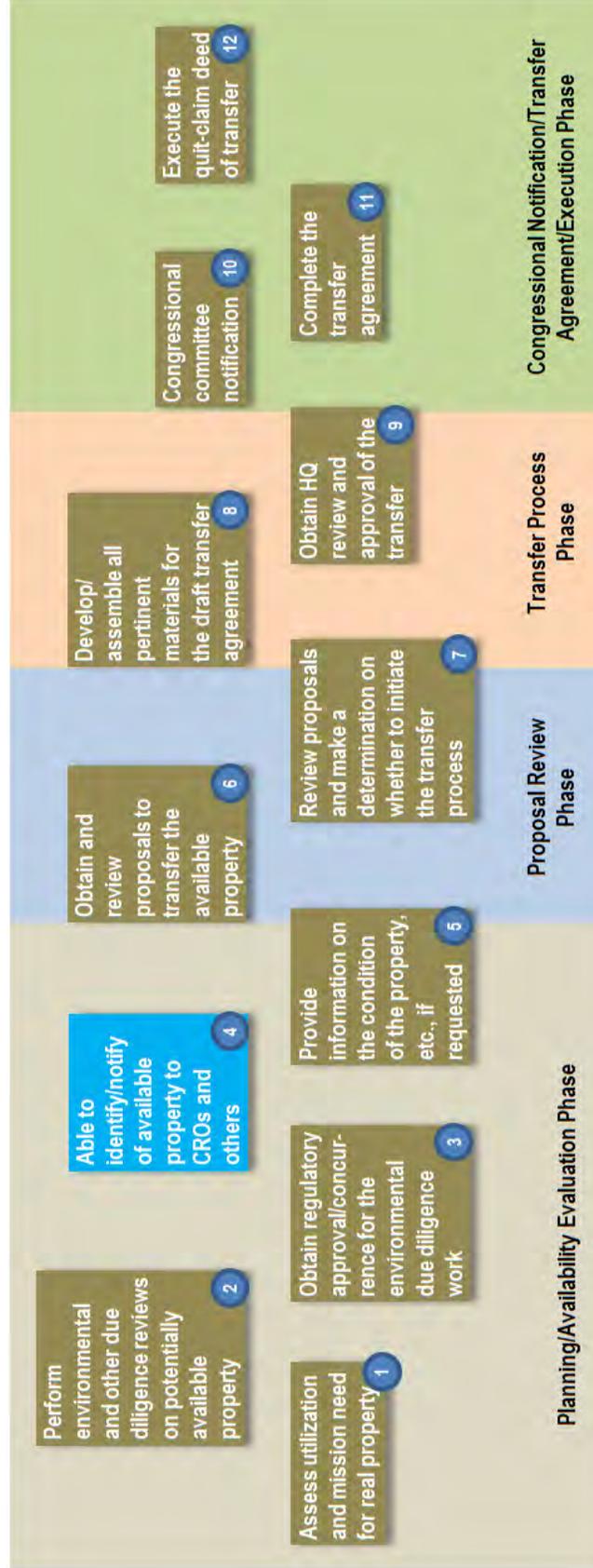


Fig. 1. DOE PPPO Transfer Process Steps

Table 1. Summary of PPPO Transfer Process Steps

Phase	Step	Step Summary	Step description
Phase 1 Planning/ Availability Evaluation	1	Assess utilization and mission need	This initial planning step is coordinated between the site and the realty specialists at EMCBC. It is aimed at broadly identifying land areas that are appropriate for economic development in consideration of when they may be able to be available.
	2	Perform environmental due diligence	This is the step that studies the property to determine if it is eligible for transfer as uncontaminated per CERCLA 120(h)(4).
	3	Obtain regulatory concurrence	The completed CERCLA 120(h) documentation is submitted by DOE for concurrence by the agencies/appropriate officials involved in the transfer and concurrence is obtained.
	4	Able to notify/identify of available property	Once concurrence is obtained, notification of availability can be made to the Community Reuse Organization, community, and/or others who have expressed an interest in the available property, or made a request to make property available.
	5	Provide information on the condition of the property	Information on the available property may be made to those who request it, such as information on the physical condition of the property.
Phase 2 Proposal Review	6	Obtain and review transfer proposals	Review proposals against the requirements of 10 <i>CFR</i> 770.7. Inquire about the proposal; obtain additional information as needed for proposals that have proposed future uses of interest/compatibility for the site.
	7	Analyze proposals to make a determination on whether to proceed with the transfer process	Develop the recommendation – “business case”- that supports proceeding with the transfer process.
Phase 3 Transfer Process	8	Develop and assemble all of the materials for the draft transfer agreement	Complete the business case for going forward with the transfer, the draft deed, and all of the correspondence and other materials needed for the transfer package. Transmit the materials to DOE-HQ Environmental Management (EM).
	9	Obtain DOE-HQ review and approval of the transfer	Obtain review and approval from DOE-HQ EM, General Counsel, Chief Financial Officer, and Management and Administration. Obtain Secretarial signature on Congressional notification transmittals that serves as DOE-HQ support and approval of the transfer.
Phase 4 Congressional Notification/ Transfer Agreement/ Execution	10	Congressional committee notification	Select Congressional committees review the transfer package for a maximum of 60 days.
	11	Complete the transfer agreement	At the conclusion of the 60 day period the transfer agreement (the deed) can be finalized.
	12	Execute the deed	Following deed finalization the deed is able to be executed between EMCBC and the transferee.

1.2.1.1.1 Discussion of the 10 CFR 770 Transfer Process Phases

Phase 1 – Planning/Availability Evaluation Phase

The transfer process begins with planning by the site in coordination with the CRSs at EMCBC. The primary consideration is the mission need for the property and its utilization; these two factors contribute to whether the property is *appropriate* for economic development purposes. A “whole-site” planning effort is needed that coordinates site cleanup with real property transfers. This planning effort needs to include economic development and other purposes such as recreation or conservation if they are applicable to the site. A detailed discussion of the planning effort is described in Chapter 2.0.

Periodic coordination with the Community Reuse Organization (CRO) or others known to be interested in economic development at the site is also needed. This will enable the CRO to assess its site needs such as for particular infrastructure, and offer timely feedback to DOE, including information on the sequence of their land interests, etc.

Once real property is identified that is suitable for transfer in support of economic development, the environmental due diligence process is commenced. During this time the requirements of CERCLA 120(h)(4) – for uncontaminated property (“clean parcels”) – are fulfilled wherein relevant records are reviewed, the property is walked down and photographed, and interviews are conducted with people knowledgeable of the property and operations that may have occurred on it and immediately adjacent to it. The requirements of DOE Order 458.1 are also performed during this phase so that DOE may be able to demonstrate that the property is suitable for release from DOE control from a radiological perspective. The end result of the environmental due diligence effort is the preparation of a document called an Environmental Baseline Survey (EBS) report. The EBS will include information that satisfies the requirements of CERCLA 120(h)(4) as well as DOE Order 458.1 and demonstrates that the property is eligible for transfer as uncontaminated. The purpose of the due diligence for ‘clean parcels’ is to adequately investigate the parcel “to determine or discover the obviousness of the presence or likely presence of the release or threatened release of any hazardous substance or any petroleum product t or its derivatives, including aviation fuel and motor oil, on the real property (CERCLA 120[h][4][A]).

CERCLA 120(h) is not CERCLA for cleanup but CERCLA for property transfer. However the notification aspect of a proposed transfer – see Section 4.3.1 – is a requirement of the Paducah Federal Facility Agreement (FFA) which is the regulatory agreement for the cleanup at Paducah, which is a CERCLA cleanup site. Following completion of the EBS, the document is transmitted to the state and/or federal regulators involved in the individual site’s transfer programs. It is anticipated that each DOE site, with the knowledge and/or involvement of the PPPO Reuse Lead, will be communicating and coordinating with the regulators so that their questions can be answered in a timely manner to obtain faster reviews and acceptance of the determination of uncontaminated property.

Once regulatory acceptance is obtained, the property is considered to be available for transfer.¹ PPPO will communicate to the CRO or others who have expressed an interest in the property that the DOE

¹ For purposes of this protocol and PPPO’s proactive approach to transfer readiness, available real property considers DOE’s mission need for the land and its utilization, the ability to determine if the property is environmentally suitable for transfer, and the ability to obtain regulatory agreement of the environmental due diligence documents prepared for the property. This approach is used due to the common understanding of the term “available” (e.g., ready) and the time-sensitive nature of economic development endeavors. (As a component of the mission and utilization evaluation, property transferred for economic development may be excess, unneeded or underutilized.)

PPPO site has property available for transfer for economic development and is seeking proposals for transfer and that transfer proposals need to include the information specified in 10 *CFR* 770.7. If members of a site's CRO—Southern Ohio Diversification Initiative (SODI) for PORTS and the Paducah Area Community Reuse Organization (PACRO) for PAD—or others request additional information on the property, DOE will evaluate the request to determine if it can be provided. PPPO may also receive transfer requests for real property before it is determined to be available. In instances where DOE has received such a request, DOE will evaluate the property from a utilization and mission need perspective, and inform the requester of the steps that would need to be performed to determine if the property is available. For example, the requested property may be underutilized and not have a mission need but still need to have the CERCLA 120(h) process completed before it would be able to be identified as available.

In parallel with the main due diligence effort to demonstrate the property is eligible for transfer as uncontaminated, other environmental due diligence activities will be undertaken. Although certain transfers may be able to be categorically excluded under the DOE National Environmental Policy Act (NEPA) regulations, sites will also prepare a sitewide NEPA review for their proposed transfer activities. Individual property transfer proposals will be evaluated against the sitewide NEPA document. Additional evaluation of the site to determine if sensitive resources are present that, if not currently identified, may require later analysis before an actual transfer (during Phase 3). For example, the DOE site may need to identify historic properties in a proposed transfer footprint so that it would know whether historic properties were present, and if present, a deed restriction would be necessary to identify the need for the grantee to protect historic properties in its footprint. Wetlands may also need to be identified to the grantee and language included in the deed about their presence, if needed.

Phase 2 – Proposal Review Phase

The proposal review phase follows the receipt of transfer proposals for the property that has been identified as available. As noted above, proposals for the transfer of real property for economic development purposes need to follow the procedures included in 10 *CFR* 770.7. The elements a proposal must include are expressly identified in 10 *CFR* 770.7(a). Specifically, if a transferee is requesting indemnification, they must indicate the request at the proposal stage. The proposal is reviewed to see if it offers a viable economic vision, sound logic for execution, and judgmental variables, such as being a “good fit” for the site. At this time, PPPO determines if the proposal is in the best interest of the Government and, if so, will proceed with the remaining steps in the process. This determination is a component of the recommendation (also known as the “business case”) for the transfer. Communication and coordination with the HQ-EM liaison is also typically occurring during this time to facilitate the overall process.

At the conclusion of the review, PPPO will write to the proposed transferee(s) and indicate whether a transfer (for their proposed use) will be pursued. When affirmative replies are issued, PPPO will coordinate with the CRSs at EMCBC and request their support with development of transfer agreements (deeds) for the proposals deemed beneficial to the Government. Transfer processes would not proceed for proposals found not to be in the best interest of the Government.

Note that there may be instances where the DOE site or PPPO obtains a request for property that has not been determined to be available. In these situations the DOE site, in coordination with PPPO, will assess the request and determine if it will pursue making the property available or if another piece of available land could satisfy the request. If PPPO decides to go through the steps to attempt to make the property available, the process above would be initiated. Consideration as to property configuration and size would be given so as to optimally integrate with EM activities and sequencing. DOE PPPO would communicate to let the requestors know its decision and path forward.

Phase 3 – Transfer Process Phase

The transfer process phase consists of the consolidation and/or development of the transfer agreement and all of the supporting materials including the recommendation (business case) into a “transfer package,” which is sent to DOE-HQ EM requesting their review and approval. This is an effort involving the site, PPPO transfer program leadership, and EMCBC CRS and counsel, in coordination with the EM program liaison at DOE-HQ (who provides coordination through HQ reviews)..

Materials, such as the approved EBS, DOE Order 458.1 documentation, the completion of the NEPA review for the proposed transfer (or the strategy for its completion), the recommendation that provides the rationale as to why the transfer is in the best interest of the government (the “business case”), the final draft deed, the transfer proposal in its final form, and the official DOE correspondence needed for the Secretary’s signature (an Action Memorandum for Transfer) for the Congressional notification that occurs in Phase 4 are coordinated with the CRS to ensure completeness, from a realty perspective, and all consolidated into the transfer package and submitted by PPPO to DOE-HQ to initiate the required 90-day notification to HQ. The transfer package then goes to DOE-HQ EM. The DOE-HQ EM liaison for property transfers is available to coordinate the routing through the HQ reviewers, ultimately to the Secretary for signature of the letters to various congressional committees that initiate the congressional review periods.

Phase 4 – Congressional Notification/Transfer Agreement/Deed Execution Phase

The final phase of the economic development transfer process begins when the Secretary has signed the letters to initiate the Congressional notification recommending the transfer. The letters are forwarded to the Congressional Committees by the Assistant Secretary for Congressional and Intergovernmental Affairs to the House and Senate Appropriations, Armed Services, Strategic Forces, and Energy and Water subcommittees for the required notification periods. The notification periods are 30 days for the House committees and 60 days for the Senate. The periods run concurrently so the overall Congressional notification period is 60 days. During that time the Congressional committees may have questions that would need to be responded to expeditiously. At the conclusion of the 60 day notification period the transfer may occur. PPPO would be coordinating with the DOE-HQ EM liaison on the timing, at the start of the notification process and its conclusion. The deed would then be ready to be finalized for signature by the CRS at EMCBC and the transferee.

1.2.2 Additional Transfer Authorities

The due diligence and environmental baseline for any transfer or disposal is the same regardless of the transfer mechanism used. The primary transfer mechanism for real property transfers for economic development at PPPO sites is anticipated to be the 10 *CFR* 770 process, under DOE's real property authority of the AEA. There are, however, additional options for transfer through DOE and through the General Services Administration (GSA) for non-economic development transfers. The CRSs at EMCBC need to be consulted to obtain their input and support on the most appropriate option for the particular circumstances.

2. PLANNING FOR TRANSFERS

In an effort to anticipate and plan for transfers, and be able to convey this information consistently, each site needs to prepare an integrated property transfer figure that serves as a planning tool. The figure needs to account for all site real property in consideration of site Decontamination & Decommissioning (D&D)

and remediation and the site's end-state or end states, e.g., industrial in some areas, recreational in others. This initial "sorting" will also define mission need for land with an understanding that revisiting this aspect periodically is important to the integration of cleanup with transfer planning and progress. The figure is intended to be high-level and be able to facilitate comprehensive understanding of site transfer opportunities. Areas of long-term management, such as dedicated waste disposal areas that will transition to the DOE Legacy Management organization at a future time, should also be identified, if known.

As noted above, the figure will serve as a valuable planning and sequencing tool. The information for the figure is developed as follows:

(1) Property that is located within the D&D/cleanup footprint or proximate to planned D&D/cleanup activities would be generally mapped and identified for transfer in the longer-term/post-D&D/post-cleanup.

(2) Property that is presumed to be clean/uncontaminated would be generally mapped and considered for evaluation for transfer in the nearer-term.

(3) Property where DOE has cleanup to perform but where the contaminants requiring cleanup would not pose an unacceptable risk to a transferee (with appropriate deed restrictions), this property would be generally mapped and could be evaluated for transfer in the middle-term.

(4) Property where DOE is presumed to need to retain ownership such as certain types of burial grounds need to be generally mapped and identified.

A periodic re-evaluation by PPPO and the EMCBC CRS of this high-level graphic sequencing is appropriate to consider new information that may inform the general sequence categories. Examples of new information that could be considered include completed remediation work or the availability of new data that could result in shifting areas of real property from one category to another. This information is also needed for development of a site's Ten Year Site Plan.

The land use factors of opportunities and constraints would also be simply depicted on a separate figure. Examples of opportunities include roads, linear infrastructure such as gas lines, water lines, electrical service, rail, etc. Examples of constraints are cemeteries and wetlands which can be transferred but are nevertheless constraints to maximized economic development potential. The opportunities and constraints would then be mapped. At this time a map that shows the two main transfer planning factors – mission-integrated sequencing and opportunities and constraints – can be combined. Then this combined figure can be overlaid on a site's defined areas for cleanup management, e.g., "exposure units," "remediation areas," or other discrete land areas that have been identified for management purposes. By preparing the overlay of the combined mission and opportunities and constraints graphic and overlaying it on land units, a real property transfer sequencing approach can be prepared. Similar units can be grouped together as parcels that will be reviewed for due diligence purposes. This approach will enable resource planning, budgeting and economies of scale.

The end-result will enable the DOE sites to plan for transfers and strategize sequencing for properties that will be evaluated to determine if they are eligible for transfer as uncontaminated. A useful planning tool is the Status and Forecast of Property Transfer Activities for PORTS and PAD that are shown as examples in Appendix A. Information such as this may be requested by HQ transfer package reviewers to assist them in understanding a site's overall transfer strategy.

Transfer Planning Timeframes

- Nearer-term is considered to be between the present and 5 years.
- Middle-term is considered to be between 6 and 15 years
- Longer-term is considered to be a period up to 30 years

These timeframes are for planning purposes and should be revisited periodically.

The factors of mission need and utilization are components of determining if property is appropriate for economic development. Both aspects of these analyses – the mission need and utilization – as well as what is known about the areas presumed to be uncontaminated and those where the status is not known, should be reviewed annually and updated as needed to remain current and provide a realistic picture of what is appropriate for economic development.

3. ENVIRONMENTAL DUE DILIGENCE FOR TRANSFERS OF UNCONTAMINATED PROPERTY

Notification and warranty obligations imposed by CERCLA Section 120(h) necessitates that all federal real property transfers require an environmental due diligence review². These environmental due diligence reviews establish the baseline conditions of property proposed for transfer. These conditions are documented in an EBS report. Appendix B contains a crosswalk of the requirements of CERCLA 120(h)(4) and where they are found in an EBS. Appendix C contains additional detail, which includes a crosswalk of the requirements of CERCLA 120(h)(4) and a narrative on where and how they are addressed in an EBS. Examples of due diligence activities for uncontaminated property include a title search to determine prior ownership history, a property description, a review of aerial and other photographs, interviews with people familiar with the property and activities that took place on it, and visual and physical inspections of the property. These requirements originate in CERCLA 120(h)(4). An example of a PORTS EBS for an uncontaminated property is included in Appendix K.

The objective of the due diligence effort is to be able to determine if the property is eligible for transfer as uncontaminated. Additional information is provided below.

3.1 CERCLA 120(h)(4) REVIEWS

3.1.1 Uncontaminated property

CERCLA Section 120(h)(4), addresses uncontaminated property transfers, also known as a Clean Parcel Determination (CPD) transfer. The requirements of CERCLA 120(h)(4) and where they are found in an EBS is included in a crosswalk found in Appendix C. The objective of an uncontaminated parcel is to be able to state one of two conclusions:

- That no hazardous substances and no petroleum products or their derivatives were known to have been released or disposed of, pursuant to CERCLA 120(h)(4), *or*
- Where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment, pursuant to U.S. Environmental Protection Agency (EPA) *Military Base Closures: Revised Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels under CERCLA 120(h)(4)* (EPA 1997)³.

²CERCLA 120(h) requires that research be conducted to identify spills, releases, and storage of hazardous substances. Both CERCLA and 40 *CFR* 373 require that the findings of such research be included in the notification (in the case of title transfers, this will take place in the deed for title transfer). This notification is included in the Environmental Baseline Survey report.

³ While the 1997 EPA Guidance was developed in support of Department of Defense Base Realignment and Closure (BRAC) activities, DOE has looked into the applicability of this guidance to other federal facilities. The research determined that it is the only guidance that has been issued by EPA on the identification of uncontaminated property where releases have occurred but no threat to human health or the environment is posed. The guidance is also listed by EPA on their "Property Transfer at Federal Facilities - Policy and Guidances" website, indicating the broad federal facility applicability

This 1997 EPA guidance was issued to assist EPA in meeting its obligation under CERCLA 120 (h)(4). The guidance states: “EPA is concerned with both protecting human health and the environment and achieving Congress' goal of expeditiously transferring uncontaminated real property to communities for economic redevelopment. Interpreting CERCLA section 120 (h)(4) to allow the expeditious transfer of parcels where there is no indication that the release or disposal of hazardous substances or petroleum products poses a threat to human health or the environment would aid Congress' intent by increasing the amount of real property which would be available for expedited reuse and redevelopment.”

When pursuing an uncontaminated determination for a CPD, evidence must be provided that constituents in all media are below action levels. A CPD can be made if soil constituent concentrations are at or below background levels as set by the site and if groundwater constituent concentrations are below maximum contaminant levels. Site background documentation for each of these media need to be consulted to ascertain the background levels. Following the respective site's soil sampling criteria (DOE 1996, DOE 1997), if constituent concentrations shown in existing data or found when sampling a parcel proposed for transfer are at or below these background screening levels, an evaluation of risk would not be required.

Where groundwater is found to be above a Maximum Contaminant Level but no cleanup is required, an evaluation of risk would not be required. Decisions on groundwater use by a transferee will be made on a case-by-case basis.

3.1.1.1 Additional Steps for uncontaminated property transfers using the 1997 EPA guidance

For parcels using the 1997 EPA guidance, where there has been some release or disposal of hazardous substances or petroleum products, but where there is no indication that the release or disposal poses a threat to human health or the environment, some level of risk evaluation may be needed. If deemed necessary and appropriate, a screening human health risk assessment may be performed for release of an uncontaminated land parcel. In other words, it must be shown that environmental cleanup is not required nor is it anticipated in the future. If there is sufficient uncertainty, then a CPD should not be pursued. Human health no action levels for Paducah (DOE 2015a) and Paducah background soil levels (summarized in Table A.12 of DOE 2015a), and human health Type 2 screening levels for Portsmouth (summarized in Table C.3 of DOE 2015b) and Portsmouth background soil levels (included in DOE 2015b) are to be used for the appropriate land use scenario (e.g., industrial land use) to indicate whether the uncontaminated land parcel is suitable for transfer. A screening human health risk assessment entails comparison of representative surface soil concentration data against the aforementioned background levels and human health chemical and radiological health screening levels. If exceedances occur, this information/screening assessment(s) can then be used to determine if confirmatory soil sampling is needed for uncontaminated land parcel release for the appropriate land use determination. [Note that the Paducah and Portsmouth human health screening levels are for an excess lifetime cancer risk of 1E-06 and a hazard quotient of 0.1. If these values are not exceeded, “no further action” from a risk perspective can be selected for those land parcels because it can be demonstrated that no contamination is present (i.e., risks are de Minimis)].

If the uncontaminated parcel is to be transferred to, for example, a wildlife management area, then a screening ecological risk assessment may be necessary and would follow the appropriate protocols in the Paducah and Portsmouth ecological risk methods documents (DOE 2015c, DOE 2015d, respectively).

3.2 DOE ORDER 458.1

DOE Order 458.1 applies to sites with a history of radiological activities. The order requires the establishment of approved authorized limits and independent verification of the radiological condition of a property before it can be released from DOE control. The Order calls for a systematic approach to evaluating the property and determining if it has been impacted by DOE operations. Process and historic information is reviewed as a part of the determination. DOE, with the EPA and Nuclear Regulatory Commission, developed the *Multi Agency Radiological Survey and Site Investigation Manual (MARSSIM, EPA 2002)* that is a part of the process used by DOE to release property. Each of the PPPO sites has adopted a method to complete Order 458.1 requirements, including the independent verification process necessary for real property. The methods specified in each site's implementation of DOE Order 458.1 requirements will be used to address the transfer of real property. Completion of all aspects of the DOE Order 458.1 requirements that pertain to property transfer will occur with the approval of the EBS during the DOE-HQ review process.

3.2.1 Authorized Limits

Authorized Limits, as defined in DOE Order 458.1, Attachment 2 (Definitions), 2-11-2001, govern the release of real property and are radionuclide concentrations or activity levels that are approved by DOE to permit the release of property from DOE control, consistent with DOE's radiation protection framework. An Authorized Limit is a limit on the concentration or quantity of residual radioactive material on the surfaces or within property that has been derived consistent with DOE directives including the As Low As Reasonably Achievable (ALARA) process requirements. An Authorized Limit must state any restrictions or conditions on the future use of real property and must be approved in accordance with DOE Order 458.1, Section 4.k (6).

Authorized Limits have been established for PAD (DOE 2012) and are being developed for PORTS. Once Authorized Limits are developed for PORTS they will be used, and will be referenced in a future revision of this protocol.

Information sufficient to meet the requirements for the demonstration of protection of human health and the environment will be included in the EBS and/or its appendices. It is the PPPO's intent to obtain approval of the DOE Order 458.1 information before seeking concurrence of the EBS. If that is not feasible in a particular circumstance, then it will occur before transmittal of the transfer package to DOE-HQ for approval, or may need to occur as a part of the transfer package approval. (It should be noted that DOE Order 458.1 is a DOE requirement, approval by outside parties is not required and should not be requested or implied that it is being requested.)

3.2.1.1 Authorized Limits Implementation Plan

An Authorized Limits Implementation Plan for meeting the requirements of the release and clearance of real property per DOE Order 458.1, Section 4.k.(6) et seq. is needed to transfer real property. With regard to uncontaminated property, the focus of the plan should be on how to demonstrate that the property does not contain residual radioactive material based on process and historical knowledge, radiological monitoring or surveys, or a combination of these using the MARSSIM process.

An Authorized Limits Implementation Plan has been established for PAD (DOE 2014c) and is being developed for PORTS. Once an Authorized Limits Implementation Plan is developed for PORTS it will be used, and will be referenced in a future revision of this protocol.

3.2.1.2 Authorized Limits Communication Plan

Appropriate public involvement and notification are a component of Authorized Limits. The development and use of an Authorized Limits Communication Plan will assist the sites in their communications within DOE and to various stakeholder groups and individuals. Communication of the purpose of the Authorized Limits, their regulatory basis, the radionuclides addressed by the Authorized Limits, and how they were derived, proposed, reviewed and approved within DOE are anticipated to warrant explanation to various audiences throughout the real property transfer process, as well as an explanation of how Authorized Limits are applied to property transfer.

An Authorized Limits Communication Plan has been established for PAD (DOE 2014e) and is being developed for PORTS. Once an Authorized Limits Communication Plan is developed for PORTS it will be used, and will be referenced in a future revision of this protocol.

3.2.2 Historical Site Assessment

Historical Site Assessments (HSAs) are conducted specifically to address facilities and areas that had operations involving radioactive materials (DOE Order 458.1, Section 4.k.[5]). The purpose of the HSA is to (1) identify potential, likely, or known sources of potential radiation contamination resulting from radioactive material use or storage; (2) identify areas as Impacted or Non-Impacted in accordance with assessment protocol as outlined in the *MARSSIM*; (3) identify specific data gaps for Impacted Areas; and (4) provide information useful for designing subsequent radiological characterization surveys of Impacted Areas that will support unrestricted release. As a part of the HSA, documents are gathered from various sources and are reviewed and evaluated to extract information on the radiological history of the real property proposed for transfer. Documents to be reviewed may include permits, licenses, storage records, waste manifests, authorizations, inventory records, surveys, drawings and floor or other plans. Visual inspections and interviews, when possible, are also conducted as a part of the assessment, which is documented for the real property proposed for release from DOE control via transfer. A crosswalk of the requirements for the HSA with the contents of the EBS is found in Appendix D. It is intended that the requirements for the HSA are met with and within the EBS.

3.2.3 Independent Verification

Independent verification is called for by DOE Order 458.1 to ensure that control and release of property is consistent with DOE requirements, approved authorized limits, and procedures. Independent verification is integrated into the planning of each proposed property transfer and is performed independent of DOE. Independent verification activities for the release of real property must, at a minimum, include review of the radiological characterization report or data but, as appropriate, may include independent surveys or sample analysis to verify compliance. An Independent Verification Plan is required for each transfer. For PPPO the Independent Verification Plan will be performed by a contractor that is independent of the DOE contractors conducting activities to support transfers.

3.2.4 Required Reviewers for DOE-HQ Approval of DOE Order 458.1 Documentation

PPPO will develop documentation that satisfies the requirements of DOE Order 458.1. Approval of DOE Order 458.1 information prepared for real property transfer is obtained from the Assistant Secretary of Environmental Management, who has delegated the approval authority to the Deputy Assistant Secretary for Site Restoration.

3.3 EBS REPORT CONTENTS FOR UNCONTAMINATED PROPERTY

Documentation prepared to support PPPO title transfers under CERCLA Section 120(h) and the implementing regulations found at 40 *CFR* 373 includes an EBS report that fulfills the CERCLA Section 120(h) requirements and details the baseline condition of the real property proposed for transfer. Preparation of this report includes the review of government records, title documents, and aerial photographs, visual inspections of the property and adjacent properties, and interviews with current and former employees to identify any areas on the property where hazardous substances and petroleum products were stored for one year or more, known to have been released, or disposed. The report also summarizes the results of the characterization effort (and/or review of existing data) conducted to support title transfer. The timely involvement of the CRS, in particular with matters pertaining to the title search and the certification of 40 *CFR* 373-related information, is essential.

CERCLA 120(h)(4) specifies the information needed to be able to identify uncontaminated property. As noted earlier, the crosswalk found in Appendix B includes the information needs from CERCLA 120(h)(4) and where they are found in an EBS, and Appendix C includes the content narrative along with the requirements and crosswalk. Templates for the transmittal letters to the regulatory approval authorities for the draft and final EBSs are included in Appendix E. The interview form is found in Appendix J.

3.3.1 Data Requirements for Uncontaminated Property Transfers

Data requirements for uncontaminated property transfers are specified in the data quality objectives (DQOs) for PPPO sites. DQOs are qualitative and quantitative statements that clarify the study objective, identify the most appropriate type of data to collect (if any), determine the most appropriate conditions for collecting the data, and specify limits on decision errors (EPA 2002). DQOs define the performance criteria that limit the probabilities of making decision errors by considering the purpose of collecting the data, defining the appropriate type of data needed, and specifying tolerable probabilities of making decision errors. Project-specific DQOs are developed using the seven-step DQO process. The DQOs for the PPPO property transfer projects have been designed to meet the data requirements included in CERCLA 120(h)(4), setting the requirements for use of available data considered in the EBS. If additional data collection is required, additional DQOs consistent with the established DQOs may need to be developed. The DQOs for PORTS and PAD are found in Appendix F.

3.4 OBTAINING ENVIRONMENTAL REGULATORY CONCURRENCE OF THE DOE DETERMINATION OF UNCONTAMINATED PROPERTY

Concurrence with the determination of uncontaminated property would follow DOE's completion of the requirements of the CERCLA 120(h)(4) review process for the identification of uncontaminated property. Regulatory requirements are specified in CERCLA 120(h)(4)(B) and note that for transfers stating that the property is uncontaminated, the identification as an uncontaminated parcel is not complete until the concurrence of the appropriate regulatory authority has been obtained.

Regulatory concurrence on uncontaminated property differs between the PPPO sites due to their differing regulatory environments. PAD is a CERCLA site which is listed on the National Priorities List (NPL) and regulated by a combination of the EPA (Region 4) and the Commonwealth of Kentucky. PORTS is not an NPL site. It is regulated by the State of Ohio.

- PAD – Concurrence on the identification of uncontaminated real property that is part of a facility on the NPL is obtained from the EPA Regional Administrator. Concurrence on the identification

of uncontaminated real property that is not part of a facility on the NPL is from the appropriate State official.

- PORTS – Concurrence on the identification of uncontaminated real property is from the appropriate State official.

The CERCLA 120(h) statute goes on to say, “In the case of concurrence which is required from a State official, the concurrence is deemed to be obtained if, within 90 days after receiving a request for the concurrence, the State official has not acted (by either concurring or declining to concur) on the request for concurrence.”

As explained above, the DOE-HQ approvals required for demonstration of compliance with DOE Order 458.1 will occur as a part of the DOE-HQ review of the EBS.

4. POST-CONCURRENCE OF ENVIRONMENTAL DUE DILIGENCE 10 *CFR* 770 TRANSFER PROCESS STEPS

4.1 NOTIFICATION OF AVAILABILITY

Notification consists of providing information to the CRO, communities, tribes and others who may have expressed an interest in available property by any effective means of publicity. PPPO sites recognize the value of regular communication with their CROs, communities and other stakeholders and will continue to keep them informed of the status and progress of property transfer efforts. Property that has been identified as appropriate for economic development and has obtained regulatory concurrence on the EBS is considered to be available. Relevant information, including information about the property’s physical condition would be available after concurrence of the environmental due diligence.

As described in Section 1.2.1.1.1, Phase 2, there may be instances where the DOE site or PPPO obtains a request for property that has not been determined to be available. In these situations the DOE site, in coordination with PPPO, will assess the request and determine if it will pursue making the property available or if another piece of available land could satisfy the request. If PPPO decides to go through the steps to attempt to make the property available, the process described in Section 3 would be initiated. DOE PPPO would communicate to let the requestor know its decision and path forward and communicate status information as the evaluation process advances.

4.2 RECEIPT AND REVIEW OF PROPOSALS

After the notification/communication of available property is made it is expected that DOE will receive proposals, especially where there have been prior requests for property for economic development. Proposals need to follow the requirements of 10 *CFR* 770.7. Proposals will be reviewed against the overall 770.7 criteria with attention paid especially towards the viability of the proposal, the economic development that is to be furthered by the proposal and any larger vision for economic development of which it may be a part. Generalized excerpts that regard the content of a proposal from the DOE Asset Revitalization Guide for Asset Management and Reuse (DOE 2015e) are provided below for assistance in the review of proposals. In certain instances, such as those pertaining to infrastructure, the sites may need to provide information to the requestor so they can make a more complete request. The bullet points are from 10 *CFR* 770.7.

Real Property Transfer proposal requirements per 10 CFR 770.7

- **A description of the real property proposed to be transferred – 10 CFR 770.7 (a)(1)(i)**

The description should include the site’s infrastructure assets, such as buildings, land, and utilities. A map showing the location and any proximate roads and other features is helpful.
- **The intended use and duration of use of the real property – 10 CFR 770.7(a)(1)(ii)**
 - What are long term plans for the property?
 - Which utilities and services will be required (water, power, sewage disposal, transportation)? Which companies will provide the utilities and services? If DOE provides utilities, services, and infrastructure, how will DOE be reimbursed? Federal regulations require full-cost recovery for utilities and services.
 - Provide an evaluation of the desired property’s infrastructure assets (i.e., buildings, transportation, and utilities) and required improvements proposed to be made.
- **A description of the expected economic development that would be furthered by the transfer (e.g., jobs to be created or retained, infrastructure improvements to be made) 10 CFR 770.7(a)(1)(iii)**
 - How will this development lead to job creation or retention?
 - What improvements will be made to the property, and how will they be financed?
- **Information supporting the economic viability of the proposed development 10 CFR 770.7(a)(1)(iv)**
 - What products and services are in demand in the region?
 - Which industries in the region may be interested in locating at the site?
 - What is the marketing plan for attracting industries to the site?
 - What are the strengths and weaknesses of the property and surrounding community?
- **The consideration offered and any financial requirements 10 CFR 770.7(a)(1)(v)**

Does the prospective transferee want the property for less than fair market value? If so, what is the basis for not paying market value? The value of the property (at least a range of values for the area) should be included in the proposal.

Once the PPPO Manager has assessed the proposal and determined that the transfer will be pursued, the PPPO Reuse Lead will work with the Site Reuse Lead to develop and assemble all of the necessary components of a transfer package for transmittal to DOE-HQ. Appendix G contains a listing of the transfer package contents for an uncontaminated parcel for submittal to DOE-HQ.

4.2.1 National Environmental Policy Act reviews

NEPA requires federal agencies, such as DOE, to review proposed actions to assist in the decision-making process prior to taking an action. (DOE’s NEPA Implementing Regulations are found in 10 CFR 1021, and establish the procedures under which DOE complies with NEPA.) The decision to transfer

property calls for a NEPA review before the transfer. The title transfer of real property could result in impacts that range from no effect, to minor effect, to significant effect. The impacts would be evaluated in the appropriate documentation, which, for the proposed future use of the PPPO sites, has been identified as an Environmental Assessment (EA).

Sitewide NEPA reviews will be prepared for both PPPO sites to capture the transfer program's scope, vision, and effects at each site. Following the receipt of proposals to transfer available property, the sitewide documents would be evaluated, and the proposed transfer actions and the locations "screened" against the scope of the sitewide documents. After reviewing a proposal, DOE may inquire about adjustments to the proposed use or to where the proposed use would occur if the adjustments would create a more compatible use or more favorable outcome. DOE may suggest these adjustments in consideration of details in the proposal or its execution, as well as the range of factors that are evaluated with development projects of any type, such as safety and ingress/egress. If the proposed use is beyond the scope of the sitewide NEPA review, additional review may be needed and may be performed by others, depending on the action.

Some real property may be transferred for the same or similar uses (e.g., office space or industrial development of previously developed land), it is possible in those cases to use a categorical exclusion (CX) to meet the requirements of NEPA found in the respective appendix to 10 *CFR* 1021.

4.2.1.1 Sensitive Resource Reviews

Individual transfers will be screened against sitewide NEPA documents or the individual CX that is available for transfer actions as described above. Proposals for the transfer of available property are anticipated to identify types of proposed uses intended for particular pieces of real property. As a part of the NEPA review, sensitive resource reviews will be conducted and additional actions may be needed. For example, a wetland may need to be surveyed so that it can be identified. Threatened and endangered species surveys may be needed so that the transferee is cognizant of their presence in a transfer footprint. If the proposal includes the transfer of a historic property, DOE will need to complete the National Historic Preservation Act Section 106 process and include a restriction in the deed, or a requirement in the deed that any work done by the transferee that could adversely affect the historic property be coordinated with the State Historic Preservation Officer.

4.3 CERCLA 120(h)(4) DEED REQUIREMENTS FOR UNCONTAMINATED PROPERTIES

The requirements for a deed for an uncontaminated parcel are noted below and would be able to be incorporated into the deeds by the CRS in coordination with DOE counsel.

- (i) A covenant warranting that any response action or corrective action found to be necessary after the date of such sale or transfer shall be conducted by the United States; and
- (ii) A clause granting the United States access to the property in any case in which a response action or corrective action is found to be necessary after such date at such property, or such access is necessary to carry out a response action or corrective action on adjoining property.

PPPO will review each deed and proposal on a case-by-case basis to determine if groundwater use restrictions are needed.

4.3.1 Pre-Transfer Site-Specific Regulatory Requirements

At Paducah, pursuant to the requirements of the FFA, DOE must notify EPA and the Kentucky Department for Environmental Protection (KDEP) of any leases or transfers of property at least 90 days prior to executing the realty instrument, while the FFA is in effect (FFA Section XLII). This notification could be included in the correspondence to EPA Region 4 and KDEP transmitting the EBS for review and concurrence.⁴ The language from FFA Section XLII is as follows, with highlight applied to the pertinent portions that pertain to the transfer of an uncontaminated property:

XLII. Property Transfers

In the event that DOE decides to enter into any contract for the sale or transfer of any of the Site, DOE shall comply with the requirements of Section 120(h) of CERCLA, 42 U.S.C. § 9620 (h), in effectuating that sale or transfer, including all notice requirements. In addition, DOE shall include notice of this Agreement in any document transferring ownership or operation of the Site to any subsequent owner and/or operator of any portion of the Site and shall notify EPA and KNREPC of any such sale or transfer at least ninety (90) days prior to such sale or transfer. No change in ownership of the Site or any portion thereof or notice pursuant to Section 120(h)(3)(B) of CERCLA, 42 U.S.C. § 9620 (h)(3)(B), shall relieve DOE of its obligation to perform pursuant to this Agreement. No change of ownership of the Site or any portion thereof shall be consummated by DOE without provision for continued maintenance of any containment system, treatment system, or other response action(s) installed or implemented pursuant to this Agreement. This provision does not relieve DOE of its obligations under 40 C.F.R. 270, and KRS 224 § 46, 41 KAR chapter 38.

At PORTS, pursuant to the April 13, 2010 (updated July 16, 2012), DFF&O Clause 29, DOE needs to notify Ohio EPA at least 10 days in advance of each conveyance by DOE of any portion of the Site. The full text of Clause 29 of the April 13, 2010 (updated July 16, 2012) DFF&O is as follows, with highlight applied to the pertinent portions for an uncontaminated property:

29. Notice of Transfer of Property

Prior to each conveyance by Respondent of an interest in any portion of the Site, including but not limited to easements, deeds, leases and mortgages, Respondent shall notify Transferee of the existence of any security, containment, treatment, and/or monitoring systems, and/or activity and use limitations, including environmental covenant(s), that are part of removal or remedial actions under these Orders and that apply to the portion of the Site to be conveyed, and shall provide a copy of these Orders to Transferee. Respondent shall notify Ohio EPA at least ten (10) days in advance of each conveyance by Respondent of an interest in any portion of the Site.

Respondent's notice shall include the name and address of the Transferee and a description of the provisions made for the continued access to and maintenance of the security, containment, treatment, and/or monitoring systems at the Site that are part of a removal action or remedial action under these Orders.

⁴ At this time it is not known if the regulators reviewing the Paducah CERCLA 120(h) transfer documentation will be the same as those reviewing site cleanup documentation. A determination will be made on who the regulators are for the CERCLA 120(h) documentation for Paducah prior to the transmittal of transfer documentation. Clear language will be included in the correspondence indicating whether the transmittal materials are for review or for information with other clarifying language as needed.

5. COORDINATION TO COMPLETE THE TRANSFER PROCESS

Once the site has obtained proposals for transfer that have been determined by the site and the PPPO Manager to be in the best interest of the Government, the site, in coordination with PPPO Reuse Lead (working with the CRS to ensure completeness from a realty perspective), completes the necessary steps to transmit a complete transfer package to HQ for review. This transmittal initiates the 90-day HQ notification period. HQ will then review the package to ensure completeness. Questions that the various HQ reviewing organizations may have will be forwarded to the PPPO point of contact at this time for resolution. Once it is determined to be complete, the DOE-HQ EM liaison, working with all of the submittal materials provided by PPPO will be able to take the necessary steps to initiate the required Congressional notification.

The transfer package is transmitted to Congress from the Secretary's office for a period of 60 days. If questions arise they will be communicated by the DOE-HQ EM liaison to the PPPO Reuse Lead for response. Congress does not have approval authority; the 60-day period is strictly for notification. Response to inquiries in as expeditious a manner as possible is encouraged. Note that the 60-day Congressional review period for transfers under the authority of 10 *CFR* 770 is required and may not be changed by DOE. However, the review period can be shorter if the involved Congressional committees complete their review more quickly and notify DOE that it has been completed.

5.1 THE "BUSINESS CASE"

A critical component of the transfer package is the "business case". The business case is prepared by PPPO in coordination with the site whose real property is proposed for transfer and is submitted by PPPO to HQ. The business case is the recommendation by the Field Office that, taken in its entirety, the proposed transfer is in the best interest of the Government. A business case that is based upon a DOE-HQ understanding of a site's long-term or "big-picture" vision of how transfers integrate with the site cleanup mission and how transfers will occur over time, including the types of transfers, is beneficial. (The information to communicate this site vision to DOE-HQ is that which is described in Chapter 2.0. Planning for Transfers.) A template for the business case is found in Appendix H.

As noted earlier, a listing of transfer package contents are indicated in Appendix I. Recent examples that can serve as templates for all of the transmittal letters for DOE-HQ reviews and the Congressional Notification that are referred to in Appendix I are included in Appendix K. Assistance in the preparation of the letters is available from the DOE-HQ EM liaison.

5.2 EXECUTION OF THE DEED

Once the Congressional notification period has ended DOE PPPO will be notified by the EM Liaison that the transfer process is completed and the transfer action is approved. The DOE-HQ EM liaison will send the completed package to the PPPO Reuse Lead. The Reuse Lead will then coordinate with the EMCBC CRS, providing them the information they need to enable the preparation of the final deed for signature by the transferee and the CRS. Once executed, the deed will be recorded in the county where the property is located.

5.2.1 Post-Transfer Site Specific Regulatory Requirements

At PORTS, in accordance with the April 13, 2010 (updated July 16, 2012) DFF&O Clause 30, DOE needs to notify Ohio EPA within 30 days of each conveyance of an interest in any portion of the site. The full text of the clause is as follows:

30. Confirmation of Conveyance

Within thirty (30) days after each conveyance of an interest by Respondent in any portion of the Site, the Respondent shall submit to Ohio EPA, via certified mail, the following information:

- a. A copy of the deed or other documentation evidencing the conveyance;
- b. The name, address, and telephone number of the new property owner and the name, address, and telephone number of the contact person for the Property owner;
- c. A legal description of the Property, or the portion of the Property, being transferred;
- d. If prepared as part of the transaction, a survey map of the Property, or the portion of the Property, being transferred; and
- e. The closing date of the transfer of ownership of the Property, or portion of the Property.

6. GENERAL COORDINATION AND COMMUNICATION

Property transfers involve site and PPPO coordination as well as their coordination with other organizations within DOE including those at the EMCBC and DOE-HQ EM. Additionally, external regulators or other points of contact at the state/commonwealth level as well as at the federal level via US EPA for PAD are involved. Other external communication will occur between DOE sites and PPPO with the CROs or others potential transferees, along with a broad spectrum of members of the public. Effective, consistent communication and information sharing among the various parties is important to the overall success of the property transfer program.

Programmatic and site documents prepared in support of property transfer must be appropriately marked.

6.1 SITE COORDINATION

Communication within the site organizations, projects, and programs is an important part of property transfer planning, management, and effective execution. Overall transfer program planning is most important and needs to consider the integrated efforts at a site that are necessary to transfer property. Forward planning is also warranted to consider the changed conditions that will occur with non-DOE activities taking place on site post-transfer by the transferee and other members of the public who may be present on the transferred real property. Other important points of coordination would be with the utility/infrastructure organizations. Infrastructure features may have a dual role as both an asset to a transferee and a cleanup task for DOE. Coordination to ensure regulatory coverage for infrastructure removal, if necessary, may be needed. A consideration of leaving infrastructure in place as an asset, if the infrastructure itself does not present a risk or hazard, is also necessary and needs to be coordinated with site functions. Sequencing of the cleanup and D&D activities is also very important to transfers so that the expressed interests of the CRO or others may be factored into timing of specific D&D tasks.

Other points of coordination for the property transfer program need to include environmental compliance. Environmental compliance will provide project environmental screening once a proposal for transfer is obtained, and they will consider the need for permit modifications, utilities, health and safety, nuclear safety and other considerations. It is necessary to remember that transferees are members of the public. This brings about the need to evaluate site aspects such as nuclear safety bases and other permits or licenses that presume a member of the public is located at the fence line, vs. in closer proximity.

Overall communication about planned transferee activities in their (transferred) space is needed so that site occupants and various organizations are aware of the proposed changes.

6.2 PROGRAM COORDINATION

PPPO will facilitate the completion of required activities by other DOE organizations, e.g., DOE-HQ, EMCBC and others that are needed to enable PPPO to transfer real property. Coordination among the sites and PPPO is essential and expected. PPPO's leadership role calls for awareness and involvement. It is important to enable senior management understanding of transfer program status, issues, and progress. The PPPO Reuse Lead needs to be informed of all communication that is planned to occur that will go above the individual sites, such as coordination with EMCBC. The involvement of the PPPO Reuse Lead will provide for clarity of message, the provision of technical expertise, and consistency and management of expectations. It is also to enable PPPO to provide management-level assistance in matters of policy, direction, and decision-making, as needed.

The PPPO and Site Reuse Leads will plan to meet with EMCBC CRSs who support PPPO site real property transfers on a regularly scheduled periodic and as-needed basis to discuss the status of current and future activities. Sites will provide updated schedules of planned activities and other information to forecast needs and to keep all transfer team members informed.

PPPO will also have the responsibility for obtaining the services of outside support that may be needed such as for the provision of services for DOE Order 458.1 Independent Verification where it will not be able to be performed by DOE. Support services may also need to be obtained by PPPO from EMCBC or others for tasks such as metes and bounds surveys and property appraisals.

6.3 DOE-HQ COORDINATION

DOE-HQ Coordination is addressed in Section 5.0. DOE-HQ Coordination is managed and led by PPPO to ensure consistency in messaging and information. A briefing of DOE-HQ management, to include Asset Management, the Chief Financial Officer, Environmental Management, and General Counsel is proposed to occur for each site so that DOE-HQ can be informed of each site's proposed transfer actions, sequencing, timing, issues and opportunities. This briefing (which is prepared for by performing the planning actions described in Chapter 2.0) will assist DOE-HQ in working with PPPO sites and anticipating their needs when transfer packages are submitted.

6.4 EXTERNAL COORDINATION

Communication and coordination external to DOE needs to be focused, systematic, and consistent. With regard to regulators, DOE's external communication is intended to offer an opportunity for status on existing proposed transfers and a forecast of upcoming proposed transfers. PPPO and the sites will plan to meet with the regulators via the most appropriate method on a periodic basis, at least twice per year, and on an as-needed basis to discuss the status of current and future real property transfer activities. Sites will provide updated schedules of planned activities or other information to forecast support needs from the regulators. Other points of mutual interest will be discussed, as appropriate, such as the integration of title transfers and cleanup, data collection efforts, etc. The purpose of communicating regularly to share information about the status of proposed transfer is to raise and resolve issues as quickly as possible to avert transfer schedule impacts.

Informational meetings with regulators will be conducted for new proposed transfers, generally when information on the proposed transfer can be gathered, reviewed, and shared. At this meeting, DOE would need to have a map of the proposed footprint and be able to brief the external parties on site history of use, existing data review results, and a preliminary schedule for when a draft document would be submitted. The proposed CERCLA 120(h) approach will also be discussed, e.g., uncontaminated/clean parcel transfer.

If there are transfer efforts planned that will have a field component involving sampling, DOE can also offer an opportunity for the regulatory or other points of contact to observe field activities, participate in laboratory audits, and split field samples.

In addition to DOE and its regulators and other transfer points of contact, the public is also involved in the transfer process. Although uncontaminated parcel transfers do not include a public review requirement in CERCLA 120(h), it is anticipated that the DOE sites will keep their communities informed of proposed transfers via their stakeholder organizations and other appropriate means. The requirements of 10 *CFR* 1021, DOE's NEPA Implementing Procedures include a public review of EAs, and also that the application of CXs for DOE actions be posted to the web. Opportunities for public review can be made available through periodic meetings of the Citizens Advisory Board at PAD, Site Specific Advisory Board at PORTS and/or other public meetings. Final CERCLA 120(h)(4) documents are also placed on the PPPO website.

Another unique communication responsibility would be between DOE and the parties, such as the CROs, which are submitting proposals to transfer available property. Frequent communication is anticipated there so the potential transferees can be kept informed about project status, issues that may have arisen, schedules, etc. Back and forth discussions are also anticipated among DOE and the parties that have submitted proposals to transfer property as the proposal review process occurs so that DOE can have all of the information needed to evaluate a proposal during the proposal review process. Additional communication may be necessary for PPPO and the Site Reuse Leads' development of the business case for the transfer. The recommendation to DOE-HQ to proceed with a transfer will come from PPPO on behalf of the sites, so communication among all of the parties to develop as strong a proposal as possible is expected.

7. GLOSSARY

Authorized Limits – govern the releases of personal and real property. They are radionuclide concentrations or activity levels approved by DOE to permit the release of property from DOE control, consistent with DOE’s radiation protection framework and standards for workers, the general public, and the environment.

Available real property – for purposes of this protocol and PPPO’s pro-active approach to transfer readiness, “available” considers DOE’s mission need for the land and its utilization, the ability to determine if the property is environmentally suitable for transfer, and the ability to obtain regulatory agreement of the environmental due diligence documents prepared for the property. This approach is used due to the common understanding of the term “available” (e.g., ready) and the time-sensitive nature of economic development endeavors.

Certified Realty Specialist (CRS) – DOE professional authorized to review and approve realty actions. Realty Specialists provide guidance and assistance to the field in the entire range of real property activities.

Clean parcel determination (CPD) – property on which no hazardous substances and no petroleum products or their derivatives were known to have been released or disposed of (pursuant to CERCLA 120(h)(4), *or* where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment.

Community Reuse Organization (CRO) – As defined in 10 CFR 770.4, means a governmental or non-governmental organization that represents a community adversely affected by DOE work force restructuring at a defense nuclear facility and that has the authority to enter into and fulfill the obligations of a DOE financial assistance agreement.

Comprehensive Environmental Response Compensation and Liability Act 120(h) (CERCLA 120(h)) – the section of CERCLA that applies to the transfer of real property from the government.

Data quality objectives (DQOs) – DQOs are qualitative and quantitative statements that clarify a study objective, identify the most appropriate type of data to collect, determine the most appropriate conditions for collecting the data, and specify limits on decision errors (EPA 2002). They define the performance criteria that limit the probabilities of making decision errors by considering the purpose of collecting the data, defining the appropriate type of data needed, and specifying tolerable probabilities of making decision errors.

Defense nuclear facility – As defined in 10 CFR 770.4, a defense nuclear facility means “Department of Energy defense nuclear facility” within the meaning of Section 318 of the Atomic Energy Act of 1954. Both Portsmouth and Paducah are identified in the preamble to 10 CFR 770 (65 FR 10687) as defense nuclear facilities for the purposes of the 10 CFR 770 rule.

End state – the risk-based cleanup end point for a site, typically defined by a combination of exposure and use type, such as industrial, recreational, agricultural and residential. An exposure assumes a certain number of hours/day, days/year over a number of years and looks at inhalation, dermal contact, and ingestion pathways for any accessible residual contamination the theoretical occupant could be expected to encounter. An industrial use end state, as contemplated for PORTS and PAD, would accommodate industrial/commercial/business occupants who are exposed to risks that have been found to be acceptable.

Environmental Baseline Survey (EBS) report – the document prepared on the research and analysis of the CERCLA 120(h) report prepared for the property proposed for transfer.

Environmental due diligence - is the action of conducting thorough and systematic research into the history of a place, in particular its environmental history. A thorough due diligence effort establishes a “baseline” of conditions at the time of transfer. For real property transfers from DOE the methodology to follow for environmental due diligence is called out in CERCLA 120(h)(4).

Historical Site Assessment (HSA) – is a term used for a process that occurs under the joint Environmental Protection Agency (EPA), DOE, and Nuclear Regulatory Commission (NRC) *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* to collect existing information describing a site’s complete history from the start of site activities to the present time.

Indemnification – As defined in 10 CFR 770.4, means the responsibility for reimbursement of payment for any suit, claim, demand or action, liability, judgment, cost, or other fee arising out of any claim for personal injury or property damage, including business losses consistent with generally accepted accounting practices, which involve the covered real property transfers. Indemnification payments are subject to the availability of appropriated funds.

Land use controls – help to minimize the potential for exposure to contamination and/or protect the integrity of a response action and are typically designed to work by limiting land and/or resource use by providing information that helps modify or guide human behavior at a site. Example land use controls may consist of non-engineered instrument, such as administrative or legal controls or engineered or physical barriers such as fences and security guards. A deed restriction is a type of land-use control.

Property transfer – the process of disposing of real property.

Real property – means all interest in land, together with the improvements, structures, fixtures located on the land (usually including prefabricated moveable structures), and associated appurtenances under the control of any federal agency.

Reuse – the use of a property after transfer/disposal. As used in the protocol, it is assumed that the reuse will occur by other non-federal activities.

Risk screen - A risk screen is a type of screening human health risk assessment which entails comparison of representative surface soil concentration data against background levels and human health screening levels. If exceedances occur, additional risk evaluation may be needed.

Uncontaminated parcel – the same as a clean parcel (see above) per CERCLA 120(h)(4).

8. REFERENCES

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9. APPENDICES

- APPENDIX A – Example Status and Forecast of Property Transfer Activities
- APPENDIX B – Crosswalk of CERCLA 120(h)(4) Requirements and Where to Find them in an Environmental Baseline Survey Report
- APPENDIX C – Crosswalk and Narrative of the CERCLA 120(h)(4) Requirements and Environmental Baseline Survey Report Contents
- APPENDIX D – Crosswalk of the Requirements for a Historical Site Assessment with the Contents of an Environmental Baseline Survey Report
- APPENDIX E – Environmental Baseline Survey Report Transmittal letter templates to Commonwealth or State and Federal Regulators
- APPENDIX F – Data Quality Objectives for an Uncontaminated Property at PPPO Sites
- APPENDIX G – Transfer Package Contents for an Uncontaminated Parcel
- APPENDIX H – Business Case Template
- APPENDIX I – Example Transmittal Letters for use as Templates to Accompany the Completed Transfer Package to DOE-HQ
- APPENDIX J – Environmental Baseline Survey Report Interview Form
- APPENDIX K – Example Environmental Baseline Survey for an Uncontaminated Property at PORTS

APPENDIX A

Example Status and Forecast of Property Transfer Activities

Portsmouth Status and Forecast of Property Transfer Activities

<i>Nearer-term projected Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
PORTS Available parcel #1		+/- 100 acres	Vacant	PORTS	Transfer effort underway
PORTS Available parcel #2		TBD acres	Vacant	PORTS	Under consideration

<i>Middle-term projected Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
PORTS Available parcel #3		Acres TBD	Vacant	PORTS	Under consideration
TBD building 1	Office Building	TBD	Office Building	PORTS	Under consideration
TBD building 2	Office Building	TBD	Office Building	PORTS	Under consideration

<i>Longer-term/Post D&D Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
				PORTS	

Paducah Status and Forecast of Property Transfer Activities

<i>Nearer-term projected Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
PAD Available parcel #1		15 acres	Vacant	PAD	Under consideration
PAD Available parcel #2		12 acres	Vacant	PAD	Under consideration

<i>Middle-term projected Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
PAD Available parcel #3		Acres TBD	Vacant	PAD	Under consideration
TBD building 1	Office Building	TBD	Office Building	PAD	Under consideration

<i>Longer-term/Post D&D Transfers</i>					
Building/Parcel	Type of Facility	Approx Size	Use of Property	Site	Status
				PAD	

APPENDIX B

Crosswalk of CERCLA 120(h)(4) Requirements and Where to Find them in an Environmental Baseline Survey Report

<p>CERCLA 120(h)(4)(A): identification of uncontaminated property... shall be based on an investigation of the real property to determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property. The identification shall consist, at minimum, of a review of each of the following sources of information concerning the current and previous uses of the real property:</p>	
<p>Conclusions about the real property proposed for transfer will be presented first in the document. This is where DOE concludes its findings.</p>	
<p>Section 1 (Real Property Summary) of the document consists of a summary of the history and description of use of the real property proposed for transfer. It will introduce the property and provide information on site, situation and context for the reader and reviewer and also address the information needs of <i>MARSSIM</i> Historical Site Assessment.</p>	
CERCLA 120(h)(4) cite	Environmental Baseline Survey Report Section
(i) a detailed search of federal government records pertaining to the property	Section 2. Federal Records Search
(ii) recorded chain of title documents regarding the real property	Section 3. Title Search
(iii) aerial photographs that may reflect prior uses of the real property and that are reasonably obtainable through State or local government agencies	Section 4. Aerial and Other Photographs and Drawings
(iv) a visual inspection of the real property and any buildings, structures, equipment, pipe, pipeline, or other improvements on the real property, and a visual inspection of properties immediately adjacent to the real property	Section 5. Visual and Physical Inspection Results
(v) a physical inspection of property adjacent to the real property, to the extent permitted by owners or operators of such property	Section 5. Visual and Physical Inspection Results
(vi) reasonably obtainable Federal, State, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, and which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product to its derivatives, including aviation fuel and motor oil on the real property proposed for transfer	Section 6. Records Search of Adjacent Facilities
(vii) interviews with current or former employees involved in operations on the real property	Section 7. Interviews
Such identification shall also be based on sampling, if appropriate under the circumstances. The results of the identification shall be provided immediately to the Administrators and State and local government officials and made available to the public	Section 8. Sampling (if performed)

	Section 9. Screening Risk Evaluation (if performed)
	Section 10. References
	Appendix A – Real Estate Acquisition Letter
	Appendix B – Aerial and Other Photographs and Drawings
	Appendix C - Interviews
	Appendix D – Data Quality Objectives and Data Quality Assessment
	Appendix E - Sampling Results
	Appendix F – Screening Risk Evaluation
	Appendix G – Historical Site Assessment (if prepared as a separate document and only if the information is not included in the EBS)
Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels Under CERCLA 120(h)(4)	
the objective is to include parcels where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment	Conclusions/Identification of Uncontaminated Parcel
information available concerning the current and historical uses of the parcel, the proximity of the parcel to sources of contamination requiring response actions, and the nature of the threat, if any, reasonably associated with the type of activity or contamination associated with the parcel.	Section 1.Real Property Summary

APPENDIX C

Crosswalk and Narrative of the CERCLA 120(h)(4) Requirements and Environmental Baseline Survey Report Contents

<p>CERCLA 120(h)(4)(A): identification of uncontaminated property... shall be based on an investigation of the real property to determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property. The identification shall consist, at minimum, of a review of each of the following sources of information concerning the current and previous uses of the real property:</p>		
<p>Conclusions about the property proposed for transfer will be presented first in the document. This is where DOE concludes its findings.</p>		
<p>Section 1 (Real Property Summary) of the document consists of a summary of the history and description of use of the real property proposed for transfer. It will introduce the property and provide information on site, situation and context for the reader and reviewer and also address the information needs of <i>MARSSIM</i> Historical Site Assessment.</p>		
CERCLA 120(h)(4) cite	Environmental Baseline Survey Report Section	Narrative
<p>(i) a detailed search of federal government records pertaining to the property</p>	<p>Section 2. Federal Records Search</p>	<p>Describe the federal records searched on the property. Consider sources such as the Atomic Energy Commission, Department of Defense, Army Corps of Engineers, etc. The purpose of the search is to identify if there is evidence that there was a releases or disposal of hazardous substances or petroleum products or their derivatives. Inquiry would also be made with the DOE Realty Office so that they may check their files to determine if there is evidence of release or disposal of hazardous substances, petroleum products or their derivatives.</p>
<p>(ii) recorded chain of title documents regarding the real property</p>	<p>Section 3. Title Search</p>	<p>This chapter documents that the title history of the property was searched to established prior ownership, identify past land uses or use types, and whether the prior owners or land uses indicate that there was a release or disposal of hazardous substances or petroleum products or their derivatives. Information on prior ownership may be available in existing site documentation, and should also be available from the DOE Certified Realty Specialists. Research at the county register of deeds may be needed. Information on prior federal ownership will be available from DOE but additional searches with the other federal agency owner's realty offices may be needed. The title search needs to go back to at least one prior owner, preferably two. Easements need to be reviewed in case they indicate pipelines or power lines. The final paragraph in the chapter is pro forma from the DOE Realty Office Desk Guide and accommodates the requirements of DOE Realty and 40 <i>CFR</i> 373.</p>

<p>(iii) aerial photographs that may reflect prior uses of the real property and that are reasonably obtainable through State or local government agencies</p>	<p>Section 4. Aerial and Other Photographs and Drawings</p>	<p>Include a figure/map of the property proposed for transfer shown in the context of the site. Include a figure showing the footprint of the property with topography, including a label indicating its acreage. Include, in chronological order of when they were taken, aerial photographs of the property supplemented with other photographs showing use of the property by prior owners and by DOE. Boundaries of the property proposed for transfer need to be depicted on the photos and be labeled to show the year taken. If there is extensive aerial photography, select the photos that show changes.</p>
<p>(iv) a visual inspection of the real property and any buildings, structures, equipment, pipe, pipeline, or other improvements on the real property, and a visual inspection of properties immediately adjacent to the real property</p>	<p>Section 5. Visual and Physical Inspection Results</p>	<p>Document the results of the inspections of the property proposed for transfer and the immediately adjacent property. Separate the portions of the chapter based on the property proposed for transfer vs. what is adjacent to it. Describe what was done and how, e.g., a vehicle tour, a walkdown, a radiological survey where the site was walked over or driven over (and where the results of the survey are found in chapter or appendix x), and what was observed. Representative photographs from the inspections can be included and need to be dated and labeled regarding the directional view.</p>
<p>(v) a physical inspection of property adjacent to the real property, to the extent permitted by owners or operators of such property</p>	<p>Section 5. Visual and Physical Inspection Results</p>	<p>Document the results of the <i>physical</i> inspection of the property <i>immediately adjacent to the property proposed for transfer</i>. Separate the portions of the chapter based on the property proposed for transfer vs. what is adjacent to it. Describe what was done and how, e.g., a vehicle tour, a walkdown, a radiological survey where the site was walked over or driven over (and where the results of the survey are found in chapter or appendix x), and what was observed. Representative photographs from the inspections can be included and be dated and labeled regarding the directional view.</p>
<p>(vi) reasonably obtainable Federal, State, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, and which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product to its</p>	<p>Section 6. Records Search of Adjacent Facilities</p>	<p>This is where the discussion belongs about adjacent DOE facilities that bound the property proposed for transfer. Indicate what DOE or other records were searched, and the results of the search, that enable you to describe releases of hazardous substances or petroleum products or their derivatives or aviation fuel and motor oil that is likely to cause an impact, under reasonable conditions, to the property proposed for transfer.</p>

derivatives, including aviation fuel and motor oil on the real property proposed for transfer		
(vii) interviews with current or former employees involved in operations on the real property	Section 7. Interviews	Insert a table with the name and affiliation of the people spoken with about the property and what type of information was gathered. Note the duration of their involvement with operations on the property and the years it occurred. Note the capacity in which they were involved - for example, facility manager, waste management, environmental compliance, grounds maintenance.
Such identification shall also be based on sampling, if appropriate under the circumstances. The results of the identification shall be provided immediately to the Administrators and State and local government officials and made available to the public	Section 8. Sampling (if performed)	Include sections on the review of existing chemical and radiological sampling data. Include summary tables of existing data collected, by media if appropriate. Discuss data gaps that resulted in the decision to collect existing data and if the decision to sample was discussed with the regulators note that, as well as when the discussions occurred. Include the sampling scheme tables (sample number, GPS coordinate, analyses studied, analytical method, etc.). In the balance of the chapter include the sampling results in the same order as they were presented in the first part of the chapter. Results are presented in tables that follow the format in attachment 1 to this Appendix. The radiological survey and sampling history need to be described with a summary of existing data. If data gaps exist, such as for a lack of data to satisfy DOE Order 458.1 needs, they are discussed. This is followed by a summary discussion of the survey and/or sampling proposed to be conducted (and a reference to the survey and/or sampling plan in an appendix). The next section is on the results of the radiological survey and/or sampling conducted and an analysis of the results. The results of the survey and/or sampling are to be presented in tables that follow the format shown in attachment 2 to this appendix.
	Section 9. Screening Risk Evaluation (if performed)	A screening risk evaluation presenting the comparison of representative surface soil concentration data against background levels and human health screening levels. If exceedances occur, additional risk evaluation may be needed.
	Section 10.	References
	Appendix A.	Real Estate Acquisition Letter is the documentation of the CRS of the research of hazardous substance activity for the property and also contains a tract map of the property reviewed (and proposed for transfer).
	Appendix B	Aerial and Other Photographs and Drawings – aerial photographs over time (as available, photographs of the property over time and as a part of the site inspection,

		and maps or other drawings that can assist in documenting the environmental baseline of the property.
	Appendix C	Interviews with persons involved in the current or former operations on the property proposed for transfer are conducted to gain knowledge of the property's history.
	Appendix D	Data Quality Objectives and Data Quality Assessment - the objectives of the data gathering and the assessment of the data used.
	Appendix E	Sampling Results – sampling and survey results for the property that inform of its environmental conditions.
	Appendix F	Screening Risk Evaluation – n evaluation of the data used to determine its protectiveness for human health and the environment for transfer.
	Appendix G	Historical Site Assessment(if prepared as a separate document and only if the information is not included in the EBS)
Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels Under CERCLA 120(h)(4)		
the objective is to include parcels where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment	identification of uncontaminated property	the information in the conclusions/property identification will address this
information available concerning the current and historical uses of the parcel, the proximity of the parcel to sources of contamination requiring response actions, and the nature of the threat, if any, reasonably associated with the type of activity or contamination associated with the parcel.	Section 1.Real Property Summary	Real property summary will address this

APPENDIX D

Crosswalk of the Requirements for a Historical Site Assessment with the Contents of an Environmental Baseline Survey Report

Historical Site Assessment requirements from <i>MARSSIM</i> Rev 1, August 2000	Environmental Baseline Survey Report Section
Glossary of Terms, Acronyms and Abbreviations	Glossary of Terms, Acronyms and Abbreviations
Executive Summary	Conclusions and Section 1
Purpose of the Historical Site Assessment	Section 7 – with the rationale for why additional data are needed
4.1- property identification - name, owner/operator name, address, city and state. Location: city, county, state, coordinates. Topography - USGS 7.5 minute series map, stratigraphy. 4.2: environmental setting: geology, hydrogeology, hydrology, meteorology	4.1 = Conclusions, Section 1, and supporting drawings and maps; 4.2 = Section 1 – created to address this and to provide useful contextual information
5.0 - Historical Site Assessment methodology; 5.1 - approach and rationale; 5.2 - boundaries of site; 5.3 - documents reviewed; 5.4 - property inspections; 5.5 - personal interviews	5.1 = an Appendix and/or Section 8 – where a review of existing sampling and surveying data are discussed, data gaps identified and results presented; 5.2 = Section 1; 5.3 = Sections 2, 3 & 4; 5.4 = Section 5; 5.5 = Section 7
6.0 - History and current usage; 6.1 - history: years of operation, type of facility, description of operations, regulatory involvement, permits and licenses, waste handling procedures; 6.2 - current usage: type of facility, description of operations, probable source types and sizes, description of spills or releases, waste manifests, radionuclide inventories, emergency or removal actions; 6.3 - adjacent land usage - sensitive areas such as wetlands or preschools	6.1 = Section 1 6.2 = Section 1 6.3 = Sections 5, 6 & 1
Findings: 7.1 - potential contaminants; 7.2 - potential contaminated areas; 7.2.1 - impacted areas - known and potential; 7.2.2 - non-impacted areas; 7.3 - potential contaminated media; 7.4 - related environmental concerns	7.1 = Sections 7, 8 & 1
Conclusions	Conclusions, Sections 7 & 8
References	References
Conceptual Model and Site Diagram Showing Classifications	
List of Documents	References
Photo Documentation - original photographs of the site and pertinent site features	Section 4

APPENDIX E

Environmental Baseline Survey Report Transmittal Letter Templates to Commonwealth, State and Federal Regulators

The templates and distribution lists in this appendix are examples only and are subject to change.

PPPO Transmittal Letter of the Draft EBS for Regulatory Review

PPPO Letterhead

See attached Distribution List

Dear Mr. /Ms

DRAFT ENVIRONMENTAL BASELINE SURVEY REPORT FOR THE PROPOSED TRANSFER OF _____ (insert name of property) AT THE _____ (inset name of site) GASEOUS DIFFUSION PLANT IN _____ (insert name of state) AS AN UNCONTAMINATED PARCEL

The U.S Department of Energy Portsmouth/Paducah Project Office (PPPO) is requesting your review and comment on the enclosed Draft Environmental Baseline Survey Report for the proposed transfer of _____ at the _____ site in _____. In accordance with requirements of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) Section 120(h)(4), DOE has performed the necessary reviews and investigations to identify certain land, delineated in the enclosed documentation, on: (pick one) which no hazardous substances and no petroleum products or their derivatives were known to have been released or disposed of. OR, Where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment (pursuant to US Environmental Protection Agency (EPA) 1997 *Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels under CERCLA 120(h)(4)*).

PPPO proposes to transfer, by deed, approximately _____ acres of real property for (*economic development*) (*conservation*) (*other*) purposes. DOE is proposing the transfer in an effort to (pick one) *further economic development opportunities in the site's region of influence in response to downsizing and mission changes at the site, DOE OR enhance opportunities for conservation and wildlife purposes in response to _____ (community interest)*. DOE plans to make the property available for transfer in the _____ (*forecast a FY quarter or CY quarter*). So that DOE may be responsive to expressed community interests and make property available for reuse by others in the most timely manner, DOE is requesting your review and comment on the enclosed EBS within pick one (30) (45) days of the date of this transmittal.

This letter also provides the required _____ (90 or 10 – pick one) notification in advance of a lease or transfer of real property at the _____ (PAD) site pursuant to the requirements of the *Paducah Federal Facility Agreement, Section 8.2.2* OR At the PORTS site *pursuant to the 2012 Director's Final Findings and Orders (DFE&O) Clause 29, DOE needs to notify Ohio EPA at least ten (10) days* in advance of each conveyance by DOE of any portion of the Site.

We look forward to working with you on property transfers which DOE has integrated with our site clean-up mission. Once we have received the comments you may have on the enclosed documentation, PPPO will review your comments and revise the document and begin resolution of your comments, as appropriate. We may contact you to resolve uncertainties we may have regarding the necessary revisions. Once we have finalized the document we will submit it to _____ (*name of organization – EPA, State of Ohio TBD, Commonwealth of Kentucky*) for concurrence. It is our plan to provide a _____ (60 or 45 day – pick one) period to obtain your concurrence.

If you have questions, please contact PPPO Reuse Lead, of my staff, at (859) 219-xxxx.

Sincerely,

PPPO Manager

PPPO Transmittal Letter of the Draft EBS for Regulatory Review

Enclosure

cc: PORTS/PAD Site Lead
PORTS/PAD Reuse Lead
PPPO Reuse Lead
PPPO Counsel
EMCBC Certified Realty Specialist

PADUCAH SITE CONTACTS DISTRIBUTION LIST

Region 4
United States Environmental Protection Agency
16 Forsyth Street
Atlanta, GA

cc: USEPA clean-up RPM
Kentucky clean-up RPM
Kentucky property transfer POC

Attn: TBD
Kentucky Energy and Environment Cabinet
500 Mero Street
5th Floor, Capital Plaza Tower
Frankfort, KY 40601

cc: USEPA clean-up RPM
Kentucky clean-up RPM
USEPA property transfer POC

PORTSMOUTH SITE CONTACTS DISTRIBUTION LIST

Attn: TBD
Ohio Environmental Protection Agency
50 West Town Street
Suite 700
Columbus, OH 43215

cc: OEPA clean-up RPM

cc: TBD
Ohio Environmental Protection Agency
Southeast Regional Office
2195 Front Street
Logan, OH 43138

PPPO Transmittal Letter of the Final EBS for Concurrence

PPPO Letterhead

See attached Distribution List

Dear Mr. /Ms

FINAL IDENTIFICATION OF UNCONTAMINATED PROPERTY AT THE _____ (inset name of site)
GASEOUS DIFFUSION PLANT IN _____ (inset name of state)

The U.S Department of Energy Portsmouth/Paducah Project Office (PPPO) is seeking your concurrence in the Department's identification of uncontaminated property as documented in the enclosed Final Environmental Baseline Survey Report for the proposed transfer of _____ at the _____ site in _____. In accordance with requirements of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) Section 120(h)(4), DOE has performed the necessary reviews and investigations to identify certain land, delineated in the enclosed documentation, on: (pick one) which no hazardous substances and no petroleum products or their derivatives were known to have been released or disposed of. OR, Where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment (pursuant to US Environmental Protection Agency (EPA) 1997 *Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels under CERCLA 120(h)(4)*).

PPPO proposes to transfer, by deed, approximately _____ acres of real property for (economic development) (conservation) (other) purposes. DOE is proposing the transfer in an effort to (pick one) further economic development opportunities in the site's region of influence in response to downsizing and mission changes at the site, DOE OR enhance opportunities for conservation and wildlife purposes in response to OR something else (community interest). DOE plans to make the property available for transfer in the _____ (forecast a FY quarter or CY quarter). So that DOE may be responsive to expressed community interests and make property available for reuse by others in the most timely manner, DOE is requesting your concurrence on this identification of uncontaminated property within pick one (30) (45) days of the date of this transmittal, which is _____ (insert date, month and year).

In accordance with CERCLA 120(h)(4)(D), PPPO will include the appropriate CERCLA covenants and clauses in the deed regarding PPPO's responsibility for any response or corrective action found to be necessary after the date of transfer, and reserving the right of access to carry out such response or corrective action.

We look forward to continuing to work with you on property transfers. We anticipate obtaining your concurrence. Please note that at the PORTS site, pursuant to the 2012 Director's Final Findings and Orders (DFF&O) Clause 30, DOE will notify Ohio EPA within thirty (30) days of the conveyance of an interest in DOE property.

If you have questions, please contact PPPO Reuse Lead, of my staff, at (859) 219-xxxx.

Sincerely,

PPPO Manager

PPPO Transmittal Letter of the Final EBS for Concurrence

Enclosure

cc: PORTS/PAD Site Lead
PORTS/PAD Reuse Lead
PPPO Reuse Lead
PPPO Counsel
EMCBC Certified Realty Specialist

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50 West Town Street
Suite 700
Columbus, OH 43215

cc: OEPA clean-up RPM

cc: TBD
Ohio Environmental Protection Agency
Southeast Regional Office
2195 Front Street
Logan, OH 43138

APPENDIX F

Data Quality Objectives for an Uncontaminated Property at PPPO Sites

DQO STEP 1 - STATE THE PROBLEM

Draft Problem Statement:

The land area is non-impacted. Information needs to be gathered or developed to support this hypothesis to complete the due diligence necessary for property transfer as an uncontaminated parcel under CERCLA 120(h)(4), and demonstrate protectiveness under DOE Order 458.1.

What is the description of the media? The media within the land area consists of soil, sediment, and asphalt, concrete, or gravel areas.

Who needs this information regarding media constituents? The U.S. Department of Energy (DOE) and site contractors will use the data to confirm the hypothesis that the area is non-impacted, and uncontaminated per CERCLA 120(h)(4) and protective under DOE Order 458.1

Who comprises the project planning team?

DOE Site Reuse Lead
Site contractor(s)

Site technical support contractor(s) -
PPPO technical support contractors(s), e.g., risk support -

Additional subject matter experts include:

PPPO Reuse Lead
PPPO Certified Health Physicist -
Technical support
Technical support contractor(s) -

What is the project budget? TBD

What is the project schedule? TBD

DQO STEP 2 - IDENTIFY THE GOALS OF THE STUDY

The objective of this second step in the DQO process is to develop one or more decision statements that, when fully defined during DQO Steps 3 and 4, result in the decision rules of Step 5. The process of developing decision statements in this step is one of defining the principal study questions to address the problem statement in Step 1 and assigning alternative actions to the principal study question(s).

What are the Principal Study Questions?

What infrastructure that data or history show could be a potential source of DOE contamination is present?

- a) Does any process history since completion of the Sitewide Survey (Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1256&D2/R1, July 2015) or area specific reports (e.g., soil pile reports, CERCLA documents) or similar documents at PORTS indicate disposal or release of hazardous substances or petroleum products or their derivatives?
- b) What are the measurement quality objectives (MQOs) for a radiological scoping survey and are they different from the Sitewide Survey or similar surveys at PORTS?
- c) What action level from the radiological survey necessitates a physical sample (grab sample) and is it different from that used in the Sitewide Survey or similar surveys at PORTS?
- d) What are the metrics for determining “non-impacted” and “uncontaminated” ? This includes storage and release of hazardous substances and presence of contamination in the media.
- e) Does the survey meet the Implementation Plan (DOE 2014c) for DOE Order 458.1 / demonstration of Authorized Limit attainment (Authorized Limits for the DOE-owned Property Outside of the Limited Area in Paducah, KY, PPPO-02-1270699-11, March 2013) or similar document at PORTS?
- f) If analytical results for chemical constituents are necessary (to comply with the ability to demonstrate that the property has not had release or disposal of hazardous substances or petroleum products or their derivatives, or where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment , per CERCLA 120(h)(4) criteria), how shall those results be obtained and evaluated? What are the MQOs for the results?
- g) What are the requirements for the visual and physical inspection MQOs and are they different from the Sitewide Survey or similar surveys at PORTS?

What are the Alternative Actions related to the Principal Study Questions?

The expected action, based upon the Problem Statement is that the land area selected for evaluation is confirmed to be eligible for transfer as an uncontaminated parcel per 120(h) (4).

The alternative actions are:

- 1) Portions of the land area are found to be non-impacted and uncontaminated and the area is subdivided to allow a portion to be transferred as uncontaminated per CERCLA 120(h) (4).
- 2) The land area selected for evaluation is determined to be impacted and/or contaminated and not eligible for transfer per CERCLA 120(h) (4).

What is the primary Decision Statement: Determine whether the land area selected for evaluation is eligible for transfer per CERCLA 120(h)(4) for its intended use, or whether impacted areas or contamination (chemical and/or radiological) exists that would require response or corrective action, thus requiring further subdivision and/or evaluation.

DQO STEP 3 - IDENTIFY INFORMATION INPUTS

The objective of Step 3 is to identify the information inputs required to resolve the decision statements developed previously.

Data and information inputs used to evaluate the land area include, but are not limited to, the following:

- Detailed search of federal government records pertaining to historical land use for the real property[required by CERCLA 120(h)(4)]
- Information from the visual inspection survey (including any pictures)
- Utility drawings
- Aerial photographs (over time)
- Aerial radiological survey results (photograph/maps)
- Decision documents
- Interviews with current or former employees involved in operations on the land area
- Historical environmental data from air, soil and sediment, e.g.:
 - Environmental data
 - Monitoring data
 - Air release data
 - Project-specific environmental data from CERCLA, RCRA or other projects
 - Incident reports
 - Spill logs
 - Maintenance action reports
 - Environmental compliance data
 - Data from the Annual Site Environmental Reports
 - Data from state/Commonwealth efforts
 - Results from previous radiological surveys
- Independent Verification report results
- Environmental data collected to address data gaps for this proposed property transfer, if applicable

Criteria used to evaluate data and information collected above includes the following:

- The level of detection for the radiological survey equipment needs to be no greater than the Authorized Limits for PAD (Authorized Limits for the DOE-owned Property Outside of the Limited Area in Paducah, KY, PPPO-02-1270699-11, March 2013), or similar authorizations at PORTS for no deed restrictions.
- Background concentrations for naturally-occurring constituents, NALs and/or soil screening levels (SSLs) for the expected future use – e.g., industrial worker, recreational user - from PAD human health risk methods document (Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant – Human Health. DOE.0107&D2/R6/V1 (DOE 2015) or PORTS Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, DOE/PPPO/03-0127&D8 DRAFT (DOE 2015).
- Results from grab samples collected in compliance with the Sitewide Survey (Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1256&D2/R1, July 2015), or similar documentation at PORTS, if needed. Note: if the Historical Site Assessment indicates that subsurface infrastructure is present, samples may need to be collected at greater depth. Case-by-case determinations are needed where subsurface infrastructure is present.

- For purposes of CERCLA 120(h) (4), “uncontaminated” will be defined as a level of the radiological or chemical constituent that is within the CERCLA risk range for the proposed future use.

Criteria used to evaluate data and information collected above includes the following for PORTS:

- The level of detection for the radiological survey equipment will be established at no greater than the draft FRL for industrial land use (for uranium-238(+D), ELCR at 10^{-5} , SSL is 36.7 pCi/g).
- SSLs and/or draft FRLs (10^{-5} ELCR and HI of 1.0) for the industrial worker from PORTS human health risk methods document are as follows: uranium-238(+D), 36.7 pCi/g; uranium-235, 8.67 pCi/g; uranium-234, 590 pCi/g; technetium-99, 17,100 pCi/g; total uranium, 5,960 mg/kg (however, to be consistent to the uranium-238 value, the target will be approximately 110 mg/kg); carcinogenic PAHs, 7.84 mg/kg; noncarcinogenic PAHs, 8,180 mg/kg; high-risk PCBs, 28.6 mg/kg; low-risk PCBs, 143 mg/kg.
- Background concentrations for naturally-occurring constituents, NALs and/or soil screening levels (SSLs) for the expected future use – e.g., industrial worker, recreational user - from PORTS human health risk methods document (Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, DOE/PPPO/03-0127&D8 DRAFT (DOE 2015).
- For purposes of CERCLA 120(h)(4), “uncontaminated” will be defined as a level of the radiological or chemical constituent that is below the industrial use draft FRLs.

DQO STEP 4 - DEFINE THE BOUNDARIES OF THE STUDY

What are the spatial boundaries? The spatial boundaries for the land area are designated in Figure 1 (TBD). The visual inspection needs to include areas adjacent to the land area. In areas where bounding roads and ditches are not present, the visual survey area should extend 25 feet from the boundary or to another fixed boundary (e.g. a fence).

What are the vertical boundaries for this project? Media samples are collected from the 0- to 1-ft depth interval.

What are the temporal boundaries for this project? The temporal boundaries for the project are related to the schedule needed to support property transfer.

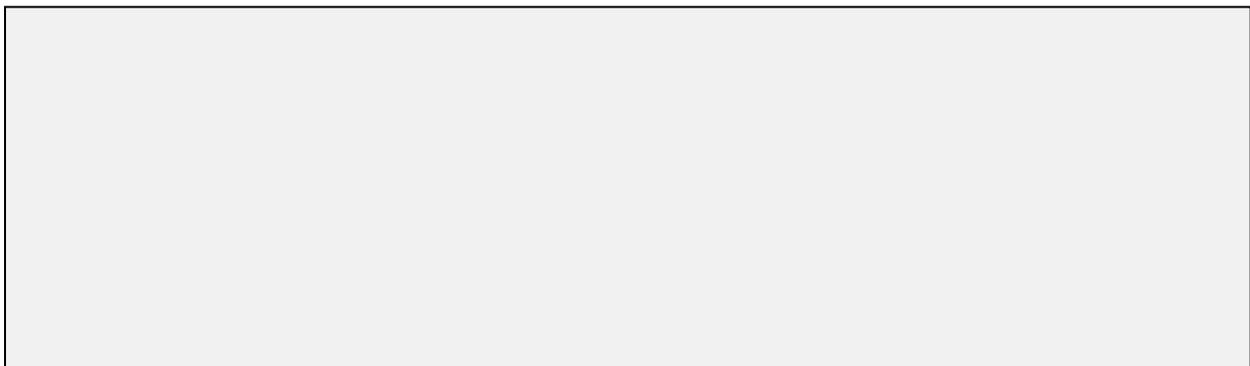


Figure 1. Land Area proposed for evaluation for potential property transfer.

DQO STEP 5 - DEVELOP THE ANALYTIC APPROACH

The goal of DQO Step 5 is to develop an analytic approach that will guide how the study results are to be analyzed and how conclusions are to be drawn from the data. After the analytical data have been collected and any issues have been resolved, the data will be evaluated to determine if it meets the project needs, based on the type, quantity, and results. The fifth step in the DQO process specifies appropriate population parameters, defines the action levels, and develops an “*if ... then ... else/otherwise ...*” decision rule.

Types of measurements/environmental data include:

- Radiological scoping measurements (e.g., sodium iodide detector measurements. Fidler, high-purity germanium (HPGe) detectors)
- Field screening quantitative measurements (e.g., XRF or analyte-specific test kits)
- Analytical data from fixed-based laboratories

The *parameters of interest* for this project include:

- Visual walkover anomalies
- Real-time measurements (gamma activity surveys)
- Field screening results from field XRF for uranium and field test kits for PCBs or PAHs
- Quantitative analytical results for site-specific COPCs (fixed-based laboratory results are for QA/QC purposes only)

The *action levels* include:

- For the visual walkover, identified anomalies will be based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), lack of vegetation or distressed vegetation, and evidence of infrastructure that could be a potential source of DOE contamination.
- For the radiological scoping, the action level will be defined as the Authorized Limits for site-related radionuclides.
- For field screening results of physical grab samples, which are XRF, the test kits and HPGe, the ALs are background, NALs and Authorized Limits.
- For fixed-based lab results the Authorized Limits are equal to background and No Action Levels

What are the decision rules? Successful confirmation demonstrates that the concentration of site related COPCs in media within the boundaries of the land area selected for evaluation are below action levels. The decision rules for this project are provided in the table below.

Table 1. Decision Rules for Soils

Decision Rule No.	If	Then	Otherwise
1	Visual anomalies are identified based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), lack of vegetation or distressed vegetation, and/or evidence of infrastructure related to DOE processes.	Implement a radiological survey of the anomaly with 100% coverage,	No additional radiological survey is performed.
2	Visual anomalies are identified based on areas of staining, lack of vegetation (or distressed vegetation), and/ or areas of infrastructure that could be a potential source of DOE contamination,	Collect a grab sample for field screening analysis	No additional samples are collected.
3	Areas of subsurface infrastructure that could be a potential source of DOE contamination are identified,	The area will be excluded pending further evaluation,	No further evaluation is required.
4	The radiological scoping of a previously identified anomaly (from Decision Rule 1) exceeds the draft FRL for U-238,	Determine the extent of area with elevated measurements and collect a grab sample for field screening analysis,	No additional samples are collected.
5	The radiological scoping survey of the open areas (i.e., 20% of the open areas) identifies elevated areas based on inflection point analysis or exceedance of the draft FRL for U-238,	Collect a grab samples from the area of elevated activity for field screening analysis,	No additional samples are collected.
6	Field screening results from physical samples exceed the draft FRLs,	Designate an area to be further evaluated prior to transfer,	No further evaluation is needed.

Note: Field screening may be done with field portable XRF and test kits for PCBs and/or PAHs if warranted.

Fixed-based laboratory results are used for QA purposes only.

Table 2. Decision Rules for Roads and Other “Non-Soil” Areas

Decision Rule No.	If	Then	Otherwise
7	The radiological scoping of roads or other non-soil areas exceeds 2 times the established background for comparable building materials,	Further evaluate the potential cause of the elevated radioactivity,	No additional radiological survey is performed.

DQO STEP 6 - SPECIFY THE PERFORMANCE OR ACCEPTANCE CRITERIA

The sixth step in the DQO process typically chooses the null hypothesis, examines the consequences of making an incorrect decision, specifies the range of values where consequences are minor (the gray region), and assigns values that reflect tolerable probability for potential decision errors. However, because the area is being evaluated with a scoping survey, a probability-based sampling design (for the collection of physical soil samples) is not required and a judgmental design will be used to evaluate the areas with the greatest potential for contamination. If results indicate these areas meet the criteria, no further evaluation is required.

Within a reasonable degree of certainty, the sampling design must be able to:

- Detect areas of elevated radionuclide contamination, if such areas exist, and
- Detect FRL exceedances whenever physical samples are collected.

A null hypothesis is developed in order to demonstrate compliance of data with the constraints imposed by the decision rules and to establish the parameters against which soil unit confirmation decisions can be made. For the property being evaluated for transfer that is presumed to be uncontaminated, the null hypothesis is stated as:

H₀: The property being evaluated for transfer is eligible for transfer under CERCLA 120(h)(4) and is protective per DOE Order 458.1.

The alternative hypothesis is:

H_a: The property being evaluated for transfer is not eligible for transfer under CERCLA 120(h)(4) or is not protective per DOE Order 458.1.

The null hypothesis will hold if the radiological survey and field screening show all results are below the draft FRLs or ALs.

The null hypothesis will be rejected if there is confirmed contamination that requires response or corrective action, per field screening analysis, and the contaminated areas will be removed from the property being evaluated for transfer so it is eligible for transfer per 120(h)(4).

What performance criteria will be used to minimize uncertainty? During this project, field and lab QA/QC samples will be used to evaluate data quality (the appropriate number of QC samples will be documented in a SAP; any deviations from the *Sample Analysis Data Quality Assurance Project Plan*

[SADQ] at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio [SADQ], or similar document for Paducah, will be noted).

Field screening methods (field portable XRF and PAH test kits) and sodium iodide scans will be as ASL A. If specialized QA/QC requirements are needed, they will be defined in the analytical statement of work and in the applicable SAP. The SAP will specify the analytical support levels for all methods to be implemented in the field.

Verification of field screening results by fixed-based laboratory will be completed on 10% of the physical samples collected or a minimum of 10 samples, whichever is greater. Fixed-based analytical results will receive 100 percent verification and 100 percent validation. Data validation will be 80 percent at VSL B and 20 percent at VSL D, and field validation will be conducted for sampling documentation. Requirements for each support level are provided in the applicable SADQ.

The SADQ identifies the acceptance criteria for sampling and data collection activities. This plan ensures that all site data collection associated with cleanup activities is performed consistent with quality standards to minimize data uncertainty. Following completion of data validation, a data quality assessment will be performed in accordance with the SADQ to evaluate project data versus the measurements and DQOs to determine if data requirements have been satisfied.

DQO STEP 7 - DEVELOP THE PLAN FOR OBTAINING DATA

The goal of DQO step 7 is to develop a resource-effective design for collecting and measuring environmental samples, or for generating other types of information needed to address the problem. One objective of this seventh step is to identify the most resource-effective data collection and analysis design that satisfies the DQOs in the preceding six steps. The SAP will include the details of the sampling design and approach. A high-level summary follows.

Minimum Number of Samples Required

Because the property being evaluated for transfer is presumed to be non-impacted and uncontaminated (no to very low potential for contaminant concentrations or residual radioactivity to exceed the media cleanup standard values), no physical sampling is required in these soil units except for biased or judgmental sampling. Radiological scoping scan coverage will be 100% for roads, 100% for identified visual anomalies, and 20% for open areas. The scan of the open areas will be based on a grid that will be specified in the SAP.

Biased physical samples (a judgmental sample design) will be used as needed to evaluate areas with the greatest potential for contamination (based on results of the radiological scoping survey or anomalies identified during the visual walkover survey). These samples will primarily be screened in the field using field portable XRF or test kits, depending on the analyte.

Data Collection Approach

Based on existing process knowledge and historical data, the property being evaluated for transfer has no, to a very low, potential, for contaminant concentrations or residual radioactivity to exceed the media cleanup standards. The area will be primarily assessed by visual walkover surveys and gamma radiation scoping surveys. Biased sampling will be conducted when observation indicates the area is impacted and the presumption of no contamination may not be valid.

To begin, a visual walkover survey or assessment is conducted (this walkover survey is completed to support development of the SAP). A visual walkover inspection is conducted to systematically inspect

the area to identify and map any observed features. The assessment focuses on identifying any anthropogenic features, delineating the boundaries of the features, and determining if biased sampling is warranted. Surface water run-off and sediment accumulation areas may be identified for potential biased sampling by the assessment teams. While traversing the soil units, the walkover assessment team will take note of any unusual or anthropogenic features (i.e., the identification of anomalies) and plant flags at locations selected for subsequent detailed scoping surveys and/or physical soil sampling. Anomaly locations will be surveyed with a GPS instrument and recorded in a logbook.

For this project, the requirement for radiological scoping survey scan coverage will be 100% for roads, 100% for identified visual anomalies, and 20% for open areas. A grid will be used to facilitate the radiological scoping (the grid will be defined in the SAP).

Biased physical samples from identified anomalies (this includes anomalies determined from the visual walkover survey and areas of elevated radioactivity based on the radiological survey) will be collected and analyzed for area-specific contaminants of concern using field screening methods (field portable XRF and/or test kits depending on the analyte). A field change notice (FCN) will be processed to document the sample locations. Ten percent of the physical samples will be sent to a fixed-based laboratory for verification of field screening results.

REFERENCES
DOE 1996. *Background Concentrations and Human-Health Risk-Based Screening Criteria for Metals in Soil at the Paducah Gaseous Diffusion Plant*, DOE/OR/07-1714&D2, U.S. Department of Energy, Paducah, KY, March

DOE 1997. *Background Levels of Selected Radionuclides and Metals in Geologic Media at the Paducah Gaseous Diffusion Plant*, DOE/OR/07-1586&D2, U.S. Department of Energy, Paducah, KY, June

DOE 2012, *Authorized Limits Request For DOE-Owned Property Outside The Limited Area at the Paducah Gaseous Diffusion Plant*, Paducah, Kentucky, September.

DOE 2013, *Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant*, Piketon, Ohio, DOE/PPPO/03-0127&D7, U.S. Department of Energy, Piketon, OH, December

DOE 2014, *Sample Analysis Data Quality Assurance Project Plan (SADQ) at the Portsmouth Gaseous Diffusion Plant*, Piketon, Ohio, DOE/PPPO/03-0278&D2, U.S. Department of Energy, Piketon, OH, February

DOE 2014. *Authorized Limits Implementation Plan for the U.S. Department of Energy Owned Property Outside the Limited Area in Paducah, Kentucky*, DOE/PPPO/02-1270699, U.S Department of Energy, Paducah, Kentucky, October.

DOE 2014. *Authorized Limits Communication Plan*, Attachment B within the *Authorized Limits Implementation Plan for the U.S. Department of Energy Owned Property Outside the Limited Area in Paducah, Kentucky*, DOE/PPPO/02-1270699, U.S Department of Energy, Paducah, Kentucky, October

DOE 2015. *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant, Volume 1, Human Health*, DOE/LX/07-0107&D2/R6/V1, U.S. Department of Energy, Paducah, KY, July.

DOE 2015. *Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant*, DOE/PPPO/03-0127&D8 DRAFT, U.S. Department of Energy, Piketon, OH, October.

DOE 2015. *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant, Volume 2, Ecological*, DOE/LX/07-0107&D2/R1/V2, U.S. Department of Energy, Paducah, KY, May.

DOE 2015. *Methods for Conducting Ecological Risk Assessments and Ecological Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0215&D2, U.S. Department of Energy, March.

APPENDIX G

Transfer Package Contents for an Uncontaminated Parcel

1. Memorandum from the Field Office Manager to the Assistant Secretary for Environmental Management (EM-1) transmitting the property transfer package for review and concurrence.
2. Memorandum transmitting the headquarters property transfer package from EM-1 to GC-1, CF-1, MA-1, CI-1, LM-1, and the Assistant Secretary of the Secretarial Office responsible for PPPO requesting review and concurrence.
3. Proposal from requesting organization.
4. Environmental Baseline Survey Report for the Title Transfer of the Property.
5. Risk Screen to Support the title transfer of property (if applicable).
6. Concurrence with Clean Parcel Determination (CPD) by EPA Regional Office for PAD if the property is on the NPL or by the appropriate state official if the property is not on the Superfund list for PORTS
7. Draft Final Quitclaim Deed or Lease for Property.
8. Business Case Supporting Transfer of Property.
9. Memorandum for the Secretary of Energy from the Assistant Secretary of Environmental Management recommending that he sign letters transmitting notification to Congressional Committees of the Department's plan to transfer property to a Community Reuse Organization, person, or entity.
10. Letters to the Congressional Committees transmitting the notice of a property transfer as necessary.
11. Notice to the Appropriations Committees of a real property sale that does not follow the standard Federal process.
12. Notice to the Defense Committees of a property transfer under 10 *CFR* Part 770.
13. Approval memorandum from EM-1 to the Field Office Manager regarding Indemnification Determination for the proposed transfer of a land parcel.
14. Provide evidence of the completion of National Environmental Policy Act (NEPA) review as appropriate. For application of a CX, the date the determination was made and the CX(s) applied. For an EA, the name, date, and document number of an approved EA and a copy of any associated finding of no significant impact. For an environmental impact statement, the name, date, and document number of a completed final environmental impact statement and a draft record of decision (which will be made final by EM-1 in the decision-making process for the land transfer). If review under NEPA is not complete, provide a strategy and schedule for completing the review.

APPENDIX H

Business Case Template

BUSINESS CASE FOR THE PROPOSED TITLE TRANSFER OF LAND PARCEL _____ AT THE _____

I. Background

Site location, History, Current Status and Future Plans

Briefly discuss where the property it is located, how many acres the overall site is, and its major mission over time. Discuss its EM program involvement, clean-up activities to date, the history of any requests for the real property, the type of transfer that is contemplated for it. Note how the end state is consistent or is accommodated by the proposed future use. Include a graphic that shows the overall site. Also, towards the end of the writing, include each PPPO site's transfer strategy approach and a figure to illustrate it. If the site has a strategy that it is active and not solely graphic, describe that as well and status it.

II. Description of the Real Property Proposed for Transfer

Describe the property, noting its size, shape, configuration and adjacency. Note its past use. Include an aerial photo of the real property. Where a low altitude aerial photo exists at an oblique angle, be sure to use it and label former use landmarks on the site. Describe past and present uses of the property.

III. Legal and Regulatory Framework for the Proposed Transfer

Note any transfer requests or expressions of interest for any and all of the transfer property. Note the authority or process recommended for use for the transfer (10 CFR 770, GSA, DOE).

Summarize the steps taken/process followed for the due diligence for the property as discussed in the EBS report. Also discuss the various DOE Order 458.1 activities and status. If the 458.1 process is being completed in parallel with the HQ review that can be noted in the business case.

Note the status of the NEPA review – if it is complete note the date of review and completion of the documentation. If it is in process, describe the details and the strategy for completion prior to signing the deed.

IV. Business Case

Intended Use and Duration of Use of the Real Property

Discuss the plans for the property based on a request for the transfer. Note the planned land use and how it is/may be consistent with what is posited in the NEPA decision or CX limits.

Description of Economic Development that would be furthered by the Transfer

This is the section of the business case that requires good feedback and input from the transferee and may require back and forth discussions. Their proposal, which is a component of the DOE business case, needs

to discuss their contribution to the local market. What stimulus does it offer for the local and regional markets? What niche does it fill?

The Consideration Offered and any Financial Requirements and/or Benefits

Discuss the value of the property based on what is known of its condition. Discuss any PILT adjustment that would result from the transfer. Describe any costs that the potential transferee might have to face, in particular with infrastructure installation or removal and reconfiguration. Note any positive attributes that the potential transferee has already brought to the site or area/region. If the transferee has assisted DOE in providing rationale for not removing certain infrastructure because it can be used by a transferee, and what value it has. Identify any cost savings to DOE from the transfer. This is maximized with transfers when buildings are involved (and D&D costs can be avoided), but there may be some EM cost avoidance with the property is land.

Close the section with a discussion of 10 CFR 770 and how it provides for transfers at less than fair market value and why this transfer warrants a less than fair market value arrangement.

Information Supporting the Economic Viability of the Proposed Development

Describe how the transfer proposal is part of a larger whole vision. Note how the proposed transferee is in an ideal position to take advantage of other existing area.

Ongoing Mission of Defense Nuclear Facility and Use Restrictions Made Necessary by Specific Security, Safety, and Environmental Requirements

Describe the sites past use and its present mission. Describe any restrictions on the uses that are governed by contamination or adjacency or outright public opinion.

V. Other Considerations

Specific Statement of Indemnification against Claims, if Any

Note whether or not the transferee has requested indemnification and if the request will be part of the Transfer Package. Uncontaminated parcels will not in and of themselves be deemed suitable for indemnification as they have been demonstrated not to be contaminated. Indemnification for clean parcels would need to come from the uncertainty associated with adjacent clean-up work

VI. Recommendation

State why you think the proposed transfer is in the best interest of the Government.

APPENDIX I

Example Transmittal Letters for use as Templates to Accompany the Completed Transfer Package for an Uncontaminated Parcel to DOE HQ

When the completed transfer package is submitted to DOE-HQ for review (see appendix I for transfer package contents) it is accompanied by a number of letters and notifications. Example transmittal letters for use as templates for an uncontaminated parcel (“clean parcel”) are included in this appendix. The documents are the means to requesting HQ review and action, and for initiating the required Congressional notification periods. For more recent examples, contact the EM-HQ liaison.

- Transmittal of the completed transfer package from the program office to HQ
- The Action Memorandum to the Secretary from the Lead Program Secretarial Officer requesting transmittal of the transfer package to the Congressional committees
- Letters to the House and Senate Appropriations Committees
- Letters to the House and Senate Armed Services Committees
- Official Notice to the Appropriations and Armed Services Committees
- Indemnification Determination to PPPO from the Lead Program Secretarial Officer

memorandum

DATE: May 30, 2008

REPLY
ATTN OF: NS-53:Cange

SUBJECT: **TRANSMITTAL OF TRANSFER PACKAGE FOR LAND PARCEL ED-4 AT THE EAST TENNESSEE TECHNOLOGY PARK, OAK RIDGE, TENNESSEE**

TO: James A. Rispoli, Assistant Secretary for Environmental Management, EM-1, FORS

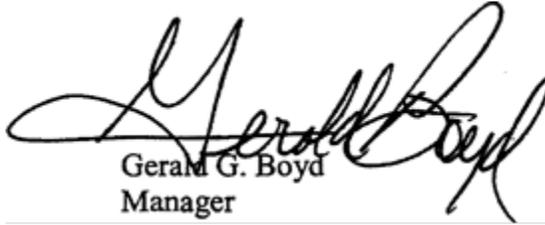
The purpose of this memorandum is to transmit the attached transfer package for Land Parcel ED-4 to your office for review and concurrence. This transmittal letter also serves as the required formal notification of the final disposal of this property in accordance with Re-delegation Order No. 00-008.20.1 to the Manager of the Oak Ridge Office (ORO), dated December 11, 2001. The property proposed for transfer by deed consists of two noncontiguous areas comprising a total of approximately 14 acres located on the southeast side of the East Tennessee Technology Park (ETTP). Since federal acquisition in 1943, this area has been undeveloped woodland with the exception of three support facilities for workers constructing the Oak Ridge Gaseous Diffusion Plant. These support facilities, which were located in the western tract of ED-4, were demolished in 1946 and 1947. Transferring ownership of Parcel ED-4 to the Community Reuse Organization of East Tennessee (CROET) is consistent with the Department's plans to transition the ETTP Heritage Center from a cleanup site into a private industrial/business park.

In February 2008, ORO received a proposal from CROET requesting the transfer of various properties, including Parcel ED-4. The proposal was submitted in accordance with 10 CFR Part 770, *Transfer of Real Property at Defense Nuclear Facilities for Economic Development*. CROET anticipates that the transfer of these parcels will give traction to redevelopment efforts at ETTP. In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey (EBS), resulting in a Clean Parcel Determination (CPD), pursuant to Section 120 (h) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The CPD was submitted to Region 4 of the Environmental Protection Agency (EPA) and in May 2008, EPA concurred in ORO's determination. The planned transfer date is November 30, 2008.

The attached title transfer package includes a copy of the EBS Report and the CPD concurrence letter from EPA. Also included is a fact sheet which provides a summary of the proposed transfer, a Business Case which supports transfer of the land parcel for less than fair market value, and the Quitclaim Deed. The Business Case identifies that the Grantee has requested that identification be granted in accordance with 10 CFR 770 against claims based on the release or threatened release of hazardous substances or pollutants resulting from former Department of Energy activities.

It is my understanding that after review of this package by your office, it will be forwarded to the Offices of Management; Science; Legacy Management; General Counsel and the Chief Financial Officer for review and concurrence. Following this, ORO understands that the Secretary will forward the transfer package to the appropriate Congressional Committees for a 60-day period. ORO will execute the Quitclaim Deed after the Congressional review period has expired.

I appreciate your prompt attention to this important matter. If you have any questions regarding the attached information or the title transfer of Parcel ED-4, please call me at (865) 576-4444 or Susan Cange, of my staff, at (865) 576-0334.



Gerald G. Boyd
Manager

Attachments (3)

cc w/attachments:

Chuck Nalezny, EM-2I, FORS (8 copies)
Susan Cange, NS-53, ORO
Steve Cooke, NS-53, ORO
Nancy Carnes, CC-I O, ORO
Cindy Finn, AD-42, ORO

cc w/o attachments:

Raymond Orbach, S-4, FORS
George Malosh, SC-3, FORS
Steven Isakowitz, CF-I, FORS
Michael Owen, LM-I, FORS
David Hill, GC-I, FORS
Ingrid Kolb, MA-I, FORS
Robert Brown, M-2, ORO
Larry Clark, NS-50, ORO
Steve McCracken, EM-90, ORO
Don Thress, CC-10, ORO
Dan Wilken, AD-40, ORO

MEMORANDUM FOR THE SECRETARY

THROUGH: C. H. ALBRIGHT, JR.
UNDER SECRETARY OF ENERGY

FROM: ASSISTANT SECRETARY FOR
ENVIRONMENTAL MANAGEMENT

SUBJECT: **ACTION:** Sign Letters Transmitting Notification to Congressional Committees of the Department's Plan to Transfer Land Parcel ED-4 to the Community Reuse Organization of East Tennessee.

ISSUE: Whether the Department of Energy (DOE) should transfer Land Parcel ED-4 to the Community Reuse Organization of East Tennessee (CROET), at less than market value, with Pub. L. 105-85 indemnification.

BACKGROUND: Under Section 161g of the Atomic Energy Act of 1954, and 10 CFR Part 770, *Transfer of Real Property at Defense Nuclear Facilities for Economic Development*, the DOE is authorized to transfer property at less than full market value in order to help local communities recover from the effects of government downsizing. Under Section 3158 of the National Defense Authorization Act for Fiscal Year 1998, as amended, Pub. L. 105-85, DOE is also authorized to indemnify against any claim for injury to person or property that results from the release or threatened release of a hazardous substance as a result of Departmental activities.

Since 1994, Departmental downsizing at the Oak Ridge Reservation has resulted in over 5,500 DOE-related job losses. In 1996, the DOE-Oak Ridge Office (ORO) began making suitable land and facilities at the former K-25 site in Oak Ridge, Tennessee available for private sector use. Through leasing and property transfers, the site of the former gaseous diffusion plant is being transformed into a private industrial park, referred to as the East Tennessee Technology Park (ETTP) Heritage Center. By targeting this end state, and salvaging suitable facilities and infrastructure for transfer to either the private sector or the local municipality (i.e. the City of Oak Ridge), DOE is reducing Environmental Management (EM) mortgages associated with operations and maintenance (O&M) and demolition of surplus facilities. In addition, creating a private industrial park provides a catalyst for job creation in the wake of the job losses associated with the restructuring of the DOE weapons complex and the completion of environmental cleanup work.

In February 2008, ORO received a proposal from CROET requesting the transfer of various properties at ETTP, including Parcel ED-4. CROET anticipates that the transfer of these parcels will give traction to redevelopment efforts at ETTP. Land Parcel ED-4 consists of two noncontiguous areas comprising a total of approximately 14 acres located on the southeast side of ETTP. The market value of this property is in the range of \$12,000 to \$20,000 per acre, or \$168,000 to \$280,000 total.

On May 23, 2008, the U.S. Environmental Protection Agency (EPA) Region 4 Regional Administrator concurred with ORO's identification of Land Parcel ED-4 as uncontaminated property pursuant to 120(h)(4)(B) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Further, EPA found that the property is suitable for transfer for the use intended by the transferee, and the intended use is consistent with protection of human health and the environment.

Parcel ED-4 was formerly the location of support facilities, for workers constructing the Oak Ridge Gaseous Diffusion Plant, and a railroad spur that connected ED-4 to the main plant area. While Parcel ED-4 has been determined to be uncontaminated, it is located immediately adjacent to property that is undergoing cleanup under CERCLA. Additionally, the "Haul Road," a U.S. Department of Energy (DOE)-owned road actively used for truck transport of waste materials to the DOE Environmental Management Waste Management Facility, is located immediately adjacent to Parcel ED-4. The prior use of Parcel ED-4 in support of the ORGDP, and its location immediately adjacent to property that is undergoing cleanup under CERCLA, together with the presence of the Haul Road, collectively impose serious impediments to private financial investment and development. We believe that it is essential for the purpose of facilitating reuse or redevelopment of the property that the Department provide indemnification to the transferee as they have requested. Therefore, we believe it is reasonable for the Department to grant CROET indemnification against claims based on the release or threatened release of hazardous substances or pollutants resulting from Departmental activities. This indemnification would be provided under the authority of 10 CFR Part 770. As such, I have authorized indemnification be specifically included as Exhibit "D" of the Quitclaim Deed associated with the proposed transfer.

Sixty-day advance notification of this transfer to the congressional appropriations committees is requested by House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002, because the transfer does not follow standard federal sale practices.

Since this transfer involves real property at a DOE defense nuclear facility, for which there will be an indemnification, 30-day advance notification to the congressional defense committees is required by Section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Pub. L. 105-85.

SENSITIVITIES: The proposed transaction involves the disposal of an asset that is worth between \$168,000 and \$280,000 for which the Government will receive no income. However, this transaction follows upon a history of similar transactions that are intended to create permanent economic development in the Oak Ridge area as the Department ends its environmental restoration mission there. Furthermore, no additional Government funds will be expended, barring exercise of the indemnification clause.

POLICY IMPACTS: None

URGENCY: None

RECOMMENDATION: Sign the attached letters transmitting notification to Congress in anticipation of ORO signing a Quitclaim Deed transferring ownership.

CONCURRENCE:	Congressional/Epifani	/	/08	Management/Kolb	/	/08
	General Counsel/Hill	/	/08	Science/Malosh	/	/08
	Legacy Mgmt/Owen	/	/08	CFO/Isakowitz	/	/08

APPROVED: _____

DISAPPROVED: _____

DATE: _____



Department of Energy
Washington, DC 20585

The Honorable David R. Obey
Chairman, Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4, which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park (ETTP), which will be called the ETTP Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

This notification is being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of notification).

Notification of DOE's intent to transfer property is also being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended.

The transfer document will include a provision that provides for DOE indemnification of the transferee.

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Jerry Lewis
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Robert C. Byrd
Chairman, Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4, which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park (ETTP), which will be called the ETTP Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

This notification is being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of notification).

Notification of DOE's intent to transfer property is also being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended.

The transfer document will include a provision that provides for DOE indemnification of the transferee.

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Thad Cochran
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Byron L. Dorgan
Chairman, Subcommittee on Energy and Water
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park (ETTP), which will be called the ETTP Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

This notification is being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of notification).

Notification of DOE's intent to transfer property is also being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended.

The transfer document will include a provision that provides for DOE indemnification of the transferee.

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Pete V. Domenici
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Ike Skelton
Chairman, Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park Heritage Center as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

Notification of DOE's intent to transfer property is being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended. The transfer document will include a provision that provides for DOE indemnification of the transferee.

This notification is also being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but not sooner than 30 days from the date of this notification).

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Duncan L. Hunter
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Carl Levin
Chairman, Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

Notification of DOE's intent to transfer property is being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended. The transfer document will include a provision that provides for DOE indemnification of the transferee.

This notification is also being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but not sooner than 30 days from the date of this notification).

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable John McCain
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Bill Nelson
Chairman, Subcommittee on Strategic Forces
Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

Notification of DOE's intent to transfer property is being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended. The transfer document will include a provision that provides for DOE indemnification of the transferee.

This notification is also being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but not sooner than 30 days from the date of this notification).

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Jeff Sessions
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Ellen O. Tauscher
Chairman, Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Madam Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Heritage Center, LLC, a subsidiary of the Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

Notification of DOE's intent to transfer property is being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended. The transfer document will include a provision that provides for DOE indemnification of the transferee.

This notification is also being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but not sooner than 30 days from the date of this notification).

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable Terry Everett
Ranking Member

ARMED SERVICES COMMITTEE DISTRIBUTION LIST

The Honorable Ike Skelton
Chairman, Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

cc: The Honorable Duncan L. Hunter
Ranking Member

The Honorable Carl Levin
Chairman, Committee on Armed Services
United States Senate
Washington, DC 20510

cc: The Honorable John McCain
Ranking Member

The Honorable Bill Nelson
Chairman, Subcommittee on Strategic Forces
Committee on Armed Services
United States Senate
Washington, DC 20510

cc: The Honorable Jeff Sessions
Ranking Member

The Honorable Ellen O. Tauscher
Chairman, Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

cc: The Honorable Terry Everett
Ranking Member



Department of Energy
Washington, DC 20585

The Honorable Peter J. Visclosky
Chairman, Subcommittee on Energy
and Water Development, and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The purpose of this letter is to notify you of my intent to transfer ownership of real property for economic development purposes in Oak Ridge, Tennessee. This transfer, which is described in detail in the enclosure to this letter, will transfer Land Parcel ED-4 which consists of approximately 14 acres of vacant land to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). The market value of the parcel of land has been estimated to be within the range of \$168,000.00 to \$280,000.00. Transfer of Land Parcel ED-4 is consistent with the Department's plans to establish the East Tennessee Technology Park (ETTP), which will be called the ETTP Heritage Center, as a private industrial park after cleanup activities have been completed.

Since 2005, ORO has transferred ownership of nine facilities and three vacant land parcels. The cumulative effect of the overall redevelopment program at the Heritage Center, of which ED-4 is an integral piece, has significant economic benefit to the Department of Energy (DOE), and will further bolster the long-term viability of the Heritage Center. CROET believes that ownership of Land Parcel ED-4 will further enhance their ability to attract manufacturing and other business enterprises to the Heritage Center.

This notification is being made pursuant to House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002. DOE intends to sign the transfer document no sooner than 60 days from the date of notification of Congress, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of notification).

Notification of DOE's intent to transfer property is also being made to the congressional defense committees pursuant to section 3158 of the National Defense Authorization Act for Fiscal Year 1998, Public Law 105-85, as amended.

The transfer document will include a provision that provides for DOE indemnification of the transferee.

In response to CROET's proposal, ORO implemented the 10 CFR 770 process and developed an Environmental Baseline Survey, which resulted in a Clean Parcel Determination (CPD), pursuant to section 120(h) under the Comprehensive Environmental Response, Compensation, and Liability Act as amended. The U.S. Environmental Protection Agency has concurred with the CPD.

If you have any further questions, please contact me or Ms. Lisa E. Epifani, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

Enclosure

cc: The Honorable David L. Hobson
Ranking Member

APPROPRIATIONS COMMITTEE DISTRIBUTION LIST

The Honorable Robert C. Byrd
Chairman, Committee on Appropriations
United States Senate
Washington, DC 20510

cc: The Honorable Thad Cochran
Ranking Member

The Honorable Byron L. Dorgan
Chairman, Subcommittee on Energy and Water
Committee on Appropriations
United States Senate
Washington, DC 20510

cc: The Honorable Pete V. Domenici
Ranking Member

The Honorable David R. Obey
Chairman, Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

cc: The Honorable Jerry Lewis
Ranking Member

The Honorable Peter J. Visclosky
Chairman, Subcommittee on Energy
and Water Development, and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

cc: The Honorable David L. Hobson
Ranking Member

NOTICE TO THE APPROPRIATIONS COMMITTEE
of a Property Transfer
Notice Provided Pursuant to House Report 107-112,
Accompanying the Energy and Water Development Appropriations Bill,
2002

**INTENTION OF THE DEPARTMENT OF ENERGY TO
TRANSFER REAL PROPERTY PURSUANT TO SECTION
161g OF THE ATOMIC ENERGY ACT OF 1954**

The Department of Energy (DOE) proposes to transfer ownership, at no cost, of DOE property at the East Tennessee Technology Park (ETTP) located on DOE's Oak Ridge Reservation (ORR) in the State of Tennessee. The property is referred to as Land Parcel ED-4, and consists of approximately 14 acres. This proposed property transfer will promote economic development for the east Tennessee region. The end state for the ETTP is an industrial park. DOE authority for the transfer is Section 161g of the Atomic Energy Act of 1954 (42 U.S.C. 2201g). The proposed no-cost transfer would be made to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). CROET believes that ownership of Land Parcel ED-4 will enhance its ability to attract manufacturing and other business enterprises to ETTP.

As the intended transfer of property is being made under DOE's authority in the Atomic Energy Act of 1954, DOE is providing this notice as requested by House Report 107-112 for the Energy and Water Development Appropriations Bill, 2002. That Report requests that DOE notify the Appropriations Committees at least 60 days in advance of any proposed sale of land that does not follow the standard Federal practices for property sales. Section 161g of the Atomic Energy Act enables DOE to "sell, lease, grant, and dispose of" properties associated with Atomic Energy Act activities.

In addition, CROET has requested that the transfer document contain the indemnification authorized by section 3158 of the National Defense Authorization Act for Fiscal Year 1998 (hereinafter "section 3158"), as amended, now codified at 50 U.S.C. 2811. The Department promulgated regulations, which appear at 10 CFR Part 770, for selling or leasing real property at "Department of Energy defense nuclear facilities for the purpose of permitting the economic development of the property." Further, the statute authorizes the Secretary of Energy to indemnify certain transferees "against any claim for injury to person or property that results from the release or threatened release of a hazardous substance or pollutant or contaminant as a result of DOE activities at the defense nuclear facility on which the real property is located."

Section 3158 also prohibits the Secretary of Energy from transferring such property until 30 days have elapsed after notice to the congressional defense committees of the proposed transfer.

This transfer falls within the scope of Section 3158, as amended, and 10 CFR Part 770. The purpose of the transfer is to permit economic development of the property. CROET has requested that, as a part of the property transfer, DOE agree to provide certain indemnifications for Land Parcel ED-4. DOE has determined that indemnification is essential for the purpose of facilitating reuse and redevelopment of this property. Therefore, DOE proposes to include in the transfer document a provision that will provide certain indemnifications for Land Parcel ED-4.

This Notice is intended to satisfy the request in House Report 107-112, accompanying the Energy and Water Development Appropriations Bill, 2002, that DOE notify the congressional appropriations committees of DOE's intent to transfer property at least 60 days prior to the approval of the transfer document. DOE will sign the transfer document no earlier than 60 days from the date of notification, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of this notification).

NOTICE TO THE COMMITTEE ON ARMED SERVICES

as Directed by Section 3158 of the
National Defense Authorization Act for Fiscal Year 1998

INTENTION OF THE DEPARTMENT OF ENERGY TO TRANSFER REAL PROPERTY PURSUANT TO SECTION 161g OF THE ATOMIC ENERGY ACT OF 1954

The Department of Energy (DOE) proposes to transfer ownership, at no cost, of DOE property at the East Tennessee Technology Park (ETTP) located on DOE's Oak Ridge Reservation (ORR) in the State of Tennessee. The property is referred to as Land Parcel ED-4, and consists of 14 acres. This proposed property transfer will promote economic development for the east Tennessee region. The end state for the ETTP is an industrial park. DOE authority for the transfer is Section 161g of the Atomic Energy Act of 1954 (42 U.S.C. 2201g). The proposed no-cost transfer would be made to the Heritage Center, LLC, a subsidiary of the Community Reuse Organization of East Tennessee (CROET). CROET believes that ownership of Land Parcel ED-4 will enhance its ability to attract manufacturing and other business enterprises to ETTP.

In addition, CROET has requested that the transfer document contain the indemnification authorized by section 3158 of the National Defense Authorization Act for Fiscal Year 1998 (hereinafter "Section 3158"), as amended, now codified at 50 U.S.C. 2811. The Department promulgated regulations, which appear at 10 CFR Part 770, for selling or leasing real property at "DOE nuclear defense facilities for the purpose of permitting the economic development of the property." Further, the statute authorizes the Secretary of Energy to indemnify certain transferees "against any claim for injury to person or property that results from the release or threatened release of a hazardous substance or pollutant or contaminant as a result of DOE activities at the defense nuclear facility on which the real property is located."

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This transfer falls within the scope of Section 3158, as amended, and 10 CFR Part 770. The purpose of the transfer is to permit economic development of the property. DOE has determined that indemnification is essential for the purpose of facilitating reuse and redevelopment of this property. Therefore, DOE proposes to include in the transfer document a provision that will provide certain indemnifications for Land Parcel ED-4.

This Notice is intended to satisfy the request in section 3158 of the National Defense Authorization Act for Fiscal Year 1998 that DOE notify the congressional

defense committees of DOE's intent to transfer property at least 30 days prior to the approval of the transfer document. DOE will sign the transfer document no earlier than 60 days from the date of notification, unless DOE is notified by Congress on an earlier date (but no sooner than 30 days from the date of this notification).

memorandum

DATE:

REPLY

ATTN OF: EM-23 (Y. Collazo, 202-586-5280)

SUBJECT: Indemnification Determination for Proposed Transfer of Land Parcel ED-4 at the East Tennessee Technology Park, Oak Ridge, Tennessee

TO: Gerald Boyd, Manager, Oak Ridge Office

The Office of Environmental Management has reviewed the proposed transfer of Land Parcel ED-4 at the East Tennessee Technology Park (ETTP) Heritage Center. The proposal from the Community Reuse Organization of East Tennessee (CROET) requested transfer of Land Parcel ED-4, which consists of 14 acres of vacant land. In its transfer proposal, CROET requested indemnification against claims based on the release or threatened release of hazardous substances, pollutants, or contaminants resulting from former Department of Energy (DOE) activities in and around ETTP. For the reasons listed below, I authorize indemnification of the CROET.

The request for indemnification is based on the historical use of the site to support uranium processing operations at the former Oak Ridge Gaseous Diffusion Plant (ORGDP). The ORGDP began operations in 1945 and continued to be used until shutdown in 1985. Contamination of buildings, soils and groundwater has occurred on the site as a result of these former activities, and the Oak Ridge Reservation has been listed on the National Priorities List (NPL) and is currently being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act. The buildings and soils on the site will be remediated by 2016; however, it may take longer to address the groundwater contamination that may exist.

Parcel ED-4 was formerly the location of support facilities, for workers constructing the ORGDP, and a railroad spur that connected ED-4 to the main plant area. Additionally, the Parcel is located immediately adjacent to property that is undergoing cleanup under CERCLA. The "Haul Road," a U.S. Department of Energy (DOE)-owned road actively used for truck transport of waste materials to the DOE Environmental Management Waste Management Facility, is located immediately adjacent to Parcel ED-4. The prior use of Parcel ED-4 in support of the ORGDP, and its

location immediately adjacent to property that is undergoing cleanup under CERCLA, together with the presence of the Haul Road and the NPL designation, collectively impose serious impediments to private financial investment and development. I believe it is essential for transfer and reuse of the property that DOE provides indemnification to the transferee. As such, I am granting said indemnification as provided under the authority of 10 CFR Part 770. This is predicated on the inclusion of Exhibit "D" "Indemnification" in the Quitclaim Deed (copy attached).

If you have any further questions, please contact me at (202) 586-7709 or

Mr. Mark Gilbertson, Deputy Assistant Secretary for Engineering and Technology, at (202) 586-0755.

Inez Triay
Acting Assistant Secretary for
Environmental Management

Attachment

APPENDIX J

Environmental Baseline Survey Report Interview Form

Environmental Baseline Survey Report Interview Form

The purpose of a CERCLA 120(h) is to identify and document the environmental conditions of a property proposed for transfer. The information obtained is used in an Environmental Baseline Survey (EBS) report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the “transfer package” that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.

The objective of this questionnaire is to be able to “determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property.” Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) “interviews with current or former employees familiar with operations on the property” (proposed for transfer). Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers.

You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.

Property Proposed for Transfer:

1. Name:

2. Work Phone number:

3. Your involvement with the property proposed for transfer:

4. Is your involvement past or present?

5. During what years were you involved with the property proposed for transfer?

Questions about prior releases on the property proposed for transfer

6(a). During your involvement with the property did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?

6(b). If no, please indicate no. If yes, please proceed to the next question.

6(c). What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?

6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire)

6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number.

Questions about releases during your involvement with the property proposed for transfer

7(a). **During your involvement** with the property are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?

7(b). If no, please indicate no, if yes, please proceed to the next question.

7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known) Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release.

Questions about response actions during (or after) your involvement with the property proposed for transfer

8(a). Are you aware of any follow-up response action that was taken on the property?

8(b). If no, please indicate no. If yes, please proceed to the next question.

8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.

8(d). Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release?

8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought.

Name:	Phone number:
Name:	Phone number:

Additional Comments:

APPENDIX K

**Example Environmental Baseline Survey for an
Uncontaminated Property at PORTS**

**ENVIRONMENTAL BASELINE SURVEY REPORT FOR
THE TITLE TRANSFER OF PARCEL 1 AT THE
PORTSMOUTH GASEOUS DIFFUSION PLANT,
PIKETON, OHIO**



**U.S. Department of Energy
DOE/PPPO/03-0744&D1**

March 2016

This document is approved for public release per review by:

Sam Eldridge (signature on file)

PPPO Classification Office/Export Controlled Information Officer

2-27-2016

Date

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**ENVIRONMENTAL BASELINE SURVEY REPORT FOR
THE TITLE TRANSFER OF PARCEL 1 AT THE
PORTSMOUTH GASEOUS DIFFUSION PLANT,
PIKETON, OHIO**

**U.S. Department of Energy
DOE/PPPO/03-0744&D1**

March 2016

**Prepared for
U.S. Department of Energy**

**Prepared by
Fluor-BWXT Portsmouth LLC, Under Contract DE-AC30-10CC40017
FBP-ER-GEN-WD-RPT-0069, Revision 1**

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ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
D&D	decontamination and decommissioning
DFF&O	<i>The April 13, 2010 Director's Final Findings and Orders for Removal Action and Remedial Investigation and Feasibility Study and Remedial Design and Remedial Action, including the July 16, 2012 Modification thereto</i>
DOE	U.S. Department of Energy
DQO	data quality objective
EBS	Environmental Baseline Survey
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
FBP	Fluor-BWXT Portsmouth LLC
GCEP	Gas Centrifuge Enrichment Plant
HPGe	high-purity germanium
HQ	hazard quotient
M&E	material and equipment
MCL	maximum contaminant level
NRC	Nuclear Regulatory Commission
Ohio EPA	Ohio Environmental Protection Agency
OREIS	Oak Ridge Environmental Information System
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act of 1976, as amended
RFI	RCRA facility investigation
RMD	Risk Methods Document
ROD	Record of Decision
SU	soil unit
TCE	trichloroethene
USDA	U.S. Department of Agriculture
USEC	United States Enrichment Corporation
USGS	United States Geological Survey
VISL	vapor intrusion screening level
XRF	X-ray fluorescence

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CONCLUSIONS

Based on the U.S. Department of Energy's (DOE's) review of the existing information, including interviews referenced herein, and evaluation of the environmental data gathered in preparation of the environmental baseline survey for the Parcel 1 area, DOE has determined that the parcel satisfies the statutory criteria for identification of the parcel as uncontaminated per the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), Section 120(h)(4). There are no indications of potential impacts on Parcel 1 from adjacent property that would preclude its identification as a clean parcel under CERCLA 120(h)(4).

This conclusion is supported by the fact that no evidence was found that hazardous substances were released or disposed of on Parcel 1 that would result in an environmental condition that would pose a threat to human health or the environment and, therefore, preclude its identification as an uncontaminated parcel. Therefore, the parcel proposed for transfer is protective of human health and the environment for its intended use. The intended use for Parcel 1 is industrial.

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1. PROPERTY IDENTIFICATION/REAL PROPERTY SUMMARY

The basis of the U.S. Department of Energy's (DOE's) authorization for title transfer at the Portsmouth Gaseous Diffusion Plant (PORTS) is the Atomic Energy Act of 1954. There are also several statutes that DOE must comply with when transferring real property, including but not limited to, Section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and the National Environmental Policy Act. In addition, the process outlined in 10 *Code of Federal Regulations* Part 770, *Transfer of Real Property at Defense Nuclear Facilities for Economic Development*, is anticipated to be the primary vehicle for transfer of facilities at PORTS. Documentation prepared to support PORTS title transfers under CERCLA Section 120(h) includes this Environmental Baseline Survey (EBS) report that details the baseline condition of the real property.

DOE has prepared this EBS to support the transfer of approximately 97 acres of land (hereafter referred to as "Parcel 1") at PORTS, identifying Parcel 1 as uncontaminated property pursuant to CERCLA 120(h)(4). The documentation of an uncontaminated property (also known as a "clean parcel") includes the review of government records, title documents, aerial photographs, visual and physical inspections of the property and adjacent properties, and interviews with current and former employees to identify any areas on the property where hazardous substances and petroleum products were known to have been released, or disposed of.

CERCLA 120(h)(4) indicates the information sources that, at a minimum, must be reviewed to determine if current or previous uses of the property involved the release or disposal of hazardous substances and/or petroleum products or their derivatives. The sources of information, and location in this report, include:

- A detailed search of federal government records pertaining to the property (Section 2)
- The property's recorded chain of title (Section 3)
- Aerial photographs that may reflect prior property uses and are reasonably obtainable (Section 4)
- A visual inspection of the real property and any buildings, structures, equipment, pipes, pipelines, or any other improvements (Section 5.1)
- A visual inspection of adjacent properties and a physical inspection of those properties to the extent permitted by their owners/operators (Section 5.2)
- Reasonably obtainable federal, state, and local government records regarding the adjacent properties where there has been a release of hazardous substances and/or petroleum products or their derivatives which is likely to cause or contribute to such release on the property under review (Section 6)
- Interviews with current or former employees involved in operations on the real property (Section 7).

The report also summarizes the results of any characterization efforts (Section 8) and includes a risk analysis (Section 9) to evaluate the potential for adverse health effects associated with industrial use of the real property.

1.1 DESCRIPTION AND HISTORY OF THE PROPERTY

PORTS is owned by DOE and is on a 3,777-acre federal reservation in a rural area of Pike County, Ohio, approximately 20 miles north of Portsmouth. From 1954 until 2001, PORTS enriched uranium for DOE

and DOE predecessor agencies, the Naval Nuclear Propulsion Program and commercial customers. The former enrichment facility is currently undergoing decontamination and decommissioning (D&D). Other facilities on site, which are not undergoing D&D, include: (1) the American Centrifuge Plant, which was most recently leased by Centrus Energy Corporation as part of a research, development, and demonstration project for DOE (demonstration of the centrifuge facilities ended in 2015); and (2) the Depleted Uranium Hexafluoride Conversion Facility, which was constructed by DOE to convert depleted uranium hexafluoride into constituents for disposal and commercial resale.

Parcel 1 is located in the southeast portion of PORTS within a portion of an area of the site identified as Quadrant I¹ (Figure 1). Parcel 1 is outside but adjacent to the industrialized process area. Parcel 1 has an elongated shape and is approximately 1,125 ft wide at its widest point and 5,400 ft long at its longest point. Perimeter Road borders the parcel on the east and south and Hewes Street² bisects the parcel. There are no buildings currently located on the parcel. Some areas of the southern portion of the parcel are paved, associated with their past use as parking lots. Research indicates that there are water, electrical, sewer, natural gas, and fiber optic data utilities on the parcel. The parcel is primarily vacant land with relatively flat and grass-covered landscape in the northern portion of the parcel and a relatively hilly and tree-lined landscape in the southern portion of the parcel. An aerial photograph of the Parcel 1 area is provided in Figure 2.

The parcel includes a portion of a former grass airstrip that was built in the 1950s and was used infrequently until the 1980s. A former helicopter pad was also located in the parcel south of the airstrip and was used infrequently until the 1980s. Other features are the location of a former rail spur in the central portion of Parcel 1 (the tracks were removed by 1960), the “undefined land buildup” located in the central portion of the parcel, five groundwater monitoring wells located in the north central portion of the parcel, and several small jurisdictional wetlands.

Other facilities located in the parcel are the former X-744V Surplus and Salvage Clean Storage Yard, used from the 1980s until 2013, as well as the former XT-800 building and associated parking area. The building was built in the early 1980s and was removed in 1986; however, the slab of the building and the parking area are still present.

Airstrip

The portion of the area formerly used as an airstrip is found in the northern and western part of Parcel 1. The airstrip dates to the 1950s and was used during the early years of PORTS for small aircraft. In the 1980s, the threat of terrorist attacks by air became a concern at PORTS, and elevated soil berms were added.

Helicopter Pad

A helicopter pad was formerly located at the corner of Perimeter Road and Hewes Street and was approximately 70 ft by 70 ft. This pad was removed in the 1980s.

¹ PORTS is divided into four quadrants based on shallow groundwater flow to facilitate the environmental contamination investigation and cleanup process under the Resource Conservation and Recovery Act of 1976, as amended (RCRA) (Ohio Environmental Protection Agency’s Decision Document for Quadrant III of the Portsmouth Gaseous Diffusion Plant, March 30, 1999).

² Hewes Street is not proposed for transfer at this time, but is being documented within this EBS due to its location.

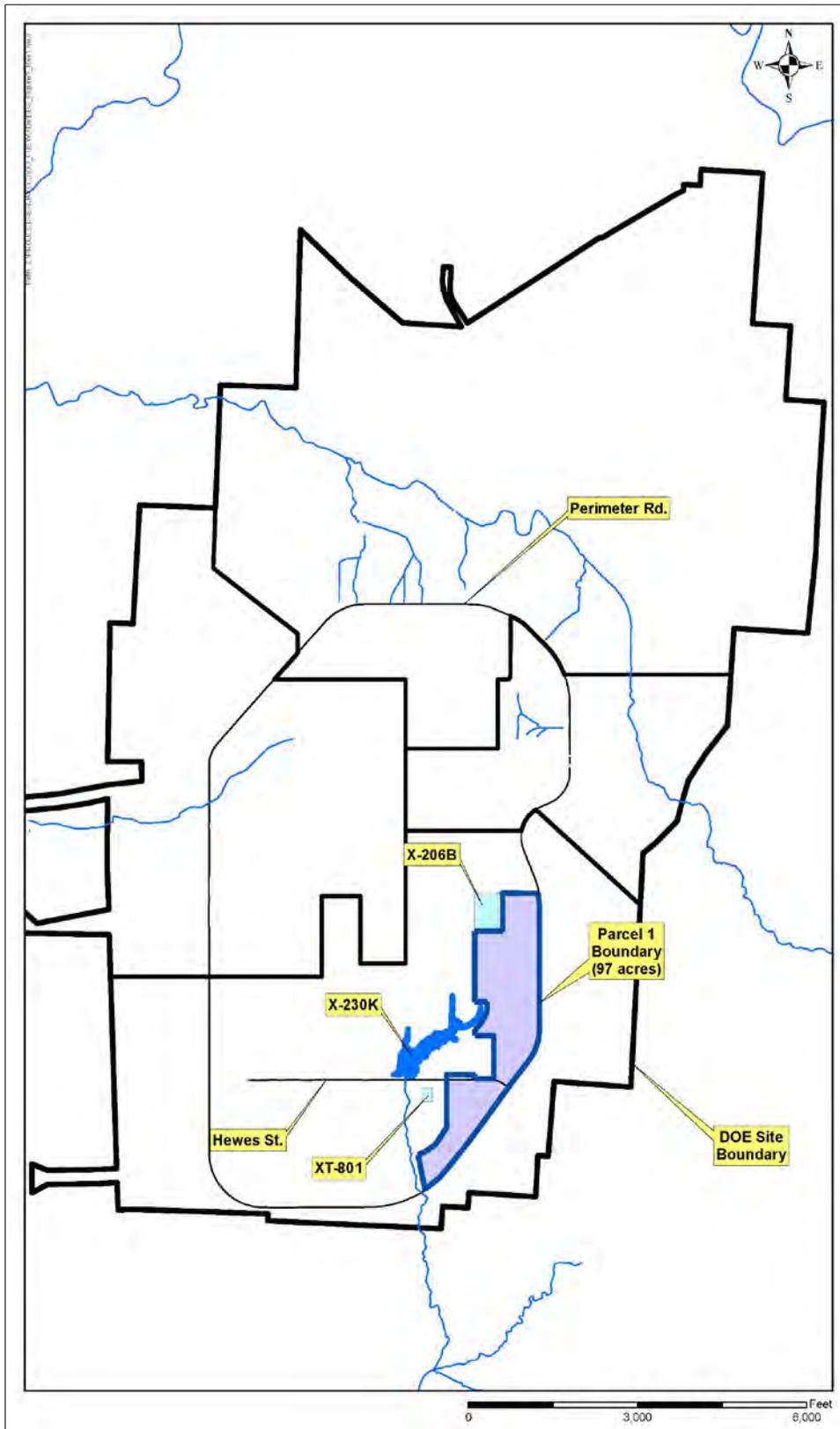


Figure 1. Parcel 1 Area

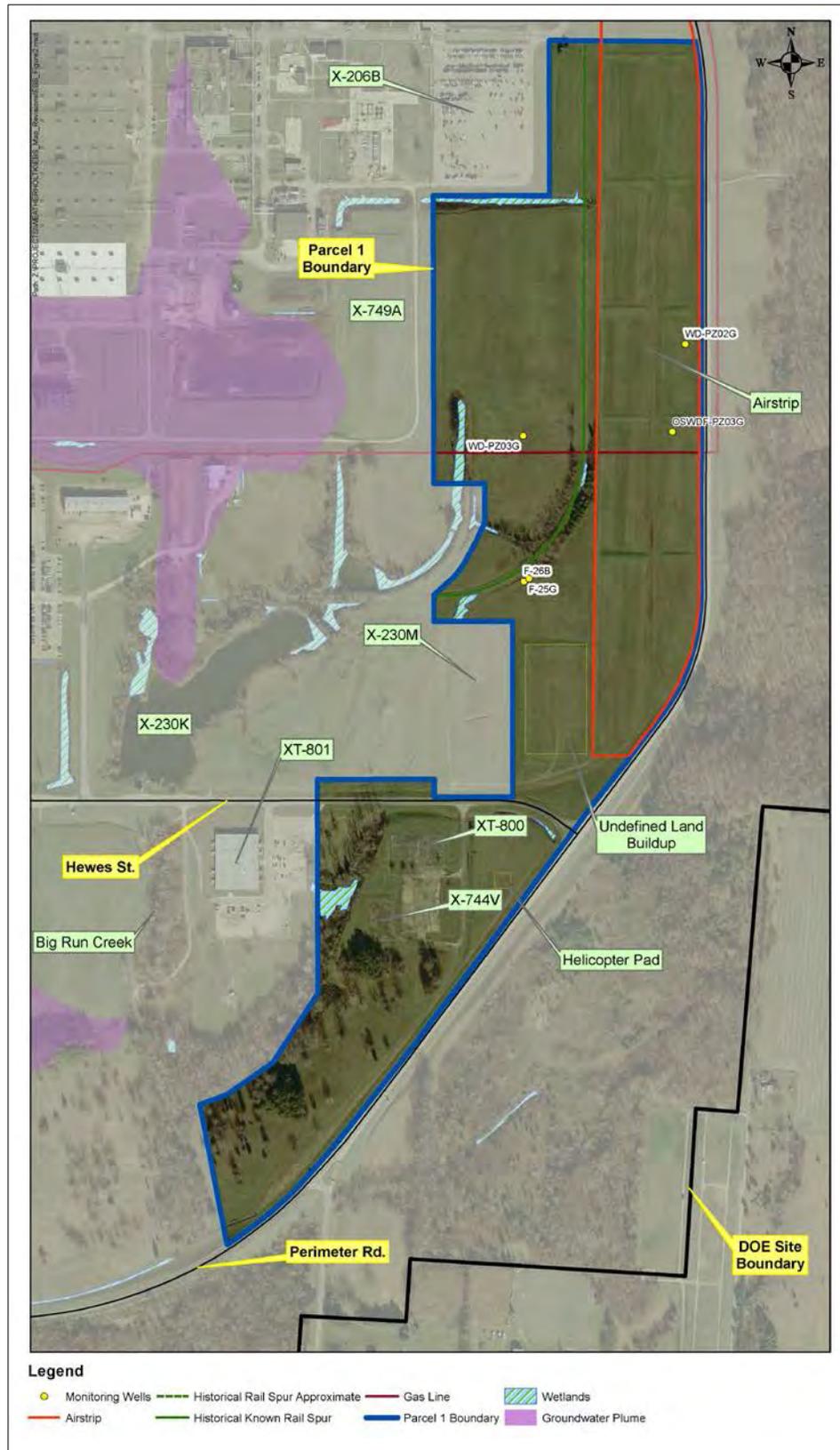


Figure 2. Parcel 1 Aerial Photograph

Rail Spur

Before 1960, a rail spur existed on the west side of the former airstrip. The exact date when the rail spur was removed is unknown, but it is thought to have been removed shortly after the completion of PORTS construction.

X-744V Surplus and Salvage Clean Storage Yard

The former X-744V Surplus and Salvage Clean Storage Yard (X-744V) was a half-acre area delineated by a concrete slab, located at the intersection of Perimeter Road and Hewes Street. The area was fenced and originally used as a clean storage yard for salvage metal. In the mid-1990s, it was used as a parking area for National Guard trucks. Between 1996 and 2012, the former storage yard was posted as a Radioactive Material Area but has since been down posted based on radiological release surveys performed in 2012. The fence was removed by early 2013. The X-744V Surplus and Salvage Clean Storage Yard is included in The *April 13, 2010 Director's Final Findings and Orders for Removal Action and Remedial Investigation and Feasibility Study and Remedial Design and Remedial Action, including the July 16, 2012 Modification thereto* (DFF&O) (Ohio Environmental Protection Agency [Ohio EPA] 2012) Attachment H addressed under the Process Buildings Record of Decision (ROD) (DOE 2015a).

XT-800 Building and Parking Area

An approximately half-acre concrete slab from the XT-800 building and an associated parking area (approximately 1 acre in size) is located on the south side of the Perimeter Road and Hewes Street intersection. This slab is the site of a building constructed in the early 1980s to house personnel supporting the Gas Centrifuge Enrichment Plant (GCEP) project. The building was disassembled and moved to another DOE facility for reuse in 1986. The associated parking area was used as a general laydown area for various projects and currently is not being used. The XT-800 slab is included in the DFF&O Attachment H addressed under the Process Buildings ROD.

Undefined Land Buildup

The “undefined land buildup” is located northwest of the intersection of Perimeter Road and Hewes Street in the central portion of the parcel. This flat 4-acre area is elevated approximately 20 ft above the surrounding grade. The purpose of the area’s construction is unknown. There has been no activity in this area since the Quadrant I RCRA Facility Investigation (RFI) in the early 1990s.

Groundwater Monitoring Wells

Five groundwater monitoring wells are in the north central portion of the parcel. Three of these wells were installed during the siting study for the on-site waste disposal facility. The remaining two wells were installed as part of an initial groundwater monitoring program. (The area of Parcel 1 is outside any delineated groundwater plumes at PORTS.) Currently, semiannual water levels are collected from some of these wells, and the data are used as inputs for the potentiometric lines on the annual groundwater map.

1.2 DESCRIPTION AND HISTORY OF ADJACENT PROPERTY

Parcel 1 is bounded on the east and south by Perimeter Road and on the west by the X-206B Parking Lot, the X-749A Classified Materials Disposal Facility, the X-230K South Holding Pond, the XT-801 South Office Building, and Big Run Creek. The remaining portion of the grass airstrip continues to the north of Parcel 1. Grassy and wooded areas are found outside Perimeter Road.

X-206B Parking Lot

The X-206B Parking Lot (X-206B) is to the west of the northern portion of Parcel 1. It was built in the early 1950s during the construction of PORTS. It is currently one of the main parking lots at PORTS.

X-749A Classified Materials Disposal Facility

The X-749A Classified Materials Disposal Facility (X-749A) is a closed 6-acre solid waste landfill located on the west side of the northern portion of Parcel 1 (approximately 120 ft west of the Parcel 1 boundary). The facility was operational from 1953 to 1988 as a landfill for the disposal of wastes whose nature was classified or whose content might include classified information. The contents of the facility include aluminum dross (slag), ashes, scrap, floor sweepings (lube oil and sawdust that may contain polychlorinated biphenyl compounds [PCBs], asbestos, and radionuclides), and parts from a nickel powder processing plant that may contain nickel carbonyl. The contents underwent decontamination, as necessary, before disposal in the landfill (DOE 2015b).

X-230K South Holding Pond

The X-230K South Holding Pond (X-230K), located on the west side of Parcel 1, is approximately 900 ft long and 300 ft wide at its widest point. It has an average depth of approximately 15 ft. The pond was constructed in 1956 to control sedimentation due to storm-water runoff from Storm Sewers F, G, and H. Based on construction practices during that era and the unavailability of "as-built" drawings for the pond, it is likely that the pond was constructed using low-permeability soil materials obtained on site. Major contributions to the X-230K South Holding Pond are treated coal-pile and coal-ash runoff from the X-600A Coal Yard/X-621 Coal Pile Runoff Treatment Facility, water from the recirculating cooling water system, and air-conditioning system cleaning and condensate water. Effluent from the holding pond is monitored under a National Pollutant Discharge Elimination System permit before it is discharged into Big Run Creek. The X-230K Waste Pile, an 800-ft by 1,500-ft open area adjacent to the holding pond to the east, was used for the placement of sediments dredged from the holding pond in 1980 and 1993 (DOE 2015c).

X-230M Clean Test Site Area

The X-230M Clean Test Site Area (X-230M) is located on the north side of the intersection of Perimeter Road and Hewes Street. This area was a technology demonstration installed independently by DOE to test a groundwater treatment innovation known as the horizontal recirculation. The area was specifically chosen because it was not impacted and the effects of groundwater recirculation could be tested. The recirculating system used a pair of horizontal wells, one for groundwater extraction and the other for reinjection of groundwater, to set up a recirculating flow system. Two horizontal wells were installed in 1994 with a network of monitoring piezometers to assess the hydraulic influence on the surrounding groundwater and measure the distribution and concentration of the different tracers being evaluated. Multiple tests were conducted over a 2-year period (Oak Ridge National Laboratory 1997). Records show that some of the piezometers were abandoned in 2005 to 2006, while others remain in place with the horizontal wells. The area has other remnants from the project such as electrical panels and underground electric lines.

XT-801 South Office Building

The XT-801 South Office Building (XT-801) is on the west side, southern portion, of Parcel 1. The 43,200-sq ft building, constructed in 1977 to 1978, has a metal roof and metal siding with concrete floors. The building was installed to house GCEP employees supporting construction activities. Since the cancellation of GCEP in 1982, the XT-801 has provided office space for a number of different plant functions such as consultants, computer services, and records management.

Big Run Creek

A portion of Big Run Creek, which is a tributary to the Scioto River and drains the southern portion of PORTS, is located on the southwest edge of Parcel 1. This slow-flowing, perennial creek originates at the

X-230K South Holding Pond and has a channel approximately 3 ft wide. Near Parcel 1 there are no deep pools in Big Run Creek.

1.3 GEOLOGIC/HYDROGEOLOGIC ENVIRONMENT³

Based on the soil survey of Pike County, two soil types occur within the parcel boundary. Most of the soil in the parcel is classified as Urban Land-Omulga complex with a 0 to 6 percent slope, which consists of urban land and a deep, nearly level, gently sloping, moderately well-drained Omulga soil in preglacial valleys (U.S. Department of Agriculture [USDA] 1990). The soil in this area has been so disturbed by previous construction activities that assignment of specific soil series is not feasible. Well-developed soil horizons may not be present in areas inside Perimeter Road because of cut and fill operations related to plant construction. The other soil type found in the southern portion of the parcel is Omulga silt loam. The surface layer of Omulga silt loam is dark grayish-brown, friable, and approximately 10 in. thick. The subsoil is approximately 54 in. thick and is composed of three portions: (1) a yellow-brown, friable silt loam; (2) a fragipan (brittle, compacted subsurface soil) of yellow-brown, mottled, firm, and brittle silty clay loam; and (3) a yellow-brown, mottled, friable silt loam approximately 20 in. thick.

Geologically, Parcel 1 lies on the eastern edge of the ancestral Portsmouth River Valley. Stratigraphic units from youngest to oldest in age include the Quaternary Teays Formation (Minford Member/Gallia Member) which unconformably overlies the Mississippian to Upper Devonian Cuyahoga Formation, Sunbury shale, Berea sandstone, and Bedford shale (Figure 3).

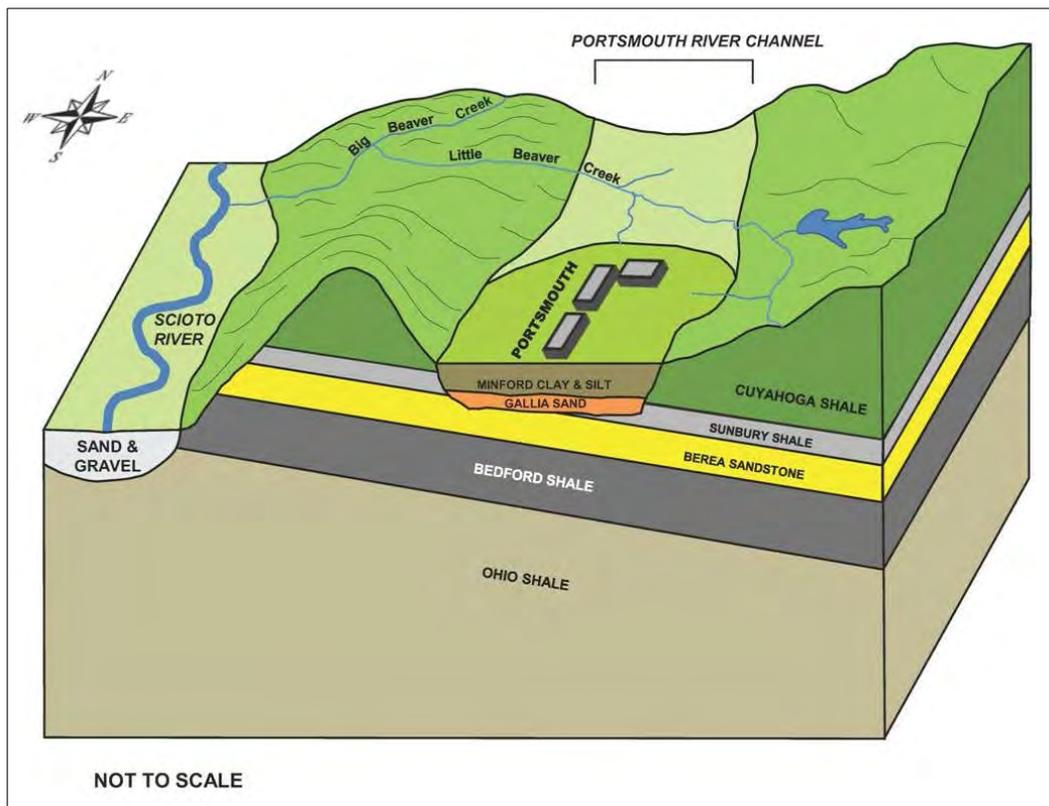


Figure 3. Schematic Block Diagram Showing Geologic Relationships at PORTS

³ The description of the hydrogeologic environment of this area was provided in the Quadrant I RFI Final Report (DOE 1996).

The Teays Formation is a 30- to -40-ft-thick unconsolidated unit consisting of fluvial Gallia sand and gravel overlain by Minford clay and silt. These units were deposited in an erosional valley cut by the ancestral Portsmouth River during the Pleistocene Epoch. The Gallia averages less than 5 ft in thickness and is characterized as reddish-brown, clayey, poorly-sorted, medium-to-coarse sand and gravel. The Minford consists of two units with a gradational contact. The upper unit is predominantly silty clay with some very fine-grained sand, and the lower silt unit is composed of clayey silt and very fine to fine-grained sand.

The depth to bedrock varies from less than 10 ft on the eastern portion of the parcel to greater than 40 ft in the western half of the parcel. The Teays Formation directly overlies the Sunbury shale west of Perimeter Road and the Cuyahoga Formation east of Perimeter Road (east of Parcel 1). The topographic ridge east of Parcel 1 is underlain by the Cuyahoga Formation. The Sunbury shale is the bedrock unit that immediately underlies the Teays Formation. The Sunbury shale is approximately 20 to 25 ft thick. The Berea sandstone, with an average thickness of approximately 35 ft, lies beneath the Sunbury shale. The Berea sandstone is composed of a light gray, hard, thickly bedded, fine-grained sandstone with thin shale laminations. The bedrock formations dip gently to the east-southeast at approximately 30 ft/mile.

The groundwater flow system in Quadrant I, which includes Parcel 1, consists of aquifers in the unconsolidated Gallia sand and gravel and the Berea sandstone; the aquitards of Sunbury shale; and unconsolidated Minford clay and silt. The direction of groundwater flow in Quadrant I is controlled by the presence of surface drainages (Big Run Creek and the Southwest Drainage Ditch), the storm sewer system, and bedrock topography. In general, groundwater in the Gallia in Parcel 1 flows from north to south-southwest toward the X-230K Holding Pond and eventually discharges into Big Run Creek. The water table within the Minford generally lies 10 to 15 ft below ground surface. The hydraulic gradient is low (ranging from approximately 0.002 ft/ft to 0.005 ft/ft) because of the flat valley floor and the presence of thicker, more permeable Gallia deposits. The vertical hydraulic gradient from the Gallia to the Berea is steep, ranging from approximately 0.4 ft/ft to 0.6 ft/ft, with the potentiometric surface of the Berea approximately 10 to 20 ft below that of the Gallia. The vertical hydraulic gradient between the Gallia and Berea decreases to the west side of Parcel 1 as the Sunbury shale thins.

Groundwater flow in the Berea is northwest to southeast with a gradient varying from approximately 0.004 to 0.007 ft/ft. The horizontal gradient in the Berea is slightly greater than the horizontal gradient observed in the Gallia. While groundwater yield in the Berea is typically lower than the yield in the Gallia, the Berea is a widespread unit and is considered to be a regional aquifer. The potentiometric surface of the Gallia fluctuates 5 ft or less on a seasonal basis with groundwater flow direction remaining essentially the same. Seasonal fluctuation in the groundwater levels for the Berea are similar to the Gallia where the two aquifers are interconnected, but the Berea potentiometric surface fluctuates less on a seasonal basis where it is confined by the Sunbury shale.

The surface water watershed at Parcel 1 primarily drains areas not impacted by past contaminant releases. Ditches and storm water drainage around the parcel prevent runoff from adjacent impacted areas from reaching the parcel. Surface water drainage within the parcel is through sheet flow.

2. FEDERAL RECORDS SEARCH

A review of reasonably obtainable records regarding past and present information about the parcel was performed. PORTS is a regulated site; federal records, including extensive DOE records and documentation, were reviewed for the parcel (and are described below). The following DOE, U.S. Environmental Protection Agency (EPA), and Nuclear Regulatory Commission (NRC) records and reports relevant to the parcel were reviewed to support the development of this EBS:

- Information located at PORTS regarding site operations
- Information collected as part of the requirements to comply with DOE Orders
- Information collected in response to the EPA Administrative Order by Consent issued on September 29, 1989 (1989 Administrative Order by Consent), and amended on May 11, 1994 (1994 Administrative Order by Consent), and the Administrative Consent Order issued on August 11, 1997 (1997 Administrative Consent Order), which replaced the 1994 Administrative Order by Consent
- NRC reports concerning United States Enrichment Corporation (USEC) operations regarding gaseous diffusion plant and American Centrifuge Plant operations.

Records (containing information about spills, permits, or permit violations) and interviews with employees or former employees did not indicate that any past operations that would have released or disposed hazardous substances and petroleum products, or their derivatives, or acutely hazardous wastes have occurred within the footprint of Parcel 1.

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3. TITLE SEARCH

A detailed title search in accordance with CERCLA 120(h)(4)(A)(i) was performed by DOE. A letter from the DOE Realty Specialist, included as Appendix A of this document, verifies that the DOE real estate records do not reflect any reference that hazardous substance activity took place on the property prior to the time it was owned by the U.S. Government. There were no title transfers associated with Parcel 1 after acquisition by the U.S. Government in the 1950s.

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4. AERIAL AND OTHER PHOTOGRAPHS AND DRAWINGS

Aerial photographs from 1951, 1960, 1971, 1988, 1994, 2005, 2006, 2009, 2010, 2011, and 2014 were evaluated. Aerial photographs from 1951, 1988, and 2014 are from the PORTS Geographic Information System. The other aerial photographs are from the Environmental Data Resources report (Appendix B, Attachment B.2). All aerial photographs are in Appendix B; however, the 2014 aerial photograph is included in this section (Figure 4). Figures 5 and 6 are terrestrial photographs providing a general view of the parcel.

The 1951 aerial photograph (Appendix B, Figure B.1.1) shows the parcel and surrounding areas to be vacant fields. Prior to construction of the plant, the area evaluated as Parcel 1 was farmland with a farmstead/residence located at the northern portion. A road is visible in the northern portion of the parcel that runs east to west. Another road is visible east of the parcel that runs north to south. A structure is visible along the east road in the southeastern portion of the photograph.

The 1960 aerial photographs (Appendix B, Figures B.2.1 and B.2.2) show the parcel to be a vacant field. The surrounding areas appear to be occupied by fields and woodlands to the south and east and the industrial PORTS facility. A large parking area is visible adjacent to the northwest of the parcel (X-206B). Linear features are visible running north to south in the central portion of the parcel, which corresponds with the railroad tracks described in Section 1. Perimeter Road is visible crossing the parcel and bordering the parcel to the east (Perimeter Road was later extended southward and the portion of the road shown in the 1960 aerial photograph bisecting the parcel was renamed Hewes Street).

The 1971 aerial photographs (Appendix B, Figures B.2.3 and B.2.4) show conditions on the parcel and on surrounding properties to be similar to those observed on the 1960 aerial photographs. The X-230K Holding Pond is visible to the west of Parcel 1.

The 1988 aerial photographs (Appendix B, Figures B.1.2 and B.2.5) show conditions on the northern portion of the parcel and on surrounding properties to the east to be similar to those observed on the 1971 aerial photographs. There are two structures in the southern portion of the parcel: XT-800 and X-744V. A paved roadway (Hewes Street) is visible north of the two structures. Linear features are visible running north to south in the eastern central portion of the parcel, which corresponds with the former airstrip described in Section 1. The soil berms that run perpendicular along the former airstrip are visible in the photograph. The XT-801 building is visible just outside the west boundary in the southern portion of the parcel. The X-749A landfill is visible along the western border in the northern portion of the parcel. The X-230K holding pond is visible just west of the property border and residential buildings are visible further south of the parcel off DOE property.

In the 1994 aerial photographs (Appendix B, Figures B.2.6 and B.2.7), the XT-800 building has been removed. The concrete slabs still remain at the X-744V and at the former XT-800 building. The conditions on surrounding properties are similar to those observed on the 1988 aerial photographs (Appendix B, Figures B.1.2 and B.2.5).

The 2005 aerial photographs (Appendix B, Figures B.2.8 and B.2.9) show conditions on the parcel and on surrounding properties to be similar to those observed on the 1994 aerial photographs. However, there is a dirt road north of Hewes Street across from the former XT-800 and X-744V areas.

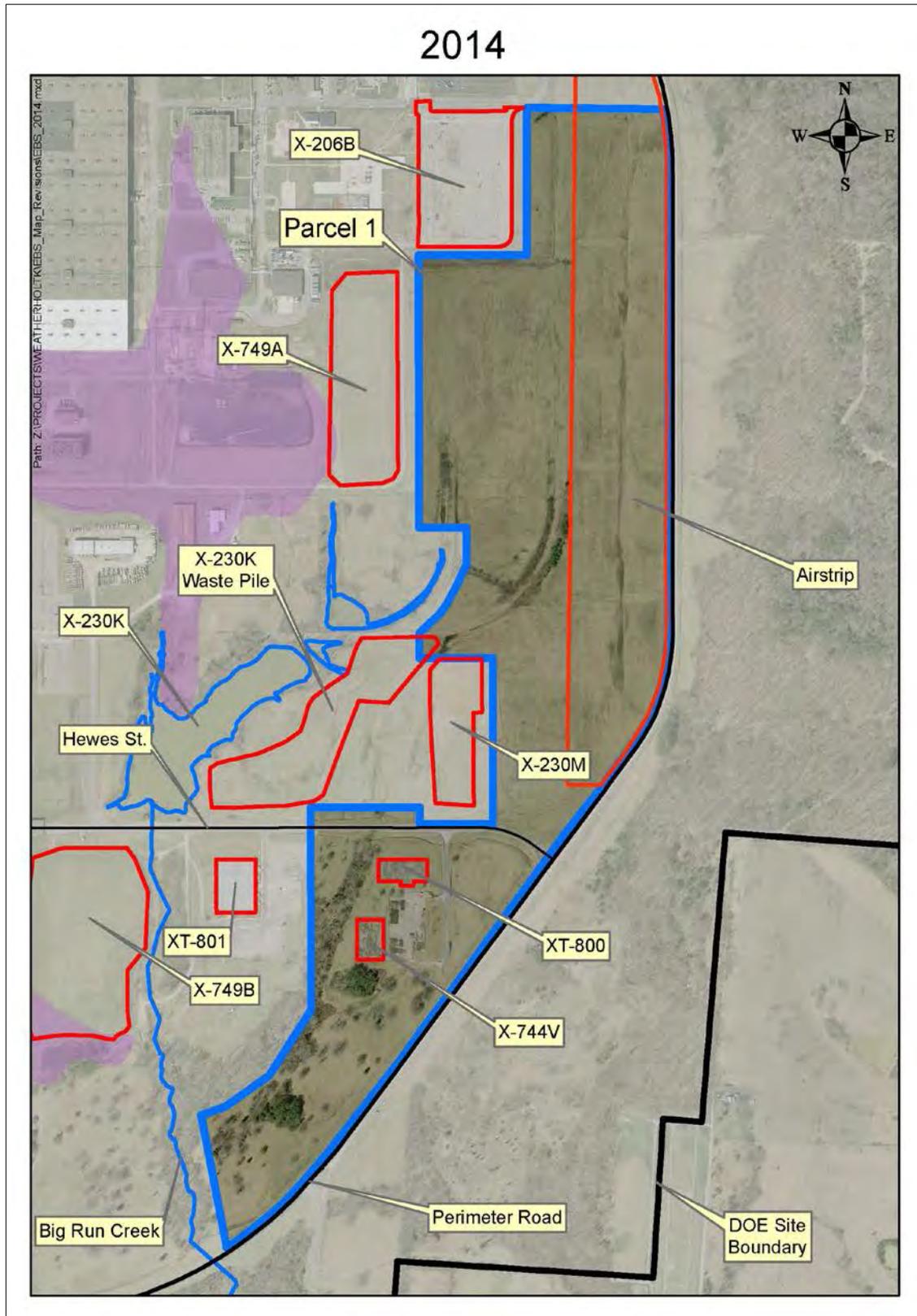


Figure 4. 2014 Aerial Photograph



Figure 5. View of the Northern Portion of Parcel 1 (Looking South from the North End of the Airstrip)



Figure 6. View of the Southern Portion of Parcel 1 (Looking South)

In the 2006 aerial photographs (Appendix B, Figures B.2.10 and B.2.11), the road north of Hewes Street (visible in the 2005 aerial photograph) no longer exists. Parcel 1 conditions and surrounding properties are similar to those observed in the 2005 aerial photographs.

The 2009 aerial photographs (Appendix B, Figures B.2.12 and B.2.13) show conditions on the parcel and on surrounding properties to be similar to those observed on the 2006 aerial photographs. However, multiple trailers are shown parked in the parking lot of the former XT-800 building. There is a ditch visible in the northwestern portion of the parcel adjacent to and south of the X-206B parking area.

The 2010, 2011, and 2014 aerial photographs (Appendix B, Figures B.1.3 and B.2.14 through B.2.17) show conditions on the parcel and on the surrounding properties to be similar to those observed on the 2009 aerial photographs. Figure 4 shows the 2014 aerial photograph.

In addition to the aerial photographs, United States Geological Survey (USGS) topographic maps were reviewed. These series of named quadrangles comprise the PORTS reservation over time and include the proposed transfer footprint. Otway, Piketon, Waverly, and Sciotoville 15-minute quadrangle maps from 1908, 1911, 1913, and 1915 and the USGS Waverly, Lucasville, Wakefield, Piketon 7.5-minute quadrangle maps from 1961, 1975, 1985, 1986, and 2013 were reviewed. Depictions of Parcel 1 vary between the topographic maps. All topographic maps are in Appendix B, Attachment B.3. The most recent topographic map developed from light detection and ranging imagery of Parcel 1 is shown in Figure 7.

The earliest topographic maps that include the Parcel 1 footprint are from the 1908 Waverly and 1911 Sciotoville 15-minute quadrangles; they show the area as vacant land. The parcel is bordered to the north by a light duty road and Big Run Creek is shown to the west of the parcel. PORTS was constructed in the early 1950s and evidence of its presence appears in the quadrangles beginning in the 1960s. Topographic maps after the 1960s are generally consistent with the aerial photographs.

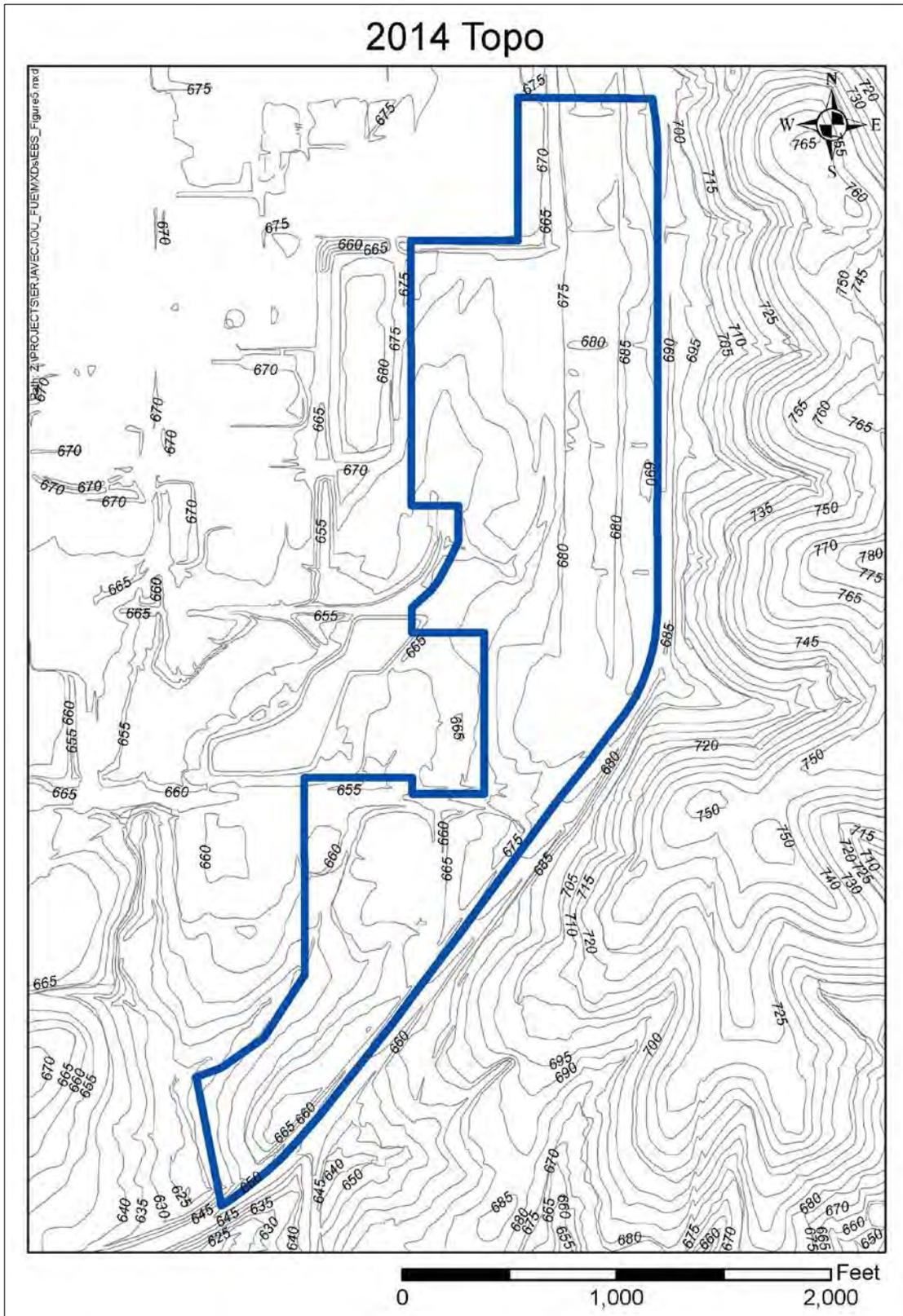


Figure 7. 2014 Topography

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5. RESULTS OF VISUAL AND PHYSICAL INSPECTIONS

5.1 VISUAL AND PHYSICAL INSPECTIONS OF THE PROPERTY PROPOSED FOR TRANSFER

In May 2015, an initial visual walkover assessment was conducted for Parcel 1. The visual and physical inspections of the property occurred in December 2015. The parcel was observed to be primarily vacant land with relatively flat and grass-covered landscape in the northern portion of the parcel and a relatively hilly and tree-lined landscape in the southern portion of the parcel. Perimeter Road borders the parcel on the east and south and Hewes Street bisects the parcel. There are no buildings currently located on the parcel. No visual evidence of aboveground storage tanks or underground storage tanks were observed on the parcel. No evidence of stained soil, stressed vegetation, waste disposal sites, or hazardous substances were observed during the inspection of the parcel.

Due to the size and configuration of the parcel it was subdivided into four areas for study (Soil Unit [SU]-B, SU-C, SU-D, and SU-E) and discussion purposes. In addition SU-A⁴, an adjacent area to the parcel, was observed. These visual and physical inspections of the property were performed after the area was mowed.

Smaller features identified during the visual and physical inspection are listed in Table 1 and shown in Figure 8. A description of SU-B through SU-E is provided below.

Table 1. Smaller Features Identified During Inspection

Area	Visual Assessment		Figure Identifier
	Location	Description of Feature Identified	
SU-C	VA-1	Utility pole with one transformer	Appendix B, Figure B.4.1
SU-C	VA-2	Two carpets	Appendix B, Figure B.4.2
SU-C	VA-3	Catch basin-concrete with grate on top	Appendix B, Figure B.4.3
SU-B	VA-4	Large hole on west hillside of undefined land buildup	Appendix B, Figure B.4.4
SU-D	VA-5	Utility pole with one transformer	Appendix B, Figure B.4.5
SU-D	VA-6	One utility box	Appendix B, Figure B.4.6
SU-D	VA-7	One utility box	Appendix B, Figure B.4.7
SU-D	VA-8	Three concrete slabs/pads	Appendix B, Figure B.4.8
SU-C	LA-1	Ditch and multiple culverts	Appendix B, Figure B.4.9
SU-D	LA-2	Ditch lined with concrete	Appendix B, Figure B.4.10
SU-D	LA-3	Ditch lined with concrete	Appendix B, Figure B.4.11
SU-D	LA-4	Ditch and culvert	Appendix B, Figure B.4.12

Notes:

VA in location indicates visual feature.

LA in location indicates linear feature.

See Figure 8 for locations.

SU = soil unit

⁴ SU-A is the X-230M Clean Test Site Area. This area was a technology demonstration installed independently by DOE to test a groundwater treatment innovation known as the horizontal recirculation. See Section 1.2.

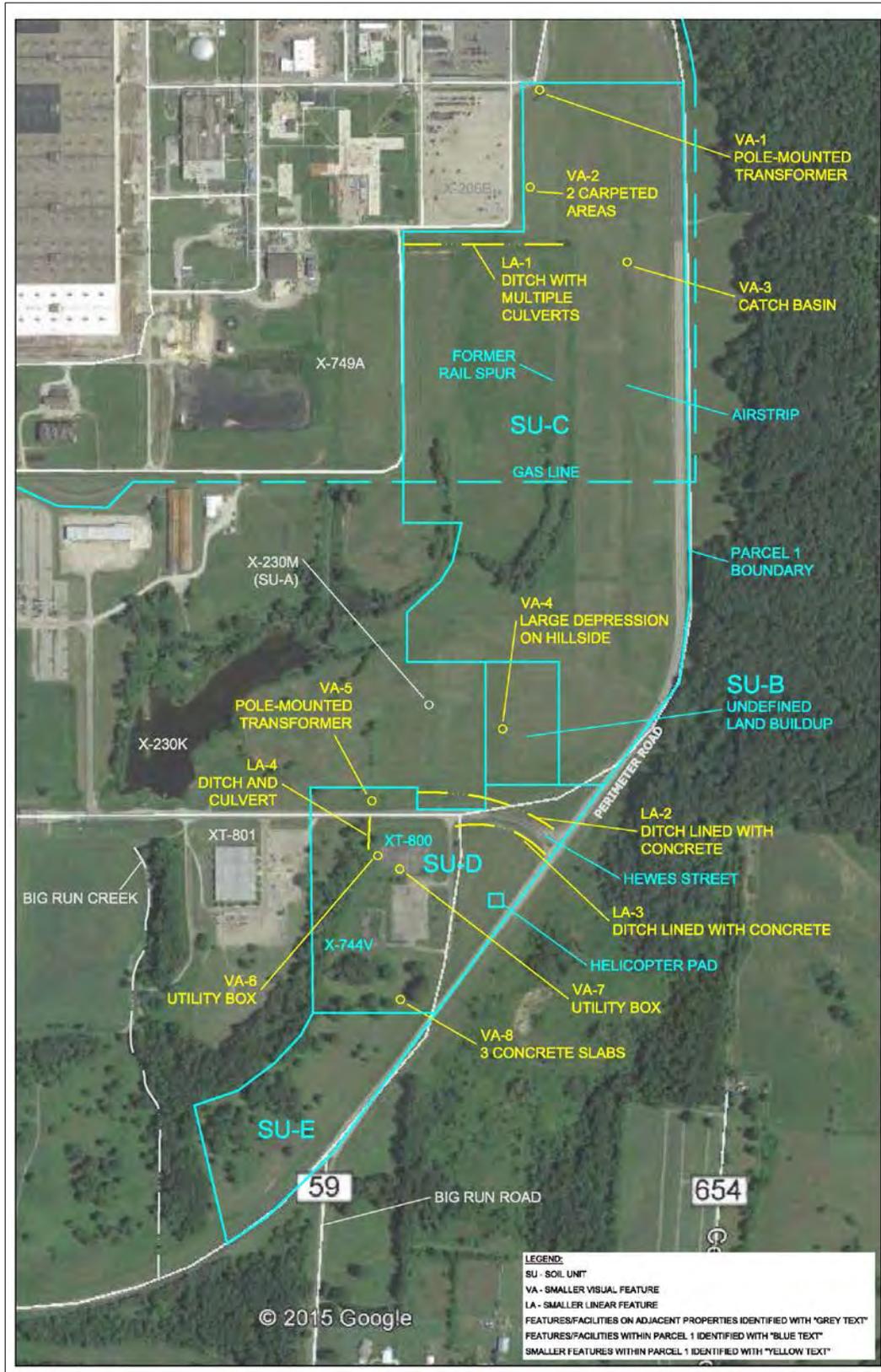


Figure 8. Features Identified During the Visual and Physical Inspection

Soil Unit B: This unit encompasses approximately 4 acres, which are elevated approximately 20 ft above the surrounding original grade on the west-central side of the parcel. This grassy area is referred to as the “undefined land buildup”. It is northwest of the intersection of Perimeter Road and Hewes Street, and immediately east of the X-230M Clean Test Site Area (Figure 9).

During parcel reconnaissance, an area approximately 20 ft long by 5 ft wide and approximately 2 to 3 ft deep was identified on the west-central hillside of the “undefined land buildup”. A 1-in. polyvinyl chloride pipe was located inside of this area, suggesting this area might have been used for drainage (Figure 10).

Soil Unit C: This unit, located in the north and northeast side of the parcel, north of SU-B, is approximately 61 acres. A rail spur used during plant construction ran through the middle of the unit (Figure 11). The historical rail line runs north to southwest across SU-C and was removed prior to the 1960 aerial photograph. (See Section 4 to review the aerial photographs and for a discussion of these photographs.)

An area formerly used as an airstrip (now grass covered) was located east of the rail spur and runs north to south in SU-C (Figure 12). Elevated soil berms placed within the former airstrip in the 1980s are still visible within the parcel (Figure 13). A small area of jurisdictional wetlands are present in this SU, along with several ditches (Figure 14).

Signs indicating the presence of a natural gas pipeline are also present in SU-C. This natural gas pipeline runs east – west across the entire unit (Figure 15).

Soil Unit D: This unit, located in the south-central portion of the parcel, is approximately 20 acres in size. It contains an old parking lot and two degrading concrete slabs from the former X-744V storage yard and XT-800 building. The XT-800 foundation (approximately a half acre) and parking area (approximately 1 acre) are located on the south side of the Perimeter Road and Hewes Street intersection (Figure 16). The X-744V Surplus and Salvage Clean Storage Yard is a half-acre slab, located at the intersection of Perimeter Road and Hewes Street to the southwest of the XT-800 slab and parking lot.

A former helicopter pad was located at the corner of Perimeter Road and Hewes Street, and was approximately 70 ft by 70 ft. This pad was removed in the 1990s. Evidence of the pad is still visible (Figure 17).

Additionally, three concrete slabs or pads (VA-8) approximately 3 ft by 3 ft were located further south of the former XT-800 parking area (Figure 18).

Soil Unit E: This unit is approximately 17 acres and is located on the southernmost part of Parcel 1. Several small wooded areas are scattered in this unit (Figure 19).



Figure 9. Undefined Land Buildup Area



Figure 10. Depression and Pipe on West Side of the Undefined Land Buildup (VA-4)



Figure 11. Area of Former Rail Spur



Figure 12. Area of the Former Airstrip



Figure 13. Soil Berm Placed on the Former Airstrip



Figure 14. Wetland Area in Soil Unit-C



Figure 15. Sign Indicating the Presence of a Natural Gas Pipeline



Figure 16. XT-800 Foundation Area



Figure 17. Area of the Former Helicopter Pad



Figure 18. Concrete Slabs (VA-8) Identified During the Inspection of Parcel 1



Figure 19. Scattered Wooded Areas at the South End of Parcel 1

5.2 VISUAL AND PHYSICAL INSPECTIONS OF ADJACENT PROPERTY

The visual and physical inspections of the adjacent property occurred in December 2015. The property adjacent to Parcel 1 consists of a remainder of a portion of the former airstrip (to the north). The parcel is bordered to the south by Perimeter Road. Big Run Road intersects Perimeter Road near the southeast portion of Parcel 1. Further south of Perimeter Road is an undeveloped area with mowed grassland and forested areas. The parcel is bordered to the east by Perimeter Road and an undeveloped area with mowed grassland and forested areas. To the west are several industrial facilities, including paved parking lots, a closed solid waste landfill, a clean test site area, and an office building. Big Run Creek borders the southwest corner of the parcel. See Section 1.2 for additional information.

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6. RECORDS SEARCH OF ADJACENT FACILITIES

A review of reasonably obtainable federal, state, and local records regarding past and present information about the property adjacent to Parcel 1 was performed. The purpose of this review is to identify “reasonably obtainable Federal, State, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, and which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product to its derivatives, including aviation fuel and motor oil on the real property proposed for transfer.” (CERCLA 120(h)(4)(vi).

The property adjacent to the property proposed for transfer is also owned by DOE. A review of records identified the following possible contributions of contaminants to Parcel 1.

- The X-749A is a closed solid waste landfill located west of the parcel. Records show no release of contaminants from the landfill nor migration of contaminants from the landfill to Parcel 1 through surface water or groundwater pathways.
- A trichloroethene (TCE) groundwater plume is in the Gallia Member 300 ft west-northwest of Parcel 1. This TCE groundwater plume known as the 5-Unit Plume does not extend into this parcel and is currently being remediated by an active pump and treat system.
- Aerial release of radionuclides and chemicals did occur during historical plant process operations; however, no records of aerial deposition of contaminants to this parcel were found.

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7. INTERVIEWS

Interviews with current employees involved in, or familiar with, operations on the real property were also conducted to discuss past operations and potentially identify areas on and adjacent to the parcel where hazardous substances and petroleum products, or their derivatives, and acutely hazardous wastes may have been released or disposed. Personnel representing various disciplines and operations-related experiences were contacted between December 2015 and February 2016.

Fluor-BWXT Portsmouth LLC (FBP) – Environmental Engineer

During the visual and physical inspection of the parcel on December 15, 2015, an Environmental Engineer employed by FBP accompanied field personnel. This engineer provided information regarding the parcel's current and historical use.

Wastren EnergX Mission Support, LLC – Environmental Manager

A Wastren EnergX Mission Support, LLC Environmental Manager completed the interview questionnaire on January 6, 2016 and provided information regarding the current and historical use of Parcel 1. The completed interview questionnaire provided by the Wastren EnergX Mission Support, LLC Environmental Manager is included in Appendix C.

Restoration Services, Inc. – Employee 1

A Restoration Services, Inc. Employee 1 completed an interview questionnaire on December 29, 2015 and provided information regarding the current and historical use of Parcel 1 from 1973 through 1978 and from 1983 through present day. The Restoration Services, Inc. Employee 1 stated that the adjoining property (X-749A) was used as a landfill. The completed interview questionnaire provided by the Restoration Services, Inc. Employee 1 is included in Appendix C.

Restoration Services, Inc. – Employee 2

A Restoration Services, Inc. Employee 2 completed an interview questionnaire on February 2016 and provided information regarding the current and historical use of Parcel 1. The completed interview questionnaire provided by the Restoration Services, Inc. Employee 2 is included in Appendix C.

In summary, the interviewees were not aware of past operations that would have released or disposed hazardous substances and petroleum products, or their derivatives, or acutely hazardous wastes to Parcel 1. One interviewee, however, acknowledged the operation of the X-749A Landfill located adjacent to Parcel 1.

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8. SAMPLING

8.1 CHEMICAL DATA RESULTS

Soil and groundwater data were collected from locations associated with Parcel 1 as part of different environmental studies and investigations conducted at PORTS. The references, or sources for this sampling information, are in this section. Analytical data summary tables and data collection locations are also provided. The data reported in this section were determined to be of sufficient quality to characterize Parcel 1 by following the data quality objective (DQO) process presented in Appendix D.

8.1.1 Data Sources for Chemicals

The data are from the PORTS Oak Ridge Environmental Information System (PORTS OREIS) database and are provided electronically in Appendix E. A summary of analysis types performed for the soil and groundwater samples is provided in Table 2.

Table 2. Matrix of Analysis Types in Soil and Groundwater Samples

Analysis Type	Soil	Groundwater
Major anions	x	x
Dibenzofuran		x
Cation exchange capacity	x	
Herbicides		x
Metals	x	x
Polycyclic aromatic hydrocarbons	x	x
Polychlorinated biphenyl compounds	x	x
Radiological	x	x
Semivolatiles	x	x
Volatile compounds	x	x

8.1.1.1 Soil sample data sources for chemicals

Data are available from both laboratory and field analyses. Samples from the following three projects underwent laboratory analyses and the sampling locations are shown in Figure 20. These data are summarized in Table 3.

Quadrant I RFI Final Report (DOE 1996)

Soil samples were collected as part of the X-626-1 and X-626-2 Cooling Tower Unit investigation conducted as part of the Quadrant I RFI. Ten hand-auger soil samples (X626-HA01 through X626-HA10) were collected to evaluate the associated drift area downwind of the cooling towers. The samples were collected in 1991 and were submitted for laboratory analyses for metals and physical chemical parameters.

Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project (DOE 2014)

Four soil boring locations (WD-SB-02, WD-SB-03, WD-SB-05, and WD-PZ03) were sampled as part of a siting investigation as part of the site-wide waste disposition project. Samples were submitted for laboratory analyses for cation exchange capacity, metals, polycyclic aromatic hydrocarbons (PAHs), pesticides/PCBs, semivolatile organic analyses, volatile organic analyses, and wet chemistry.

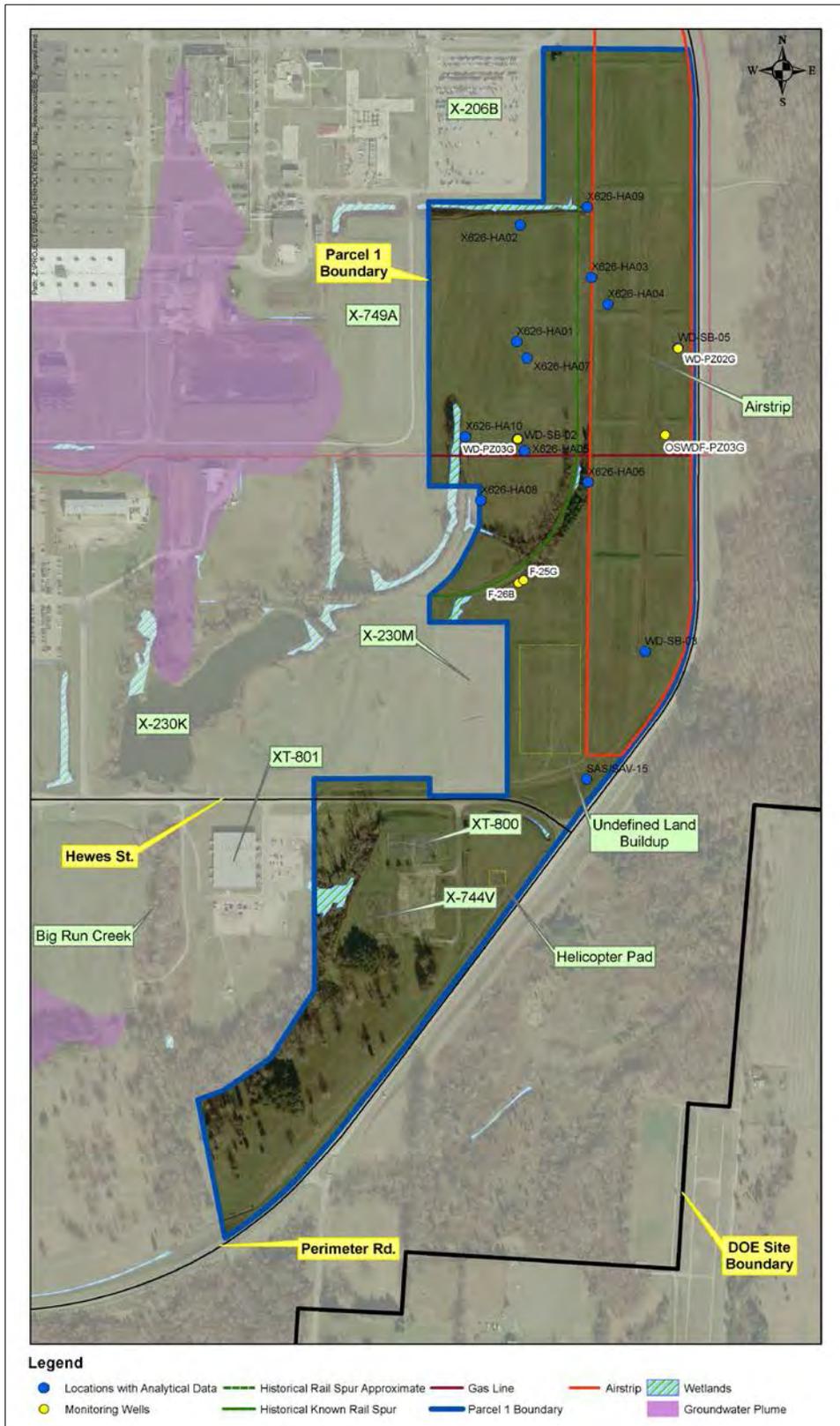


Figure 20. Parcel 1 Sample Locations with Laboratory Analyses

Table 3. Chemical Data from Laboratory Analyses for Parcel 1 Soil

Parameter	Detections	Minimum Detection	Maximum Detection	Units	BKG Value ¹	Number of Exceedances
Surface Soil (0 to 1 ft)						
Total Uranium	5/5	1.6	3.03	mg/kg	4.1	--
Subsurface Soil (1 to 16 ft)						
Acetone	6/15	0.0051	0.018	mg/kg	--	--
Benzenemethanol	2/10	0.026	0.032	mg/kg	--	--
Methylene chloride	3/15	0.00068	0.00094	mg/kg	--	--
Bis(2-ethylhexyl)phthalate	1/10	0.052	0.052	mg/kg	--	--
PCB-1260	1/10	0.025	0.025	mg/kg	--	--
Phenol	6/10	0.021	0.051	mg/kg	--	--
Polychlorinated biphenyl	1/10	0.025	0.025	mg/kg	--	--
Pyrene	1/10	0.012	0.012	mg/kg	--	--
Aluminum	15/15	7,800	19,000	mg/kg	20,717	--
Antimony	1/9	0.44	0.44	mg/kg	1.8	--
Arsenic	16/16	2.7	33	mg/kg	29	1
Barium	15/15	53	220	mg/kg	136	1
Beryllium	14/15	0.37	1.3	mg/kg	1.6	--
Cadmium	9/15	0.086	1.5	mg/kg	0.3	5
Calcium	12/15	200	38,000	mg/kg	--	--
Chromium	20/20	6.3	28	mg/kg	29	--
Cobalt	15/15	2.4	23	mg/kg	37	--
Copper	15/15	5.8	23	mg/kg	26	--
Fluoride	5/5	4.6	6.2	mg/kg	--	--
Iron	15/15	10,000	54,000	mg/kg	62,782	--
Lead	15/15	6.2	46	mg/kg	23	3
Magnesium	15/15	590	12,000	mg/kg	--	--
Manganese	15/15	40	1,500	mg/kg	1,491	1
Mercury	11/15	0.015	0.051	mg/kg	0.052	--
Molybdenum	7/10	0.52	5.8	mg/kg	--	--
Nickel	15/15	7.8	38	mg/kg	50	--
Potassium	5/5	530	1,800	mg/kg	2,935	--
Selenium	7/10	0.25	1.7	mg/kg	0.6	4
Silver	5/5	4.9	14	mg/kg	7	2
Sodium	10/10	58	310	mg/kg	--	--
Thallium	10/10	0.13	0.77	mg/kg	0.4	1
Total Uranium	13/13	0.46	3.01	mg/kg	4.7	--
Vanadium	15/15	23	54	mg/kg	58	--
Zinc	20/20	23	71	mg/kg	117	--
Cation Exchange Capacity	7/7	0.103	0.382	meq/g	--	--
Total Organic Carbon (TOC)	3/7	2.3	3.3	g/kg	--	--

Table 3. Chemical Data from Laboratory Analyses for Parcel 1 Soil (Continued)

Parameter	Detections	Minimum Detection	Maximum Detection	Units	BKG Value ¹	Number of Exceedances
Subsurface Soil (> 16 ft)						
2-Butanone	1/8	0.012	0.012	mg/kg	--	--
Acetone	5/8	0.005	0.062	mg/kg	--	--
Benzenemethanol	2/6	0.021	0.029	mg/kg	--	--
Carbon disulfide	1/8	0.0035	0.0035	mg/kg	--	--
Methylene chloride	1/8	0.001	0.001	mg/kg	--	--
Benzo(a)pyrene	2/6	0.049	0.27	mg/kg	--	--
Phenol	3/6	0.022	0.046	mg/kg	--	--
Aluminum	6/6	5,900	12,000	mg/kg	12,698	--
Arsenic	6/6	1.6	13	mg/kg	86	--
Barium	6/6	33	69	mg/kg	72	--
Beryllium	6/6	0.49	0.67	mg/kg	1.2	--
Cadmium	6/6	0.043	0.24	mg/kg	0.7	--
Calcium	6/6	300	2,400	mg/kg	--	--
Chromium	6/6	12	16	mg/kg	25	--
Cobalt	6/6	5	10	mg/kg	19	--
Copper	6/6	9.9	17	mg/kg	23	--
Iron	6/6	11,000	34,000	mg/kg	56,423	--
Lead	6/6	7.2	15	mg/kg	13	1
Magnesium	6/6	1,400	2,600	mg/kg	--	--
Manganese	6/6	91	410	mg/kg	465	--
Mercury	3/6	0.0072	0.039	mg/kg	0.041	--
Molybdenum	5/6	0.85	3.8	mg/kg	--	--
Nickel	6/6	12	23	mg/kg	53	--
Selenium	3/6	0.33	0.85	mg/kg	0.6	2
Sodium	6/6	73	170	mg/kg	--	--
Thallium	6/6	0.14	0.53	mg/kg	0.8	--
Total Uranium	6/6	0.48	1.7	mg/kg	7.2	--
Vanadium	6/6	22	34	mg/kg	65	--
Zinc	6/6	40	83	mg/kg	148	--
Cation Exchange Capacity	4/4	0.0507	0.148	meq/g	--	--
Total Organic Carbon (TOC)	2/4	4.2	5.2	g/kg	--	--

Note:

¹BKG Value = soil background value obtained from the Final Soil Background Report (DOE 2015d).

BKG = background

DOE = U.S. Department of Energy

PCB = polychlorinated biphenyl

SAS/SAV-15 (PORTS OREIS DATABASE 2015)

The sample location SAS/SAV-15 was sampled as part of USEC’s environmental monitoring program. Soil samples were submitted for laboratory analysis for total uranium.

Samples from the following project underwent field analyses and are shown in Figure 21. These data are summarized in Table 4.

Table 4. Summary of Parcel 1 XRF Measurements

Sample Location	Total Uranium Results (mg/kg)
AC108-1HPGE-001	< 10
AC108-1HPGE-021	10.4
AC108-1HPGE-026	17.1
AC108-1HPGE-026 (dup) ¹	16.1
AC108-1HPGE-026 (dup) ¹	16.8
AC108-1HPGE-031	11.6
AC108-1HPGE-032	11.7
AC108-1HPGE-036	< 10
AC108-1HPGE-037	< 10
AC108-1HPGE-055	< 10
AC108-1HPGE-058	< 10

Note: All of the XRF sample results with positive detections were greater than the PORTS surface soil background value for total uranium of 4.1 mg/kg. This background value, however, was developed from alpha spectroscopy for uranium isotopes. A background developed from XRF samples will vary.

¹Duplicate measurements for location AC108-1HPGE-026 were taken on two separate days.

dup = duplicate
 PORTS = Portsmouth Gaseous Diffusion Plant
 XRF = X-ray fluorescence

108-Acre Sampling and Analysis Plan Summary Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio (FBP 2016)

Soil samples were collected as part of a field effort in 2015. Ten soil samples were collected from nine locations within Parcel 1. The samples were submitted for total uranium using X-ray fluorescence (XRF) and PAH compounds using test kits. These samples were also sent to a fixed-base laboratory for total uranium and PAH analyses.

8.1.1.2 Groundwater sample data sources for chemicals

Data are available from laboratory analyses. Samples from the following two projects underwent laboratory analyses and sampling locations are shown in Figure 20. These data are summarized in Table 5.

Groundwater Quality Assessment of Four RCRA Units (DOE 1989)

Two wells applicable to Parcel 1, F-25G and F-26B, were installed as part of a groundwater framework study to better understand groundwater flow and contamination migration associated with the X-701B Water Treatment Facility, the X-749 Contaminated Materials Disposal Facility, the X-231B Oil Biodegradation Plots, and the X-616 Chromium Sludge Surface Impoundments. Samples were collected from 1988 to 2007 and analyzed for all of the analysis types indicated for groundwater samples in Table 2.

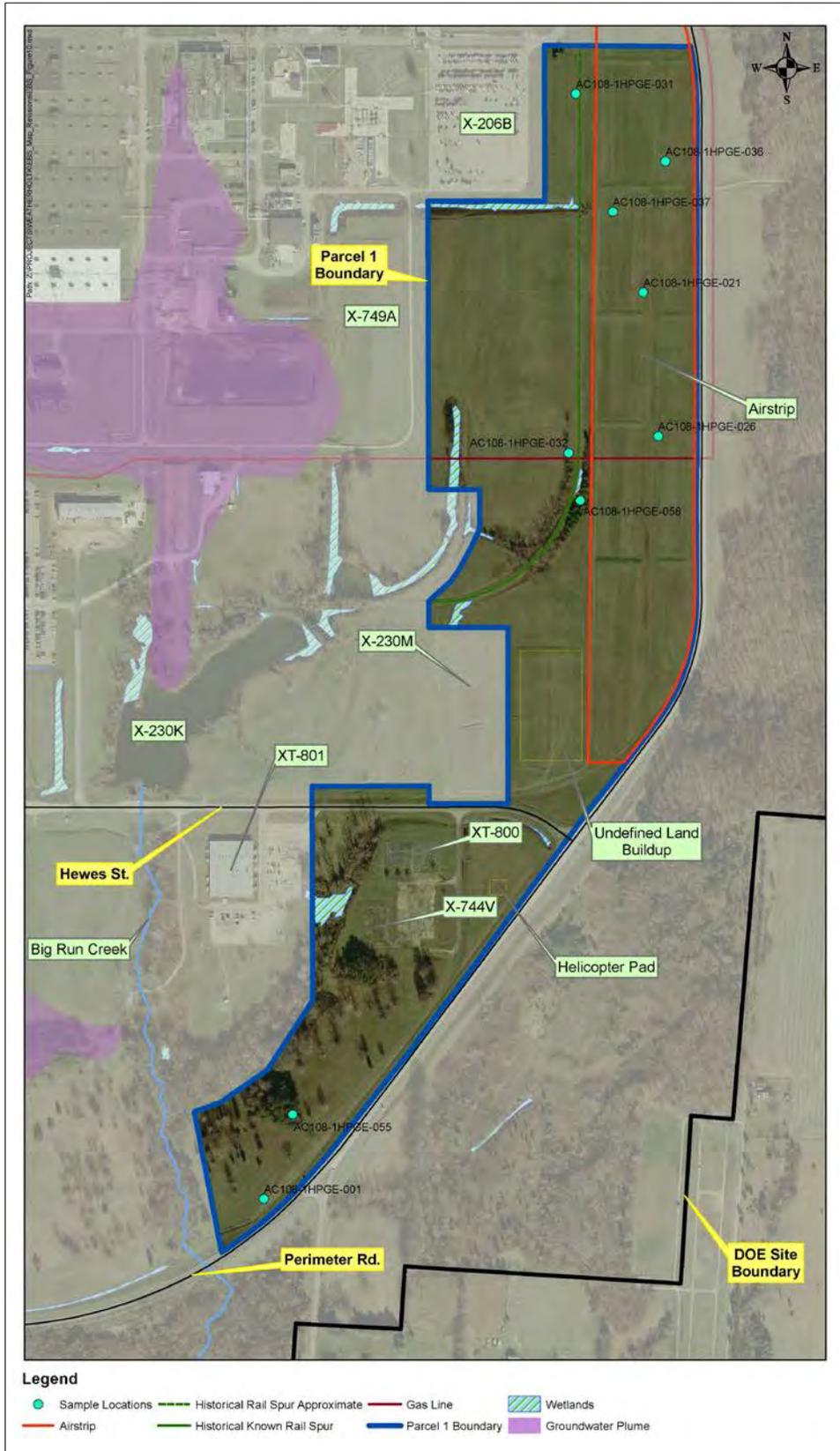


Figure 21. Parcel 1 2015 Soil Sampling Locations with Field and Laboratory Analyses

Table 5. Chemical Data Summary for Parcel 1 Groundwater

Task Description ¹	Parameter	Detections	Minimum Detection	Maximum Detection	Units	MCL	Number of Exceedances
Framework	Chloride	44/44	13,400	140,000	µg/L	--	--
Framework	Fluoride	1/3	430	430	µg/L	--	--
Framework	Sulfate	56/56	13,000	448,700	µg/L	--	--
Framework	Arsenic	3/3	33	66	µg/L	1.00E+01	3
Framework	Barium	85/85	14.7	839	µg/L	2.00E+03	--
Framework	Cadmium	19/60	1.9	31.2	µg/L	5.00E+00	11
Framework	Calcium	44/44	11,000	81,000	µg/L	--	--
Framework	Chromium	30/71	2.8	103	µg/L	1.00E+02	1
Framework	Cobalt	1/3	36	36	µg/L	--	--
Framework	Copper	1/3	72	72	µg/L	1.30E+03	--
Framework	Iron	73/74	9.8	213,000	µg/L	--	--
Framework	Lead	24/61	6	112	µg/L	1.50E+01	22
Framework	Magnesium	44/44	2,600	47,000	µg/L	--	--
Framework	Manganese	29/30	3.7	2,070	µg/L	--	--
Framework	Nickel	16/42	8.5	402	µg/L	--	--
Framework	Potassium	44/44	2,100	7,670	µg/L	--	--
Framework	Silver	3/3	15	22	µg/L	--	--
Framework	Sodium	44/44	28,000	90,400	µg/L	--	--
Framework	Uranium	24/64	0.3037	35.6	µg/L	3.00E+01	2
Framework	Vanadium	3/3	11	130	µg/L	--	--
Framework	Zinc	3/4	52	270	µg/L	--	--
Framework	2-Methylnaphthalene	1/3	1.2	1.2	µg/L	2.00E-01	1
Framework	Conductivity	2/2	251	849	µS/cm	--	--
Framework	Dissolved Oxygen	2/2	1,250	1,600	µg/L	--	--
Framework	Bis(2-ethylhexyl)phthalate	2/3	1.6	4.9	µg/L	6.00E+00	--
Framework	1,1,1-Trichloroethane	6/103	1	2	µg/L	2.00E+02	--
Framework	1,1,2,2-Tetrachloroethane	2/68	2	2	µg/L	--	--
Framework	1,1,2-Trichloro-1,2,2-trifluoroethane	7/84	1	5	µg/L	--	--
Framework	1,1,2-Trichloroethane	6/103	1	2	µg/L	5.00E+00	--
Framework	1,1-Dichloroethane	6/103	1	2	µg/L	--	--

Table 5. Chemical Data Summary for Parcel 1 Groundwater (Continued)

Task Description¹	Parameter	Detections	Minimum Detection	Maximum Detection	Units	MCL	Number of Exceedances
Framework	1,1-Dichloroethene	6/103	1	2	µg/L	7.00E+00	--
Framework	1,2-Dichloro-1,1,2,2-tetrafluoroethane	2/44	4	4	µg/L	--	--
Framework	1,2-Dichloroethane	6/103	1	2	µg/L	5.00E+00	--
Framework	1,2-Dichloroethene	2/39	2	2	µg/L	--	--
Framework	2-Butanone	2/63	100	100	µg/L	--	--
Framework	4-Bromofluorobenzene	2/2	49.4	53.9	µg/L	--	--
Framework	4-Methyl-2-pentanone	2/66	100	100	µg/L	--	--
Framework	Acetone	3/66	3.1	100	µg/L	--	--
Framework	Benzene	2/68	2	2	µg/L	5.00E+00	--
Framework	Bromodichloromethane	6/103	1	2	µg/L	--	--
Framework	Bromoform	7/103	1	2	µg/L	--	--
Framework	Bromomethane	2/68	4	4	µg/L	--	--
Framework	Carbon disulfide	12/66	2	30	µg/L	--	--
Framework	Carbon tetrachloride	6/103	1	2	µg/L	5.00E+00	--
Framework	Chlorobenzene	2/68	2	2	µg/L	1.00E+02	--
Framework	Chloroethane	2/68	4	4	µg/L	--	--
Framework	Chloroform	9/103	1	3	µg/L	--	--
Framework	Chloromethane	2/68	4	4	µg/L	--	--
Framework	cis-1,2-Dichloroethene	4/64	1	1	µg/L	7.00E+01	--
Framework	Dibromochloromethane	6/103	1	2	µg/L	--	--
Framework	Dibromofluoromethane	2/2	52.5	55.8	µg/L	--	--
Framework	Dichlorobenzenes	2/36	2	2	µg/L	--	--
Framework	Ethylbenzene	2/68	2	2	µg/L	7.00E+02	--
Framework	Methylene chloride	14/103	0.25	4	µg/L	5.00E+00	--
Framework	Tetrachloroethene	6/103	1	2	µg/L	5.00E+00	--
Framework	Toluene	3/68	2	2	µg/L	1.00E+03	--
Framework	Toluene-d8	2/2	49.8	50.8	µg/L	--	--
Framework	Total Xylene	3/43	2	2	µg/L	1.00E+04	--
Framework	trans-1,2-Dichloroethene	4/64	1	1	µg/L	1.00E+02	--
Framework	Trichloroethene	19/103	1	15	µg/L	5.00E+00	6

Table 5. Chemical Data Summary for Parcel 1 Groundwater (Continued)

Task Description¹	Parameter	Detections	Minimum Detection	Maximum Detection	Units	MCL	Number of Exceedances
Framework	Trichlorofluoromethane	6/101	1	4	µg/L	--	--
Framework	Vinyl chloride	6/106	1	4	µg/L	2.00E+00	2
Framework	Alkalinity	44/44	54,000	180,000	µg/L	--	--
Framework	Sulfate	5/5	21,400	387,800	µg/L	--	--
Waste Disposition	Chloride	30/30	5,200	30,000	µg/L	--	--
Waste Disposition	Fluoride	9/30	66	140	µg/L	--	--
Waste Disposition	Nitrate	3/30	43	56	µg/L	--	--
Waste Disposition	Sulfate	30/30	420,000	900,000	µg/L	--	--
Waste Disposition	Aluminum	27/56	19	8,800	µg/L	--	--
Waste Disposition	Antimony	3/56	0.43	0.57	µg/L	6.00E+00	--
Waste Disposition	Arsenic	56/56	3.2	32	µg/L	1.00E+01	36
Waste Disposition	Barium	56/56	21	97	µg/L	2.00E+03	--
Waste Disposition	Beryllium	4/56	0.083	0.74	µg/L	4.00E+00	--
Waste Disposition	Cadmium	9/56	0.042	0.65	µg/L	5.00E+00	--
Waste Disposition	Calcium	58/58	85,000	220,000	µg/L	--	--
Waste Disposition	Chromium	22/56	0.64	22	µg/L	1.00E+02	--
Waste Disposition	Cobalt	23/56	0.061	14	µg/L	--	--
Waste Disposition	Copper	23/56	0.78	26	µg/L	1.30E+03	--
Waste Disposition	Iron	56/56	21,000	57,000	µg/L	--	--
Waste Disposition	Lead	24/56	0.18	17	µg/L	1.50E+01	1
Waste Disposition	Lithium	20/20	15	38	µg/L	--	--
Waste Disposition	Magnesium	58/58	52,000	130,000	µg/L	--	--
Waste Disposition	Manganese	56/56	570	1,000	µg/L	--	--
Waste Disposition	Molybdenum	36/36	1.1	16	µg/L	--	--
Waste Disposition	Nickel	23/56	0.38	37	µg/L	--	--
Waste Disposition	Potassium	58/58	1,800	6,800	µg/L	--	--
Waste Disposition	Selenium	3/56	0.7	1.3	µg/L	5.00E+01	--
Waste Disposition	Silver	11/56	0.045	2.1	µg/L	--	--
Waste Disposition	Sodium	58/58	36,000	59,000	µg/L	--	--
Waste Disposition	Strontium	20/20	350	1,800	µg/L	--	--
Waste Disposition	Thallium	16/56	0.038	0.69	µg/L	2.00E+00	--

Table 5. Chemical Data Summary for Parcel 1 Groundwater (Continued)

Task Description¹	Parameter	Detections	Minimum Detection	Maximum Detection	Units	MCL	Number of Exceedances
Waste Disposition	Titanium	8/20	0.62	190	µg/L	--	--
Waste Disposition	Uranium	34/56	0.02	2.3	µg/L	3.00E+01	--
Waste Disposition	Vanadium	25/56	0.73	43	µg/L	--	--
Waste Disposition	Zinc	22/56	2	110	µg/L	--	--
Waste Disposition	Benzoic acid	2/28	19	23	µg/L	--	--
Waste Disposition	Bis(2-ethylhexyl)phthalate	7/28	0.98	2.9	µg/L	6.00E+00	--
Waste Disposition	Di-n-butyl phthalate	1/28	3.66	3.66	µg/L	--	--
Waste Disposition	Acetone	1/28	5.8	5.8	µg/L	--	--
Waste Disposition	Methylene chloride	10/28	0.32	0.89	µg/L	5.00E+00	--
Waste Disposition	Alkalinity	28/28	110,000	290,000	µg/L	--	--
Waste Disposition	Alkalinity as CO ₃	1/30	17,000	17,000	µg/L	--	--
Waste Disposition	Alkalinity as HCO ₃	29/30	110,000	300,000	µg/L	--	--
Waste Disposition	Ammonia	5/5	84	760	µg/L	--	--
Waste Disposition	Ammonium Nitrogen	19/28	120	690	µg/L	--	--
Waste Disposition	Chromium, hexavalent	13/23	4.1	17	µg/L	--	--
Waste Disposition	Cyanide	7/10	2.5	7.2	µg/L	2.00E+02	--

Note:

¹Framework = samples related to the *Groundwater Quality Assessment of Four RCRA Units* (DOE 1989); Waste Disposition = samples related to the *Remedial Investigation and Feasibility Study for the Site-wide Waste Disposition Evaluation Project* (DOE 2014).

DOE = U.S. Department of Energy
MCL = maximum contaminant level

Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project

Two piezometers (WD-PZ02G and WD-PZ03G) were sampled in 2013 as part of a siting investigation for the site-wide waste disposition project. Samples were analyzed for all of the analysis types indicated for groundwater samples in Table 2. Another piezometer (OSWDF-PZ03G) also exists within Parcel 1, but this piezometer has only been used for water level measurements.

8.1.2 Analytical Results for Chemicals

Results for chemicals found in soil and groundwater are presented separately in the following subsections. In addition, laboratory data are presented separately from field data.

8.1.2.1 Analytical results for chemical data in soil

A summary of the soil detections, including comparisons to background values, is in Table 3.

8.1.2.2 Analytical results for chemical data in groundwater

A summary of the groundwater detections, including comparisons to maximum contaminant levels (MCLs) is in Table 5.

8.1.3 Evaluation of Chemical Results

For the soil sample results from laboratory analysis shown in Table 3, there were 21 detections of eight constituents (arsenic, barium, cadmium, lead, manganese, selenium, silver, and thallium) that exceed the associated PORTS site background values. The constituents that most frequently exceeded background were cadmium, lead, selenium, and silver. The ranges of detected values of the eight constituents that exceed background values were compared to metal and radionuclide concentrations reported for similar Ohio soils, as presented in the *Final Soil Background Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2015d). For the eight parameters that exceed the background values, a summary of the data ranges and associated Ohio soil ranges are presented in Table 6. Only silver has detected values greater than its Ohio soil range.

Table 6. Parameters Exceeded Comparison to Ohio Soils Range

Parameter	Horizon (ft)	Historical Data Range (mg/kg)	Range in Ohio Soils (mg/kg)
Arsenic	1 - 16	2.7 - 33	5.72 - 56
Barium	1 - 16	53 - 220	63.4 - 323
Cadmium	1 - 16	0.57 - 1.5	0.2 - 4.4
Lead	1 - 6 and > 16	6.2 - 46	13.35 - 147
Manganese	1 - 16	40 - 1,500	459 - 2012
Selenium	1 - 16 and > 16	0.25 - 1.7	0.61 - 3.0
Silver	1 - 16	4.9 - 14	2.2 - 2.6
Thallium	1 - 16	0.13 - 0.77	0.43 - 2.5

Source: Final Soil Background Report (DOE 2015d)

DOE = U.S. Department of Energy

For the soil sample results for field analysis as shown in Table 4, all of the XRF sample results for total uranium were greater than the PORTS surface soil background value for total uranium of 4.1 mg/kg. This background value, however, was developed from alpha spectroscopy for uranium isotopes. Therefore, a comparison between these XRF sample results and the background value is uncertain

and should only be used qualitatively. All of the PAH test kit sample results from Parcel 1 were nondetect (the minimum detection level for total PAH was 5 mg/kg). Because all of these results were nondetect, they are not shown in the table.

For the groundwater sample results from laboratory analysis shown in Table 5, there were 85 detections of eight constituents (arsenic, cadmium, chromium, lead, trichloroethene, uranium, vinyl chloride, and 2-methylnaphthalene) that exceed their associated MCL. Arsenic, lead, and cadmium were the metals that exceeded their MCLs most frequently. Volatile organic compounds TCE and vinyl chloride were detected but infrequently exceeded MCLs.

Results for metals that exceed their MCL were also compared to groundwater background values contained from the *Quadrant I Cleanup Alternatives Study/Corrective Measures Study Final Report for Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2000) (Table 7). Arsenic did not exceed the background value for the Gallia sand and gravel aquifer and only exceeded the Berea background value in one sample. Cadmium and lead exceeded both the Gallia and Berea background values.

Table 7. Groundwater Background for Arsenic, Lead, and Cadmium

Chemical	Gallia Background (µg/L)	Berea Background (µg/L)
Arsenic	92	12
Lead	16	10
Cadmium	6.5	7

Source: Quadrant I Cleanup Alternatives Study/Corrective Measures Study Final Report (DOE 2000)

DOE = U.S. Department of Energy

Although some trichloroethene and vinyl chloride results did exceed their MCLs, the most recent sampling of the three Gallia wells did not have any TCE or vinyl chloride detections, and the detection in the Berea well of TCE was at the MCL. No vinyl chloride was detected during the most recent sampling event.

8.2 RADIOLOGICAL SURVEY AND DATA RESULTS

Soil and groundwater data were collected from locations associated with Parcel 1 as part of different environmental studies and investigations conducted at PORTS. The references, or sources for this sampling information, including radiological surveys are in this section. Analytical data summary tables and data collection locations are also provided. The data reported in this section were determined to be of sufficient quality to characterize Parcel 1 by following the DQO process presented in Appendix D.

8.2.1 Data Sources for Radionuclides

The data are from the PORTS OREIS database and are provided electronically in Appendix E.

8.2.1.1 Soil sample data sources for radionuclides and survey results

Data are available from both laboratory analyses and surveys. Sample locations from the first three projects yielding laboratory analyses are shown in Figure 20. These data are also summarized in Table 8. Sample locations from the fourth project are shown in Figure 21 and results are presented in Table 9.

Table 8. Radiological Data from Laboratory Analysis for Parcel 1 Soil

Parameter	Detections	Minimum Detection	Maximum Detection	Units	BKG Value ¹	Number of Exceedances
Surface Soil (0 to 1 ft)						
Alpha activity	1/2	6.38	6.38	pCi/g	--	--
Beta activity	1/2	7.09	7.09	pCi/g	--	--
Total Uranium	5/5	1.6	3.03	mg/kg	4.1	--
Uranium-233/234	3/3	0.729	0.814	pCi/g	1.3	--
Uranium-235	3/3	0.0331	0.0459	pCi/g	0.1	--
Uranium-238	3/3	0.728	0.818	pCi/g	1.4	--
Subsurface Soil (1 to 16 ft)						
Alpha activity	12/14	2.67	13	pCi/g	--	--
Beta activity	6/9	1.96	11.1	pCi/g	--	--
Plutonium-239/240	2/10	0.0335	0.045	pCi/g	--	--
Technetium-99	1/5	0.2	0.2	pCi/g	--	--
Thorium-228	9/9	0.898	1.45	pCi/g	1.9	--
Thorium-230	9/9	0.626	1.53	pCi/g	1.7	--
Thorium-232	9/9	0.855	1.27	pCi/g	1.9	--
Total Uranium	18/18	0.46	3.4	mg/kg	4.7	--
Uranium-233/234	15/15	0.572	1.22	pCi/g	1.6	--
Uranium-235	14/16	0.0316	0.0564	pCi/g	0.12	--
Uranium-238	15/15	0.546	1.38	pCi/g	1.6	--
Subsurface Soil (> 16 ft)						
Alpha activity	6/6	3.66	9.94	pCi/g	--	--
Beta activity	2/6	7.22	12.6	pCi/g	--	--
Thorium-228	6/6	0.889	1.44	pCi/g	1.6	--
Thorium-230	6/6	0.701	1.54	pCi/g	2.4	--
Thorium-232	6/6	0.831	1.24	pCi/g	1.6	--
Total Uranium	6/6	0.48	1.7	mg/kg	7.2	--
Uranium-233/234	6/6	0.723	1.37	pCi/g	2.4	--
Uranium-235	6/6	0.054	0.0782	pCi/g	0.17	--
Uranium-238	6/6	0.765	1.37	pCi/g	2.4	--

Note:

¹BKG Value = soil background value obtained from the Final Soil Background Report (DOE 2015d).

BKG = background

DOE = U.S. Department of Energy

Table 9. Radiological Analyses Results in Soil Verification Samples

Parameter	Detection Frequency	Minimum Detection	Maximum Detection	Units	BKG Value ¹	Number of Exceedances
Total Uranium	10/10	3.29	12.9	mg/kg	4.1	8
Uranium-233/234	10/10	1.08	74	pCi/g	1.3	9
Uranium-235/236	5/10	0.106	3.06	pCi/g	0.1	5
Uranium-238	10/10	1.1	3.91	pCi/g	1.4	7
Technetium-99	0/10	--	--	pCi/g	--	--

Note:

¹BKG Value = soil background value obtained from the Final Soil Background Report (DOE 2015d).

BKG = background

DOE = U.S. Department of Energy

Quadrant I RFI Final Report

Soil samples were collected as part of the X-626-1 and X-626-2 Cooling Tower Unit investigation that was conducted as part of the Quadrant I RFI. Ten hand-auger soil samples (X626-HA01 through X626-HA10) were collected to evaluate the associated drift area downwind of the cooling towers. The samples were collected in 1991, and five of the samples were analyzed for alpha activity, beta activity, and technetium-99.

Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project

Four soil boring locations (WD-SB-02, WD-SB-03, WD-SB-05, and WD-PZ03) were sampled as part of this investigation as part of the site-wide waste disposition project. Samples were submitted for laboratory analyses for alpha activity, beta activity, technetium-99, thorium isotopes, uranium isotopes, and plutonium-239/240.

SAS/SAV-15

The sample location SAS/SAV-15 was sampled as part of USEC's environmental monitoring program. Soil samples were submitted for laboratory analysis for alpha activity, beta activity, and technetium-99.

108-Acre Sampling and Analysis Plan Summary Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio

Soil samples were collected as part of a field effort in 2015. Ten soil samples were collected from nine locations within Parcel 1 for verification of XRF analyses. The samples were submitted for laboratory analysis for uranium isotopes and technetium-99.

Survey results were available from the following reports:

Aerial Radiological Surveys

Five aerial radiological surveys performed at PORTS are available. The airborne radiological surveys were performed in 1976, 1984, 1990, 1993, and 2007. These surveys encompassed the production area and the surrounding areas of the PORTS reservation.

The areas with the greatest activity at PORTS are cylinder storage yards and process buildings located several hundred feet from Parcel 1. No measurable activity was detected in Parcel 1.

Radiological Field Trailer Survey

The XT-800 pad, parking lot, and Hewes Street, an access road, were selected for survey using the field trailer system. The areas scanned showed no contamination above background levels.

Radiological Surveys of Areas and Material and Equipment (M&E) Stored in the Areas

Two areas identified in Parcel 1 were identified as having potentially contaminated M&E present. The radiological survey database was searched for areas and the M&E contained therein. These radiological surveys were evaluated for supporting information on the categorization of the areas.

A radiological survey of the XT-800 parking lot was performed to evaluate the materials and equipment (e.g., trailers, man and forklifts, and legacy rail refurbishment scrap). The survey found no alpha or beta-gamma contamination present above DOE release limits for surface contamination.

A release survey of the X-744V pad surface was performed in preparation of down posting the area. As discussed previously, the area was down posted based on radiological monitoring performed for

removable, total, and area dose rate measurements of the pad surface. In addition, a release survey was performed on the fencing around the pad and found no contamination present above DOE release limits for surface contamination.

108-Acre Sampling and Analysis Plan Summary Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio

A radiological survey was performed early October through December 2015. Parallel-patterned traverses of the survey area were performed, following transect paths with a goal to achieve 20 percent coverage of the area. The gamma survey methods used a sodium iodide (NaI) detector and an in-situ high-purity germanium (HPGe) detector. There were no areas where the NaI detector found definitive radiological contamination (Figure 22). Three HPGe measurements, at two locations, exceeded the associated Parcel 1 detection limit value for uranium-238 of 3 pCi/g. The results from these three HPGe measurements are summarized in Table 10 and the sample locations are shown in Figure 23.

Table 10. Uranium-238 HPGe Soil Samples Exceeding Detection Limit

Sample Date and Time	NAD83 State Plane Ohio S. Easting (ft)	NAD83 State Plane Ohio S. Northing (ft)	Location ID	U-238 Results (pCi/g)
11/13/2015 8:38	1,828,867	366,407.3	HPGe 26	3.38E+00
11/14/2015 8:55	1,828,867	366,407.3	HPGe 26 (replicate)	4.34E+00
11/16/2015 9:21	1,828,803	367,024.1	HPGe 21	5.79E+00

ID = identification

8.2.1.2 Groundwater sample data sources for radionuclides

Data are available from laboratory analyses. Samples from the following two projects underwent laboratory analyses and sampling locations are shown in Figure 20. These data are summarized in Table 11.

Groundwater Quality Assessment of Four RCRA Units

Two wells applicable to Parcel 1, F-25G and F-26B, were installed as part of a groundwater framework study to better understand groundwater flow and contamination migration associated with the X-701B Water Treatment Facility, the X-749 Contaminated Materials Disposal Facility, the X-231B Oil Biodegradation Plots, and the X-616 Chromium Sludge Surface Impoundments. Samples were collected from 1988 to 2007 and analyzed for all of the analysis types indicated for groundwater samples in Table 2.

Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project

Two piezometers (WD-PZ02G and WD-PZ03G) were sampled in 2013 as part of a siting investigation for the site-wide waste disposition project. Samples were analyzed for all of the analysis types indicated for groundwater samples in Table 2. Another piezometer (OSWDF-PZ03G) also exists within Parcel 1, but this piezometer has only been used for water level measurements.

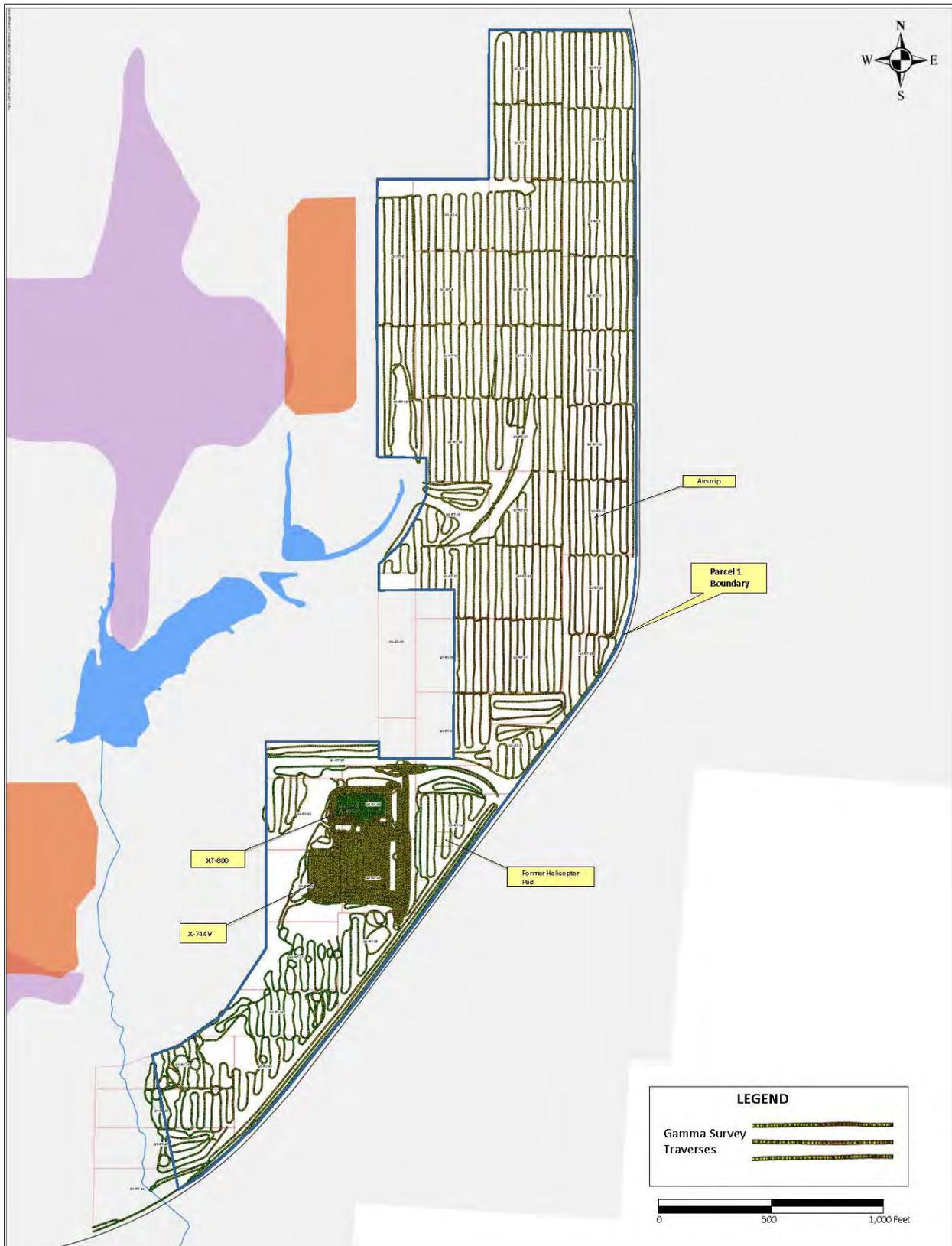


Figure 22. Parcel 1 Gamma Survey Traverses

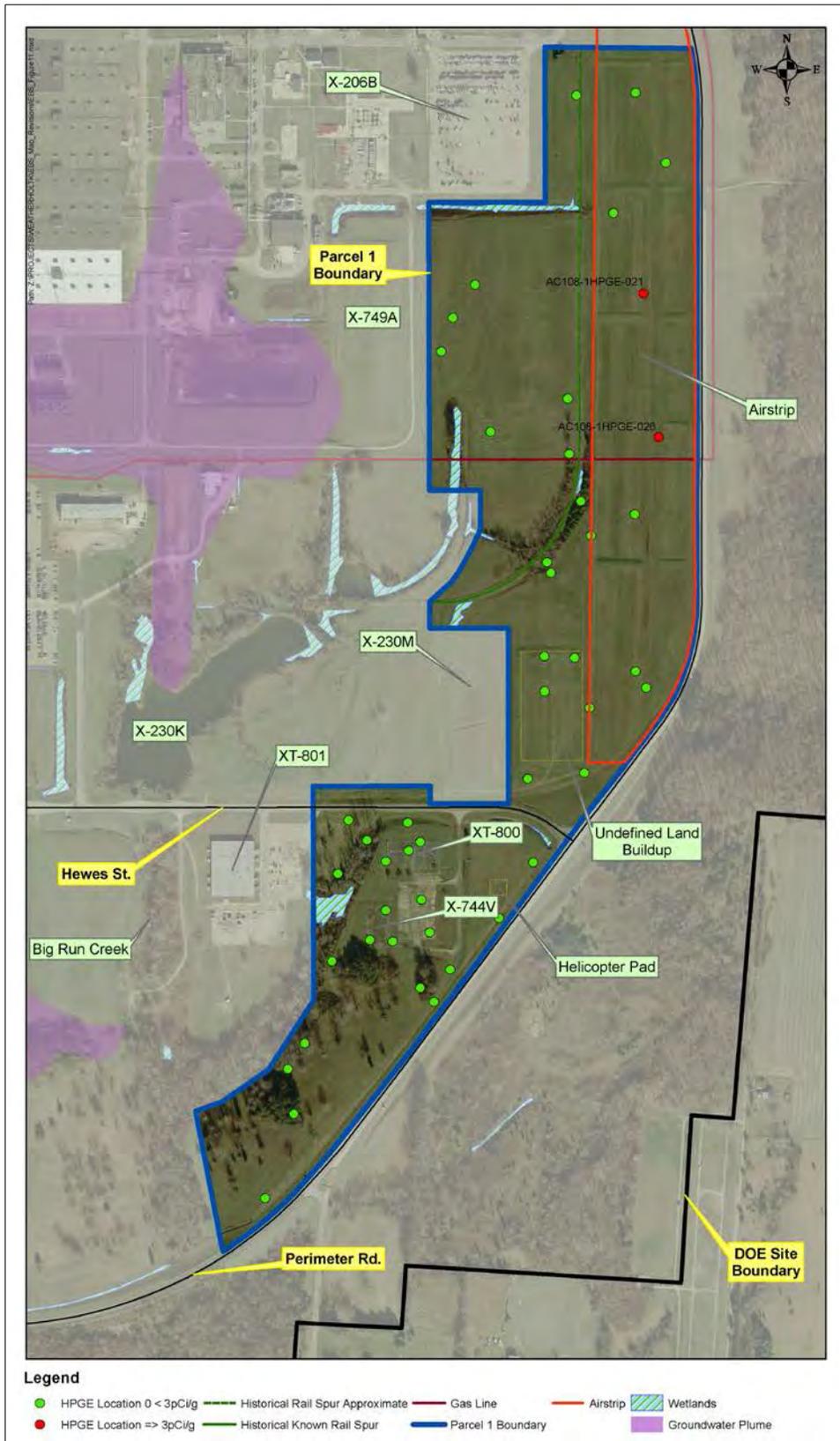


Figure 23. High-purity Germanium Measurement Locations

Table 11. Radiological Data Summary for Parcel 1 Groundwater

Task Description	Parameter	Detections	Minimum Detection	Maximum Detection	Units	MCL	Number of Exceedances
Waste Disposition	Plutonium-239/240	1/28	0.0619	0.0619	pCi/L	--	--
Framework	Technetium-99	14/67	1	23	pCi/L	900	--
Waste Disposition	Technetium-99	1/23	1.82	1.82	pCi/L	900	--
Waste Disposition	Thorium-228	2/10	0.0334	0.321	pCi/L	--	--
Waste Disposition	Thorium-230	3/10	0.0658	0.24	pCi/L	--	--
Waste Disposition	Thorium-232	1/10	0.0868	0.0868	pCi/L	--	--
Framework	Uranium-233/234	4/16	0.1195	0.51	pCi/L	10.2 ¹	--
Waste Disposition	Uranium-233/234	12/28	0.0562	0.8	pCi/L	10.2 ¹	--
Framework	Uranium-238	2/16	0.097	0.1038	pCi/L	9.99 ¹	--
Waste Disposition	Uranium-238	11/28	0.0606	0.806	pCi/L	9.99 ¹	--

¹The uranium MCL is calculated by converting the public drinking water standard of 0.03 mg/L for uranium (chemical toxicity) to 20 pCi/L for total uranium. Isotopic uranium values derived from this standard are 10.24 pCi/L for uranium-234 and 9.99 pCi/L for uranium-238.

MCL = maximum contaminant level

8.2.2 Analytical Results for Radiological Data

Results for radionuclides found in soil and groundwater are presented separately in the following subsections. In addition, laboratory data are presented separately from field data.

8.2.2.1 Analytical results for radiological data in soil

A summary of the soil detections, including comparisons to background values, is in Table 8.

8.2.2.2 Analytical results for radiological data in groundwater

A summary of the groundwater detections, including comparisons to MCLs, is in Table 11.

8.2.3 Evaluation of Radiological Data

The sample results from laboratory analysis (Table 8) from the Quadrant I RFI Final Report, the Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project, and the SAS/SAV-15 show that no radiological soil data results exceeded background.

The sample results from laboratory analysis collected as part of the Parcel 1 sampling conducted in 2015 (Table 12) show that there were no technetium-99 detections; however, detections of the uranium isotopes exceeded background. One location (AC108-1HPGE-026: Table 12) showed uranium-235 enrichment approximately 10 percent to 12 percent by weight (natural uranium-235 is approximately 0.7 percent by weight). Although the sample showed enrichment, the total uranium (12.9 mg/kg) is only three times the background concentration (4.1 mg/kg).

No detections in groundwater of radionuclides exceeded their MCL.

Table 12. Laboratory Data from Location AC108-1HPGE-026

Location	Constituent	Units	Result	Rad Error	Detection Limit	Total Propagated Uncertainty
AC108-1HPGE-026	Total Uranium	mg/kg	12		0.1	2.52
AC108-1HPGE-026	Uranium-233/234	pCi/g	74	2.68	0.217	12.6
AC108-1HPGE-026	Uranium-235/236	pCi/g	3.06	0.545	0.0658	0.747
AC108-1HPGE-026	Uranium-238	pCi/g	3.56	0.592	0.201	0.839
AC108-1HPGE-026 (dup)	Total Uranium	mg/kg	12.9		0.1	2.13
AC108-1HPGE-026 (dup)	Uranium-233/234	pCi/g	71.8	1.27	0.054	12
AC108-1HPGE-026 (dup)	Uranium-235/236	pCi/g	2.75	0.25	0.0311	0.52
AC108-1HPGE-026 (dup)	Uranium-238	pCi/g	3.91	0.297	0.0311	0.713

dup = field duplicate sample

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9. SCREENING RISK EVALUATION

The goal of this screening risk evaluation is to determine if the parcel proposed for transfer is protective of human health and the environment for its intended use. Specifically, the objectives of this evaluation are:

- 1) To determine exposure to constituents based on available data for the soils and groundwater.
- 2) To use these data to provide an estimate of the potential for adverse effects to human health.

The risk calculations utilized in this evaluation are taken from *Methods for Conducting Human Health Risk Assessment and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant* (Risk Methods Document [PORTS RMD]) (DOE 2015e). This site document was developed based upon EPA's Risk Assessment Guidance Document for Superfund (EPA 1989). The following sections describe the process used to provide a quantitative analysis of the risks to human health from exposure to media within Parcel 1. The full risk screen along with data discussion can be found in Appendix F. A brief overview of the evaluation method and presentation of the risk screening results are presented here.

9.1 RISK EVALUATION METHODOLOGY

The risk evaluation methodology uses a step-wise process in order to determine if the property under consideration is suitable (from a health perspective) for transfer. As detailed below, the site data are screened against the industrial screening levels developed in the PORTS RMD⁵.

The risk evaluation method to support the title transfer of Parcel 1 includes analysis of both soil (surface and subsurface) and groundwater. This evaluation assumes an industrial land use. Future potential workers who occupy the parcel may be exposed to possible contamination via the soil while working at the site. Because there is the potential for future construction of a building at the site, an analysis of both soil and groundwater water data was conducted to determine if concentrations of vapors emitted through volatile chemicals would cause adverse health effects (there are no groundwater contaminant plumes within Parcel 1; the nearest groundwater contaminant plume is greater than 300 ft from the parcel boundary).

As indicated above, the evaluation of the potential risks and hazards is based on comparing soil and groundwater sample results to industrial screening levels. The screening levels were developed based on an industrial exposure scenario set at an excess lifetime cancer risk (ELCR) of 10^{-5} and a hazard quotient (HQ) of 1.0. These levels were selected during the DQO process to be protective concentrations and meet the definition under CERCLA 120(h)(4) that the environmental condition of concentrations of contaminants below these levels would not pose a threat to human health. These screening levels are also consistent with Ohio EPA guidance (*Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for the DERR Remedial Response Program* [Ohio EPA 2009]), which states that a human health cumulative ELCR of 1×10^{-5} and a hazard index of 1.0 should be applied as a goal during site evaluations. If there are constituents with concentrations in excess of the screening levels, further evaluation will be conducted to ensure that cumulative risks/hazards do not exceed acceptable risk/hazard ranges.

9.2 RISK SCREENING RESULTS

This section presents the results of the evaluation of the site data compared to the industrial screening levels discussed previously.

⁵ The industrial worker as defined in the PORTS RMD is assumed to have an exposure of 250 days per year over a period of 25 years.

9.2.1 Risk Results

Hypothetical industrial exposures to direct contact with soils may occur via ingestion, inhalation, dermal contact, and external exposure. In addition, exposures through vapors emanating from volatile chemicals in soils and groundwater may also occur. Site data were compared to industrial screening levels developed by DOE. For direct contact with soils, the process was as follows:

- Detected soil results were compared with soil background levels.
- Detected results were compared with the PORTS RMD screening level for the industrial worker scenario adjusted to an ELCR of 10^{-5} and an HQ of 1.0.
- Detected concentrations were evaluated to determine the potential for a cumulative risk exceeding an ELCR of 10^{-5} or an HQ of 1.0.

Table 13 presents the results of the Parcel 1 soils risk screening evaluation based on industrial exposures and indicates the following:

- No constituents were determined to exceed screening levels.
- No detected concentrations of constituents exceeded an ELCR of 10^{-5} or an HQ of 1.0 when evaluated cumulatively.

There are no plumes near Parcel 1; the nearest plume is more than 300 ft away from the Parcel 1 boundary. Considering this fact and the results of the risk screening, adverse impacts to a hypothetical worker in a building from groundwater vapor intrusion is presumed to be unlikely. Data were screened, however, as described below.

To evaluate potential vapor intrusion from soils, each detected soil concentration was compared to the Johnson-Ettinger-derived screening values. For groundwater, each detected result from the Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project was compared to its vapor intrusion screening level (VISL). These screening values were taken from the PORTS RMD for the industrial worker scenario adjusted to an ELCR of 10^{-5} and an HQ of 1.0.

Table 14 presents the results of the Parcel 1 risk screening evaluation for the potential of vapor intrusion for soils. No constituents exceeded screening levels.

Table 15 presents the results of the Parcel 1 risk screening evaluation for the potential of vapor intrusion for groundwater. One constituent, cyanide, exceeded the VISL (3.5 $\mu\text{g/L}$) at one location WD-PZ-03G. The average cyanide concentration for groundwater of 3.2 $\mu\text{g/L}$, however, did not exceed the VISL.

Using available data for Parcel 1 and the assumptions made in this risk evaluation, comparison of soil and groundwater data to the industrial screening levels indicates a low possibility of adverse health effects associated with industrial exposure to Parcel 1 soils and groundwater. Therefore, this screening risk evaluation determined the parcel proposed for transfer is protective of human health and the environment for its intended use.

Table 13. Results of Industrial Risk Screen for Parcel 1 Soils

Analyte	Frequency of Detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Surface Soils (0 to 1 ft)									
Acenaphthene	1/10	0.00147	0.00147	mg/kg	--	--	3.68E+02	nc	0/1
Anthracene	3/10	0.00134	0.00166	mg/kg	--	--	3.68E+02	nc	0/3
Benz(a)anthracene	7/10	0.0011	0.00923	mg/kg	--	--	8.96E+02	c	0/7
Benzo(a)pyrene	5/10	0.0013	0.00922	mg/kg	--	--	8.96E+00	c	0/5
Benzo(b)fluoranthene	7/10	0.00115	0.0168	mg/kg	--	--	8.96E+00	c	0/7
Benzo(ghi)perylene	5/10	0.0011	0.00787	mg/kg	--	--	3.68E+02	nc	0/5
Benzo(k)fluoranthene	4/10	0.00142	0.00629	mg/kg	--	--	8.96E+00	c	0/4
Chrysene	6/10	0.0011	0.00955	mg/kg	--	--	8.96E+00	c	0/6
Dibenz(a,h)anthracene	3/10	0.00148	0.00191	mg/kg	--	--	8.96E+00	c	0/3
Fluoranthene	7/10	0.00154	0.0181	mg/kg	--	--	3.68E+02	nc	0/7
Fluorene	1/10	0.00167	0.00167	mg/kg	--	--	3.68E+02	nc	0/1
Indeno(1,2,3-cd)pyrene	4/10	0.00202	0.00733	mg/kg	--	--	8.96E+00	c	0/4
2-Methylnaphthalene	2/10	0.00149	0.0024	mg/kg	--	--	3.68E+02	nc	0/2
Naphthalene	2/10	0.00135	0.00139	mg/kg	--	--	3.68E+02	nc	0/2
Phenanthrene	6/10	0.00102	0.00894	mg/kg	--	--	3.68E+02	nc	0/6
Pyrene	7/10	0.00132	0.0169	mg/kg	--	--	3.68E+02	nc	0/7
Total Uranium	15/15	1.6	12.9	mg/kg	4.1	8/15	6.79E+03	nc	0/15
Uranium-233/234	13/13	0.729	74	pCi/g	1.3	9/13	5.69E+02	c	0/13
Uranium-235	3/3	0.0331	0.0459	pCi/g	0.1	0/3	8.17E+00	c	0/3
Uranium-235/236	5/10	0.106	3.06	pCi/g	0.1	5/5	8.17E+00	c	0/5
Uranium-238	13/13	0.728	3.91	pCi/g	1.4	7/13	3.67E+01	c	0/13
Subsurface Soils (1 to 16 ft)									
Aluminum	15/15	7,800	19,000	mg/kg	20,717	0/15	2.15E+06	nc	0/15
Antimony	1/10	0.44	0.44	mg/kg	1.8	0/1	9.34E+02	nc	0/1
Arsenic	16/16	2.7	33	mg/kg	29	1/16	7.25E+01	c	0/16
Barium	15/15	53	220	mg/kg	136	1/15	3.99E+05	nc	0/15
Beryllium	14/15	0.37	1.3	mg/kg	1.6	0/14	4.48E+03	nc	0/14
Cadmium	9/15	0.086	1.5	mg/kg	0.3	5/9	2.24E+03	nc	0/9

Table 13. Results of Industrial Risk Screen for Parcel 1 Soils (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Subsurface Soils (1 to 16 ft) (continued)									
Chromium	20/20	6.3	28	mg/kg	29	0/20	3.50E+06	nc	0/20
Cobalt	15/15	2.4	23	mg/kg	37	0/15	6.86E+02	nc	0/15
Copper	15/15	5.8	23	mg/kg	26	0/15	9.34E+04	nc	0/15
Fluoride	5/5	4.6	6.2	mg/kg	--	--	9.33E+04	nc	0/5
Iron	15/15	10,000	54,000	mg/kg	62,782	0/15	1.64E+06	nc	0/15
Lead	15/15	6.2	46	mg/kg	23	3/15	7.69E+03	c	0/15
Manganese	15/15	40	1,500	mg/kg	1,491	1/15	4.65E+04	nc	0/15
Mercury	11/15	0.015	0.051	mg/kg	0.052	0/11	7.00E+02	nc	0/11
Nickel	15/15	7.8	38	mg/kg	50	0/15	4.26E+04	nc	0/15
Selenium	7/14	0.25	1.7	mg/kg	0.6	4/7	1.17E+04	nc	0/7
Silver	5/15	4.9	14	mg/kg	7	2/5	1.17E+04	nc	0/5
Thallium	10/15	0.13	0.77	mg/kg	0.4	1/10	2.34E+01	nc	0/10
Vanadium	15/15	23	54	mg/kg	58	0/15	1.15E+04	nc	0/15
Zinc	20/20	23	71	mg/kg	117	0/20	7.01E+05	nc	0/20
Acetone	6/15	0.0051	0.018	mg/kg	--	--	1.14E+05	nc	0/6
Bis(2-ethylhexyl)phthalate	1/10	0.052	0.052	mg/kg	--	--	4.67E+03	c	0/1
Methylene chloride	3/15	0.00068	0.00094	mg/kg	--	--	3.32E+03	c	0/3
PCB-1260	1/10	0.025	0.025	mg/kg	--	--	3.27E+01	c	0/1
Pyrene	1/10	0.012	0.012	mg/kg	--	--	3.68E+02	nc	0/1
Plutonium-239/240	2/10	0.0335	0.045	pCi/g	--	--	2.48E+02	c	0/2
Technetium	1/17	0.2	0.2	pCi/g	--	--	1.70E+04	c	0/1
Thorium-228	9/9	0.898	1.45	pCi/g	1.9	0/9	--	--	--
Thorium-230	9/9	0.626	1.53	pCi/g	1.7	0/9	--	--	--
Thorium-232	9/9	0.855	1.27	pCi/g	1.9	0/9	--	--	--
Total Uranium	18/18	0.46	3.4	mg/kg	4.7	0/18	6.79E+03	nc	0/18
Uranium-233/234	15/15	0.572	1.22	pCi/g	1.6	0/15	5.69E+02	c	0/15
Uranium-235	14/16	0.0316	0.0564	pCi/g	0.12	0/14	8.17E+00	c	0/14
Uranium-238	15/15	0.546	1.38	pCi/g	1.6	0/15	3.67E+01	c	0/15

Table 13. Results of Industrial Risk Screen for Parcel 1 Soils (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Subsurface Soils (> 16 ft)									
Aluminum	6/6	5,900	12,000	mg/kg	12,698	0/6	2.15E+06	nc	0/6
Arsenic	6/6	1.6	13	mg/kg	86	0/6	7.25E+01	c	0/6
Barium	6/6	33	69	mg/kg	72	0/6	3.99E+05	nc	0/6
Beryllium	6/6	0.49	0.67	mg/kg	1.2	0/6	4.48E+03	nc	0/6
Cadmium	6/6	0.043	0.24	mg/kg	0.7	0/6	2.24E+03	nc	0/6
Chromium	6/6	12	16	mg/kg	25	0/6	3.50E+06	nc	0/6
Cobalt	6/6	5	10	mg/kg	19	0/6	6.86E+02	nc	0/6
Copper	6/6	9.9	17	mg/kg	23	0/6	9.34E+04	nc	0/6
Iron	6/6	11,000	34,000	mg/kg	56,423	0/6	1.64E+06	nc	0/6
Lead	6/6	7.2	15	mg/kg	13	1/6	7.69E+03	c	0/6
Manganese	6/6	91	410	mg/kg	465	0/6	4.65E+04	nc	0/6
Mercury	3/6	0.0072	0.039	mg/kg	0.041	0/3	7.00E+02	nc	0/3
Nickel	6/6	12	23	mg/kg	53	0/6	4.26E+04	nc	0/6
Selenium	3/6	0.33	0.85	mg/kg	0.6	2/3	1.17E+04	nc	0/3
Thallium	6/6	0.14	0.53	mg/kg	0.8	0/6	2.34E+01	nc	0/6
Vanadium	6/6	22	34	mg/kg	65	0/6	1.15E+04	nc	0/6
Zinc	6/6	40	83	mg/kg	148	0/6	7.01E+05	nc	0/6
Acetone	5/8	0.005	0.062	mg/kg	--	--	1.14E+05	nc	0/5
Benzo(a)pyrene	2/6	0.049	0.27	mg/kg	--	--	8.96E+00	c	0/2
2-Butanone	1/8	0.012	0.012	mg/kg	--	--	2.84E+04	nc	0/1
Carbon disulfide	1/8	0.0035	0.0035	mg/kg	--	--	7.38E+02	nc	0/1
Methylene chloride	1/8	0.001	0.001	mg/kg	--	--	3.32E+03	c	0/1
Thorium-228	6/6	0.889	1.44	pCi/g	1.6	0/6	--	--	--
Thorium-230	6/6	0.701	1.54	pCi/g	2.4	0/6	--	--	--
Thorium-232	6/6	0.831	1.24	pCi/g	1.6	0/6	--	--	--

Table 13. Results of Industrial Risk Screen for Parcel 1 Soils (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Subsurface Soils (> 16 ft) (continued)									
Total Uranium	6/6	0.48	1.7	mg/kg	7.2	0/6	6.79E+03 nc	0/6	
Uranium-233/234	6/6	0.723	1.37	pCi/g	2.4	0/6	5.69E+02 c	0/6	
Uranium-235	6/6	0.054	0.0782	pCi/g	0.17	0/6	8.17E+00 c	0/6	
Uranium-238	6/6	0.765	1.37	pCi/g	2.4	0/6	3.67E+01 c	0/6	

Notes:

¹Background soil concentration values were taken from the Final Soil Background Report (DOE 2015d).

²The industrial worker screening levels were taken from the Human Health Risk Methods Document (DOE 2015e) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

c = cancer risk

nc = noncancer risk

DOE = U.S. Department of Energy

ELCR = excess lifetime cancer risk

HQ = hazard quotient

-- = not applicable or not available

PCB = polychlorinated biphenyl

Table 14. Results of Johnson-Ettinger Screen for Parcel 1 Soils

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	JE screening level ¹ 1E-05 or HQ = 1.0	Frequency of detects exceeding screening level
Soil (0 to 16 ft)						
Acenaphthene	1/20	0.00147	0.00147	mg/kg	7.22E+01 nc	0/1
Anthracene	3/20	0.00134	0.00166	mg/kg	7.22E+01 nc	0/3
Benzo(ghi)perylene	5/20	0.0011	0.00787	mg/kg	7.22E+01 nc	0/5
Fluoranthene	7/20	0.00154	0.0181	mg/kg	7.22E+01 nc	0/7
Fluorene	1/20	0.00167	0.00167	mg/kg	7.22E+01 nc	0/1
2-Methylnaphthalene	2/20	0.00149	0.0024	mg/kg	7.22E+01 nc	0/2
Naphthalene	2/20	0.00135	0.00139	mg/kg	7.22E+01 nc	0/2
Phenanthrene	6/20	0.00102	0.00894	mg/kg	7.22E+01 nc	0/6
Pyrene	8/20	0.00132	0.0169	mg/kg	7.22E+01 nc	0/8
Acetone	6/15	0.0051	0.018	mg/kg	6.01E+01 nc	0/6
Methylene chloride	3/15	0.00068	0.00094	mg/kg	2.75E-01 c	0/3
Pyrene	1/10	0.012	0.012	mg/kg	7.22E+01 nc	0/6

Note:

¹The JE screening levels were taken from the Human Health Risk Methods Document (DOE 2015e) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

c = cancer risk

nc = noncancer risk

DOE = U.S. Department of Energy
ELCR = excess lifetime cancer risk

HQ = hazard quotient
JE = Johnson-Ettinger

Table 15. Results of VISL Screen for Parcel 1 Groundwater

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	MCL ¹	Frequency of	VISL screening level ²	Frequency of	
						detects exceeding	1E-05 or HQ = 1.0	detects exceeding	
						MCL		screening level	
Acetone	1/28	5.8	5.8	µg/L	--	--	9.49E+07	nc	0/1
Methylene chloride	10/28	0.32	0.89	µg/L	5	0/10	1.98E+04	nc	0/10
Cyanide	7/10	2.5	7.2	µg/L	200	0/7	3.54E+00	nc	3/7

Notes:

¹MCL values were taken from the Human Health Risk Methods Document (DOE 2015e).

²The VISL screening levels were taken from the Human Health Risk Methods Document (DOE 2015e) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

nc = noncancer risk

DOE = U.S. Department of Energy

ELCR = excess lifetime cancer risk

HQ = hazard quotient

MCL = maximum contaminant level

-- = not applicable or not available

VISL = vapor intrusion screening level

10. REFERENCES

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Oak Ridge National Laboratory 1997, *Field Evaluation of a Horizontal Well Recirculating System for Groundwater; Pilot Test at the Clean Test Site Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, ORNL/TM-13531, Oak Ridge National Laboratory, Oak Ridge, TN.

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Ohio EPA 2009, *Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for the DERR Remedial Response Program*, Ohio EPA Division of Environmental Response and Revitalization Assessment, Cleanup & Reuse Section, Remedial Response Program.

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APPENDIX A: REAL ESTATE ACQUISITION LETTER (DRAFT)

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**PROPOSED REAL ESTATE ACTION
PORTSMOUTH GASEOUS DIFFUSION PLANT, OH
FILES RESEARCH FOR HAZARDOUS SUBSTANCE ACTIVITY**

The following statement is provided in support of guidance promulgated under Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 *United States Code* 9620(h) and in support of regulations issued by the U.S. Environmental Protection Agency at 40 *Code of Federal Regulations (CFR)* 373.

The undersigned has made a complete search of existing and available U.S. Department of Energy records, documentation, and data within the real estate files relating to the property that is subject to the proposed fee transfer action of Parcel 1 at the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio. The proposed action would result in transfer to the Southern Ohio Diversification Initiative under a 10 *CFR* 770 Proposal. The search conducted was considered reasonable with a good faith effort expended to identify whether any hazardous substances were known to have been released or disposed of on the property. The available real estate records of this office do not reflect any determinable reference that hazardous substance activity as defined by Section 101(14) of CERCLA took place on or in the property during the time the property was owned by the United States of America.

Lands affected by this action are identified as portions of the following original acquisition tracts in which the United States of America acquired title, (having been acquired for the Atomic Energy Commission as a forerunner of the Department of Energy) by Civil Action No. 429 filed in the United States District Court for the Fourth District of Ohio, Southern Division:

Parcel 1 is located on a portion of Tract 121. Title to this land was vested in the United States of America by Declaration of Taking No. 2. Judgment on Declaration of Taking was filed for public record on January 7, 1953 in Vol. 109, page 1, in the Pike County Register's Office, Ohio.

Parcel 1 is located on a portion of Tract 122. Title to this land was transferred to the United States of America and was filed for public record on October 16, 1952 in Vol. 106, page 594, in the Pike County Register's Office, Ohio. The Declaration of Taking No. was not provided.

Parcel 1 is located on a portion of Tract 125. Title to this land was transferred to the United States of America and was filed for public record on November 7, 1952 in Vol. 107, page 122, in the Pike County Register's Office, Ohio. The Declaration of Taking No. was not provided.

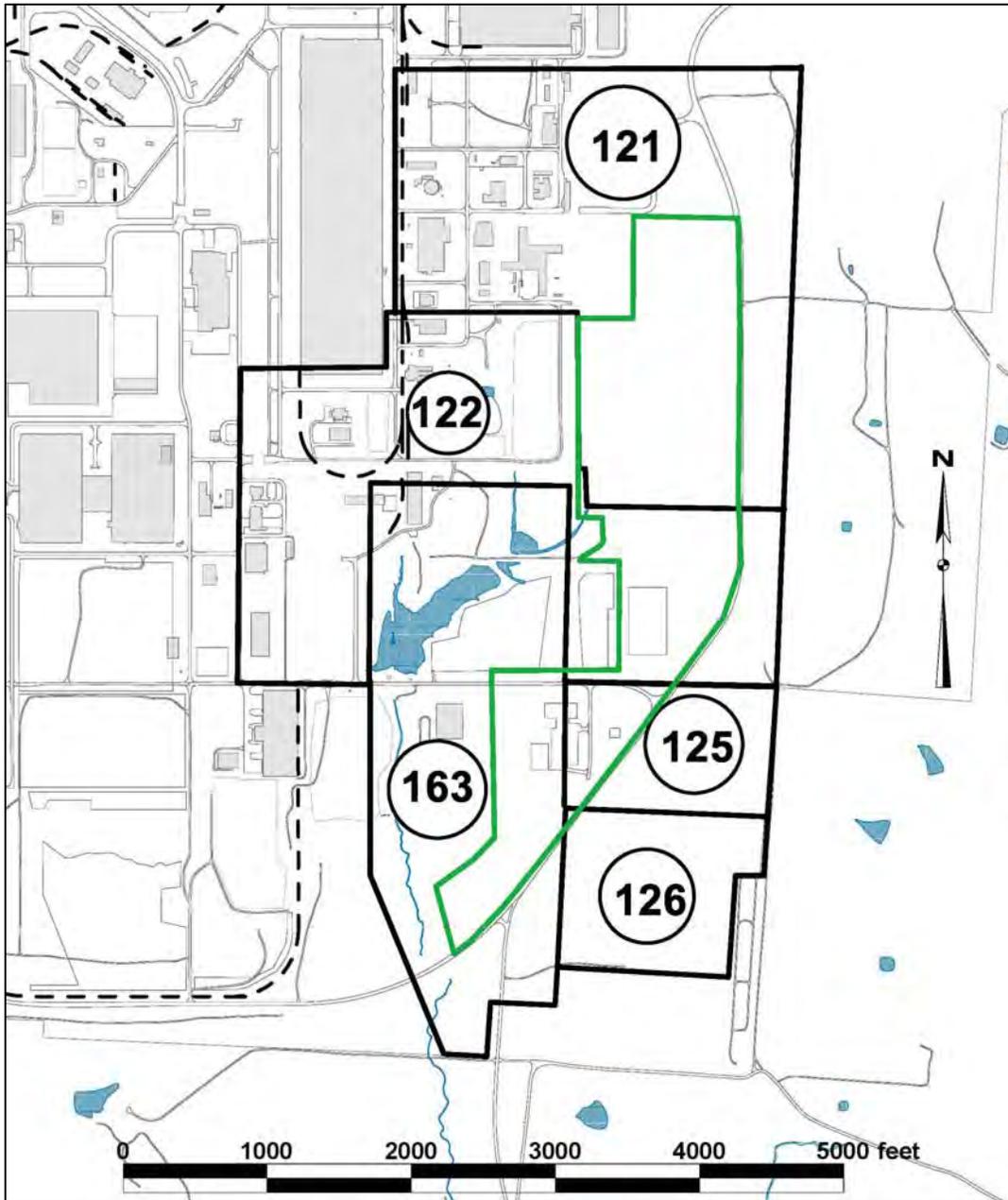
Parcel 1 is located on a portion of Tract 126. Title to this land was transferred to the United States of America and was filed for public record on December 3, 1952 in Vol. 107, page 250, in the Pike County Register's Office, Ohio. The Declaration of Taking No. was not provided.

Parcel 1 is located on a portion of Tract 163. Title to this land was transferred to the United States of America and was filed for public record on November 7, 1952 in Vol. 107, page 120, in the Pike County Register's Office, Ohio. The Declaration of Taking No. was not provided.

This record shall be made part of the CERCLA report currently being prepared.

Matthew Reardon, Real Estate Contracting Officer
U.S. Department of Energy
EMCBC

Attachment:
Plat Exhibit



○ Acquisition Tract Number

— Acquisition Tract

— Transfer Footprint Parcel 1

Tract 121: Acquired from Della Vickers, DB/Page 109/1 Declaration of Taking No. 2
Tract 122: Acquired from Elden Stroud et ux, DB/Page 106/594 Declaration of Taking No. not provided
Tract 125: Acquired from L.T. Davis et ux, DB/Page 107/122 Declaration of Taking No. not provided
Tract 126: Acquired from Curtis Rader et ux, DB/Page 107/250 Declaration of Taking No. not provided
Tract 163: Acquired from C.T. Wells et ux, DB/Page 107/120 Declaration of Taking No. not provided

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APPENDIX B: AERIAL AND OTHER PHOTOGRAPHS AND DRAWINGS

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ATTACHMENTS

B.1: AERIAL PHOTOGRAPHS PROVIDED FROM THE PORTSMOUTH GASEOUS
DIFFUSION PLANT GEOGRAPHIC INFORMATION SYSTEM B.1-1

B.2: EDR AERIAL PHOTO DECADE PACKAGE..... B.2-1

B.3: EDR HISTORICAL TOPO MAP REPORT B.3-1

B.4: PHOTOGRAPHS FROM THE VISUAL AND PHYSICAL INSPECTION B.4-1

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**ATTACHMENT B.1: AERIAL PHOTOGRAPHS PROVIDED FROM THE
PORTSMOUTH GASEOUS DIFFUSION PLANT GEOGRAPHIC INFORMATION SYSTEM**

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FIGURES

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B.1.2. Late 1980s Aerial	B.1-4
B.1.3. 2014 Aerial	B.1-5

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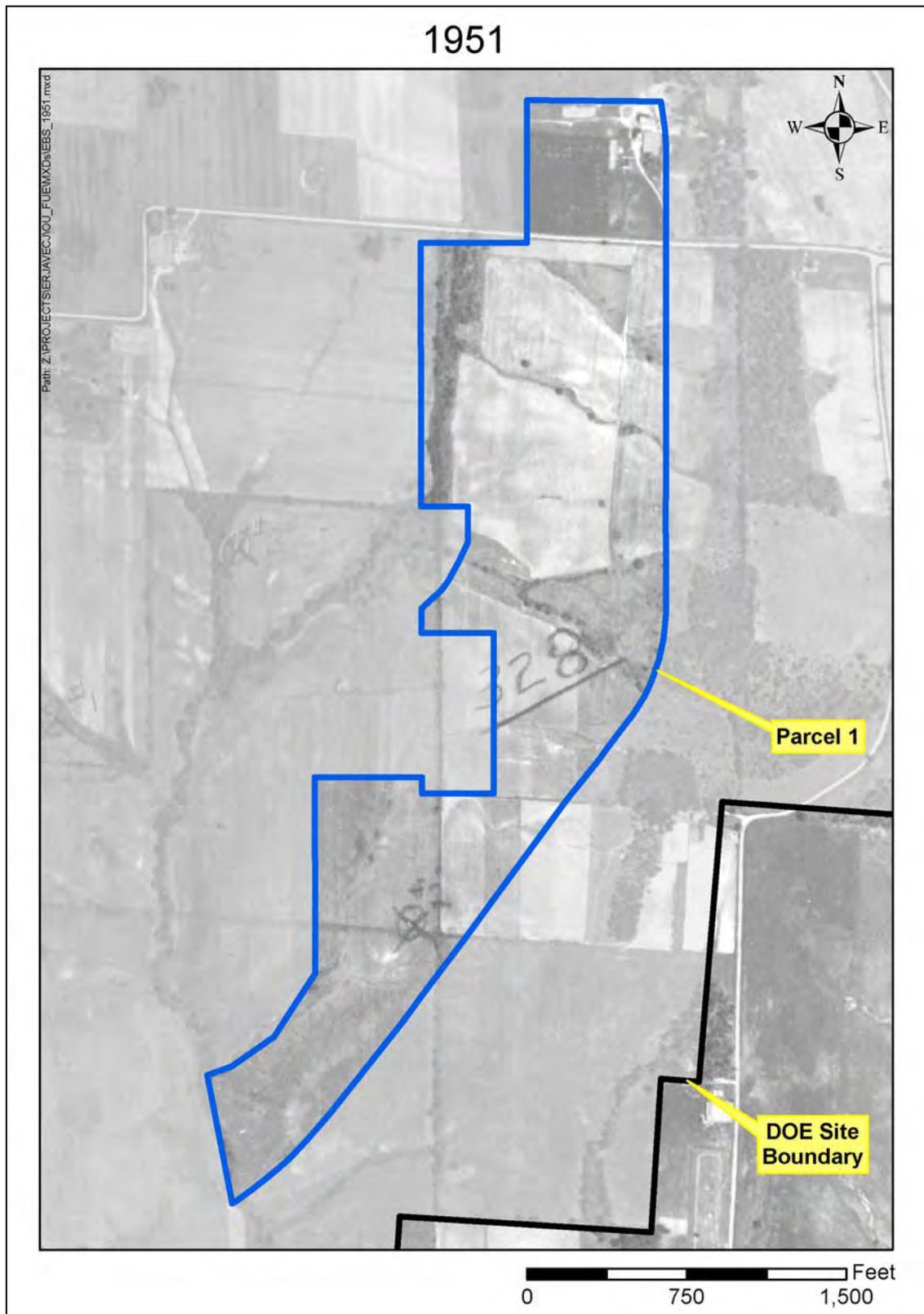


Figure B.1.1. 1951 Aerial

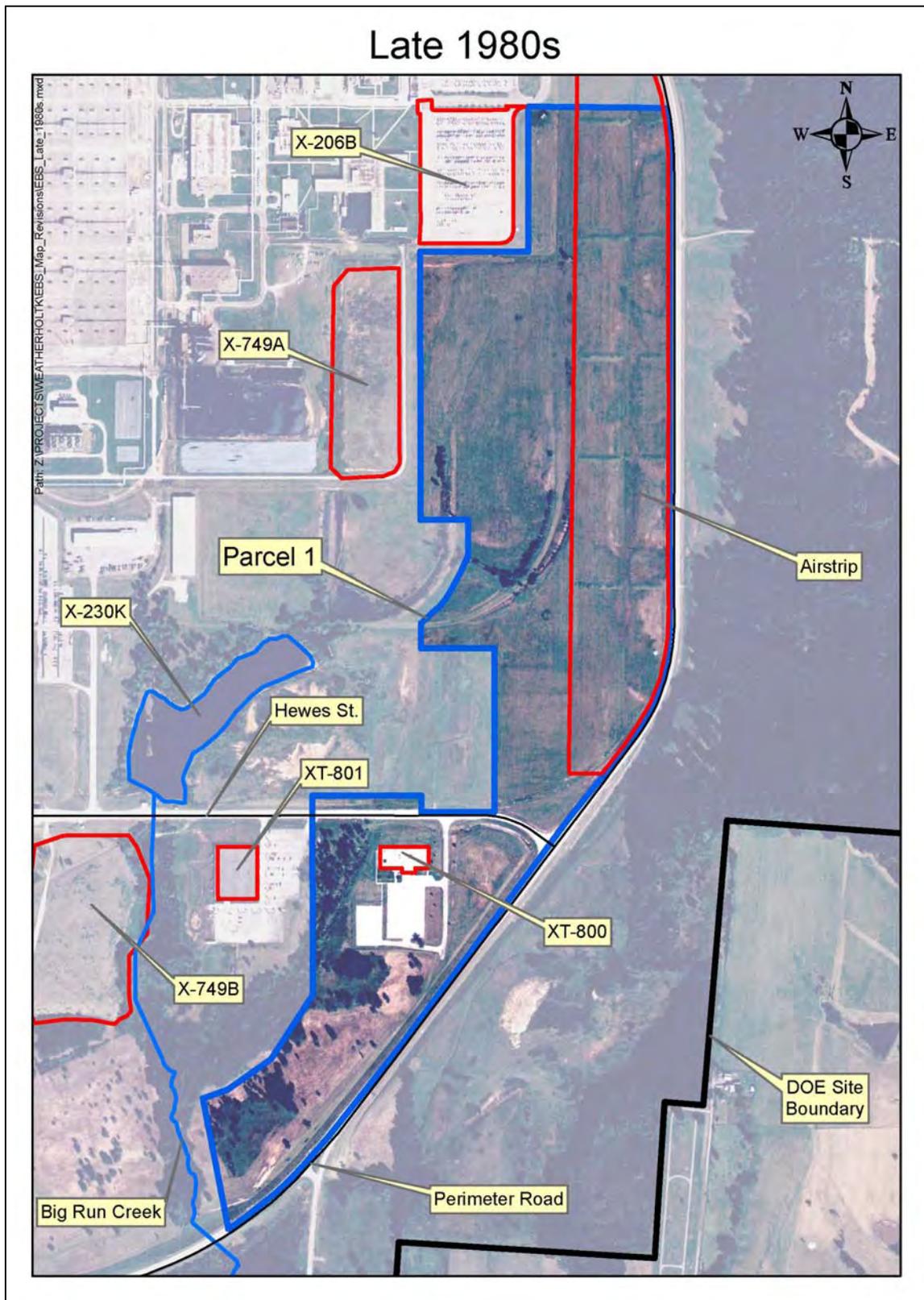


Figure B.1.2. Late 1980s Aerial

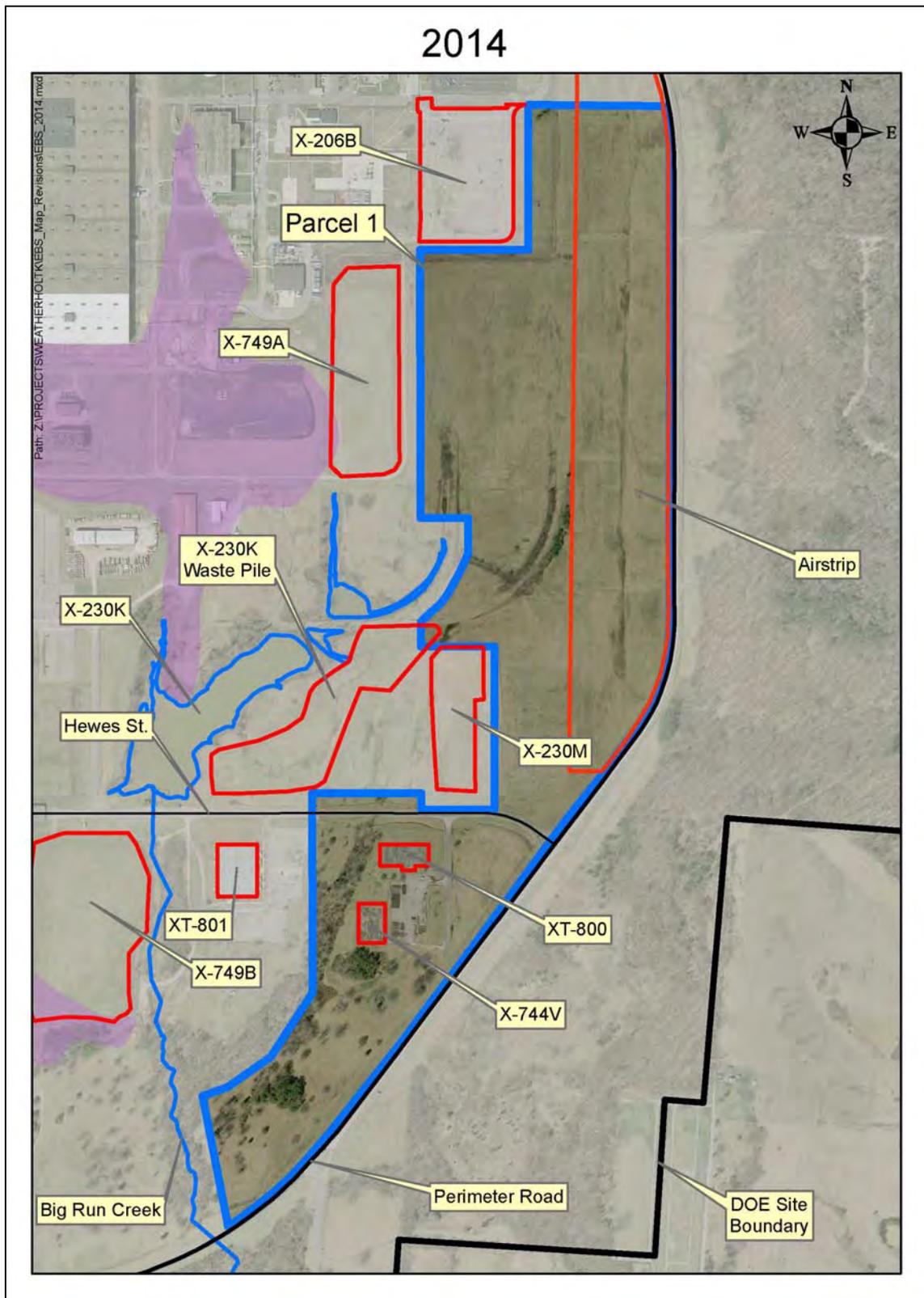


Figure B.1.3. 2014 Aerial

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ATTACHMENT B.2: EDR AERIAL PHOTO DECADE PACKAGE

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FIGURES

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B.2.6. 1994 Aerial	B.2-11
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B.2.13. 2009 Aerial	B.2-18
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PORTS 108-Acre Site

Perimeter Road/Hewes Street
Piketon, OH 45661

Inquiry Number: 4486411.12
December 09, 2015

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography December 09, 2015

Target Property:

Perimeter Road/Hewes Street
 Piketon, OH 45661

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1960	Aerial Photograph. Scale: 1"=500'	Flight Date: April 13, 1960	EDR
1960	Aerial Photograph. Scale: 1"=500'	Flight Date: April 13, 1960	EDR
1971	Aerial Photograph. Scale: 1"=500'	Flight Date: April 20, 1971	EDR
1971	Aerial Photograph. Scale: 1"=500'	Flight Date: April 20, 1971	EDR
1988	Aerial Photograph. Scale: 1"=750'	Flight Date: April 08, 1988	EDR
1994	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: March 23, 1994	USGS/DOQQ
1994	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: March 23, 1994	USGS/DOQQ
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP

4486411.12



Figure B.2.1. 1960 Aerial



Figure B.2.2. 1960 Aerial



Figure B.2.3. 1971 Aerial



Figure B.2.4. 1971 Aerial



Figure B.2.5. 1988 Aerial



Figure B.2.6. 1994 Aerial



Figure B.2.7. 1994 Aerial



Figure B.2.8 2005 Aerial



Figure B.2.9. 2005 Aerial



Figure B.2.10. 2006 Aerial



Figure B.2.11. 2006 Aerial



Figure B.2.12. 2009 Aerial



Figure B.2.13. 2009 Aerial



Figure B.2.14. 2010 Aerial



Figure B.2.15. 2010 Aerial



Figure B.2.16. 2011 Aerial



Figure B.2.17. 2011 Aerial

ATTACHMENT B.3: EDR HISTORICAL TOPO MAP REPORT

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FIGURES

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B.3.3. 1975 Topographical Map of PORTS.....	B.3-9
B.3.4. 1961 Topographical Map of PORTS.....	B.3-10
B.3.5. 1913 -1915 Topographical Map of PORTS	B.3-11
B.3.6. 1908 – 1911 Topographical Map of PORTS.....	B.3-12

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PORTS 108-Acre Site
Perimeter Road/Hewes Street
Piketon, OH 45661

Inquiry Number: 4486411.4
December 08, 2015

EDR Historical Topo Map Report with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report		12/08/15
Site Name: PORTS 108-Acre Site Perimeter Road/Hewes Street Piketon, OH 45661 EDR Inquiry # 4486411.4	Client Name: Ages 2402 Hookstown grade rd clinton, PA 15026 Contact: Jennifer Sabol	

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Ages were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		Coordinates:	
Site Name:	PORTS 108-Acre Site	Latitude:	39.0023 39° 0' 8" North
Address:	Perimeter Road/Hewes Street	Longitude:	-82.9928 -82° 59' 34" West
City,State,Zip:	Piketon, OH 45661	UTM Zone:	Zone 17 North
P.O.#	2015143	UTM X Meters:	327438.23
Project:	PORTS 108-acre site	UTM Y Meters:	4318920.88
		Elevation:	679.00' above sea level

Maps Provided:

- 2013
- 1985, 1986
- 1975
- 1961
- 1913, 1915
- 1908, 1911

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Topo Sheet Thumbnails

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets



Wakefield
2013
7.5-minute, 24000



Piketon
2013
7.5-minute, 24000



Lucasville
2013
7.5-minute, 24000



Waverly South
2013
7.5-minute, 24000

1985, 1986 Source Sheets



Waverly South
1985
7.5-minute, 24000
Photo Revised 1985
Aerial Photo Revised 1983



Wakefield
1986
7.5-minute, 24000
Photo Revised 1986
Aerial Photo Revised 1983

1975 Source Sheets



Lucasville
1975
7.5-minute, 24000
Photo Revised 1975
Aerial Photo Revised 1975



Waverly South
1975
7.5-minute, 24000
Photo Inspected 1975
Photo Revised 1971

1961 Source Sheets



Wakefield
1961
7.5-minute, 24000
Aerial Photo Revised 1960



Waverly South
1961
7.5-minute, 24000
Aerial Photo Revised 1960



Piketon
1961
7.5-minute, 24000
Aerial Photo Revised 1960



Lucasville
1961
7.5-minute, 24000
Aerial Photo Revised 1960

Topo Sheet Thumbnails

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1913, 1915 Source Sheets



Sciotoville
1913
15-minute, 62500



Piketon
1915
15-minute, 62500



Otway
1915
15-minute, 62500

1908, 1911 Source Sheets



Waverly
1908
15-minute, 62500



Sciotoville
1911
15-minute, 62500

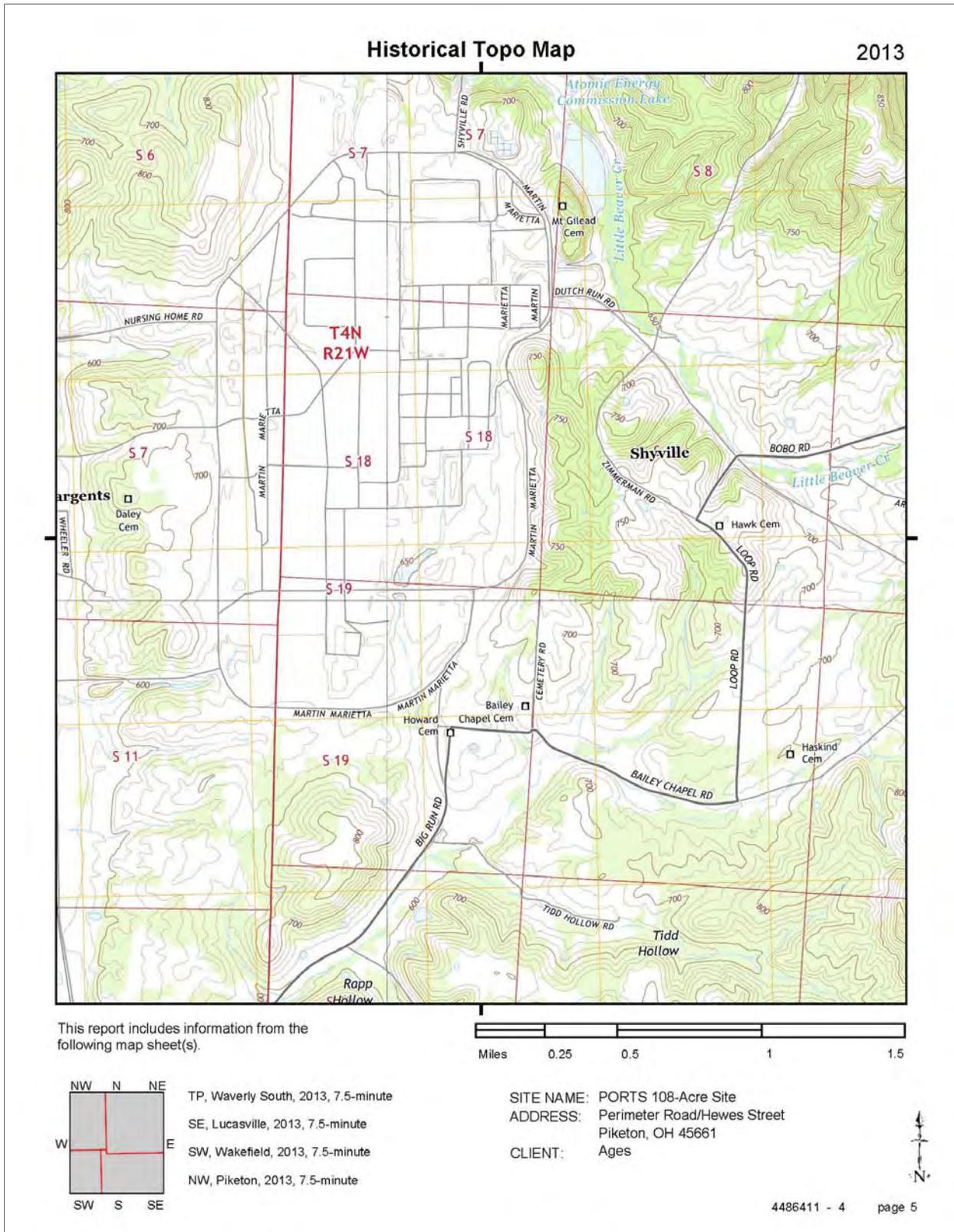


Figure B.3.1. 2013 Topographical Map of PORTS

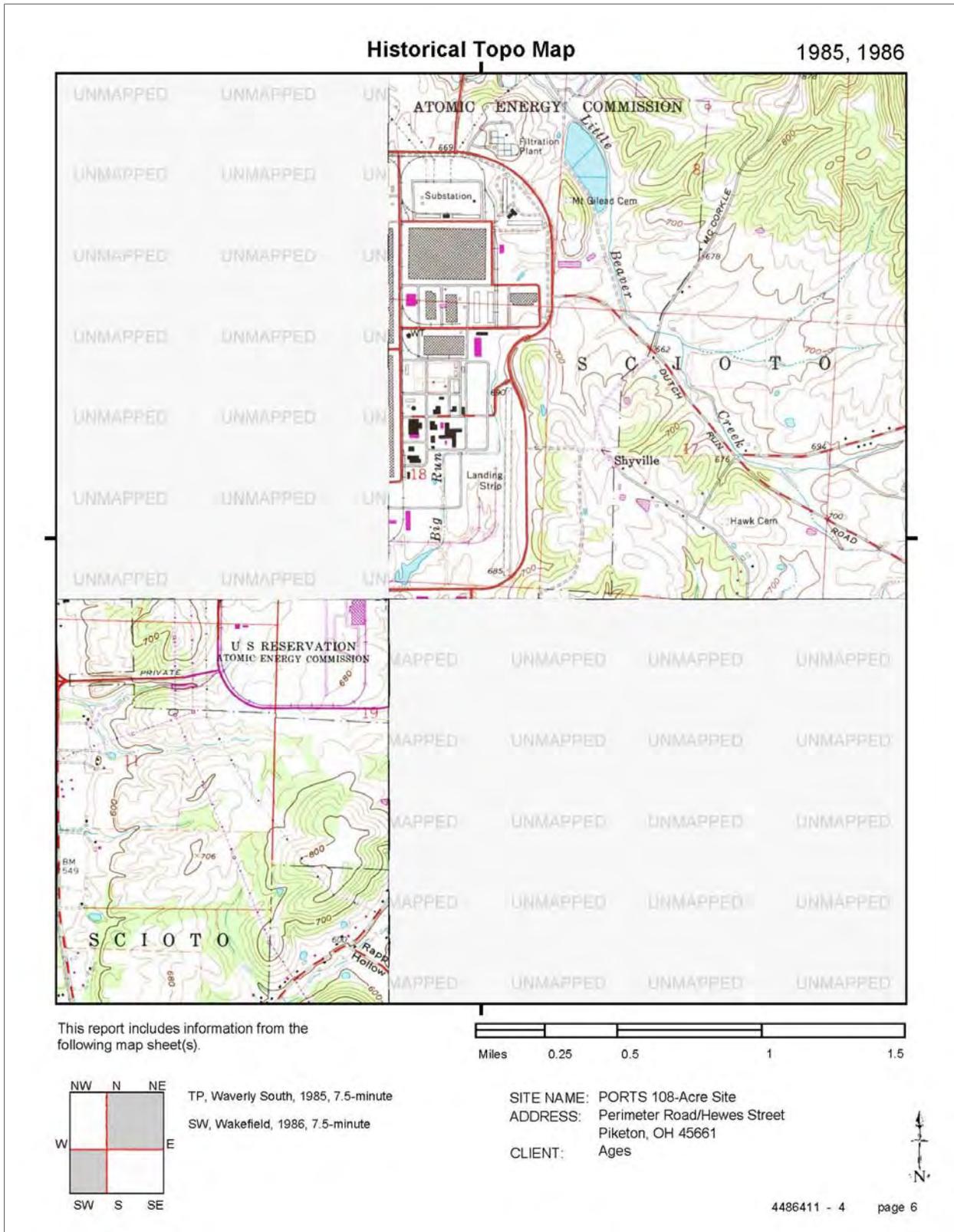


Figure B.3.2. 1985 – 1986 Topographical Map of PORTS

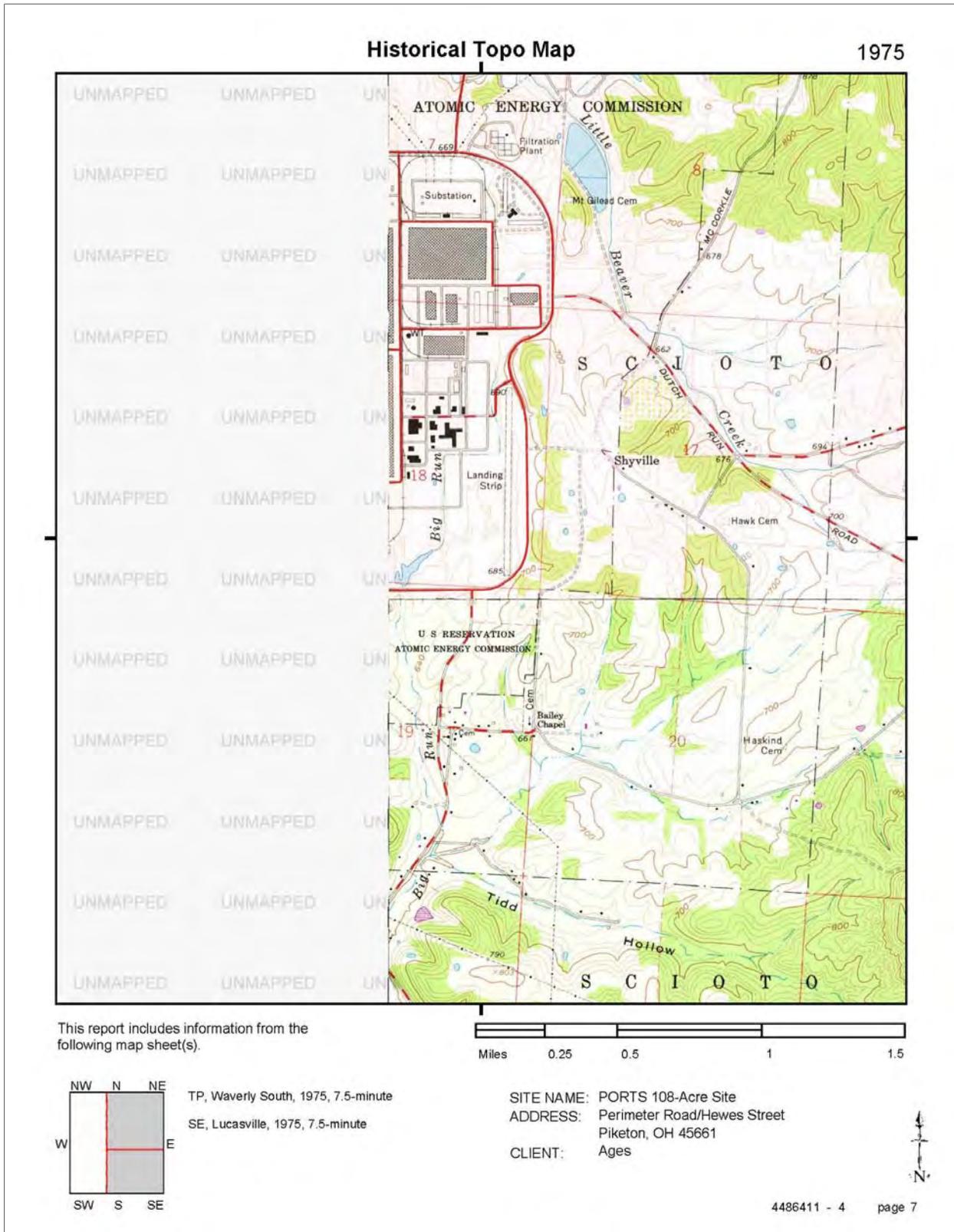


Figure B.3.3. 1975 Topographical Map of PORTS

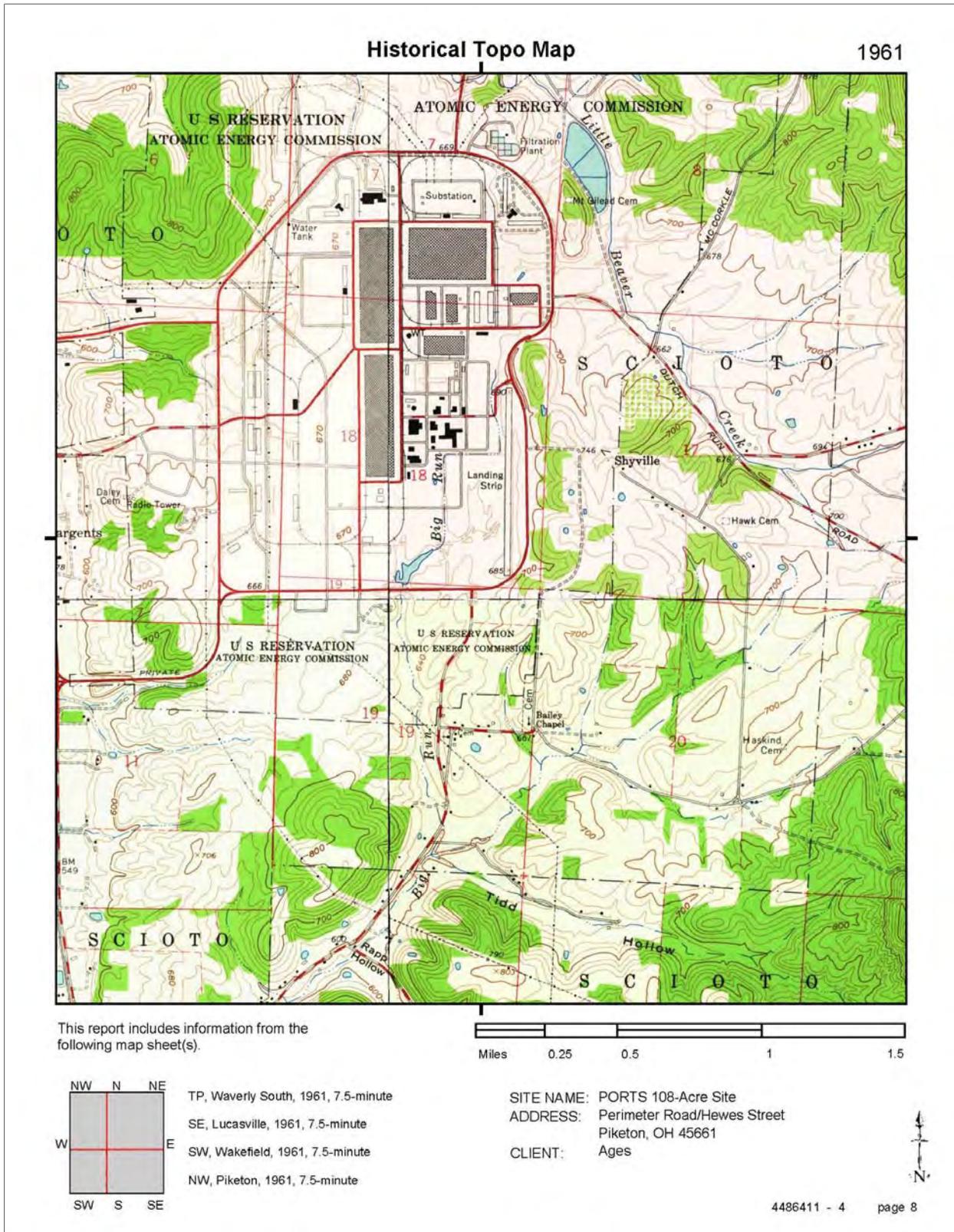


Figure B.3.4. 1961 Topographical Map of PORTS

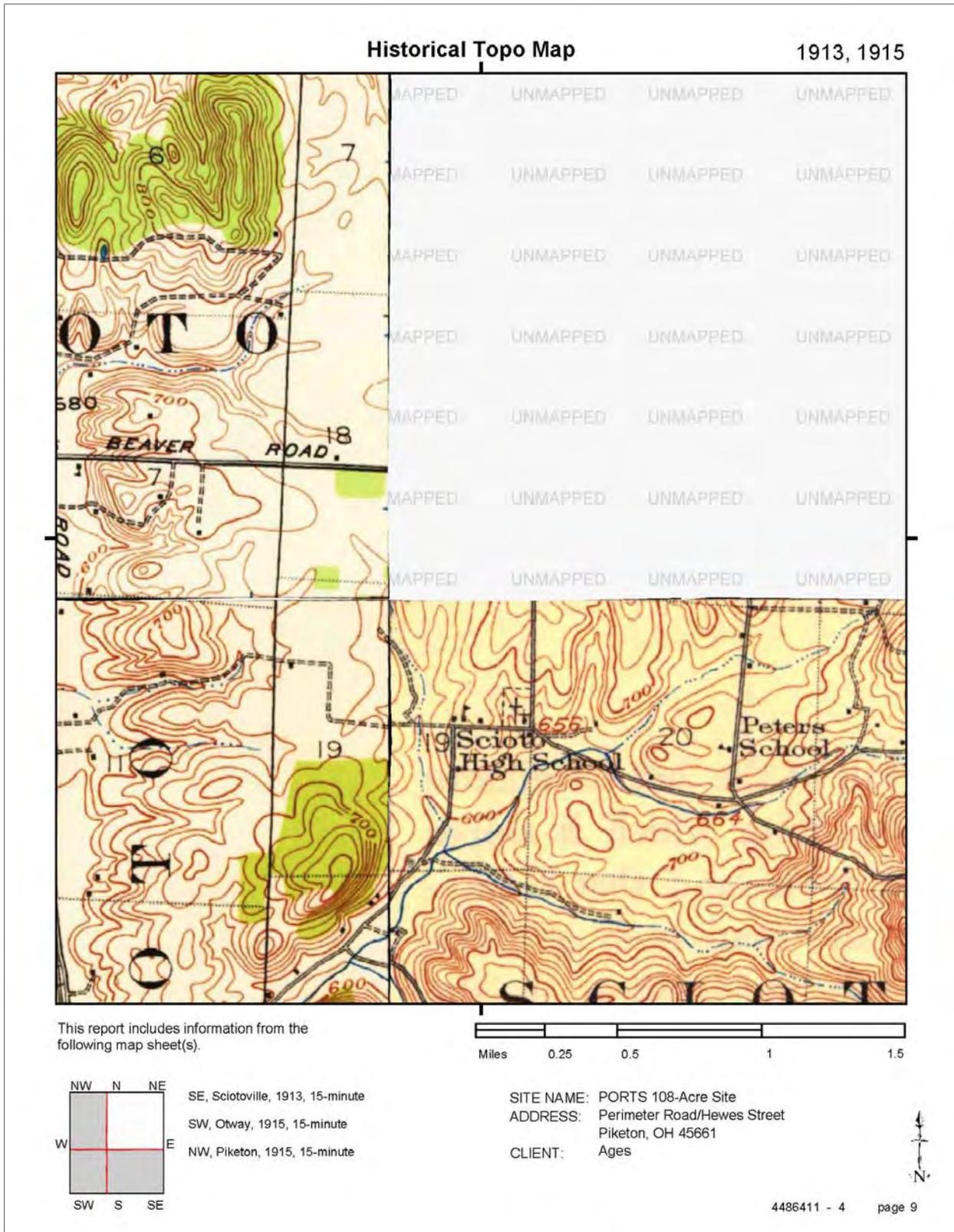


Figure B.3.5. 1913 -1915 Topographical Map of PORTS

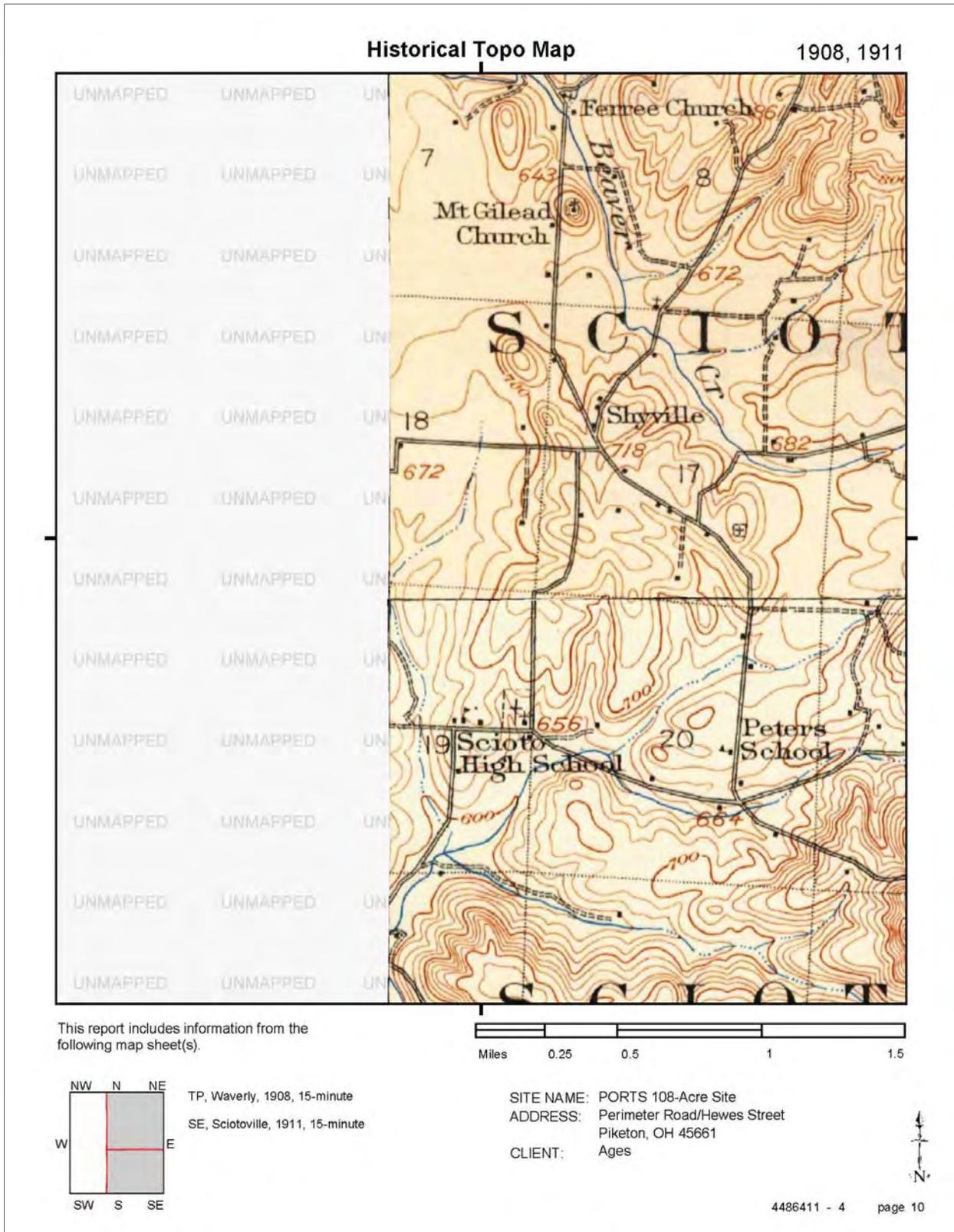


Figure B.3.6. 1908 – 1911 Topographical Map of PORTS

**ATTACHMENT B.4: PHOTOGRAPHS FROM THE VISUAL
AND PHYSICAL INSPECTION**

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The visual and physical inspections of Parcel 1 occurred in December 2015. Due to the size and configuration of the parcel, it was subdivided into four areas for study (Soil Unit [SU]-B, SU-C, SU-D, and SU-E). In addition, SU-A¹, an adjacent area to the parcel, was observed. The smaller features identified are listed in Table B.4.1 and shown in the following photographs.

Table B.4.1. Smaller Features Identified During Inspection

Area	Visual Assessment Location	Description of Feature Identified	Figure Identifier
SU-C	VA-1	Utility pole with one transformer	Appendix B, Figure B.4.1
SU-C	VA-2	Two carpets	Appendix B, Figure B.4.2
SU-C	VA-3	Catch basin-concrete with grate on top	Appendix B, Figure B.4.3
SU-B	VA-4	Large hole on west hillside of undefined land buildup	Appendix B, Figure B.4.4
SU-D	VA-5	Utility pole with one transformer	Appendix B, Figure B.4.5
SU-D	VA-6	One utility box	Appendix B, Figure B.4.6
SU-D	VA-7	One utility box	Appendix B, Figure B.4.7
SU-D	VA-8	Three concrete slabs/pads	Appendix B, Figure B.4.8
SU-C	LA-1	Ditch and multiple culverts	Appendix B, Figure B.4.9
SU-D	LA-2	Ditch lined with concrete	Appendix B, Figure B.4.10
SU-D	LA-3	Ditch lined with concrete	Appendix B, Figure B.4.11
SU-D	LA-4	Ditch and culvert	Appendix B, Figure B.4.12

Notes:
 SU = soil unit
 VA in location indicates visual feature.
 LA in location indicates linear feature.

¹SU-A is the X-230M Clean Test Site Area. This area was a technology demonstration installed independently by the U.S. Department of Energy to test a groundwater treatment innovation known as the horizontal recirculation.



Figure B.4.1 Utility Pole with Transformer in Soil Unit C



Figure B.4.2 Two Carpets in Soil Unit C



Figure B.4.3 Catch Basin in Soil Unit C



Figure B.4.4 Depression on East Side of the Undefined Land Buildup



Figure B.4.5. Utility Pole with Transformer in Soil Unit D



Figure B.4.6. Utility Box in Soil Unit D



Figure B.4.7. Utility Box in Soil Unit D



Figure B.4.8. Three Concrete Slabs in Soil Unit D



Figure B.4.10 Ditch with Concrete Riprap



Figure B.4.9 Ditch with Culverts in Soil Unit C



Figure B.4.12 Ditch and Culvert in Soil Unit D



Figure B.4.11 Ditch Lined with Concrete Riprap

APPENDIX C: INTERVIEWS

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INTERVIEW QUESTIONNAIRES

Description of Site: 97-acre Parcel in Southeast Corner of Quadrant I at PORTS
 Address: Portsmouth Gasoline Diffusion Plant, Pikeston, Ohio
 Contact: [REDACTED]
 Phone No.: [REDACTED]

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
1. Is the <i>property</i> or any <i>adjoining property</i> used for an industrial use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To the best of your knowledge, has the <i>property</i> or any <i>adjoining property</i> been used for an industrial use in the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the <i>property</i> or any <i>adjoining property</i> used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or a waste management, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To the best of your knowledge has the <i>property</i> or any <i>adjoining property</i> been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are there currently, or to the best of your knowledge have there been previously, any industrial <i>drums</i> (typically 55 gal (208 L)) or sacks of chemicals located on the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Has <i>fill dirt</i> been brought onto the <i>property</i> that originated from a contaminated site or that is of an unknown origin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
8. Are there currently, or to the best of your knowledge have there been previously, any <i>pits, ponds, or lagoons</i> located on the <i>property</i> in connection with waste treatment or waste disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is there currently, or to the best of your knowledge has there been previously, any stained soil on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Are there currently, or to the best of your knowledge have there been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Are there currently, or to the best of your knowledge have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Are there currently, or to the best of your knowledge have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. If the <i>property</i> is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of <i>environmental liens</i> or governmental notification relating to past or recurrent violations of environmental laws with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of past or current existence of <i>hazardous substances</i> or <i>petroleum products</i> or environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
16. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of any <i>environmental site assessment</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contamination of, the <i>property</i> or recommended further assessment of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substances</i> or <i>petroleum products</i> involving the <i>property</i> by any owner or occupant of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Does the <i>property</i> discharge waste water on or adjacent to the <i>property</i> other than storm water into a sanitary sewer system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. To the best of your knowledge, have any <i>hazardous substances</i> or <i>petroleum products</i> , unidentified waste materials, tires, automotive or industrial batteries or any other waste material been dumped above grade, buried and/or burned on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

Signature Date

Signature Date

Signature Date

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INTERVIEW QUESTIONNAIRES

Description of Site: PORTS Quadrant I – 97-acre Parcel _____

Address: _____

Contact: _____

Phone No.: _____

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
1. Is the <i>property</i> or any <i>adjoining property</i> used for an industrial use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. To the best of your knowledge, has the <i>property</i> or any <i>adjoining property</i> been used for an industrial use in the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Is the <i>property</i> or any <i>adjoining property</i> used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or a waste management, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To the best of your knowledge has the <i>property</i> or any <i>adjoining property</i> been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Are there currently, or to the best of your knowledge have there been previously, any industrial <i>drums</i> (typically 55 gal (208 L)) or sacks of chemicals located on the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Has <i>fill dirt</i> been brought onto the <i>property</i> that originated from a contaminated site or that is of an unknown origin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
8. Are there currently, or to the best of your knowledge have there been previously, any <i>pits, ponds, or lagoons</i> located on the <i>property</i> in connection with waste treatment or waste disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Is there currently, or to the best of your knowledge has there been previously, any stained soil on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Are there currently, or to the best of your knowledge have there been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Are there currently, or to the best of your knowledge have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Are there currently, or to the best of your knowledge have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. If the <i>property</i> is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of <i>environmental liens</i> or governmental notification relating to past or recurrent violations of environmental laws with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of past or current existence of <i>hazardous substances</i> or <i>petroleum products</i> or environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
16. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of any <i>environmental site assessment</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contamination of, the <i>property</i> or recommended further assessment of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substances</i> or <i>petroleum products</i> involving the <i>property</i> by any owner or occupant of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. Does the <i>property</i> discharge waste water on or adjacent to the <i>property</i> other than storm water into a sanitary sewer system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19. To the best of your knowledge, have any <i>hazardous substances</i> or <i>petroleum products</i> , unidentified waste materials, tires, automotive or industrial batteries or any other waste material been dumped above grade, buried and/or burned on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The *preparer* of the *transaction screen questionnaire* must complete and sign the following statement (for definition of “preparer” and “user” see 5.3 or 3.3.25).

This questionnaire was completed by:

Name: [REDACTED] _____
Title: _____
Firm: _____
Address: _____

Phone No.: _____
Date: 12/29/2015 _____

If the *preparer* is different than the *user*, complete the following:

Name of User: Unknown _____
User's Address: _____

User's Phone No.: _____
Preparer's relationship to site: Consultant _____
Preparer's relationship to user: Consultant _____
(for example, principle, employee, agent, consultant)

Copies of the completed questionnaire have been filed at:

Copies of the completed questionnaire have been mailed or delivered to:

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.



Signature

12/29/15

Date

Signature

Date

Signature

Date

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INTERVIEW QUESTIONNAIRES

Description of Site: _____
 Address: _____
 Contact: _____
 Phone No.: _____

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
1. Is the <i>property</i> or any <i>adjoining property</i> used for an industrial use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. To the best of your knowledge, has the <i>property</i> or any <i>adjoining property</i> been used for an industrial use in the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Is the <i>property</i> or any <i>adjoining property</i> used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or a waste management, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To the best of your knowledge has the <i>property</i> or any <i>adjoining property</i> been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Are there currently, or to the best of your knowledge have there been previously, any industrial <i>drums</i> (typically 55 gal (208 L)) or sacks of chemicals located on the <i>property</i> or at the facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Has <i>fill dirt</i> been brought onto the <i>property</i> that originated from a contaminated site or that is of an unknown origin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
8. Are there currently, or to the best of your knowledge have there been previously, any <i>pits, ponds, or lagoons</i> located on the <i>property</i> in connection with waste treatment or waste disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Is there currently, or to the best of your knowledge has there been previously, any stained soil on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Are there currently, or to the best of your knowledge have there been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Are there currently, or to the best of your knowledge have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Are there currently, or to the best of your knowledge have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. If the <i>property</i> is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of <i>environmental liens</i> or governmental notification relating to past or recurrent violations of environmental laws with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Has the <i>owner</i> or <i>occupant</i> of the <i>property</i> been informed of past or current existence of <i>hazardous substances</i> or <i>petroleum products</i> or environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Question	Owner			Occupants (if applicable)			Observed During Site Visit		
	Yes	No	UnK	Yes	No	UnK	Yes	No	UnK
16. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> have any knowledge of any <i>environmental site assessment</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contamination of, the <i>property</i> or recommended further assessment of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Does the <i>owner</i> or <i>occupant</i> of the <i>property</i> know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substances</i> or <i>petroleum products</i> involving the <i>property</i> by any owner or occupant of the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. Does the <i>property</i> discharge waste water on or adjacent to the <i>property</i> other than storm water into a sanitary sewer system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19. To the best of your knowledge, have any <i>hazardous substances</i> or <i>petroleum products</i> , unidentified waste materials, tires, automotive or industrial batteries or any other waste material been dumped above grade, buried and/or burned on the <i>property</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The *preparer* of the *transaction screen questionnaire* must complete and sign the following statement (for definition of “preparer” and “user” see 5.3 or 3.3.25).

This questionnaire was completed by:

Name: _____
Title: _____
Firm: _____
Address: _____
Piketon OH 45661

Phone No.: _____
Date: February 17, 2016

If the *preparer* is different than the *user*, complete the following:

Name of User: _____
User's Address: _____

User's Phone No.: _____
Preparer's relationship to site: Consultant
Preparer's relationship to user: Consultant
(for example, principle, employee, agent, consultant)

Copies of the completed questionnaire have been filed at:

Copies of the completed questionnaire have been mailed or delivered to:

APPENDIX D: DATA QUALITY OBJECTIVES AND DATA QUALITY ASSESSMENT

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Attachment D.1	Data Quality Objectives (Appendix F) from the Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites
Attachment D.2	Data Quality Analysis

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**ATTACHMENT D.1. DATA QUALITY OBJECTIVES (APPENDIX F)
FROM THE PROTOCOL FOR THE ENVIRONMENTAL REGULATORY PROCESSES
FOR THE TRANSFER OF REAL PROPERTY AT THE U.S. DEPARTMENT OF ENERGY
PORTSMOUTH AND PADUCAH SITES**

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APPENDIX F

Data Quality Objectives for an Uncontaminated Property at PPPO Sites

DQO STEP 1 - STATE THE PROBLEM

Draft Problem Statement:

The land area is non-impacted. Information needs to be gathered or developed to support this hypothesis to complete the due diligence necessary for property transfer as an uncontaminated parcel under CERCLA 120(h)(4), and demonstrate protectiveness under DOE Order 458.1.

What is the description of the media? The media within the land area consists of soil, sediment, and asphalt, concrete, or gravel areas. 

Who needs this information regarding media constituents? The U.S. Department of Energy (DOE) and site contractors will use the data to confirm the hypothesis that the area is non-impacted, and uncontaminated per CERCLA 120(h)(4) and protective under DOE Order 458.1

Who comprises the project planning team?

DOE Site Reuse Lead
Site contractor(s)

Site technical support contractor(s) -
PPPO technical support contractors(s), e.g., risk support -

Additional subject matter experts include:

PPPO Reuse Lead
PPPO Certified Health Physicist -
Technical support
Technical support contractor(s) -

What is the project budget? TBD

What is the project schedule? TBD

DQO STEP 2 - IDENTIFY THE GOALS OF THE STUDY

The objective of this second step in the DQO process is to develop one or more decision statements that, when fully defined during DQO Steps 3 and 4, result in the decision rules of Step 5. The process of developing decision statements in this step is one of defining the principal study questions to address the problem statement in Step 1 and assigning alternative actions to the principal study question(s).

What are the Principal Study Questions?

What infrastructure that data or history show could be a potential source of DOE contamination is present?

- a) Does any process history since completion of the Sitewide Survey (Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1256&D2/R1, July 2015) or area specific reports (e.g., soil pile reports, CERCLA documents) or similar documents at PORTS indicate disposal or release of hazardous substances or petroleum products or their derivatives?
- b) What are the measurement quality objectives (MQOs) for a radiological scoping survey and are they different from the Sitewide Survey or similar surveys at PORTS?
- c) What action level from the radiological survey necessitates a physical sample (grab sample) and is it different from that used in the Sitewide Survey or similar surveys at PORTS?
- d) What are the metrics for determining “non-impacted” and “uncontaminated” ? This includes storage and release of hazardous substances and presence of contamination in the media.
- e) Does the survey meet the Implementation Plan (DOE 2014c) for DOE Order 458.1 / demonstration of Authorized Limit attainment (Authorized Limits for the DOE-owned Property Outside of the Limited Area in Paducah, KY, PPPO-02-1270699-11, March 2013) or similar document at PORTS?
- f) If analytical results for chemical constituents are necessary (to comply with the ability to demonstrate that the property has not had release or disposal of hazardous substances or petroleum products or their derivatives, or where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment , per CERCLA 120(h)(4) criteria), how shall those results be obtained and evaluated? What are the MQOs for the results?
- g) What are the requirements for the visual and physical inspection MQOs and are they different from the Sitewide Survey or similar surveys at PORTS?

What are the Alternative Actions related to the Principal Study Questions?

The expected action, based upon the Problem Statement is that the land area selected for evaluation is confirmed to be eligible for transfer as an uncontaminated parcel per 120(h) (4).

The alternative actions are:

- 1) Portions of the land area are found to be non-impacted and uncontaminated and the area is subdivided to allow a portion to be transferred as uncontaminated per CERCLA 120(h) (4).
- 2) The land area selected for evaluation is determined to be impacted and/or contaminated and not eligible for transfer per CERCLA 120(h) (4).

What is the primary Decision Statement: Determine whether the land area selected for evaluation is eligible for transfer per CERCLA 120(h)(4) for its intended use, or whether impacted areas or contamination (chemical and/or radiological) exists that would require response or corrective action, thus requiring further subdivision and/or evaluation.

DQO STEP 3 - IDENTIFY INFORMATION INPUTS

The objective of Step 3 is to identify the information inputs required to resolve the decision statements developed previously.

Data and information inputs used to evaluate the land area include, but are not limited to, the following:

- Detailed search of federal government records pertaining to historical land use for the real property[required by CERCLA 120(h)(4)]
- Information from the visual inspection survey (including any pictures)
- Utility drawings
- Aerial photographs (over time)
- Aerial radiological survey results (photograph/maps)
- Decision documents
- Interviews with current or former employees involved in operations on the land area
- Historical environmental data from air, soil and sediment, e.g.:
 - Environmental data
 - Monitoring data
 - Air release data
 - Project-specific environmental data from CERCLA, RCRA or other projects
 - Incident reports
 - Spill logs
 - Maintenance action reports
 - Environmental compliance data
 - Data from the Annual Site Environmental Reports
 - Data from state/Commonwealth efforts
 - Results from previous radiological surveys
- Independent Verification report results
- Environmental data collected to address data gaps for this proposed property transfer, if applicable

Criteria used to evaluate data and information collected above includes the following:

- The level of detection for the radiological survey equipment needs to be no greater than the Authorized Limits for PAD (Authorized Limits for the DOE-owned Property Outside of the Limited Area in Paducah, KY, PPPO-02-1270699-11, March 2013), or similar authorizations at PORTS for no deed restrictions.
- Background concentrations for naturally-occurring constituents, NALs and/or soil screening levels (SSLs) for the expected future use – e.g., industrial worker, recreational user - from PAD human health risk methods document (Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant – Human Health. DOE.0107&D2/R6/V1 (DOE 2015) or PORTS Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, DOE/PPPO/03-0127&D8 DRAFT (DOE 2015).
- Results from grab samples collected in compliance with the Sitewide Survey (Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1256&D2/R1, July 2015), or similar documentation at PORTS, if needed. Note: if the Historical Site Assessment indicates that subsurface infrastructure is present, samples may need to be collected at greater depth. Case-by-case determinations are needed where subsurface infrastructure is present.

- For purposes of CERCLA 120(h) (4), “uncontaminated” will be defined as a level of the radiological or chemical constituent that is within the CERCLA risk range for the proposed future use.

Criteria used to evaluate data and information collected above includes the following for PORTS:

- The level of detection for the radiological survey equipment will be established at no greater than the draft FRL for industrial land use (for uranium-238(+D), ELCR at 10^{-5} , SSL is 36.7 pCi/g).
- SSLs and/or draft FRLs (10^{-5} ELCR and HI of 1.0) for the industrial worker from PORTS human health risk methods document are as follows: uranium-238(+D), 36.7 pCi/g; uranium-235, 8.67 pCi/g; uranium-234, 590 pCi/g; technetium-99, 17,100 pCi/g; total uranium, 5,960 mg/kg (however, to be consistent to the uranium-238 value, the target will be approximately 110 mg/kg); carcinogenic PAHs, 7.84 mg/kg; noncarcinogenic PAHs, 8,180 mg/kg; high-risk PCBs, 28.6 mg/kg; low-risk PCBs, 143 mg/kg.
- Background concentrations for naturally-occurring constituents, NALs and/or soil screening levels (SSLs) for the expected future use – e.g., industrial worker, recreational user - from PORTS human health risk methods document (Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, DOE/PPPO/03-0127&D8 DRAFT (DOE 2015)).
- For purposes of CERCLA 120(h)(4), “uncontaminated” will be defined as a level of the radiological or chemical constituent that is below the industrial use draft FRLs.

DQO STEP 4 - DEFINE THE BOUNDARIES OF THE STUDY

What are the spatial boundaries? The spatial boundaries for the land area are designated in Figure 1 (TBD). The visual inspection needs to include areas adjacent to the land area. In areas where bounding roads and ditches are not present, the visual survey area should extend 25 feet from the boundary or to another fixed boundary (e.g. a fence).

What are the vertical boundaries for this project? Media samples are collected from the 0- to 1-ft depth interval.

What are the temporal boundaries for this project? The temporal boundaries for the project are related to the schedule needed to support property transfer.

Figure 1. Land Area proposed for evaluation for potential property transfer.



DQO STEP 5 - DEVELOP THE ANALYTIC APPROACH

The goal of DQO Step 5 is to develop an analytic approach that will guide how the study results are to be analyzed and how conclusions are to be drawn from the data. After the analytical data have been collected and any issues have been resolved, the data will be evaluated to determine if it meets the project needs, based on the type, quantity, and results. The fifth step in the DQO process specifies appropriate population parameters, defines the action levels, and develops an “*if ... then ... else/otherwise ...*” decision rule.

Types of measurements/environmental data include:

- Radiological scoping measurements (e.g., sodium iodide detector measurements. Fidler, high-purity germanium (HPGe) detectors)
- Field screening quantitative measurements (e.g., XRF or analyte-specific test kits)
- Analytical data from fixed-based laboratories

The *parameters of interest* for this project include:

- Visual walkover anomalies
- Real-time measurements (gamma activity surveys
- Field screening results from field XRF for uranium and field test kits for PCBs or PAHs
- Quantitative analytical results for site-specific COPCs (fixed-based laboratory results are for QA/QC purposes only)

The *action levels* include:

- For the visual walkover, identified anomalies will be based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), lack of vegetation or distressed vegetation, and evidence of infrastructure that could be a potential source of DOE contamination.
- For the radiological scoping, the action level will be defined as the Authorized Limits for site-related radionuclides.
- For field screening results of physical grab samples, which are XRF, the test kits and HPGe, the ALs are background, NALs and Authorized Limits.
- For fixed-based lab results the Authorized Limits are equal to background and No Action Levels

What are the decision rules? Successful confirmation demonstrates that the concentration of site related COPCs in media within the boundaries of the land area selected for evaluation are below action levels. The decision rules for this project are provided in the table below.

Table 1. Decision Rules for Soils

Decision Rule No.	If	Then	Otherwise
1	Visual anomalies are identified based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), lack of vegetation or distressed vegetation, and/or evidence of infrastructure related to DOE processes.	Implement a radiological survey of the anomaly with 100% coverage,	No additional radiological survey is performed.
2	Visual anomalies are identified based on areas of staining, lack of vegetation (or distressed vegetation), and/ or areas of infrastructure that could be a potential source of DOE contamination,	Collect a grab sample for field screening analysis	No additional samples are collected.
3	Areas of subsurface infrastructure that could be a potential source of DOE contamination are identified,	The area will be excluded pending further evaluation,	No further evaluation is required.
4	The radiological scoping of a previously identified anomaly (from Decision Rule 1) exceeds the draft FRL for U-238,	Determine the extent of area with elevated measurements and collect a grab sample for field screening analysis,	No additional samples are collected.
5	The radiological scoping survey of the open areas (i.e., 20% of the open areas) identifies elevated areas based on inflection point analysis or exceedance of the draft FRL for U-238,	Collect a grab samples from the area of elevated activity for field screening analysis,	No additional samples are collected.
6	Field screening results from physical samples exceed the draft FRLs,	Designate an area to be further evaluated prior to transfer,	No further evaluation is needed.

Note: Field screening may be done with field portable XRF and test kits for PCBs and/or PAHs if warranted.

Fixed-based laboratory results are used for QA purposes only.

Table 2. Decision Rules for Roads and Other “Non-Soil” Areas

Decision Rule No.	If	Then	Otherwise
7	The radiological scoping of roads or other non-soil areas exceeds 2 times the established background for comparable building materials,	Further evaluate the potential cause of the elevated radioactivity,	No additional radiological survey is performed.

DQO STEP 6 - SPECIFY THE PERFORMANCE OR ACCEPTANCE CRITERIA

The sixth step in the DQO process typically chooses the null hypothesis, examines the consequences of making an incorrect decision, specifies the range of values where consequences are minor (the gray region), and assigns values that reflect tolerable probability for potential decision errors. However, because the area is being evaluated with a scoping survey, a probability-based sampling design (for the collection of physical soil samples) is not required and a judgmental design will be used to evaluate the areas with the greatest potential for contamination. If results indicate these areas meet the criteria, no further evaluation is required.

Within a reasonable degree of certainty, the sampling design must be able to:

- Detect areas of elevated radionuclide contamination, if such areas exist, and
- Detect FRL exceedances whenever physical samples are collected.

A null hypothesis is developed in order to demonstrate compliance of data with the constraints imposed by the decision rules and to establish the parameters against which soil unit confirmation decisions can be made. For the property being evaluated for transfer that is presumed to be uncontaminated, the null hypothesis is stated as:

H₀: The property being evaluated for transfer is eligible for transfer under CERCLA 120(h)(4) and is protective per DOE Order 458.1.

The alternative hypothesis is:

H_a: The property being evaluated for transfer is not eligible for transfer under CERCLA 120(h)(4) or is not protective per DOE Order 458.1.

The null hypothesis will hold if the radiological survey and field screening show all results are below the draft FRLs or ALs.

The null hypothesis will be rejected if there is confirmed contamination that requires response or corrective action, per field screening analysis, and the contaminated areas will be removed from the property being evaluated for transfer so it is eligible for transfer per 120(h)(4).

What performance criteria will be used to minimize uncertainty? During this project, field and lab QA/QC samples will be used to evaluate data quality (the appropriate number of QC samples will be documented in a SAP; any deviations from the *Sample Analysis Data Quality Assurance Project Plan*

[SADQ] at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio [SADQ], or similar document for Paducah, will be noted).

Field screening methods (field portable XRF and PAH test kits) and sodium iodide scans will be as ASL A. If specialized QA/QC requirements are needed, they will be defined in the analytical statement of work and in the applicable SAP. The SAP will specify the analytical support levels for all methods to be implemented in the field.

Verification of field screening results by fixed-based laboratory will be completed on 10% of the physical samples collected or a minimum of 10 samples, whichever is greater. Fixed-based analytical results will receive 100 percent verification and 100 percent validation. Data validation will be 80 percent at VSL B and 20 percent at VSL D, and field validation will be conducted for sampling documentation. Requirements for each support level are provided in the applicable SADQ.

The SADQ identifies the acceptance criteria for sampling and data collection activities. This plan ensures that all site data collection associated with cleanup activities is performed consistent with quality standards to minimize data uncertainty. Following completion of data validation, a data quality assessment will be performed in accordance with the SADQ to evaluate project data versus the measurements and DQOs to determine if data requirements have been satisfied.

DQO STEP 7 - DEVELOP THE PLAN FOR OBTAINING DATA

The goal of DQO step 7 is to develop a resource-effective design for collecting and measuring environmental samples, or for generating other types of information needed to address the problem. One objective of this seventh step is to identify the most resource-effective data collection and analysis design that satisfies the DQOs in the preceding six steps. The SAP will include the details of the sampling design and approach. A high-level summary follows.

Minimum Number of Samples Required

Because the property being evaluated for transfer is presumed to be non-impacted and uncontaminated (no to very low potential for contaminant concentrations or residual radioactivity to exceed the media cleanup standard values), no physical sampling is required in these soil units except for biased or judgmental sampling. Radiological scoping scan coverage will be 100% for roads, 100% for identified visual anomalies, and 20% for open areas. The scan of the open areas will be based on a grid that will be specified in the SAP.

Biased physical samples (a judgmental sample design) will be used as needed to evaluate areas with the greatest potential for contamination (based on results of the radiological scoping survey or anomalies identified during the visual walkover survey). These samples will primarily be screened in the field using field portable XRF or test kits, depending on the analyte.

Data Collection Approach

Based on existing process knowledge and historical data, the property being evaluated for transfer has no, to a very low, potential, for contaminant concentrations or residual radioactivity to exceed the media cleanup standards. The area will be primarily assessed by visual walkover surveys and gamma radiation scoping surveys. Biased sampling will be conducted when observation indicates the area is impacted and the presumption of no contamination may not be valid.

To begin, a visual walkover survey or assessment is conducted (this walkover survey is completed to support development of the SAP). A visual walkover inspection is conducted to systematically inspect

the area to identify and map any observed features. The assessment focuses on identifying any anthropogenic features, delineating the boundaries of the features, and determining if biased sampling is warranted. Surface water run-off and sediment accumulation areas may be identified for potential biased sampling by the assessment teams. While traversing the soil units, the walkover assessment team will take note of any unusual or anthropogenic features (i.e., the identification of anomalies) and plant flags at locations selected for subsequent detailed scoping surveys and/or physical soil sampling. Anomaly locations will be surveyed with a GPS instrument and recorded in a logbook.

For this project, the requirement for radiological scoping survey scan coverage will be 100% for roads, 100% for identified visual anomalies, and 20% for open areas. A grid will be used to facilitate the radiological scoping (the grid will be defined in the SAP).

Biased physical samples from identified anomalies (this includes anomalies determined from the visual walkover survey and areas of elevated radioactivity based on the radiological survey) will be collected and analyzed for area-specific contaminants of concern using field screening methods (field portable XRF and/or test kits depending on the analyte). A field change notice (FCN) will be processed to document the sample locations. Ten percent of the physical samples will be sent to a fixed-based laboratory for verification of field screening results.

REFERENCES
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DOE 2014. *Authorized Limits Implementation Plan for the U.S. Department of Energy Owned Property Outside the Limited Area in Paducah, Kentucky*, DOE/PPPO/02-1270699, U.S. Department of Energy, Paducah, Kentucky, October.

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ATTACHMENT D.2: DATA QUALITY ANALYSIS

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ACRONYMS

COPC	chemical of potential concern
DOE	U.S. Department of Energy
DQA	data quality analysis
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
HPGe	high-purity germanium
ICAL	initial calibration
LOD	limit of detection
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
QC	quality control
SADQ	Sample Analysis Data Quality Assurance Project Plan
SAP	sampling and analysis plan
SSL	soil screening level
VOC	volatile organic compound
XRF	X-ray fluorescence

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D.2.1. INTRODUCTION

Over the past 20 years, numerous investigations have been conducted and have provided soil data that may be considered in drawing conclusions for Parcel 1. The most recent sampling and analysis strategy was implemented according to the agreed upon protocols to support characterization and risk-based decisions at Parcel 1. These data were collected to supplement the historical information, providing a robust data set representative of the soils at Parcel 1.

The goals, as stated in the 108-acre Area sampling and analysis plan (SAP) (U.S. Department of Energy [DOE] 2015), include present data quality objectives (DQOs), analytical and laboratory requirements, quality assurance requirements, and documentation requirements for environmental data collection to support the transfer of Parcel 1 as an uncontaminated parcel. This section provides a review of the overall data set to determine potential data quality issues that limit the uses of some of these data to support decisions at Parcel 1.

The data to support Parcel 1 includes historical data that were evaluated relative to the DQOs outlined in the *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites, Volume 1: Uncontaminated Property* (DOE 2016). The SAP for Parcel 1 identified a guide for the collection of environmental data that will be evaluated to fulfill the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 120(h)(4) and DOE Order 458.1 requirements for property transfer. The SAP identified a sampling strategy to utilize real-time field measurement methodologies such as sodium iodide (NaI) scanning surveys, in situ high-purity germanium (HPGe) detectors, field-portable X-ray fluorescence (XRF) instrumentation (calibrated for uranium), and field test kits for selected semivolatile compounds (polycyclic aromatic hydrocarbons [PAHs]), to confirm no unacceptable contamination is present in the area. Physical samples were collected for field screening (XRF and test kits) with 10 samples sent to a fixed-base laboratory for verification of field screening results.

Table D.2.1 provides a general overview of the data set whose results may be used for Parcel 1.

The field sampling strategy for Parcel 1 included elements of field radiological scoping survey, field screening, and soil sampling. These data, as described in detail for Parcel 1, were collected consistent with the protocols documented in the SAP.

Table D.2.1. Summary of Sampling

	Surface (0-1 ft) Fixed-base Laboratory	Surface (0-1 ft) Field Samples	Subsurface (1-16 ft) Fixed-base Laboratory	Subsurface (1-16 ft) Field Samples	Surface (0-1 ft) Historical Data	Subsurface (1-16 ft) Historical Data	Subsurface (> 16 ft) Historical Data
Total:	10	80	NA	NA	40	75	32

Sampling Location/ ID Number	Depth (ft)	Analytical Group	Number of Parcel 1 Samples	Number of Historical Samples		
Total	Surface (0-1)	VOCs	NA	0		
		SVOCs	10	10		
		PCBs	NA	0		
		Metals	10	15		
		Radionuclides	10	15		
		Radionuclides by HPGe	60	NA		
		Total Uranium by XRF	10	NA		
		PAHs by test kit	10	NA		
		Subsurface (1-16)	Subsurface (1-16)	VOCs	NA	15
				SVOCs	NA	10
PCBs	NA			10		
Metals	NA			23		
Radionuclides	NA			17		
Subsurface (> 16)	Subsurface (> 16)	VOCs	NA	8		
		SVOCs	NA	6		
		PCBs	NA	6		
		Metals	NA	6		
		Radionuclides	NA	6		

ID = identification
 NA = not applicable or not available
 PAHs = polycyclic aromatic hydrocarbons

PCBs = polychlorinated biphenyls
 SVOCs = semivolatile organic compounds
 VOCs = volatile organic compounds

D.2.2. HISTORICAL DATA

The historical data set which this data quality analysis (DQA) evaluates primarily is defined in the 108-acre Area SAP. This DQA follows guidance provided in the Sample Analysis Data Quality Assurance Project Plan (SADQ) (DOE 2014) and the U.S. Environmental Protection Agency's (EPA's) DQA guidance documents: *Data Quality Assessment: Statistical Methods for Practitioners* (EPA 2006a) and *Data Quality Assessment: A Reviewer's Guide* (EPA 2006b). This evaluation looks at whether the location from which the data were collected is representative of the Parcel 1 area (i.e., was the sample collected within the area of the influence of Parcel 1) and whether the data itself was analyzed to a quality adequate for decision making for this area.

The DQA process compares the data produced to the project/program requirements or project DQOs. This assessment includes data verification; data validation; field validation; and an assessment for precision, accuracy, representativeness, completeness, and comparability. Once the data are adequately examined, appropriate statistical methods may be employed to determine if project goals were achieved to provide the appropriate inputs for project decisions.

Some of the decision rules used in the DQA when determining the usability of historical data are the following:

- Historical data that have been qualified as rejected by data validation or by data assessment were not included in the historical data set.
- Historical data that contain units inconsistent with the sampled media or with the analysis will not be included in the historical data set (e.g., a soil sample with analytical units reported in mg/L or a radiological result with units reported in mg/kg).
- Historical data for radionuclide results with no minimum detectable concentration recorded will not be included in the historical data set.
- Historical data for nonradionuclide results with no reported result and no detection limit recorded will not be included in the historical data set.
- Historical data for radionuclide results with a null or zero recorded as a counting error will not be included in the historical data set.
- Data assessment qualifiers previously placed on the data will be noted and applied as appropriate.
- A result will be considered a nondetect if it is qualified by the reporting laboratory with the following:
 - A “U” qualifier or a “<” qualifier or
 - An “A” qualifier if the result is a radiological result analyzed by a laboratory with codes “PGDP” or “PARGN.”
- A result will be considered a nondetect if it has a “U” validation code or a “U” data assessment code.
- A radiological result may be considered a nondetect if the reported total propagated uncertainty is greater than the reported result.

Historical data that are no longer representative of current site conditions are excluded. Use of historical data for constituents like PAHs, whose concentrations may decrease over time due to weathering, may overestimate current conditions. Similarly, volatile organic compound (VOC) data from historical samples for subsurface depth have been included in the data set, but should be used with caution as they will not accurately estimate current conditions.

D.2.3. PARCEL 1 LABORATORY ANALYTICAL DATA

The site-wide chemicals of potential concern (COPCs) for the Portsmouth Gaseous Diffusion Plant (PORTS) include VOCs, semivolatile organic compounds, metals, radionuclides, polychlorinated biphenyls (PCBs), and PAHs. In accordance with DQO Step 3, the COPCs for Parcel 1 area were chosen on the basis of historical sampling locations (generated using the Geographic Information Systems dataset) and historical COPCs associated with PORTS production. Based on historical data and process knowledge, there is no reason for VOCs, metals, or PCBs to be present in the area; therefore, these analytical suites have been removed from the COPC list. The historical data in this area for these COPCs are all within the acceptable range of the Type 2 industrial use soil screening level (SSL) values taken from the Human Health Risk Methods Document (DOE 2013). Radionuclides above background concentrations are a primary concern for Parcel 1.

Data were validated using a graded approach, which includes examination of field measurements, field quality control (QC), sampling and handling procedures, laboratory analysis, reporting, and nonconformance. For this document, verification is defined as the process of checking data for completeness, correctness, and compliance with analytical specifications (such as the analytical statement of work and other project plans). Results from fixed-base laboratories received 100 percent verification and 100 percent validation. A DQA was performed in accordance with the SADQ to evaluate project data versus the measurements and DQOs to determine if data requirements have been satisfied.

The following analytical data that are not considered usable for Parcel 1:

- Data qualified as rejected by data validation
- Data qualified as rejected by data assessment.

All QC results were within acceptance criteria for calibration verification standards, performance samples, calibration verification checks, and analytical holding times. None of the laboratory analytical data was rejected.

D.2.4. FIELD RESULTS

For Parcel 1, the field screening data (XRF data, HPGc data, and results from PAH field test kits) are available in addition to the laboratory analytical data. The primary use of such data is for site characterization, but these survey-type data can also play a role in risk-based decision making. Survey-type data assist in determining the distribution of COPCs and can be used to identify which sets of laboratory data should be combined to develop site average contaminant concentrations.

The positive results from XRF analyses for samples 1A1X031-03-SS, 1C1X008-03-SS, and 1C1X001-03-SS were flagged "J" and may be considered estimated. This was attributed to an elevated ending verification check sample.

The initial calibration (ICAL) for the field XRF and continuing calibration verification checks were acceptable for all samples associated with this sample delivery group. No additional qualifications have been appended to the associated sample results based on the ICAL performance. The data were within acceptable limits for reporting data with a reporting limit greater than 20 ppm. Results (average values), when reported less than 10 ppm, may be considered estimated, the lower limit of detection was defined by the manufacture as 10 ppm. All values quantified less than 10 ppm (< limit of detection [LOD]) may be considered estimated and flagged “J”, this is attributed to instrument detection capabilities.

The low-level standard verification (20 ppm) recovery met the acceptance limits. The relative percent difference met the acceptance limits.

The raw data were examined to verify the correct reporting of results greater than the LOD, and for results that were less than the LOD. No discrepancies were noted.

Results reported below the LOD are qualified as estimated (J) if not previously qualified for any QC deficiencies.

D.2.5 REFERENCES

DOE 2016, *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites, Volume 1: Uncontaminated Property*, PPPO-3329827, Revision 0, U.S. Department of Energy, Lexington, KY, February.

DOE 2015, *108-Acre Area Sampling and Analysis Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0711&D1, U.S. Department of Energy, Piketon, OH, September.

DOE 2014, *Sample and Analysis Data Quality Assurance Project Plan (SADQ) at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0278&D2, U.S. Department of Energy, Piketon, OH, February.

DOE 2013, *Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0127&D7, U.S. Department of Energy, Piketon, OH, December.

EPA 2006a, *Data Quality Assessment: Statistical Tools for Practitioners*, QA/G-9S, EPA/240/B-06/003, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C., February.

EPA 2006b, *Data Quality Assessment: A Reviewer's Guide*, EPA QA/G-9R, EPA/240/B-06/002, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C., February.

APPENDIX E: SAMPLING RESULTS

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1. Analytical data are provided on a computer disk in the following Excel files:

- Appendix E – Soil Chemical Data_02242016
- Appendix E – Soil Radiological Data_02242016
- Appendix E – Groundwater Chemical Data_02242016
- Appendix E – Groundwater Radiological Data_02242016

Each Excel file contains multiple worksheets, or tabs, with data. The first tab of each file provides the contents of each file.

2. A PDF file showing the areal coverage of the radiological gamma survey is provided on the computer disk.

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The following analytical data qualifiers were used for reporting analytical results (codes typically appended to the analytical result):

Inorganic Analysis Qualifiers

- B This qualifier is used when the value was less than the Contract Required Detection Limit or Required Reporting Limit specified, but greater than or equal to the Instrument Detection Limit/Method Detection Limit.
- U The analyte was analyzed for but not detected.
- J This qualifier indicates an estimated value.
- E The reported value is estimated because of the presence of interference. An explanatory note must be included under comments.
- M Duplicate injection precision was not met.
- N Spiked sample recovery was not within control limits.

Organic Analysis Qualifiers

- U Indicates compound was analyzed for but not detected.
- J This qualifier indicates an estimated value. It is used under the following circumstances: (1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, and (2) when the mass spectral and retention time data indicate the presence of a compound that meets the pesticide/polychlorinated biphenyl identification criteria, and the result is less than the contract-required quantitation limit, but greater than zero.
- B This qualifier is used when the analyte is found in the associated blank as well as in the sample.
- E This qualifier identifies compounds whose concentrations exceed the calibration range of the gas chromatograph/mass spectrometer instrument for that specific analysis.
- Y This qualifier indicates matrix spike/matrix spike duplicate recovery and/or relative percent difference failed to meet acceptance criteria.

Radionuclide Analysis

- B Method blank was not statistically different from sample at a 95 percent level of confidence.
- U Compound was analyzed for but not detected.
- J This qualifier indicates an estimated value.
- X Other specific qualifiers may be required to properly define the results.
- D Sample is statistically different from duplicate at a 95 percent level of confidence.
- L Expected and measured value for laboratory control sample is statistically different at a 95 percent level of confidence.
- M Expected and measured value for matrix spike is statistically different at a 95 percent level of confidence.

The following validation qualifiers were assigned by the data validators:

- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
- U Analyte or compound was considered not detected above the reported detection limit.
- J Analyte or compound was identified; the associated numerical value is approximated.
- UJ Analyte or compound not detected above the reported detection limit, and the reported detection limit is approximated because of quality deficiency.
- R Result is not usable for its intended purpose, so data are of “information only” quality and should be supplemented with additional data for decision making.
- XV Data were not validated; refer to other data fields which may contain more information.
- XZ Data validation performed but no validation qualifiers were applied; refer to other data fields which may contain more information.
- = Data were validated; however, no qualifier was added.

APPENDIX F: SCREENING RISK EVALUATION

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ACRONYMS

bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
DOE	U.S. Department of Energy
DQO	data quality objective
EBS	Environmental Baseline Survey
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
HQ	hazard quotient
MCL	maximum contaminant level
Ohio EPA	Ohio Environmental Protection Agency
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
RAGS	Risk Assessment Guidance for Superfund
RMD	Risk Methods Document
SVOA	semivolatile organic analysis
VISL	vapor intrusion screening level
VOA	volatile organic analysis

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F.1. INTRODUCTION

The goal of this screening risk evaluation is to determine if the parcel proposed for transfer is protective of human health and the environment for its intended use. Specifically, the objectives of this evaluation are: (1) to determine exposure to constituents based on available data for the soils and groundwater, and (2) to use these data to provide an estimate of the potential for adverse effect to human health. The risk calculations utilized in this evaluation are taken from the *Methods for Conducting Human Health Risk Assessment and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant* (Risk Methods Document [Portsmouth Gaseous Diffusion (PORTS) RMD]) (U.S. Department of Energy [DOE] 2015a), which was developed based upon the U.S. Environmental Protection Agency's (EPA's) *Risk Assessment Guidance Document for Superfund* (RAGS) (EPA 1989). The following sections describe the process used to provide a quantitative analysis of the potential risks to human health from exposure to environmental media within Parcel 1.

F.1.1 RISK EVALUATION METHODOLOGY

The risk evaluation methodology uses a step-wise process in order to determine if the property under consideration is suitable (from a health perspective) for transfer. As detailed below, the site data are screened against the industrial screening levels developed in the PORTS RMD¹.

The risk evaluation method to support the title transfer of Parcel 1 includes analysis of both soil (surface and subsurface) and groundwater. This evaluation assumes an industrial land use. Future potential workers who occupy the parcel may be exposed to possible contamination via the soil while working at the site. Because there is the potential for future construction of a facility at the site, an analysis of both soil and groundwater water data was conducted to determine if concentrations of vapors emitted through volatile chemicals would cause adverse health effects (there are no groundwater contaminant plumes within Parcel 1; the nearest groundwater contaminant plume is greater than 300 ft from the parcel boundary).

As indicated above, the evaluation of risk and hazards is based on comparing soil and groundwater sample results to industrial screening levels. The screening levels were developed based on an industrial exposure scenario set at an elevated lifetime cancer risk (ELCR) of 1E-5 and a hazard quotient (HQ) of 1.0. These levels were selected during the data quality objective (DQO) process to be protective concentrations and meet the definition under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 120(h)(4) that the environmental condition of concentrations of contaminants below these levels would not pose a threat to human health. These screening levels are also consistent with Ohio Environmental Protection Agency (Ohio EPA) guidance (*Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for the DERR Remedial Response Program* [Ohio EPA 2009]), which states that a human health cumulative ELCR of 1×10^{-5} and 1.0 hazard index should be applied as a goal during site evaluations. If there are constituents with concentrations in excess of the screening levels, further evaluation will be conducted to ensure that cumulative risks/hazards do not exceed acceptable risk/hazard ranges.

F.2. DESCRIPTION AND HISTORY

A full description and history of Parcel 1, as well as site maps, are presented in Sections 1 through 5 of this Environmental Baseline Survey (EBS) report.

¹ The industrial worker as defined in the PORTS RMD is assumed to have an exposure of 250 days per year over a period of 25 years.

F.3. AVAILABLE DATA

The data available for the Parcel 1 study area consist of soil results from 25 total sampling locations (16 historical locations and nine supplemental locations). In addition, groundwater data were evaluated for potential vapor intrusion into a hypothetical potential future building. Section 8 of this EBS provides a detailed evaluation of all available data, which are summarized in the following sections.

F.4. DATA DISCUSSION

There were several soils sampling events conducted to characterize soils within the parcel. The first event was to support the X-626 Cooling Tower Unit Investigation. Ten hand-auger soil samples were collected and analyzed for metals. The second event consisted of two surface soil samples collected in 2012 as part of the United State Enrichment Corporation's environmental monitoring program. Analyses included total uranium and technetium-99. The third event was conducted to support the potential placement of the on-site disposal cell and consisted of surface and subsurface soil sampling (DOE 2014). The fourth sampling event was conducted to support this land transfer, and 10 surface soil samples (0 to 0.5 ft) were collected in 2015. The sampling and analysis plan to collect supplemental data from Parcel 1 called for duplicate analyses and was conducted at one location (AC-108-1HPGE-026) for quality assurance purposes. For the risk evaluation, the duplicate sample was treated as a regular sample and included in the data analysis as such.

The groundwater data for evaluating protectiveness for human health are data collected to support the potential placement of the on-site waste disposal facility and were sampled from 2011 through 2013. These data had sufficient detection limits for use in risk evaluation. Historical well data (F-25G and F-26B) did not have appropriate analyte detection limits for use in risk evaluations and were eliminated from screening. In addition, F-26B is screened in the Berea sandstone, which is a confined regional aquifer.

F.4.1 PARCEL 1 SOIL DATA

Field sampling was conducted in 1991, 2012, 2014, and 2015 and generated soil analytical results from 22 locations (Figure F.1). Samples were collected from 0 to greater than 16 ft below ground surface (bgs) and analyzed for metals, polycyclic aromatic hydrocarbons (PAHs), semivolatile organic analyses (SVOAs), volatile organic analyses (VOAs), pesticides/polychlorinated biphenyls (PCBs), and radionuclides.

F.4.2 PARCEL 1 GROUNDWATER DATA

Field sampling was conducted in 2011 through 2013 and generated groundwater analytical results from two piezometer locations (Figure F.2). Samples were analyzed for metals, herbicides, PAHs, PCBs, SVOAs, VOAs, dioxides/furans, and radionuclides.

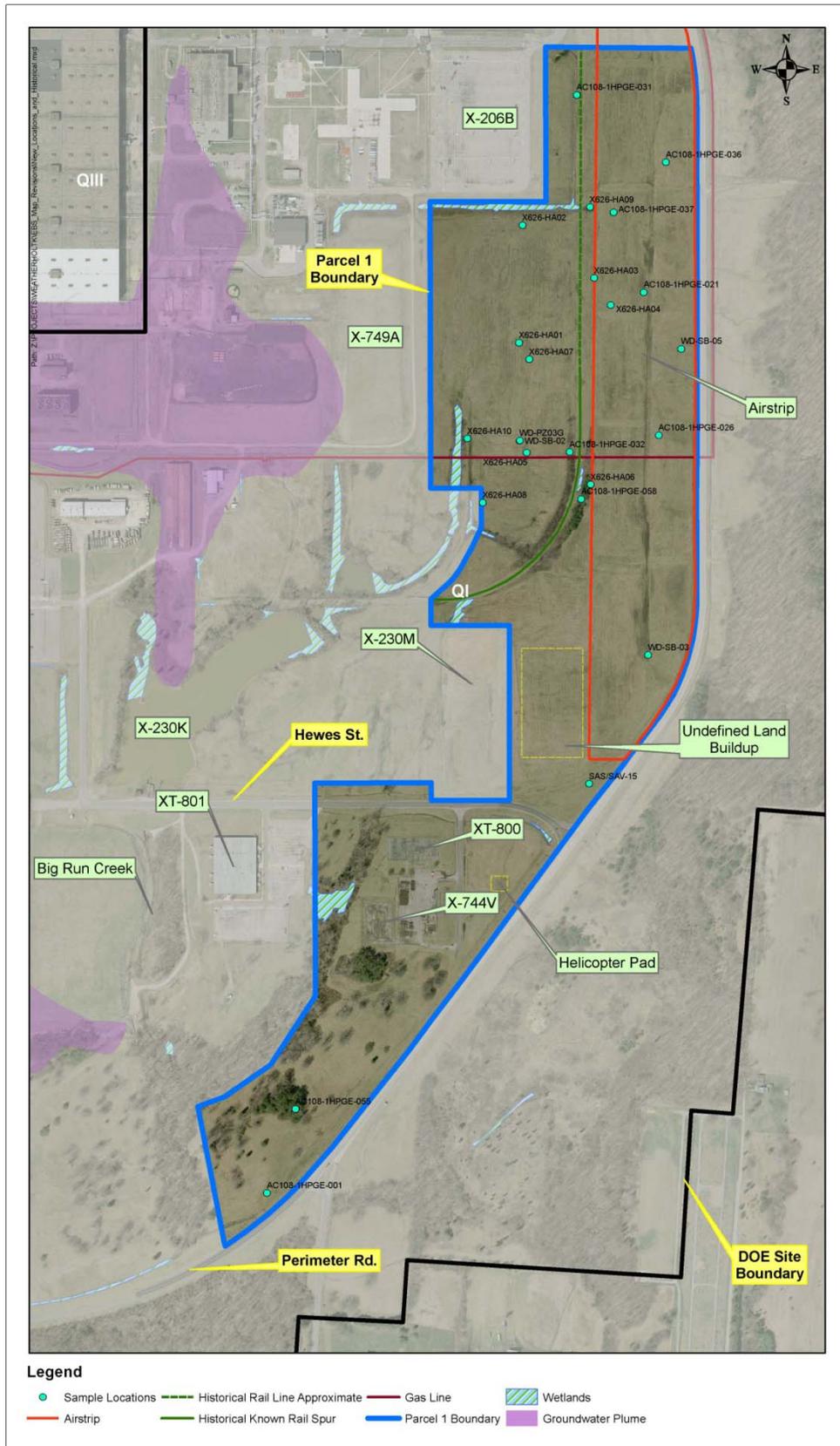


Figure F.1. Parcel 1 Historical/New Soil Sampling Locations

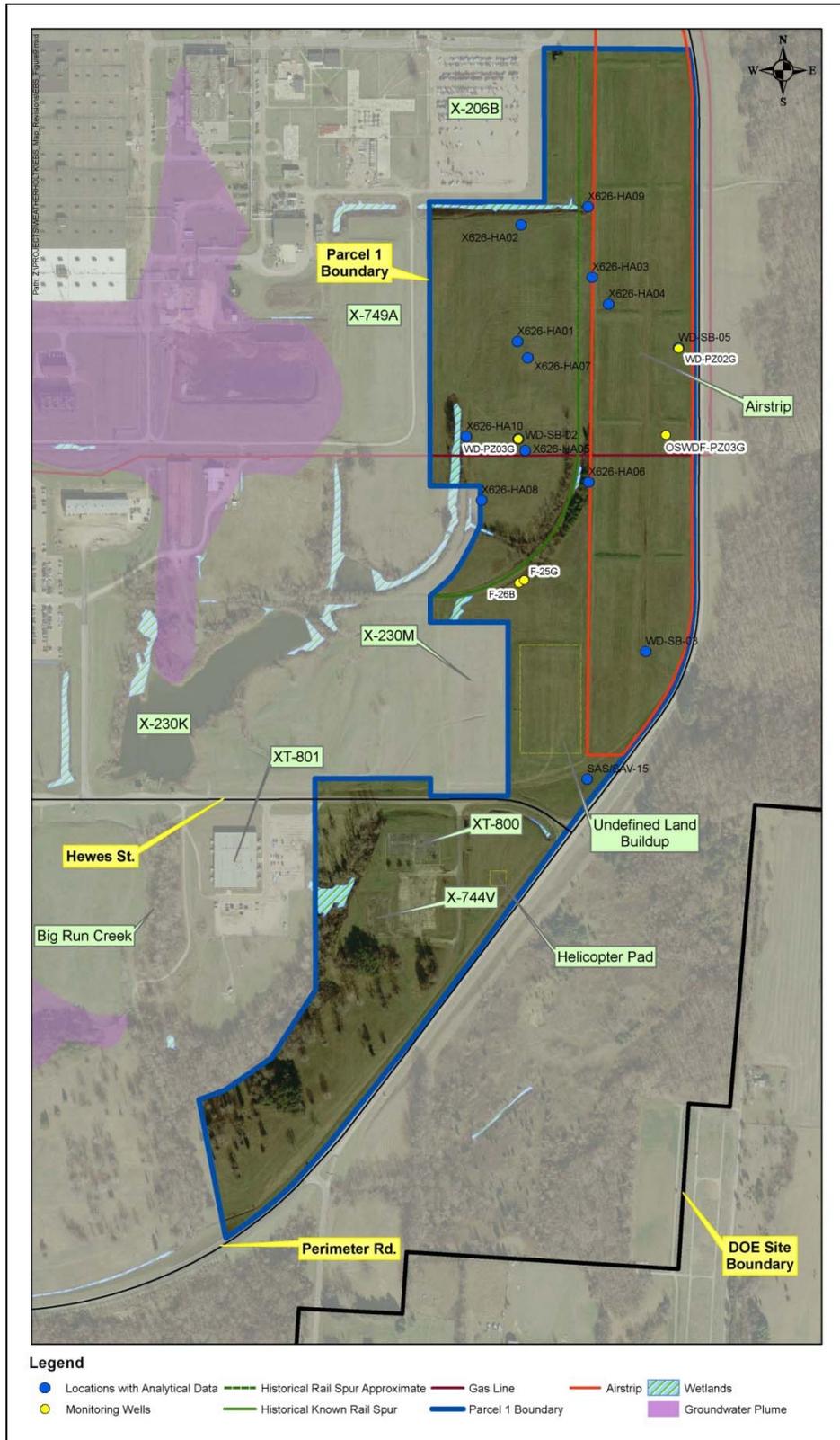


Figure F.2. Parcel 1 Historical Soil and Groundwater Sampling Locations

F.5. EXPOSURE ASSESSMENT

An exposure assessment combines information about the site characteristics and site-related data with exposure assumptions in order to quantify the intake of contaminants by a hypothetically exposed individual. The estimated exposure is based on the following:

- Characterizing the exposure scenario based on site survey
- Identifying complete exposure pathways based on assumed receptor activities and site-specific information
- Quantifying receptor exposure based on exposure assumptions and chemical-specific data.

The steps in the exposure assessment are discussed in detail in the following sections.

F.5.1 EXPOSURE SCENARIO EVALUATION

Exposure scenarios are selected based on site surveys and anticipated uses of Parcel 1. This land parcel is being transferred under CERCLA 120(h)(4), Clean Parcel Determination. The land use as per the DQO for this land parcel is for industrial uses (it should be noted that the Quitclaim deed prohibits residential use.)

Exposures to the industrial worker, while spending time outside within the transfer area, were evaluated using soil sampling results. Additional exposure scenarios include evaluation of the vapor intrusion pathway via groundwater and soil to a hypothetical worker in a hypothetical building. Uncertainties associated with the exposure scenarios evaluation are presented in Section F.7.

The hypothetical industrial scenario assumes that a worker may be present on Parcel 1 in the future. It is assumed that the industrial worker is exposed to soils from 0 to greater than 16 ft bgs while working. Exposures to soils greater than 16 ft is not likely in the industrial scenario. In addition, groundwater data were evaluated for potential exposure via the vapor intrusion pathway to a hypothetical industrial worker in a building. Details associated with this hypothetical industrial scenario are presented in the following section.

F.5.2 EXPOSURE PATHWAY IDENTIFICATION

Evaluating the exposure pathways requires describing the mechanism by which an individual may become exposed to contaminants associated with Parcel 1 transfer area soils and potential vapors from volatile chemicals. A complete exposure pathway requires the following:

- A source of contamination
- A pathway of migration from the source of contamination to the exposure point
- A receptor present at the exposure point
- An exposure mechanism at the exposure point.

If any one component of a complete pathway is missing, then the pathway is considered incomplete. Only complete exposure pathways were evaluated in the risk screen.

Complete exposure pathways and routes associated with Parcel 1 soils include ingestion, inhalation, dermal contact, and external exposure to ionizing radiation. The ingestion pathway is complete because contaminated soils may be present, a receptor may be present on the parcel, and a receptor may contact

and ingest contaminants from the soil. The inhalation pathway is complete because contaminated soils may be present, contaminants may become airborne, a receptor may be present on the parcel, and an individual may inhale contaminants that are in the air. The dermal pathway is complete because contaminated media may be present, a receptor may be present on the parcel, and a receptor may contact and dermally absorb contaminants from the soil. External exposure to ionizing radiation is a complete exposure pathway because radionuclides may be present in soil, ionizing radiation may be emitted, and a receptor may be present to absorb the radiation.

There is also the potential for a complete pathway for vapor intrusion from volatile chemicals that emit vapors that can then be transported from groundwater or soil into buildings via foundations or through basements. Because there is a potential for future construction at the parcel, this pathway is being evaluated to determine if concentrations of volatile chemicals in groundwater or soil within the parcel may pose a threat to human health via this potential hypothetical pathway. The exposure route for this pathway would be through inhalation of volatile chemicals.

F.5.3 QUANTIFICATION OF EXPOSURE

The evaluation of the Parcel 1 industrial worker scenario included a comparison of detected concentrations with the industrial worker screening levels presented in the PORTS RMD, adjusted to an ELCR of 1E-5 and an HQ of 1.0. These risk and hazard levels are consistent with the decisions in the DQOs. The exposure parameters are summarized here for the screening levels and more detailed discussion can be found in the PORTS RMD. A brief description of the industrial worker exposure to media along with assumptions is presented below.

F.5.3.1 Industrial Exposure Scenario to Soil (Direct Contact)

The industrial exposure scenario to soil (direct contact) assumes the following:

- The worker is present on Parcel 1 for 25 years
- The worker is present on site for 250 days/year
- The worker is exposed to soils for 8 hours/day
- The worker ingests 50 mg/day of soil
- The worker inhales 20 m³/day.

F.5.3.2 Industrial Exposure via Soil Vapor

The industrial exposure via soil vapor uses the Johnson-Ettinger model with the assumptions described in this section.

Johnson and Ettinger (1991) introduced a one-dimensional, screening-level model incorporating both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from either subsurface soils or groundwater into indoor spaces located directly above or in close proximity to the source of contamination.

The model incorporates an estimation of the vapor concentration at the source of the contamination, estimations of the diffusion through the capillary and unsaturated zones (taking into account the soil type), and an estimate of the soil vapor permeability. Inputs to the model include chemical properties of the contaminant, saturated and unsaturated zone soil properties, and structural properties of the building. Vapor intrusion soil screening levels (ELCR of 1E-5 and an HQ of 1.0) for the Portsmouth Gaseous Diffusion Plant (PORTS) were calculated using the following site-specific values for model inputs:

- Soil type = silty clay
- Depth below grade to the bottom of the enclosed space floor = 15 cm
- Depth below grade to the top of the contamination = 13 ft (assumed thickness of the Minford Member of the Teays Formation)
- Average soil temperature = 25°C
- Exposure factors = PORTS site-specific exposure factors for the industrial scenario, as shown in Table F.1.

Table F.1. PORTS Site-specific Exposure Factors for Industrial Scenario

Scenario	ATc (years)	ATnc (years)	ED (years)	EF (days/year)	TR/THQ (unitless)
Industrial	70	25	25	250	1E-05/1.0

ATc = averaging time for carcinogens
 ATnc = averaging time for noncarcinogens
 ED = exposure duration

EF = exposure frequency
 THQ = target hazard quotient
 TR = target risk

F.5.3.3 Industrial Exposure via Vapor Intrusion via Groundwater

The industrial exposure via vapor intrusion via groundwater uses the EPA vapor intrusion screening level (VISL) calculator to develop groundwater screening levels with the assumptions described in this section.

EPA’s VISL Calculator (EPA 2015) is a spreadsheet tool that: (1) lists chemicals considered to be volatile and known to pose a potential cancer risk or noncancerous hazard through the inhalation pathway; (2) provides generally recommended screening-level concentrations for groundwater, soil gas (exterior to buildings and sub-slab), and indoor air for default target risk levels and exposure scenarios; and (3) allows calculation of site-specific screening levels based on user-defined target risk levels and exposure scenarios (EPA 2012). The VISL Calculator can assist in determining whether the vapor intrusion pathway has the potential to pose an unacceptable level of risk to human health by: (1) identifying whether chemicals that can pose a risk through vapor intrusion are present; (2) determining if those chemicals are present at explosive levels; and (3) comparing subsurface or indoor data against screening levels provided in the Calculator. The screening levels are calculated using the recommended approaches in existing guidance and are based on current understanding of the vapor intrusion pathway. Target indoor air concentrations are calculated according to the guidance provided in *Risk Assessment Guidance for Superfund Part F* (EPA 2009).

The VISL Calculator uses a conservative generic site model and attenuation factors that were developed based on analysis of vapor intrusion data in the EPA’s vapor intrusion database (EPA 2002a, 2008). This conceptual model assumes a groundwater or vadose zone source of volatile vapors that diffuse upwards through unsaturated soils towards the surface and into buildings. In this model, the soil in the vadose zone is considered to be relatively homogeneous and isotropic, though horizontal layers of soil types can be accommodated. The receptors are assumed to be occupants in buildings with poured concrete foundations (for example, basement or slab-on-grade foundations or crawlspaces with a liner or other vapor barrier). The underlying assumption for this generic model is that site-specific subsurface characteristics will tend to reduce or attenuate vapor concentrations as vapors migrate upward from the source and that site-specific building characteristics will tend to further dilute the vapors as they mix

with the air in the building (EPA 2014). The attenuation factors used in this guidance are generally considered by EPA to be reasonable upper-bound values based on data from other sites where paired indoor air, groundwater, and soil gas samples were available in addition to the theoretical considerations (EPA 2002b). Inhalation of volatile chemicals was considered for chemicals with a Henry's Law constant of 1×10^{-5} atm-m³/mole or greater and a molecular weight of less than 200 g/mole. Site-specific criteria that can be input to the VISL Calculator include exposure scenario (either residential or industrial), target risk for carcinogens, target hazard quotient for noncarcinogens, and average in situ groundwater temperature. For these site specific screening levels for groundwater, an industrial scenario was selected with a target risk of 1E-5 and a target HQ of 1.0, with an average in situ groundwater temperature of 25°C.

F.5.3.4 Industrial Exposure via Groundwater

Groundwater data results from the two Gallia Member wells sampled from 2011 through 2013 were screened against maximum contaminant levels (MCLs); if no MCLs exist, results were screened against the industrial site-specific groundwater screening levels as presented in the PORTS RMD, adjusted to an ELCR of 1E-5 and an HQ of 1.0.

F.6. RISK SCREENING RESULTS

This section presents the results of the evaluation of the site data compared to the industrial screening levels discussed previously.

F.6.1 RISK RESULTS

Hypothetical industrial exposures to direct contact with soils may occur via ingestion, inhalation, dermal contact, and external exposure. In addition, exposures through vapors emanating from volatile chemicals in soils and groundwater may also occur. Site data were compared to industrial screening levels developed by DOE. For direct contact with soils, the process was as follows:

- Each detected soil results were compared with soil background levels
- Detected result was compared with the PORTS RMD screening level for the industrial worker scenario, adjusted to an ELCR of 1E-5 and an HQ of 1.0
- Detected concentrations were evaluated to determine the potential for a cumulative risk exceeding an ELCR of 1E-5 or an HQ of 1.0.

Table F.2 presents the results of the Parcel 1 soils risk screening evaluation based on industrial exposures and indicates the following:

- No constituents were determined to exceed screening levels.
- No detected concentrations of constituents exceeded an ELCR of 1E-5 or an HQ of 1.0 when evaluated cumulatively.

Table F.2. Results of Industrial Risk Screen for Parcel 1 Soils

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Surface Soils (0 to 1 ft)									
Acenaphthene	1/10	0.00147	0.00147	mg/kg	--	--	3.68E+02	nc	0/1
Anthracene	3/10	0.00134	0.00166	mg/kg	--	--	3.68E+02	nc	0/3
Benz(a)anthracene	7/10	0.0011	0.00923	mg/kg	--	--	8.96E+02	c	0/7
Benzo(a)pyrene	5/10	0.0013	0.00922	mg/kg	--	--	8.96E+00	c	0/5
Benzo(b)fluoranthene	7/10	0.00115	0.0168	mg/kg	--	--	8.96E+00	c	0/7
Benzo(ghi)perylene	5/10	0.0011	0.00787	mg/kg	--	--	3.68E+02	nc	0/5
Benzo(k)fluoranthene	4/10	0.00142	0.00629	mg/kg	--	--	8.96E+00	c	0/4
Chrysene	6/10	0.0011	0.00955	mg/kg	--	--	8.96E+00	c	0/6
Dibenz(a,h)anthracene	3/10	0.00148	0.00191	mg/kg	--	--	8.96E+00	c	0/3
Fluoranthene	7/10	0.00154	0.0181	mg/kg	--	--	3.68E+02	nc	0/7
Fluorene	1/10	0.00167	0.00167	mg/kg	--	--	3.68E+02	nc	0/1
Indeno(1,2,3-cd)pyrene	4/10	0.00202	0.00733	mg/kg	--	--	8.96E+00	c	0/4
2-Methylnaphthalene	2/10	0.00149	0.0024	mg/kg	--	--	3.68E+02	nc	0/2
Naphthalene	2/10	0.00135	0.00139	mg/kg	--	--	3.68E+02	nc	0/2
Phenanthrene	6/10	0.00102	0.00894	mg/kg	--	--	3.68E+02	nc	0/6
Pyrene	7/10	0.00132	0.0169	mg/kg	--	--	3.68E+02	nc	0/7
Total Uranium	15/15	1.6	12.9	mg/kg	4.1	8/15	6.79E+03	nc	0/15
Uranium-233/234	13/13	0.729	74	pCi/g	1.3	9/13	5.69E+02	c	0/13
Uranium-235	3/3	0.0331	0.0459	pCi/g	0.1	0/3	8.17E+00	c	0/3
Uranium-235/236	5/10	0.106	3.06	pCi/g	0.1	5/5	8.17E+00	c	0/5
Uranium-238	13/13	0.728	3.91	pCi/g	1.4	7/13	3.67E+01	c	0/13
Subsurface Soils (1 to 16 ft)									
Aluminum	15/15	7,800	19,000	mg/kg	20,717	0/15	2.15E+06	nc	0/15
Antimony	1/10	0.44	0.44	mg/kg	1.8	0/1	9.34E+02	nc	0/1
Arsenic	16/16	2.7	33	mg/kg	29	1/16	7.25E+01	c	0/16
Barium	15/15	53	220	mg/kg	136	1/15	3.99E+05	nc	0/15
Beryllium	14/15	0.37	1.3	mg/kg	1.6	0/14	4.48E+03	nc	0/14
Cadmium	9/15	0.086	1.5	mg/kg	0.3	5/9	2.24E+03	nc	0/9
Chromium	20/20	6.3	28	mg/kg	29	0/20	3.50E+06	nc	0/20
Cobalt	15/15	2.4	23	mg/kg	37	0/15	6.86E+02	nc	0/15
Copper	15/15	5.8	23	mg/kg	26	0/15	9.34E+04	nc	0/15

Table F.2. Results of Industrial Risk Screen for Parcel 1 Soils (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	Frequency of detects exceeding screening level	
Subsurface Soils (1 to 16 ft) (continued)									
Fluoride	5/5	4.6	6.2	mg/kg	--	--	9.33E+04	nc	0/5
Iron	15/15	10,000	54,000	mg/kg	62,782	0/15	1.64E+06	nc	0/15
Lead	15/15	6.2	46	mg/kg	23	3/15	7.69E+03	c	0/15
Manganese	15/15	40	1,500	mg/kg	1,491	1/15	4.65E+04	nc	0/15
Mercury	11/15	0.015	0.051	mg/kg	0.052	0/11	7.00E+02	nc	0/11
Nickel	15/15	7.8	38	mg/kg	50	0/15	4.26E+04	nc	0/15
Selenium	7/14	0.25	1.7	mg/kg	0.6	4/7	1.17E+04	nc	0/7
Silver	5/15	4.9	14	mg/kg	7	2/5	1.17E+04	nc	0/5
Thallium	10/15	0.13	0.77	mg/kg	0.4	1/10	2.34E+01	nc	0/10
Vanadium	15/15	23	54	mg/kg	58	0/15	1.15E+04	nc	0/15
Zinc	20/20	23	71	mg/kg	117	0/20	7.01E+05	nc	0/20
Acetone	6/15	0.0051	0.018	mg/kg	--	--	1.14E+05	nc	0/6
Bis(2-ethylhexyl)phthalate	1/10	0.052	0.052	mg/kg	--	--	4.67E+03	c	0/1
Methylene chloride	3/15	0.00068	0.00094	mg/kg	--	--	3.32E+03	c	0/3
PCB-1260	1/10	0.025	0.025	mg/kg	--	--	3.27E+01	c	0/1
Pyrene	1/10	0.012	0.012	mg/kg	--	--	3.68E+02	nc	0/1
Plutonium-239/240	2/10	0.0335	0.045	pCi/g	--	--	2.48E+02	c	0/2
Technetium	1/17	0.2	0.2	pCi/g	--	--	1.70E+04	c	0/1
Thorium-228	9/9	0.898	1.45	pCi/g	1.9	0/9	--	--	--
Thorium-230	9/9	0.626	1.53	pCi/g	1.7	0/9	--	--	--
Thorium-232	9/9	0.855	1.27	pCi/g	1.9	0/9	--	--	--
Total Uranium	18/18	0.46	3.4	mg/kg	4.7	0/18	6.79E+03	nc	0/18
Uranium-233/234	15/15	0.572	1.22	pCi/g	1.6	0/15	5.69E+02	c	0/15
Uranium-235	14/16	0.0316	0.0564	pCi/g	0.12	0/14	8.17E+00	c	0/14
Uranium-238	15/15	0.546	1.38	pCi/g	1.6	0/15	3.67E+01	c	0/15
Subsurface Soils (> 16 ft)									
Aluminum	6/6	5,900	12,000	mg/kg	12,698	0/6	2.15E+06	nc	0/6
Arsenic	6/6	1.6	13	mg/kg	86	0/6	7.25E+01	c	0/6
Barium	6/6	33	69	mg/kg	72	0/6	3.99E+05	nc	0/6
Beryllium	6/6	0.49	0.67	mg/kg	1.2	0/6	4.48E+03	nc	0/6
Cadmium	6/6	0.043	0.24	mg/kg	0.7	0/6	2.24E+03	nc	0/6

Table F.2. Results of Industrial Risk Screen for Parcel 1 Soils (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	Background Concentration ¹	Frequency of detects exceeding background	Industrial screening level ² 1E-05 or HQ=1.0	nc	Frequency of detects exceeding screening level
Subsurface Soils (> 16 ft) (continued)									
Chromium	6/6	12	16	mg/kg	25	0/6	3.50E+06	nc	0/6
Cobalt	6/6	5	10	mg/kg	19	0/6	6.86E+02	nc	0/6
Copper	6/6	9.9	17	mg/kg	23	0/6	9.34E+04	nc	0/6
Iron	6/6	11,000	34,000	mg/kg	56,423	0/6	1.64E+06	nc	0/6
Lead	6/6	7.2	15	mg/kg	13	1/6	7.69E+03	c	0/6
Manganese	6/6	91	410	mg/kg	465	0/6	4.65E+04	nc	0/6
Mercury	3/6	0.0072	0.039	mg/kg	0.041	0/3	7.00E+02	nc	0/3
Nickel	6/6	12	23	mg/kg	53	0/6	4.26E+04	nc	0/6
Selenium	3/6	0.33	0.85	mg/kg	0.6	2/3	1.17E+04	nc	0/3
Thallium	6/6	0.14	0.53	mg/kg	0.8	0/6	2.34E+01	nc	0/6
Vanadium	6/6	22	34	mg/kg	65	0/6	1.15E+04	nc	0/6
Zinc	6/6	40	83	mg/kg	148	0/6	7.01E+05	nc	0/6
Acetone	5/8	0.005	0.062	mg/kg	--	--	1.14E+05	nc	0/5
Benzo(a)pyrene	2/6	0.049	0.27	mg/kg	--	--	8.96E+00	c	0/2
2-Butanone	1/8	0.012	0.012	mg/kg	--	--	2.84E+04	nc	0/1
Carbon disulfide	1/8	0.0035	0.0035	mg/kg	--	--	7.38E+02	nc	0/1
Methylene chloride	1/8	0.001	0.001	mg/kg	--	--	3.32E+03	c	0/1
Thorium-228	6/6	0.889	1.44	pCi/g	1.6	0/6	--	--	--
Thorium-230	6/6	0.701	1.54	pCi/g	2.4	0/6	--	--	--
Thorium-232	6/6	0.831	1.24	pCi/g	1.6	0/6	--	--	--
Total Uranium	6/6	0.48	1.7	mg/kg	7.2	0/6	6.79E+03	nc	0/6
Uranium-233/234	6/6	0.723	1.37	pCi/g	2.4	0/6	5.69E+02	c	0/6
Uranium-235	6/6	0.054	0.0782	pCi/g	0.17	0/6	8.17E+00	c	0/6
Uranium-238	6/6	0.765	1.37	pCi/g	2.4	0/6	3.67E+01	c	0/6

Notes:

¹Background soil concentration values were taken from the Final Soil Background Report (DOE 2015b).

²The industrial worker screening levels were taken from the Human Health Risk Methods Document (DOE 2015a) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

c = cancer risk

nc = noncancer risk

DOE = U.S. Department of Energy

ELCR = excess lifetime cancer risk

HQ = hazard quotient

-- = not applicable or not available

PCB = polychlorinated biphenyl

For evaluation of soils and groundwater for potential vapor intrusion, the process for screening was as follows:

- To evaluate potential vapor intrusion from soils, each detected soil concentration was compared to the Johnson-Ettinger-derived screening values. For groundwater, each detected result from the Remedial Investigation and Feasibility Study Report for the Site-Wide Waste Disposition Evaluation Project (DOE 2014) was compared to its VISL from the PORTS RMD for the industrial worker scenario, adjusted to an ELCR of 1E-5 and an HQ of 1.0.

Table F.3 presents the results of the Parcel 1 risk screening evaluation for the potential of vapor intrusion for soils. No constituents were determined to exceed VISLs for soils.

Table F.4 presents the results of the Parcel 1 risk screening evaluation for the potential of vapor intrusion for groundwater. One constituent, cyanide, exceeded the VISL (3.5 µg/L) at one location WD-PZ-03G. The average cyanide concentration for groundwater of 3.2 µg/L, however, did not exceed the VISL. The uncertainty associated with the use of data from piezometers is discussed in Section F.7.

Table F.5 presents the results of the Parcel 1 groundwater data from the Gallia Member against MCLs (or industrial risk-based screening levels if no MCL exists). There are exceedances of both MCLs and industrial risk-based screening levels for some constituents. Groundwater usage will be deemed restricted, thus making exposure to groundwater an incomplete pathway. These comparisons are presented for informational purposes.

Using available data for Parcel 1 and the assumptions made in this risk evaluation, the results of screening of soil and groundwater data against the industrial screening levels indicates a low possibility of adverse health effects associated with industrial exposure to Parcel 1 soils and groundwater. Therefore, this screening risk evaluation determined the parcel proposed for transfer is protective of human health and the environment for its intended use.

Table F.3. Results of Johnson-Ettinger Screen for Parcel 1 Soils

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	JE screening level ¹		Frequency of detects exceeding screening level
					1E-05 or HQ = 1.0		
Soil (0 to 16 ft)							
Acenaphthene	1/20	0.00147	0.00147	mg/kg	7.22E+01	nc	0/1
Anthracene	3/20	0.00134	0.00166	mg/kg	7.22E+01	nc	0/3
Benzo(ghi)perylene	5/20	0.0011	0.00787	mg/kg	7.22E+01	nc	0/5
Fluoranthene	7/20	0.00154	0.0181	mg/kg	7.22E+01	nc	0/7
Fluorene	1/20	0.00167	0.00167	mg/kg	7.22E+01	nc	0/1
2-Methylnaphthalene	2/20	0.00149	0.0024	mg/kg	7.22E+01	nc	0/2
Naphthalene	2/20	0.00135	0.00139	mg/kg	7.22E+01	nc	0/2
Phenanthrene	6/20	0.00102	0.00894	mg/kg	7.22E+01	nc	0/6
Pyrene	8/20	0.00132	0.0169	mg/kg	7.22E+01	nc	0/8
Acetone	6/15	0.0051	0.018	mg/kg	6.01E+01	nc	0/6
Methylene chloride	3/15	0.00068	0.00094	mg/kg	2.75E-01	c	0/3

Note:

¹The JE screening levels were taken from the Human Health Risk Methods Document (DOE 2015b) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

c = cancer risk

nc = noncancer risk

DOE = U.S. Department of Energy
ELCR = excess lifetime cancer risk

HQ = hazard quotient
JE = Johnson-Ettinger

Table F.4. Results of VISL Screen for Parcel 1 Groundwater

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	MCL ¹	Frequency of detects exceeding		Frequency of detects exceeding screening level	
						MCL	VISL screening level ²		
Acetone	1/28	5.8	5.8	µg/L	--	--	9.49E+07	nc	0/1
Methylene chloride	10/28	0.32	0.89	µg/L	5	0/10	1.98E+04	nc	0/10
Cyanide	7/10	2.5	7.2	µg/L	200	0/7	3.54E+00	nc	3/7

Notes:

¹MCL values were taken from the Human Health Risk Methods Document (DOE 2015a).

²The VISLs were taken from the Human Health Risk Methods Document (DOE 2015a) and adjusted for an ELCR = 1E-05 and/or an HQ = 1.0.

nc = noncancer risk

DOE = U.S. Department of Energy
ELCR = excess lifetime cancer risk
HQ = hazard quotient

MCL = maximum contaminant level
-- = not applicable or not available
VISL = vapor intrusion screening level

Table F.5. Results of Waste Disposition Wells PZ02 and PZ03 Screen against Industrial Groundwater Screening Levels and MCLs

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	MCL' or Industrial screening level 1E-05 or HQ = 1.0	Frequency of detects exceeding MCL or Industrial screening level
Chloride	30/30	5,200	30,000	µg/L	--	--
Fluoride	9/30	66	140	µg/L	4.60E+03	nc
Nitrate	3/30	43	56	µg/L	--	--
Sulfate	30/30	420,000	900,000	µg/L	--	--
Aluminum	27/56	19	8,800	µg/L	1.15E+05	nc
Antimony	3/56	0.43	0.57	µg/L	6.00E+00	--
Arsenic	56/56	3.2	32	µg/L	1.00E+01	36/56
Barium	56/56	21	97	µg/L	2.00E+03	--
Beryllium	4/56	0.083	0.74	µg/L	4.00E+00	--
Cadmium	9/56	0.042	0.65	µg/L	5.00E+00	--
Calcium	58/58	85,000	220,000	µg/L	--	--
Chromium	22/56	0.64	22	µg/L	1.00E+02	--
Cobalt	23/56	0.061	14	µg/L	3.48E+02	nc
Copper	23/56	0.78	26	µg/L	1.30E+03	--
Iron	56/56	21,000	57,000	µg/L	8.06E+04	nc
Lead	24/56	0.18	17	µg/L	1.50E+01	1/24
Lithium	20/20	15	38	µg/L	--	--
Magnesium	58/58	52,000	130,000	µg/L	--	--
Manganese	56/56	570	1,000	µg/L	5.00E+01	56/56
Molybdenum	36/36	1.1	16	µg/L	--	--
Nickel	23/56	0.38	37	µg/L	2.17E+03	nc
Potassium	58/58	1,800	6,800	µg/L	--	--
Selenium	3/56	0.7	1.3	µg/L	5.00E+01	--
Silver	11/56	0.045	2.1	µg/L	4.78E+02	nc
Sodium	58/58	36,000	59,000	µg/L	--	--
Strontium	20/20	350	1,800	µg/L	--	--
Thallium	16/56	0.038	0.69	µg/L	2.00E+00	--
Titanium	8/20	0.62	190	µg/L	--	--
Uranium	34/56	0.02	2.3	µg/L	3.00E+01	--
Vanadium	25/56	0.73	43	µg/L	7.44E+02	nc
Zinc	22/56	2	110	µg/L	3.47E+04	nc

Table F.5. Results of Waste Disposition Wells PZ02 and PZ03 Screen against Industrial Groundwater Screening Levels and MCLs (Continued)

Analyte	Frequency of detect	Minimum Detect	Maximum Detect	Units	MCL ¹ or Industrial screening level 1E-05 or HQ = 1.0		Frequency of detects exceeding MCL or Industrial screening level
Beta activity	2/18	4.27	5.09	pCi/L	--		--
Plutonium-239/240	1/28	0.0619	0.0619	pCi/L	2.88E-03	c	--
Technetium-99	1/23	1.82	1.82	pCi/L	--		--
Thorium-228	2/10	0.0334	0.321	pCi/L	--		--
Thorium-230	3/10	0.0658	0.24	pCi/L	--		--
Thorium-232	1/10	0.0868	0.0868	pCi/L	--		--
Uranium-233/234	12/28	0.0562	0.8	pCi/L	1.02E+01		--
Uranium-238	11/28	0.0606	0.806	pCi/L	9.99E+00		--
Benzoic acid	2/28	19	23	µg/L	--		--
Bis(2-ethylhexyl) phthalate	7/28	0.98	2.9	µg/L	6.00E+00		--
Di-n-butyl phthalate	1/28	3.66	3.66	µg/L	--		--
Acetone	1/28	5.8	5.8	µg/L	1.25E+05	nc	--
Methylene chloride	10/28	0.32	0.89	µg/L	5.00E+00		--
Alkalinity	28/28	110,000	290,000	µg/L	--		--
Alkalinity as CO ₃	1/30	17,000	17,000	µg/L	--		--
Alkalinity as HCO ₃	29/30	110,000	300,000	µg/L	--		--
Ammonia	5/5	84	760	µg/L	--		--
Ammonium Nitrogen	19/28	120	690	µg/L	--		--
Chromium, hexavalent	13/23	4.1	17	µg/L	--		--
Cyanide	7/10	2.5	7.2	µg/L	2.00E+02		--

Notes:

¹MCL values were taken from the Human Health Risk Methods Document (DOE 2015a). MCL for uranium-234 is listed as the MCL for uranium-233/234.

c = cancer risk

nc = noncancer risk

DOE = U.S. Department of Energy

HQ = hazard quotient

MCL = maximum contaminant level

F.7. EVALUATION OF UNCERTAINTIES

The estimation of uncertainty, whether quantitative or qualitative, is fundamental to scientific activities that involve measured or assessed quantities. Estimates of risk are conditional based on a number of assumptions concerning exposure. Comparison of analytical data to a point estimate of risk/hazard, as has been done in this screening-level risk evaluation, has the potential to yield an overestimation of the actual risk/hazard an industrial worker would encounter.

Uncertainty about environmental risk estimates is known to be at least an order of magnitude or greater (EPA 1989). The evaluation of uncertainties for this risk screen is qualitative, since the resource requirements necessary to provide a quantitative statistical uncertainty analysis for this project would generally outweigh the benefits. The focus of the discussion will be on important variables and assumption that contribute most to the overall uncertainty.

F.7.1 UNCERTAINTY IN THE SOURCE TERM

Representative concentrations and other statistics are calculated in this risk screen based on the assumption that the samples collected are truly random samples. Some of the data were not taken randomly, but they came from biased sampling, aimed at identifying high contamination locations.

The piezometer data (two locations) were placed to gather data for a siting study regarding placement of the on-site waste disposal facility. Piezometers are temporary in nature unlike permanent wells and may yield data that are not representative of the groundwater (monitoring wells are typically developed to remove fine sediment whereas piezometers, installed for groundwater elevation data, may not undergo the same rigor of development). These wells were analyzed for trichloroethene, but all results were nondetects.

Limitations of Models

The VISL Calculator and the Johnson-Ettinger Vapor Intrusion Model are theoretical approximations of complex physical and chemical processes, and results of these models should be examined and applied with respect to actual site conditions encountered during project-specific work. Currently, concentrations calculated for PORTS using these models are considered to be applicable for use in screening level development for this document, and there is no need to perform additional site-specific modeling at this time. However, if uncertainty is identified with the results of these models as it applies to a specific PORTS project, it is recommended (consistent with EPA guidance, [EPA 2004]) that site-specific modeling be considered to reduce the uncertainty of these values.

F.7.2 UNCERTAINTY IN THE EXPOSURE ASSESSMENT

For each exposure pathway, assumptions are made concerning the parameters, the routes of exposure, the amount of contaminated media an individual can be exposed to, and intake rates for different routes of exposure. The assumptions in this risk evaluation are consistent with EPA-approved parameters and default values. When several of these upper-bound values are combined in estimating exposure for any one pathway, the resulting risks can be in excess of the 99th percentile and, therefore, outside the range that may be reasonable expected.

The guidance values for intake rates and exposure parameters are assumed to be representative of the hypothetical populations evaluated. All contaminant exposures and intakes are assumed to be from the site-related media (i.e., no other sources contribute to the receptor's risk). Even if these assumptions are true, other areas of uncertainty may apply. Selected intake rates and population characteristics (i.e., weight, life span, and activities) are assumed to be representative of the exposed population.

The consistent conservative used in the estimation of these parameters generally leads to overestimation of the potential risk to the postulated receptors.

F.7.3 UNCERTAINTY IN TOXICITY VALUES AND RISK PREDICTIONS

Uncertainty in the values used to represent the dose-response relationship will highly impact the risk estimates. These uncertainties are contaminant-specific and are embedded in the toxicity value. The factors that are incorporated to represent sources of uncertainty include the source of the data, duration of the study, extrapolations from short- to long-term exposures, intrahuman or interspecies variability, and other special considerations. In addition, toxicity varies with the chemical form.

Uncertainties related to the summation of carcinogenic risk and noncarcinogenic hazard estimates across contaminants and pathways are a primary uncertainty in the risk characterization process. In the absence of information on the toxicity of specific chemical mixtures, additive (cumulative) risks are assumed (EPA 1989).

Limitation of the additive risk approach for exposure to multiple chemicals include the following:

- 1) The slope factors may represent the mean but often represent the upper 95th percentile estimate of the potency (the central estimate on the mean for radionuclides), so the summation a result in excessively conservative (in terms of protecting human health) estimate of lifetime risk.
- 2) The reference doses do not have equal accuracy or precision and are not based on the same severity of effects.
- 3) The effects of a mixture of carcinogens are unknown, and possible interactions could be synergistic or antagonist.

Despite these limitations and the general unavailability of data on these interactions, summations were performed for the carcinogenic risks and chemical hazards in the risk screen. This approach is consistent with RAGS (EPA 1989).

F.8. REFERENCES

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APPENDIX K ATTACHMENT 1

Upon completion of Appendix A to the Example PORTS EBS (see APPENDIX K) the signed certification from the EMCBC Certified Realty Specialist will be inserted here.

A future update to this protocol will include the final as concurred version of the PORTS EBS.