SAMPLING AND ANALYSIS PLAN AND SCOPING SURVEY FOR PARCEL 4 AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT, PIKETON, OHIO

U.S. Department of Energy
DOE/PPPO/03-1202&D1

September 2024

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September 2024

Prepared for
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Prepared by
Fluor-BWXT Portsmouth LLC, Under Contract DE-AC30-10CC40017
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ACRONYMS

AL	Authorized Limit
AMSL	above mean sea level
ASL	analytical support level
ASTM	American Society for Testing and Materials Standards
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
COPC	chemical of potential concern
DOE	U.S. Department of Energy
DOECAP	DOE Consolidated Audit Program
DQA	data quality assessment
DQI	data quality indicator
DQO	data quality objective
EBS	Environmental Baseline Survey
EPA	U.S. Environmental Protection Agency
ERA	Ecological Risk Assessment
ESL	ecological screening level
FBP	Fluor-BWXT Portsmouth LLC
FCN	Field Change Notice
FIPS	Federal Information Processing Standards
FRL	final remediation level
GCEP	Gas Centrifuge Enrichment Plant
GIS	Geographical Information System
GPS	Global Positioning System
HPGe	high-purity germanium
HSA	Historical Site Assessment
ID	identification
ICP-MS	Inductively Coupled Plasma – Mass Spectrometry
LSC	Liquid Scintillation Counting
MCL	maximum contaminant level
MDC	minimum detectable concentration
MQO	measurement quality objective
NAD	North American Datum
NaI	sodium iodide
Ohio EPA	Ohio Environmental Protection Agency
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEMS	Project Environmental Measurements System
PFAS	Per- and Polyfluoroalkyl Substances
PORTS	Portsmouth Gaseous Diffusion Plant
QA	quality assurance
QC	quality control
RL	reporting limit
SAP	Sampling and Analysis Plan
SRM	Soil Remediation Manager
SL	screening level
SVOC	semivolatile organic compound
SWMU	solid waste management unit

TCE	trichloroethene
VISL	vapor intrusion screening level
VOC	volatile organic compound
VSL	validation support level

1. PROJECT BACKGROUND

The Portsmouth Gaseous Diffusion Plant (PORTS) is owned by the U.S. Department of Energy (DOE). PORTS began operations in 1954 in a rural area of Pike County, Ohio, approximately 20 miles north of Portsmouth, Ohio. From 1954 until 2001, PORTS enriched uranium for DOE, DOE predecessor agencies, the Naval Nuclear Propulsion Program, and commercial customers using the gaseous diffusion process. DOE recognizes that site characterization, process knowledge, analytical data, radiological survey results, and newly collected analytical data will be used to support the evaluation of real property under both the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), Section 120(h) and DOE Order 458.1.

To support the initial request from the Community Reuse Organization, DOE has identified an area of real property to be investigated for transfer, referred to as "Parcel 4," which incorporates a total of approximately 245 acres (Figure 1) included in this Sampling and Analysis Plan (SAP). However, DOE may separate the area currently being evaluated for Parcel 4 into two or more parcels for transfer at a later time. The final configurations of the parcel(s) and features within the parcel(s) (e.g., XT-801 South Office Building, X-206J South Office Parking Lot, X-202 Roads) will be determined in the future. Information needs to be gathered or developed to meet the due diligence required by CERCLA 120(h) and to demonstrate protectiveness under DOE Order 458.1. Some sections of Parcel 4 are preliminarily considered to be non-impacted and uncontaminated. Evidence of a release of hazardous substances exists in some areas of Parcel 4 while no evidence of a release exists in other areas and are considered to be non-impacted. As a result of the presence of a release in some areas located in Parcel 4 and the *Decision Document for Resource Conservation and Recovery Act Deferred Units at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Ohio EPA 2023) requiring site-wide ground water and land use restrictions, DOE has determined property will be transferred under CERCLA 120(h)(3) regardless of the outcome of the due diligence and sampling effort.

To address the requirements of CERCLA 120(h), DOE has written protocols for the transfer of real property titled *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: CERCLA 120(h)(4) – Uncontaminated Property* (Protocol for Transfer of Uncontaminated Property) (DOE 2022a), and *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites VOLUME 2: CERCLA 120(h)(3) – Remediated Property* (DOE 2022b). These real property transfer protocols incorporate DOE real property transfer policy and guidance using *CERCLA Requirements Associated with Real Property Transfers* (DOE 1998) and require stringent data gathering and reporting requirements.

These guidelines will be used in an environmental due diligence effort to prepare an Environmental Baseline Survey (EBS). The EBS will include elements of a Historical Site Assessment (HSA), which is needed to demonstrate whether there has been a release of hazardous substances or petroleum products or their derivatives onto the parcel or

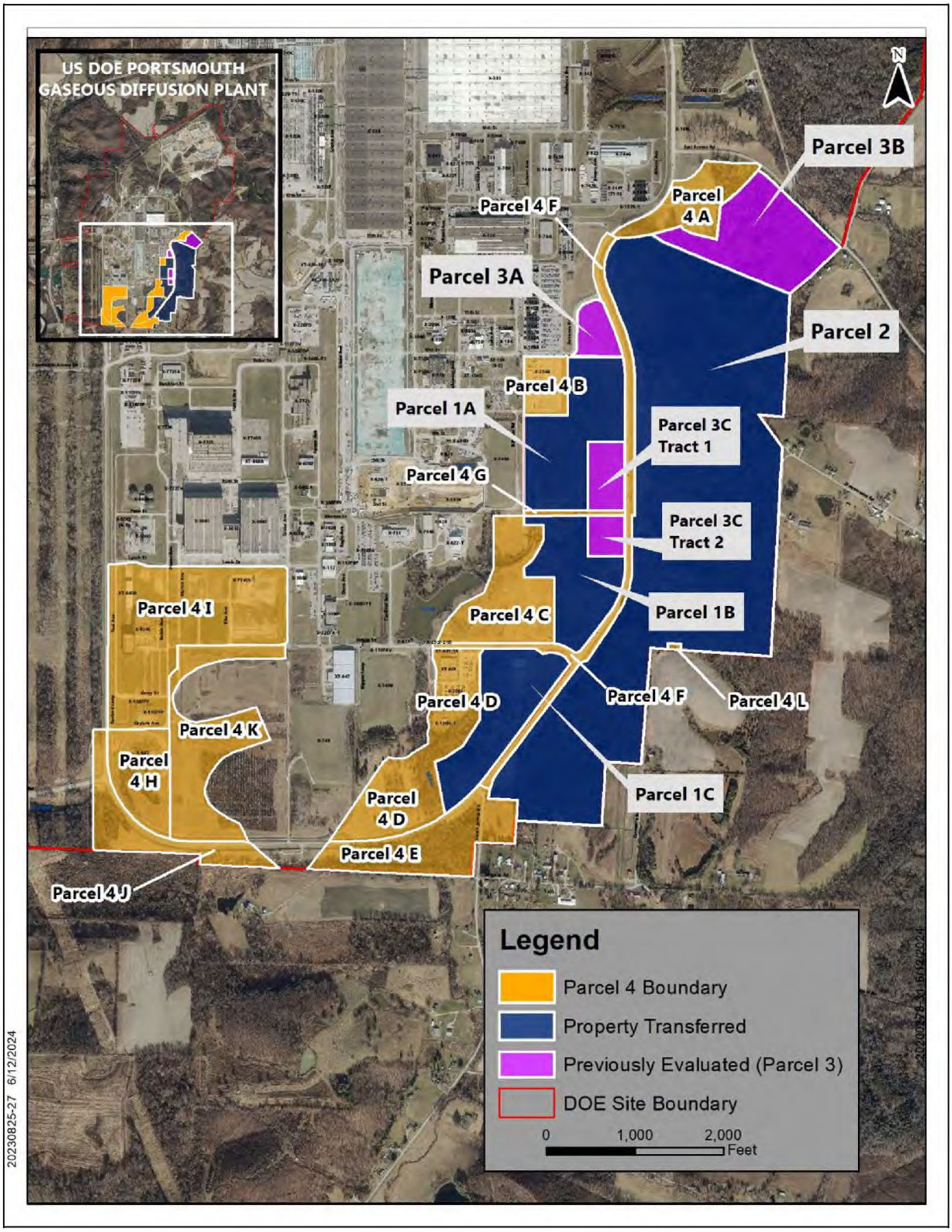

Figure 1. Parcel 4 Area Proposed for Evaluation

demonstrate that any contaminants, hazardous substances, or petroleum products or their derivatives on the parcel are at concentrations that are protective of human health and the environment. Per DOE Order 458.1, the HSA will be used to assign a classification per the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), Revision 1* (MARSSIM) guidance (DOE et al. 2000).

Environmental media in Parcel 4 will be evaluated using site background values, human health risk screening levels (SLs), and ecological SLs (ESLs). Site background values for soils are listed in the *Final Soil Background Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Final Soil Background Report) (DOE 2015). The soil background levels are also documented in Appendix E, *Comprehensive Screening Levels,* of the *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*) (DU RFI/CMS Report) (DOE 2021a).

SLs for the protection of human health are based on the *Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (HHRA Risk Evaluation) (DOE 2017a) and are also documented in Appendix E, *Comprehensive Screening Levels,* of the DU RFI/CMS Report. The HHRA Risk Evaluation describes methods to be considered in the preparation of risk evaluations and baseline human health risk assessments for PORTS and provides resources, such as risk-based SLs and dose-based concentrations, for completing those evaluations and assessments. A Site-wide Comprehensive Screening Levels and Preliminary Remediation Goals for CERCLA Projects at PORTS document will be developed to support data evaluation for the Parcel 4 EBS.

The screening-level Ecological Risk Assessment (ERA) for Parcel 4 will compare available data to ESLs to determine whether the property is suitable for transfer from an ecological perspective. The screening-level ERA uses a stepwise process consistent with the *Methods for Conducting Ecological Risk Assessments and Ecological Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (ERA Methods) (DOE 2013). The ESL values are listed in Appendix E, *Comprehensive Screening Levels,* of the DU RFI/CMS Report.

Portions of two Solid Waste Management Units (SWMUs), the X-230K South Holding Pond, and a portion of Big Run Creek are located in Sections C, D, and E of Parcel 4. Some SWMUs are also adjacent to Parcel 4, including the remaining portion of the X-230K South Holding Pond, Big Run Creek, the former X-120 Old Training Facility, the X-749A Classified Materials Disposal Facility, the X-749 Contaminated Materials Disposal Facility (also called the X-749 Landfill), the X-749/X-120 Area Groundwater Plume, and the X-2230M Southwest Holding Pond. Many of the SWMUs and groundwater contaminant plumes have been previously investigated and do not require reinvestigation. Sampling will be conducted in areas of Parcel 4 as needed to confirm that there is no contamination that poses a threat to human health or the environment and to identify whether any residual radioactivity above the background levels exists at the sampling locations proposed under this investigation.

The investigation proposed in this SAP, which includes a radiological scoping survey, is designed to address data gaps identified in the project-specific data quality objectives (DQOs) developed from the due diligence requirements in CERCLA Section 120(h) (Table 1).

This SAP contains the following: a discussion of the DQO process (see Section 6) and a copy of the project-specific DQOs for this SAP (see Appendix A); analytical and laboratory requirements; quality assurance (QA) requirements; a description of Parcel 4; sampling rationale with proposed sampling locations, including gridding (using blocks, or cells, of approximately equal areas) to facilitate

radiological scoping surveys and physical sampling requirements; and a list of chemicals of potential concern (COPCs) for the media of interest for Parcel 4.

Upon completing the scope defined in this SAP, a summary report will present the data obtained during this investigation.

Table 1. Parcel 4 Data Gaps

Data Gap No.	Identified Data Gap	Rationale
1	Visual walkover survey	Verification of any visual anomalies existing in Parcel 4
2	Radiological scoping survey	Determine if areas with elevated radioactivity are present
3	Surface soil characterization adequacy	Verification of uncontaminated/contaminated status of soil on Parcel 4 Complete characterization for Parcel 4 area for PORTS-related COPCs, especially the 0-6 in. bgs depth interval (Historical soil data do not fully characterize the Parcel 4 area for PORTS sitewide COPCs; therefore, additional samples are needed for the 0-1 ft bgs interval to provide a broader list of COPCs and also to provide better coverage for areas where no data exist.)
4	Biological survey	Provide a description of the ecological setting, including major habitat types, dominant vegetation, and animal species observed or expected to be observed in order to complete an ecological risk assessment checklist.

Notes:
bgs = below ground surface
COPC = chemical of potential concern
PORTS = Portsmouth Gaseous Diffusion Plant

1.1 DESCRIPTION OF PARCEL OF LAND

The parcel of land known as Parcel 4 encompasses approximately 245 acres in the southern and eastern portions of PORTS (Figure 1). Parcel 4 is inside and outside the industrialized area and includes 12 sections, A through L. Section I is located inside the industrial process area (i.e., within the fence), and Sections A through H and J through L are located outside the industrialized process area. The approximate acreage of land and a brief description of each section is provided below. The length and width provided below are the longest and widest points of each section.

- Section A is approximately 14.9 acres, 883 ft long and 1681 ft wide. Section A is managed turf and wooded. Section A contains the Former Athletic Training Track for Protective Forces personnel and Helicopter Landing Zone #2.

- Section B is approximately 7.6 acres, 663 ft long, and 500 ft wide. It is paved asphalt and contains the X-206B South Main Parking Lot.

- Section C is approximately 25.2 acres, 1,437 ft long by 1,325 ft wide area of managed turf. The northeast portion of the X-230K South Holding Pond, the X-230K South Holding Pond Waste Pile, and the X-230M Clean Test Site/Horizontal Wells are in Section C.

- Section D is approximately 32.5 acres, 2,173 ft long by 1,749 ft wide. Section D is managed turf and woods. The XT-801 South Office Building, X 206J South Office Parking Lot, the X-120 South Weather Station, and a portion of Big Run Creek lie within Section D. The XT-801 South Office Building may be excluded from the area being transferred.

- Section E is approximately 25.9 acres, 1,029 ft long by 2,373 ft wide. It is mostly wooded, with two areas of managed turf. A portion of Big Run Creek and the X-749 Interim Remedial Measure (IRM) Containment Wall are located within Section E.

- Section F is approximately 18.2 acres, 8,569 ft long by 110 ft wide. Section F is an asphalt roadway, containing portions of both Perimeter Road and Hewes Street.

- Section G is approximately 1.6 acres, 1,139 ft long by 60 ft wide. Section G is managed turf. The X-2232E Gas Pipeline and a portion of the Former Airstrip lie within Section G.

- Section H is approximately 16.2 acres, 1,196 ft long by 707 ft wide. It is mostly managed turf with some wooded areas. The X-625 Groundwater Passive Treatment Facility is located in Section H, as is a portion of the X-120 Old Training Facility Horizontal Well.

- Section I is approximately 57 acres, 1,800 ft long by 2,204 ft wide. Section I is mostly managed turf and asphalt parking lots and roadways. The buildings located within Section I are currently leased to the Centrus Energy Corporation. The Centrus-leased buildings include the X-3346 Gas Centrifuge Enrichment Plant (GCEP) Feed and Withdrawal Facility, XT-860B Rub Tent Structure, X-7725-T Contractor Trailer, X-6614G Lift Station, and X-1107FV/X-1107FP GCEP Access Portals. A portion of the X-120 Old Training Facility Horizontal Well is in Section I. Because this section is still leased to Centrus, it is not included in this SAP investigation.

- Section J is approximately 16.8 acres, 1,556 ft long by 2,092 ft wide. Section J is mostly wooded with some portion of managed turf.

- Section K is approximately 29.1 acres, 2,152 ft long by 1,312 ft wide. Section K is mostly turf with sparse areas of early successional vegetation.

- Section L is approximately 0.2 acres, 75 ft long by 146 ft wide. Section L is wooded with newly seeded soil. A *Maintenance Action for Arsenic Area at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Parcel 4L Arsenic Area Maintenance Action Plan) (DOE 2023) occurred in December 2023 in Section L. The maintenance action removed 3,033 square ft of soil where arsenic concentrations were greater than the PORTS final remediation level (FRL) (i.e., 29 mg/kg).

1.2 FACILITIES AND FEATURES WITHIN AND ADJACENT TO PARCEL 4

Field reconnaissance was conducted in January 2024 during the HSA and SAP development and confirmed that Parcel 4 has a limited number of observable buildings/facilities, man-made improvements, infrastructure, and materials identified herein as "features." Features or facilities within Parcel 4 are listed in Table 2 and features adjacent to Parcel 4 are provided in Table 3. The locations of features are identified in Figure 2. Features/anomalies identified within Parcel 4 during the January 2024 visual walkover survey are listed in Table 4 and identified in Figure 2. Facilities and features in and adjacent to Parcel 4 are further described in the *Historical Site Assessment for Parcel 4 at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2024). The final configuration of the parcel(s) proposed for transfer may or may not include the features listed in Table 2.

As mentioned in Section 1, two SWMUs, the X-230K South Holding Pond and a portion of Big Run Creek, are located in Sections C, D, and E of Parcel 4. Some SWMUs are also adjacent to Parcel 4, including the remaining portion of the X-230K South Holding Pond, Big Run Creek, the former X-120 Old Training Facility, the X-749A Classified Materials Disposal Facility, the X-749 Contaminated Materials Disposal Facility (also called the X-749 Landfill), the X-749/X-120 Area Groundwater Plume, and the X-2230M Southwest Holding Pond. The X-749/X-120 Area Groundwater Plume underlies portions of Sections H, I, J, and K of Parcel 4.

Table 2. Features Within Parcel 4

Section	Facility ID	Facility Name or Feature Description	Operational Status[1]
A	NA	Former Athletic Training Track	Inactive
A/F/I	LZ#2/3/4/5	Helicopter Landing Zones	Active
A/E	33PK196 Site 29 33PK331 33PK358	Historical Farmstead and PORTS Construction Remains	Inactive
B	X-206B	South Main Parking Lot	Active
C	A71/A54	Air Monitoring Stations	Active
C	X-230M	Clean Test Site Area/Horizontal Wells	Inactive
C	X-230K	South Holding Pond (Northeast Portion)	Active
C	X-230K	South Holding Pond Waste Pile	Inactive
D	XT-801[2]	South Office Building	Active
D	X-206J[2]	South Office Parking Lot	Active
D	X-120	South Weather Station	Active
D	X-210	Sidewalks	Active
D/E	BRC	Big Run Creek	Active
E	X-749	IRM Containment Wall	Active
A/D/E/F/H/I/J/K/L	X-202[2]	Roads	Active
D/H/I/K	X-204-1	Railroads	Inactive
A/F/G	X-2232E	Gas Pipeline	Active
G	NA	Former Airstrip (Portion)	Inactive
H	X-625	Groundwater Passive Treatment Facility	Inactive
H/I	X-120	Old Training Facility Horizontal Well	Inactive
I	X-3346	GCEP Feed and Withdrawal Facility	Inactive
I	XT-860B	Rub Tent Structure	Inactive
I	X-7745S	Fenced Area South Parking Lot	Inactive
I	X-7725-T	Contractor Trailer	Inactive
I	X-6614G	Lift Station	Inactive
I	X-1107FV/ X-1107FP	GCEP Access Portals	Inactive
I	X-2207F	Parking Lot	Active
I	X-746A	Former Building	Demolished
I	X-744Y	Former Waste Storage Area	Demolished
I	X-722	Former Paint Shop	Demolished
L	NA	Former Arsenic Area – Previous Maintenance Action	Inactive
B/C/D/E/F/H/I/J/K	X-251B	Electrical Distribution to Non-Process Area	Active
All Sections	Multiple	Existing Groundwater Monitor Wells and Piezometers	Active
All Sections	NA	Drainage Features	Active
E/F	NA	Signage	Active
A/E/F/J	NA	Guardrail	Active

Notes:
[1]Operational status as of March 2024.
[2]These features may be excluded from the property being transferred.

GCEP = Gas Centrifuge Enrichment Plant
ID = identification
IRM = Interim Remedial Measure
NA = not applicable
PORTS = Portsmouth Gaseous Diffusion Plant

Table 3. Features Adjacent to Parcel 4

Facility ID	Facility Name or Feature Description	Operational Status[1]
NA	Parcel 1	NA
NA	Parcel 2	NA
NA	Parcel 3	NA
X-701B	Groundwater Plume	Active
X-701B	Former Holding Pond	Inactive
X-744G	Bulk Storage Building	Inactive
X-744Y	Waste Storage Yard	Inactive
X-206A	North Main Parking Lot	Active
X-100	Former Administration Building	Demolished
X-749A	Classified Materials Disposal Facility	Inactive
X-230K	South Holding Pond	Active
X-749B	Peter Kiewit Landfill	Closed
X-749	Contaminated Materials Disposal Facility	Inactive
X-120	Old Training Facility	Inactive
X-749/X-120	Area Groundwater Plume	Active
X-3001	GCEP Process Building #1	Active
X-3002	GCEP Process Building #2	Active
X-3012	GCEP Process Support Building	Active
X-5000 X-5001X-5001A X-5001B	GCEP Switch House Switchyard Valve House Oil Pumping Station	Active
X-6000 X-6001 X-6001A	GCEP Pump House Cooling Tower Valve House	Active
X-3000	Electronic Maintenance Building	Active
X-2230M	Southwest Holding Pond	
LZ#3	Helicopter Landing Zone	Active
NA	Drainage Features	Active
NA	Off-site Residences	Active

Notes:
[1]Operational status as of March 2024.

GCEP = Gas Centrifuge Enrichment Plant
ID = identification
NA = not applicable
PORTS = Portsmouth Gaseous Diffusion Plant

Table 4. Visual Walkover Survey Notation Number Descriptions Within or Adjacent to Parcel 4

Notation Number[1]	Section	Anomaly Description
01	A	Intermittent Stream
02	A	Intermittent Stream, Recycle Bin, and Concrete Foundation Walls with three I-Beams (20 ft by 20 ft area; 1 ft tall)[2]
03	A	Asphalt from Former Athletic Training Track
04	B	Defunct Air Monitoring Station
05	C	Large Mounded Area
06	C	Rock Dam (10 ft by 5 ft)[2]
07	C	Large Mounded Area
08	C	Northeast Area of Horizontal Wells
09	D	Mounded Area (50 ft by 30 ft, 8 ft tall)[2]
10	D	Area of Subsidence (100 ft by 20 ft)[2]
11	D	Intermittent Stream Spring flows into Big Run Creek
12	E	Area of Subsidence (30 ft by 20 ft)[2]
13	J	Boundary Fence is down in two spots due to tree falls[3]
14	H	Two Areas of Bare Soil (40 ft by 30 ft and 30 ft by 20 ft)[2]
15	H	Area of Subsidence (40 ft by 10 ft)[2]
16	K	Area of Bare Soil (100 ft by 40 ft)[2]
17	H	Historic Area Well Surrounded by Fencing and Shrub Vegetation
18	H	Debris Pile and Rock Dam (30 ft by 15 ft)[2]

Notes:
[1]The notation numbers are located in Figure 2.
[2]All measurements are approximations.
[3]Located on property adjacent to Parcel 4.

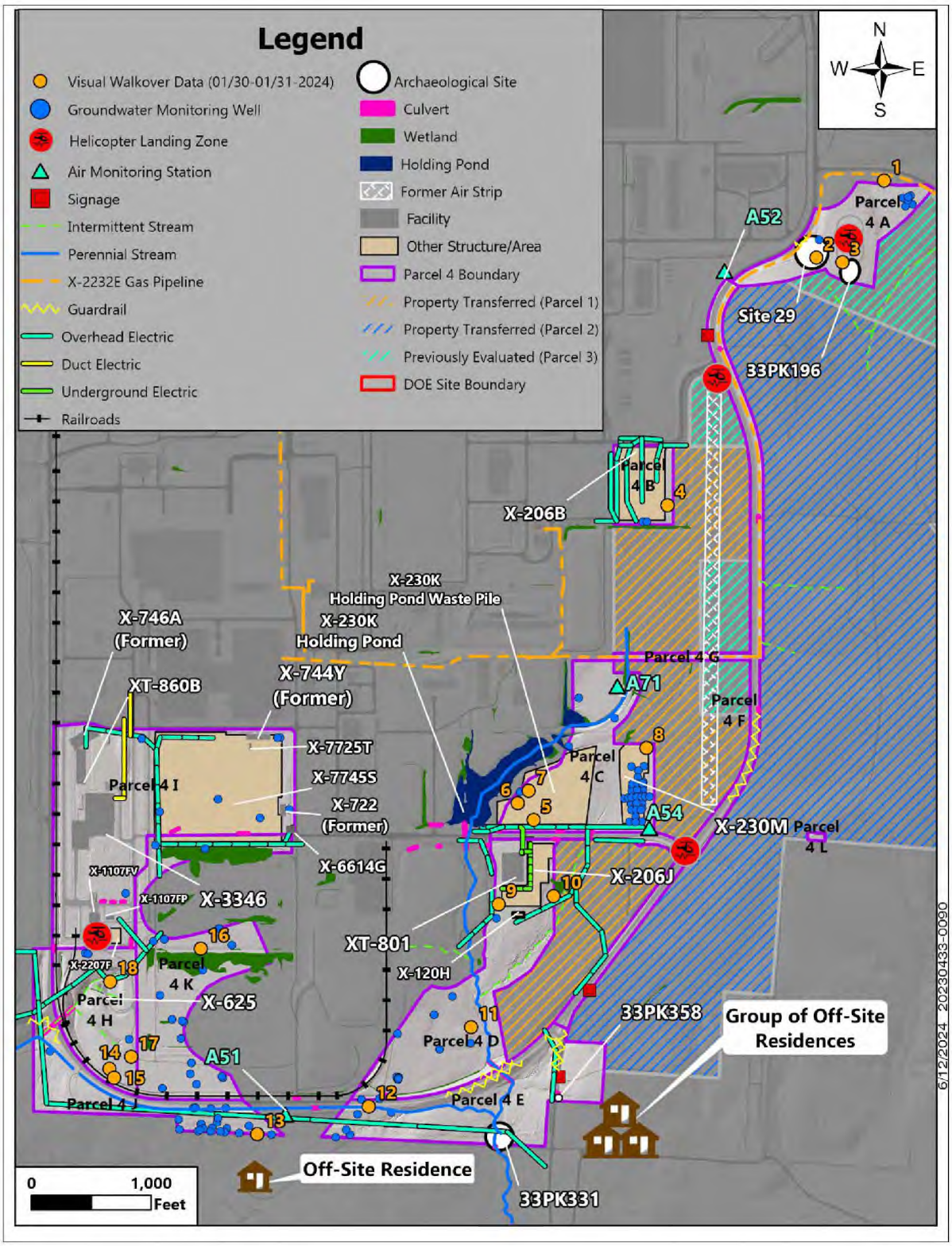

Figure 2. Features Within and Adjacent Parcel 4

2. PROJECT OBJECTIVES

The purpose and objective of this SAP is to present the analytical and laboratory requirements, QA requirements, and documentation requirements for environmental data collection to meet the due diligence requirements of CERCLA 120(h) for Parcel 4 at PORTS. DQOs for Parcel 4 are included in Appendix A. CERCLA Section 120(h) establishes the requirements for environmental due diligence to support real property transfers from the federal government. The DOE process for the transfer of real property is outlined in DOE's property transfer protocols described in Section 1. The data collected for this SAP will be used to meet the requirements of CERCLA 120(h) using the processes outlined in the protocols.

According to the PPPO Protocols (DOE 2022a, 2022b), constituents detected in environmental media are compared to action levels, which include background levels, maximum contaminant levels (MCLs) for drinking water, Authorized Limits (ALs), Administrative SLs, and risk-based criteria (including both human health and ecological risk) for unrestricted use as well as its intended future use, which is industrial. Details on these action levels can be found in the DQOs for Parcel 4. DOE will evaluate historical data, conduct visual walkover and radiological scoping surveys, and collect physical grab samples of soil, sediment, and/or surface water media in Parcel 4, in accordance with the DQO decision rules, to evaluate the status of Parcel 4 as potentially uncontaminated and non-impacted. This sampling will be conducted to gather data necessary to demonstrate that chemical and radiological contamination, if present, are at levels that are protective of human health and the environment and to allow proper classification in accordance with DOE Order 458.1.

The sample coverage, or sample density, will consider samples collected under this project, along with usable data from prior sampling, to determine whether additional physical samples are needed. This evaluation will utilize methods outlined in the MARSSIM guidance, which provides guidance for planning, implementing, and evaluating radiological surveys and historical assessment data to demonstrate compliance with dose-based or risk-based requirements.

These objectives will be achieved by the following actions:

- Collecting data to demonstrate that chemical and radiological contamination, if present in soil, sediment, or surface water, does not exceed levels that are protective of human health and the environment. The data will be sufficient to meet the due diligence requirements of CERCLA 120(h).

- Obtaining soil, sediment, and surface water samples, as appropriate, from locations chosen based on the evaluation of historical information, an examination of aerial photographs, a visual walkover assessment, and results of a radiological scoping survey.

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3. PROJECT ORGANIZATION

This section describes the organization and management structure to be used in implementing this SAP. The project team includes the DOE Project Manager and contractor personnel, including the Environmental Remediation Director; the Environmental Safety and Health Manager; the QA Manager; the Soil Remediation Manager (SRM); a Sample and Data Manager; the Environmental Field Characterization Manager; various support functions, such as radiation protection and radiological control personnel, waste management personnel, human health and ecological risk assessors; and other affected personnel that have a need for use of the data and are required for implementation of the project to acquire the data. Under the current organizational structure, the programmatic activities fall under the Environmental Remediation Director. Table 5 presents a summary of responsibilities for each project position, with a full description of the responsibilities presented in Sections 3.1 through 3.7.

Table 5. Project Organization Summary

Group	Summary of Responsibilities
DOE Project Manager	Overall management and technical oversight
Environmental Remediation Director	Provide overall programmatic responsibility, and assessment of data usability
Environmental Safety and Health Manager	Guide implementation of Health and Safety Program for field task
Quality Assurance Manager or designee	Develop and approve QA/QC requirements; oversee and coordinate responsibilities for field validation, data validation, and laboratory assessments and field surveillances
Soil Remediation Manager	Oversee day-to-day activities and provide management and technical oversight
Sample and Data Manager	Provide coordination for laboratory analysis, sample shipments, and data verification
Environmental Field Characterization Manager	Responsible for coordinating day-to-day activities and sampling activities in the field

Notes:
DOE = U.S. Department of Energy
QA = quality assurance
QC = quality control

3.1 DOE PROJECT MANAGER

The DOE Project Manager will provide overall management and technical oversight for the Parcel 4 SAP. The DOE Project Manager will ensure appropriate DOE resources are available to provide adequate technical oversight and maintain project schedules.

3.2 ENVIRONMENTAL REMEDIATION DIRECTOR

The Environmental Remediation Director will have overall programmatic responsibility for technical, financial, and scheduling matters related to the project and will ensure appropriate resources are available to facilitate the completion of the SAP in a timely and efficient manner. The Environmental Remediation Director will monitor the project team's performance throughout the project. Another responsibility of the Environmental Remediation Director, or their designee, is to assess the data for usability and ensure data are provided to others on the project team for data assessment and evaluation.

3.3 ENVIRONMENTAL SAFETY AND HEALTH MANAGER

The Environmental Safety and Health Manager will guide the implementation of the Worker Safety and Health Program for the various field tasks, including Industrial Hygiene and Radiological Control. Throughout SAP implementation, this individual will ensure project personnel are properly trained,

routinely evaluate the effectiveness of the Worker Safety and Health Program, and revise the program as needed to ensure worker safety. In addition, this individual will provide expertise and training for fieldwork to be performed under this SAP.

3.4 QUALITY ASSURANCE MANAGER

The QA Manager, or designee, will develop and approve associated QA/quality control (QC) requirements for this SAP. In addition, the QA Manager will coordinate the implementation of the *Sample Analysis Data Quality Assurance Project Plan (SADQ) at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (SADQ) (DOE 2014a) and coordinate the DQO process for the development of this SAP. The SADQ is a comprehensive document addressing all the data quality requirements for decontamination, decommissioning, and environmental cleanup.

This position will monitor compliance with quality requirements and ensure the institution of any corrective actions necessary to maintain a high level of quality. The QA Manager will provide the specific support necessary to resolve any sampling and analytical quality issues that may arise during the project. The QA Manager is responsible for field validation, data validation, data verification, and review of analytical data for program completeness and compliance. This position may also conduct laboratory audits and field surveillances and approve any field changes that impact project quality. The QA Manager or designee reviews and approves the SAP, DQO, and Field Change Notices (FCNs) to the SAP.

3.5 SOIL REMEDIATION MANAGER

The SRM will oversee day-to-day activities associated with their assigned tasks to keep the SAP tasks on schedule. The SRM will be responsible for leading and overseeing the day-to-day activities of various resources assigned to collecting data and samples in the field. This individual will interact with the Environmental Remediation Director and relay directions to other project team members as necessary. This individual will oversee activities that include fieldwork (such as site preparation/ restoration, drilling, and land surveying), sample collection, and management of investigation-derived waste. This individual or designee will also be responsible for preparing any FCNs.

3.6 SAMPLE AND DATA MANAGER

The Sample and Data Manager will be responsible for providing laboratory analyses of samples, whether performed in-house or subcontracted to an outside laboratory. This manager will coordinate sample shipment to the laboratory, analyze and program contract compliance, review the analytical data packages, and transmit the data packages to the appropriate data repository. This individual will be responsible for managing data generated during the implementation of this SAP.

3.7 ENVIRONMENTAL FIELD CHARACTERIZATION MANAGER

The Environmental Field Characterization Manager will be responsible for coordinating day-to-day activities related to field characterization and sampling. The Environmental Field Characterization Manager will coordinate with the Sample and Data Manager for sample shipment to the laboratory, review and verify field sample collection logs, and review analytical data for program compliance. The Environmental Field Characterization Manager will evaluate comments and recommendations and approve the SAP and FCNs to the SAP.

4. PROJECT SCHEDULE

An estimated sampling and analysis schedule is provided for informational purposes in Table 6. Project specific details regarding the field sampling and physical sample data verification process and validation support levels (VSLs) are discussed in Section 8.5.

Table 6. Sampling and Analysis Schedule

Activity	Planned Completion Date
Initiate field work (initiate radiological scoping survey)	Within 45 work days after DOE approval of this SAP
Initiate physical sample collection (based on both the visual walkover assessment and the radiological scoping survey)	Within 45 work days after DOE approval of this SAP
Field analysis	Field turnaround time will be 24 to 48 hours
Laboratory analysis	Laboratory turnaround time will be between 14 and 28 days from laboratory receipt of sample
Data verification	100% within 14 days from receipt of data from laboratory
Data validation	100% within 14 days from the completion of the data verification

Notes:
DOE = U.S. Department of Energy
SAP = Sampling and Analysis Plan

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5. CHEMICALS OF POTENTIAL CONCERN

The sitewide COPCs for PORTS include metals, radionuclides, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) and are listed in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report. In accordance with DQO Step 3, the COPCs for Parcel 4 were refined based on historical sampling data for Parcel 4 and historical sitewide COPCs associated with PORTS production. As Per- and Polyfluoroalkyl Substances (PFAS) guidance becomes available, the need for PFAS sampling will be evaluated within Parcel 4.

Historical data is separated by pre-2006 and post-2006 (inclusive) collection timeframes. The date of 2006 was chosen based on the following two considerations: (1) environmental media data collected from 2006 to the present are data with more relevance and are more representative of current conditions at PORTS than soil data collected prior to 2006; and (2) the 2006 time frame was the approximate date when DOE began to conduct individual deferred unit investigations approved by the Ohio Environmental Protection Agency (Ohio EPA), in relation to inactive facility removals at PORTS. The historical data for Parcel 4 collected from 2006 and later will be used for quantitative evaluation, and data collected prior to 2006 will be used qualitatively (as applicable).

Historical data for Parcel 4 were collected from several soil, surface water, sediment, and groundwater locations (Figure 3) as part of previous environmental studies and investigations at PORTS. Due to the large volume of historical data analyzed for Parcel 4, the historical data summary tables for all media are presented in Appendix B. Historical soil data for Parcel 4 collected during previous environmental studies and investigations at PORTS prior to 2024 include samples related to the following projects and/or reports:

- *Work Plan for the X-749/X-120 Area Groundwater Optimization Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (X-749/X-120 Groundwater Optimization Project) (DOE 2007)
- *Environmental Monitoring Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Environmental Monitoring Plan) (DOE 2017b)
- *Remedial Investigation and Feasibility Study for the Site-wide Waste Disposition Evaluation Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Waste Disposition RI/FS) (DOE 2014b)
- *Parcel 1/108-Acre Area Sampling and Analysis Plan Summary Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Parcel 1/108-Acre SAP Summary Report) (DOE 2017c)
- *Parcel 2 Sampling and Analysis Plan and Scoping Survey Summary Report for Physical Sampling for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Parcel 2 SAP Summary Report-Physical Samples) (DOE 2019a)
- *Quadrant I RFI Final Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Quadrant I RFI Report) (DOE 1996a)
- *Quadrant II RFI Final Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Quadrant II RFI Report) (DOE 1996b)
- *Baseline Ecological Risk Assessment for the Upper Little Beaver Creek and Big Run Creek Watersheds of the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio, Volume 2, Appendix A* (Baseline Ecological Risk Assessment) (DOE 1994)

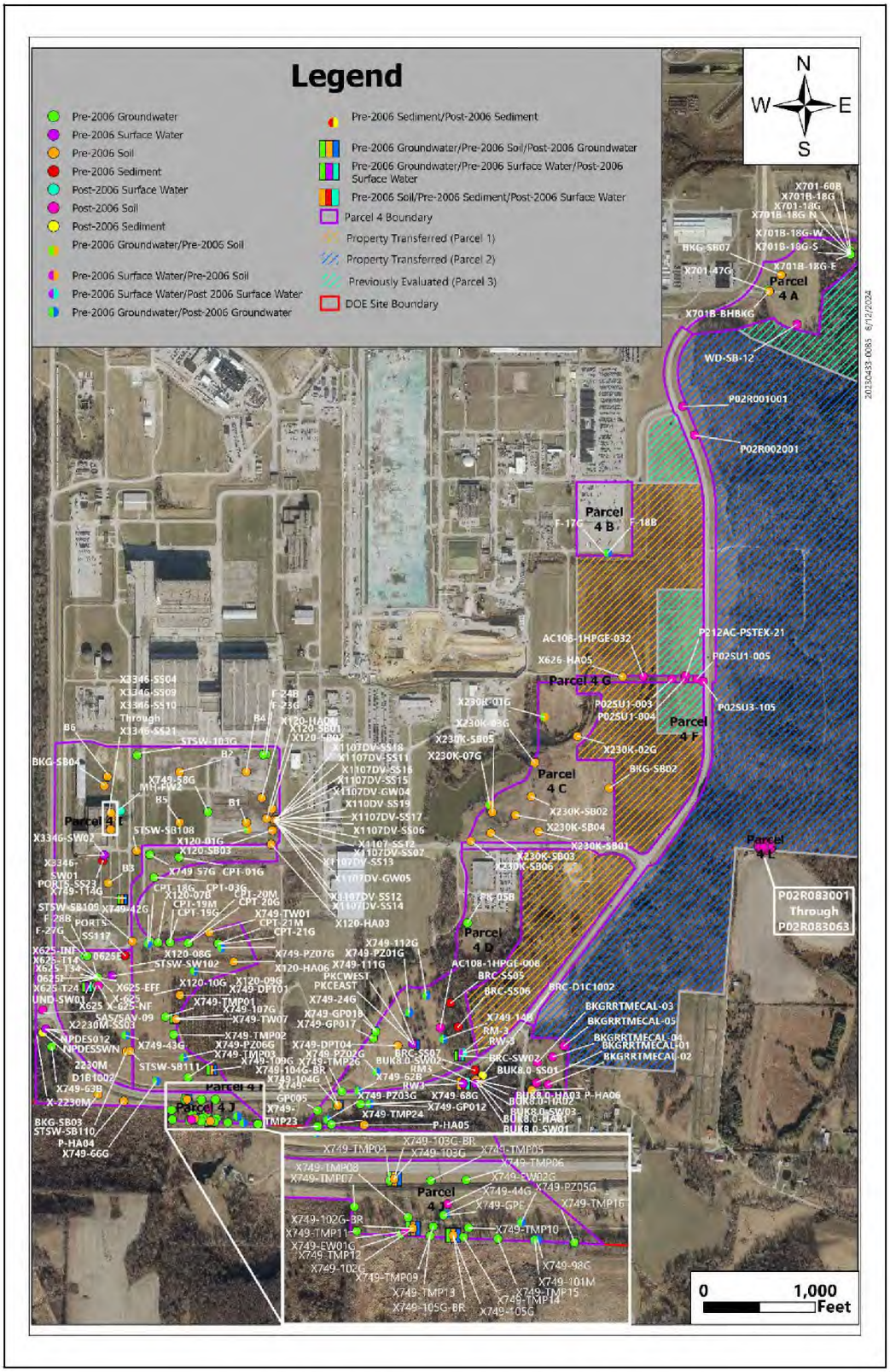

Figure 3. Historical Sample Locations in Parcel 4

- Aboveground and underground storage tank removals
- Siting investigation for the depleted uranium hexafluoride conversion facility.

Historical soil sampling data sources for Parcel 4 data collected since 2006 (inclusive) are discussed below.

X-749/X-120 Groundwater Optimization Project Work Plan
Soil samples were collected from two locations (X749-EW01G and X749-EW02G) in 2007 as part of the X-749/X-120 Groundwater Optimization Project Work Plan. The soil samples were submitted for laboratory analysis for trichloroethene (TCE) only.

Environmental Monitoring Plan
DOE has been monitoring various environmental media at the PORTS site for years to support its environmental monitoring program. The Environmental Monitoring Plan defines and documents the requirements for environmental monitoring at PORTS. The Environmental Monitoring Plan is prepared to comply with DOE Order 458.1, *Radiation Protection of the Public and the Environment*, and Order 436.1, *Departmental Sustainability*, which is periodically updated. One soil sample (SAS/SAV-09) was collected in 2012 within Section J under the Environmental Monitoring Plan (Figure 3). The sample was analyzed for alpha activity, beta activity, technetium-99, and uranium.

Waste Disposition RI/FS
One soil boring location (WD-SB-12) in Section A was sampled in 2011 for a siting investigation as part of the sitewide waste disposition project. The sample location is shown in Figure 3. Soil samples from this boring were submitted for laboratory analyses for metals, PCBs, SVOCs, VOCs, and radionuclides.

Parcel 1/108-Acre SAP Summary Report
Soil samples were collected as part of a field effort to evaluate a 108-acre area for potential property transfer in 2015 (a portion of this area, known as Parcel 1, was transferred for economic reuse in July 2018). Two soil samples (AC108-1HPGE-008 and AC108-1HPGE-032) were collected from the 0-to-6-in. interval in a portion of a 108-acre area evaluated for potential property transfer that includes Sections D and G. These sample locations, shown in Figure 3, were biased locations based on a gamma walkover survey and high-purity germanium (HPGe) field measurements. These samples were sent to a fixed-base laboratory for total uranium, PAH analyses, uranium isotopes, and technetium-99. Five additional locations (BKGRRTMECAL-01 through BKGRRTMECAL-05) were sampled to provide background data for evaluating field screening methods. These samples were analyzed for several metals, PAHs, and uranium isotopes.

Parcel 2 SAP Summary Report – Physical Samples
Soil samples were collected from 54 locations within Sections F, G, and L in 2018 and evaluated for this SAP. An additional 11 soil sample locations were sampled in 2023 to evaluate arsenic in soil in Section L. The sample locations are shown in Figure 3. The initial soil samples were sent to a fixed-base laboratory and analyzed for metals (arsenic, cobalt, manganese, and uranium), uranium isotopes, technetium-99, PCBs, and PAH analyses; many of the locations in Section L were step-out locations analyzed for arsenic only.

Historical groundwater data for Parcel 4 were collected as part of previous environmental studies and investigations at PORTS and include samples related to the following:

- *Integrated Groundwater Monitoring Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (IGWMP) (DOE 2021b)
- *Quadrant I RFI Report, Quadrant II RFI Report, and Quadrant III RFI Final Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 1996c)
- X-749/X-120 Groundwater Optimization Project
- Environmental Monitoring Plan
- PORTS Groundwater Protection Program.

Groundwater data sources for Parcel 4 collected since 2006 (inclusive) are discussed below.

IGWMP

The IGWMP integrates the regulatory and technical requirements for groundwater monitoring at PORTS into a single, unified document. Implementation of the initial IGWMP, dated November 1998, began in the second quarter of 1999. Subsequent revisions to the IGWMP are reviewed and approved by Ohio EPA.

Since January 2006, 32 monitoring wells have been sampled within Parcel 4 as part of the IGWMP. Three of those wells monitor the deeper Berea Sandstone, which is not evaluated further in this SAP. Monitoring wells sampled within Parcel 4 since 2006 are found in the sections listed below.

- Section A: X701-18G
- Section B: F-17G and F-18B
- Section D: X749-111G, X749-112G, X749-14B, X749-24G, X749-62B, X749-PZ01G, and X749-PZ02G
- Section E: X749-104G, X749-68G, and X749-PZ03G
- Section H: F-27G, X120-08G, and X749-43G
- Section I: X749-114G
- Section J: X749-101M, X749-102G, X749-103G, X749-105G, X749-44G, X749-98G, and X749-PZ05G
- Section K: X120-09G, X120-10G, X749-107G, X749-109G, X749-42G, X749-66G, X749-PZ06G, and X749-PZ07G.

The groundwater samples were submitted for laboratory analysis for anions, metals, radionuclides, VOCs, and some SVOCs.

Historical surface water data for Parcel 4 were collected during previous environmental studies and investigations at PORTS prior to 2024 and include samples related to the following documents:

- IGWMP
- Environmental Monitoring Plan
- Quadrant I RFI Report and Quadrant II RFI Report
- Baseline Ecological Risk Assessment
- PORTS Groundwater Protection Program.

Figure 3 shows historical surface water sampling locations, and surface water sampling data sources for Parcel 4 collected since 2006 (inclusive) are discussed below.

IGWMP

Since January 2006, two surface water monitoring locations (BRC-SW02 and UND-SW01) have been sampled within Parcel 4 as part of the IGWMP. BRC-SW02 is located along Big Run Creek, in Section D, to monitor potential groundwater discharges from Quadrant I groundwater plumes and Fluor-BWXT Portsmouth LLC (FBP) Outfall 002. UND-SW01 is located along the Unnamed Southwest Drainage Ditch, in Section H, to assess potential groundwater releases to this stream and the X-2230M Southwest Holding Pond from the western portion of the X-749/X-120 Area Groundwater Plume. Samples are analyzed for anions, metals, radionuclides, VOCs, SVOCs, PCBs, and pesticides.

Environmental Monitoring Plan

DOE has been monitoring various environmental media at the PORTS site over the years to support its environmental monitoring program, which is implemented through the Environmental Monitoring Plan. Since January 2006, two surface water monitoring locations (BRC-SW02 and RW-3) have been sampled within Parcel 4 as part of the Environmental Monitoring Plan. RW-3 is located along Big Run Creek, Section D, and monitors water quality at the site boundary. The samples are analyzed for uranium and radionuclides.

Historical sediment data for Parcel 4 were collected during previous environmental studies and investigations at PORTS prior to 2023 and include samples related to the following:

- Environmental Monitoring Plan
- DU RFI/CMS Report
- Quadrant I RFI Report and Quadrant II RFI Report
- Baseline Ecological Risk Assessment
- United States Enrichment Corporation's Monitoring Program.

Figure 3 shows historical sediment sampling locations, and sediment sampling data sources for Parcel 4 collected since 2006 (inclusive) are discussed further below.

Environmental Monitoring Plan

DOE has been monitoring various environmental media at the PORTS site through the years to support its environmental monitoring program, and this monitoring is implemented through the Environmental Monitoring Plan. Since January 2006, one sediment monitoring location has been sampled within Parcel 4 as part of the Environmental Monitoring Plan. Location RM-3, located in Section D, monitors sediment quality at the site boundary along Big Run Creek. The samples are analyzed for metals, radionuclides, and PCBs.

DU RFI/CMS Report

The DU RFI/CMS Report was conducted for several SWMUs from July 2015 to April 2016, and from March 2019 to May 2021. Sediment was sampled for the DU RFI/CMS Report during a sampling event in December 2015 at location 2230M-D1B1002, in Section J, associated with the X-2230M Southwest Holding Pond. Sediment at Big Run Creek was also collected during the DU RFI/CMS Report in September 2015 at location BRC-D1C1002 in Section E. These samples were analyzed for metals, fluoride, radionuclides, PCBs, SVOCs, and VOCs.

Tables B.1 and B.2 summarize the frequency of detection and maximum detected values based on the historical soil data (data shown include only the detected constituents) and show a comparison to background[1], as well as human health risk screening values[2] for construction worker, residential, and industrial scenarios. As described above and consistent with the DU RFI/CMS Report, only data from 2006 through the present will be used in a quantitative manner.

As indicated in Tables B.1 and B.2, detected radiological parameters in soil include alpha activity, beta activity, technetium-99, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, and uranium-238. Radionuclides detected above background were found in Section F (uranium-233/234, uranium-235/236, and uranium-238) and Section G (uranium-233/234 and uranium-238). The area where these background exceedances occurred was in an area previously identified as having elevated levels of isotopic uranium and being radiologically impacted. No radiological parameters were detected above SLs or ALs in soil at any depth interval in Parcel 4. Several metals, including aluminum, antimony, arsenic, barium, beryllium, cadmium, cobalt, lead, manganese, mercury, nickel, selenium, silver, uranium, vanadium, and zinc exceeded soil background levels in one or more depth intervals; however, only antimony, arsenic, cobalt, and manganese also exceeded the human health risk-based residential SL. Most of the arsenic exceedances in soil occurred in Section L, which had an area of soil contaminated by arsenic, which was identified during sampling for Parcel 2 (DOE 2019a). The area of arsenic contamination is approximately 3,033 ft^2 and coincides with the location of a former county road that was used prior to DOE's acquisition of the property for PORTS. The source of the arsenic is unknown. DOE performed a maintenance action in Section L in late 2023 to remove contaminated soil above the FRL for arsenic of 29 mg/kg. No other chemicals besides metals exceeded any of the SLs.

Tables B.3 and B.4 summarize the historical groundwater data for Parcel 4. These tables summarize the frequency of detection and maximum detected values based on the historical groundwater data (data shown include only the detected constituents) and show a comparison to groundwater MCLs, as well as risk screening values[3] for residential and industrial scenarios and vapor intrusion. No groundwater radiological parameters were detected above MCLs or SLs in Parcel 4.

Several metals in groundwater, including antimony, arsenic, beryllium, cadmium, chromium, lead, mercury, thallium, and uranium exceeded MCLs; however, only antimony, arsenic, cadmium, lead, thallium, and uranium also exceeded the human health risk-based residential SLs. Metals exceeding the residential SL that have no MCL include cobalt, cyanide, iron, manganese, nickel, silver, and vanadium. One PAH, 2-methylnaphthalene, exceeded the MCL. Several VOCs in groundwater exceeded MCLs and residential SLs with 1,1-dichloroethene, 1,2-dichloroethane, and TCE being most frequently detected in Parcel 4 groundwater. TCE and chloroform groundwater concentrations exceeded vapor intrusion SLs (VISLs) most commonly. Cyanide and 1,2-Dibromo-3-chloropropane in groundwater exceeded VISLs in

[1] Background SLs are listed in the Final Soil Background Report.

[2] Human health SLs for residential, industrial, and construction worker are listed in Appendix E, Comprehensive Screening Levels, of the DU RFI/CMS Report.

[3] MCLs and groundwater SLs for residential and industrial scenarios, and vapor intrusion are listed in Appendix E, Comprehensive Screening Levels, of the DU RFI/CMS Report

one sample each. Sections D, E, H, I, K, and J are in close proximity to a Gallia Sand Member (Gallia) groundwater plume contaminated with TCE associated with the X-749 Contaminated Materials Disposal Facility/X-120 Former Training Facility.

Tables B.5 and B.6 summarize the historical surface water data for Parcel 4. The historical surface water data shown in these tables includes only the detected constituents. Historical chemical surface water data are only available for Sections D, E, H, and J where Big Run Creek and the Unnamed Southwest Drainage Ditch exist. These tables summarize the minimum and maximum detected values, and screens detected values against human health risk-based surface water SL values[4] (outdoor worker and recreational scenarios). Bis(2-ethylhexyl)phthalate is the only chemical that exceeded all of the human health risk-based SLs in one surface water sample collected in Section H. Arsenic also exceeded the recreational lifetime SL in two surface water samples collected in Section E.

Tables B.7 and B.8 summarize the historical sediment data for Parcel 4. These tables summarize the minimum and maximum detected values and screens detected values against human health risk-based SLs (outdoor worker and recreational scenarios). For the outdoor worker at PORTS, sediment and surface water SLs are the same as the recreational adult soil and surface water SLs, respectively (DOE 2021a). Uranium isotopes, technetium-99, and transuranics (americium-241, neptunium-237, and plutonium-238) were frequently detected in Parcel 4 sediment samples, but no radiological parameters in sediment were detected above SLs in Parcel 4. Chemicals exceeding human health risk-based SLs in sediment include arsenic and thallium. Arsenic exceeded the recreational child and recreational lifetime scenario SLs in Sections D and E. Thallium also exceeded the recreational child scenario in Section D.

Tables B.9 through B.11 summarize the frequency of detection and maximum detected values based on the historical surface soil, surface water, and sediment data, respectively, and show a screening against the ESLs identified in Appendix E, *Comprehensive Screening Levels,* of the DU RFI/CMS Report to follow the ERA based on the process described in the ERA Methods. This data is also separated based on pre-2006 data and post-2006 (inclusive) data, with only the post-2006 (inclusive) data being used in a quantitative manner consistent with the DU RFI/CMS Report. In surface soil, the maximum detected concentrations of arsenic, barium, cadmium, cobalt, silver, and zinc exceeded the PORTS site background concentrations and the Tier 1 ESLs. Bis(2-ethylhelxyl)phthalate also exceeded the Tier 1 ESLs.

Surface water data were compared to Tier 1 and Tier 2 ESLs. The maximum concentrations of aluminum, iron, lead, manganese, silver, uranium, PCBs, and carbon disulfide exceeded their Tier 1 ESLs. All of these, except iron, lead, and manganese, also exceeded their Tier 2 ESLs.

Sediment data were compared to sediment reference values for the Western Allegheny Plateau ecoregion (where PORTS is located) listed in Ohio EPA's *Ecological Risk Assessment Guidance Document* (Ohio EPA 2018) and Tier 1 and Tier 2 ESLs. Using the maximum detected concentration, several metals exceeded these SLs in sediment, including antimony, arsenic, barium, beryllium, cadmium cobalt, cyanide, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc. As shown in Table B.11, the maximum detected concentrations of several PAHs, SVOCs, and pesticides/PCBs also exceeded the Tier 1 ESLs.

To summarize, the sitewide COPCs for PORTS environmental media include metals, radionuclides, PCBs, SVOCs, PAHs, and VOCs. Overall, the historical data available for Parcel 4 soil is limited but

[4] Surface water SLs for outdoor worker and recreational scenarios are listed in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report.

historical data for groundwater, surface water, and sediment within the Parcel 4 area appear to be adequate for evaluation.

Radiological scoping surveys of portions of Sections A, C, D, F, and G, and Sections F and L were completed in 2015 (DOE 2017c) and 2018 (DOE 2019b), respectively (Figure 4). Grid blocks of approximately 10,000 m^2 were traversed with a sodium iodide (NaI) detector array to achieve a 20 percent coverage of open areas. Seven HPGe measurements were taken on Sections C, D, and G during the 2015 survey (Figure 5). Six HPGe survey locations within areas now considered part of Parcel 4 were measured in 2018. One of the 2018 HPGe locations was in Section L and five of the HPGe locations are located in Section F. One of the locations in Section F, P02R001, had a uranium-235 detection of 0.35 pCi/g which is greater than twice background. A soil sample from that location had elevated uranium (7.3 mg/kg), uranium-233/234 (35.78 pCi/g), uranium-235/236 (1.729 pCi/g), and uranium-238 (1.558 pCi/g). These results are less than the ALs for uranium-234, uranium-235, and uranium-238 of 329 pCi/g, 3 pCi/g, and 16 pCi/g, respectively.

Soil, sediment, and surface water COPCs and reporting limits (RLs) for fixed-base laboratories were developed for this SAP in order to meet the project objectives and are based on the background, human health risk SLs, and ESLs found in Appendix E, *Comprehensive Screening Levels,* of the DU RFI/CMS Report for the intended future use scenarios, as well as unrestricted use, as per the Protocol for Transfer of Uncontaminated Property. The PORTS COPCs and the associated RLs for soil, sediment, and surface water in Parcel 4 are listed in Tables 7 through 9.

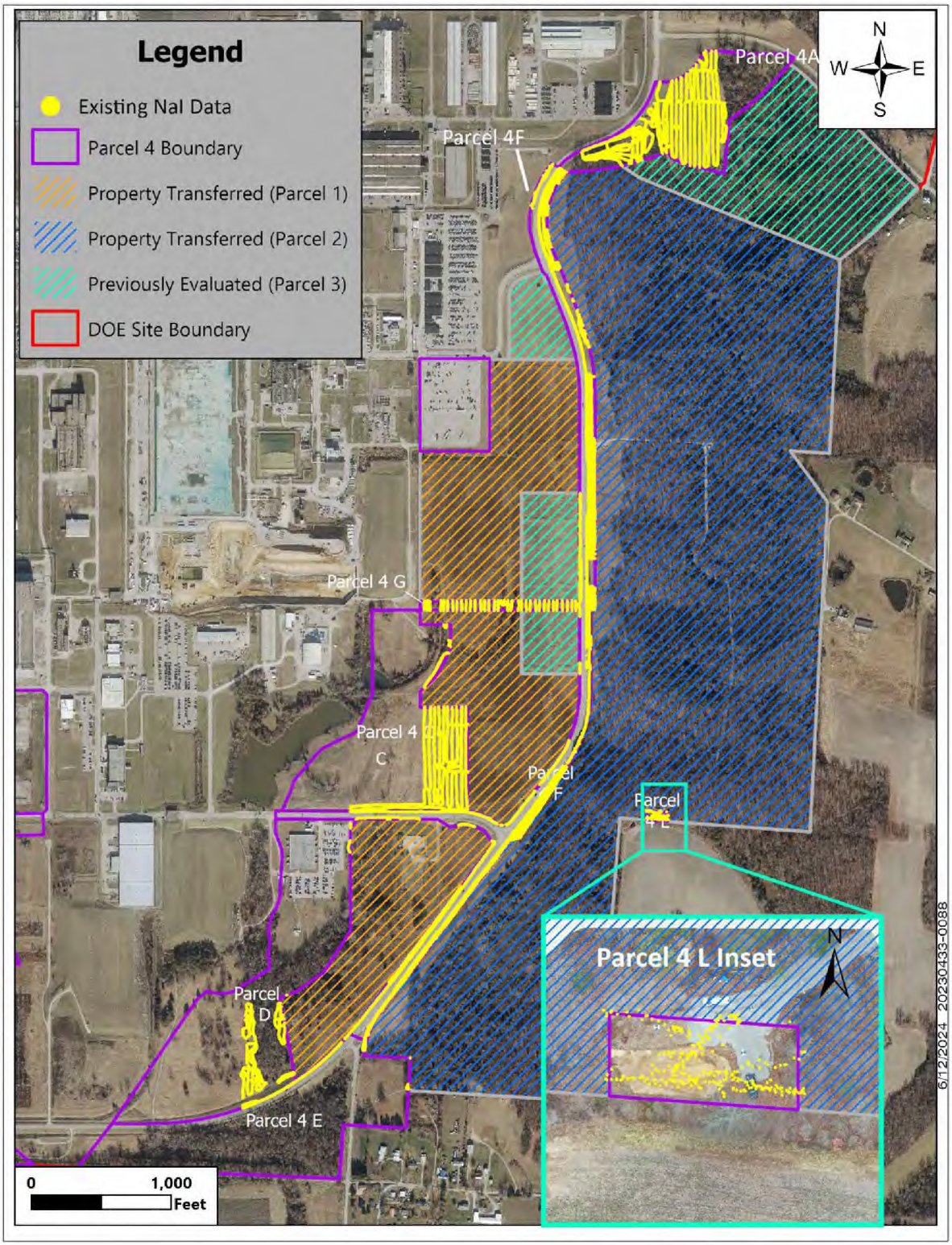

Figure 4. Historical Radiological Scoping Surveys in Parcel 4

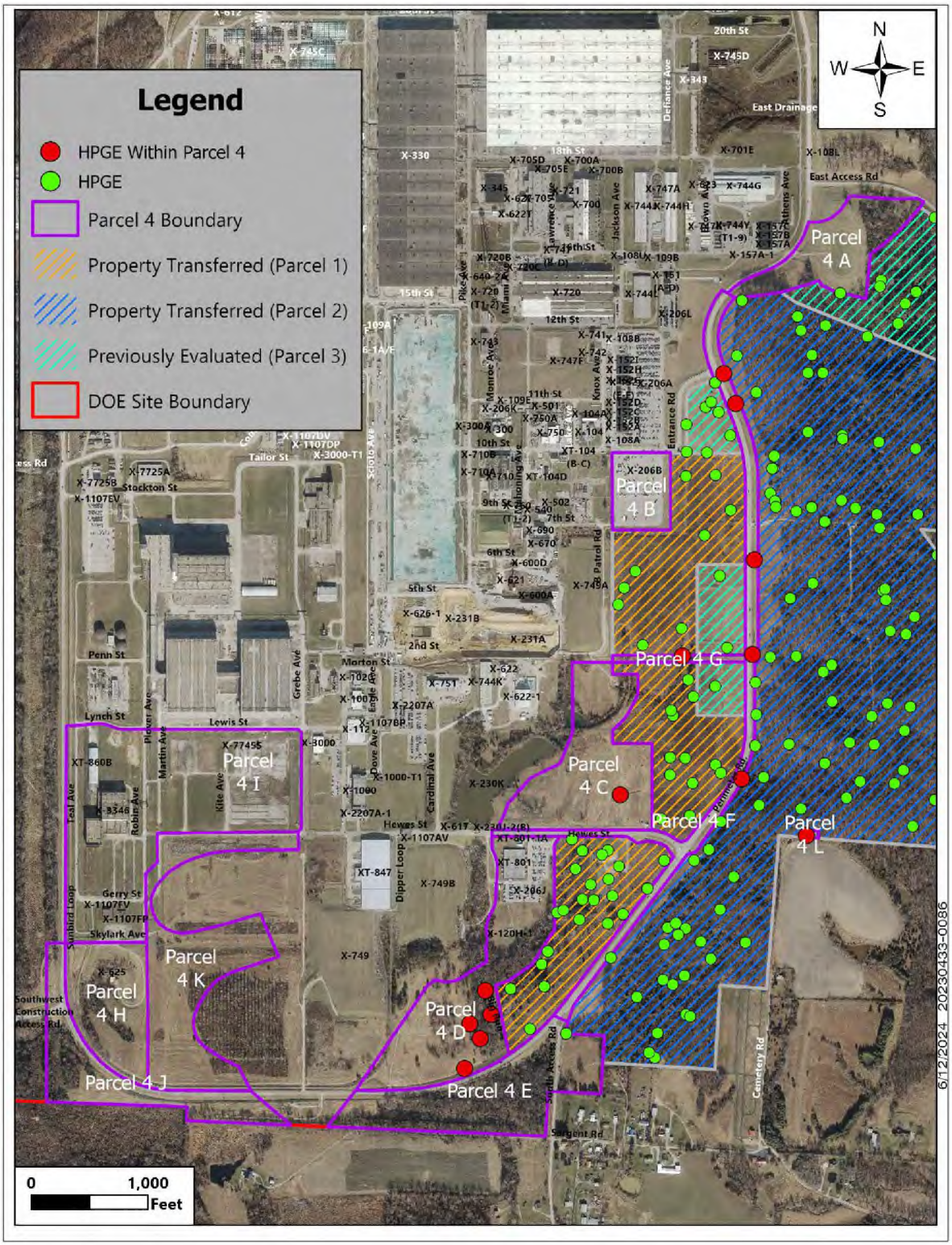

Figure 5. Historical High-purity Germanium Measurements Within and Adjacent to Parcel 4

Table 7. Soil COPCs and RLs for Parcel 4

	COPCs	Recommended RL[1, 2]	Units	CAS Number	Laboratory Method[3]
Metals	Aluminum	4.55E+00	mg/kg	7429-90-5	EPA SW-846
	Antimony	3.30E-01	mg/kg	7440-36-0	6010/6020/7471
	Arsenic	6.12E-01	mg/kg	7440-38-2	
	Barium	1.00E-01	mg/kg	7440-39-3	
	Beryllium	2.00E-02	mg/kg	7440-41-7	
	Cadmium	2.00E-02	mg/kg	7440-43-9	
	Chromium	2.00E-01	mg/kg	7440-47-3	
	Chromium, trivalent	Calculation	mg/kg	16065-83-1	
	Cobalt	2.12E-02	mg/kg	7440-48-4	
	Copper	6.60E-02	mg/kg	7440-50-8	
	Iron	6.60E+00	mg/kg	7439-89-6	
	Lead	1.00E-01	mg/kg	7439-92-1	
	Manganese	5.86E-01	mg/kg	7439-96-5	
	Mercury	1.65E+00	mg/kg	7439-97-6	
	Nickel	1.00E-01	mg/kg	7440-02-0	
	Selenium	3.60E-01	mg/kg	7782-49-2	
	Silver	6.00E-02	mg/kg	7440-22-4	
	Thallium	1.40E-01	mg/kg	7440-28-0	
	Total Uranium	4.32E-01	mg/kg	7440-61-1	
	Vanadium	3.00E-01	mg/kg	7440-62-2	
	Zinc	8.00E-01	mg/kg	7440-66-6	
Noncarcinogenic Polycyclic Aromatic Hydrocarbons	Acenaphthene	1.71E-02	mg/kg	83-32-9	EPA SW-846 8270
	Anthracene	1.71E-02	mg/kg	120-12-7	
	Benzo(g,h,i)perylene	1.71E-02	mg/kg	191-24-2	
	Fluorene	1.71E-02	mg/kg	86-73-7	
	Fluoranthene	1.71E-02	mg/kg	206-44-0	
	Methylnaphthalene, 2-	1.71E-02	mg/kg	91-57-6	
	Naphthalene	1.71E-02	mg/kg	91-20-3	
	Phenanthrene	1.71E-02	mg/kg	85-01-8	
	Pyrene	1.71E-02	mg/kg	129-00-0	
Carcinogenic Polycyclic Aromatic Hydrocarbons	Benzo(a)anthracene	1.48E-02	mg/kg	56-55-3	EPA SW-846 8270
	Benzo(a)pyrene	1.48E-02	mg/kg	50-32-8	
	Benzo(b)fluoranthene	1.48E-02	mg/kg	205-99-2	
	Benzo(k)fluoranthene	1.48E-02	mg/kg	207-08-9	
	Chrysene	1.48E-02	mg/kg	218-01-9	
	Dibenz(a,h)anthracene	1.48E-02	mg/kg	53-70-3	
	Indeno(1,2,3-cd)pyrene	1.48E-02	mg/kg	193-39-5	
Polychlorinated Biphenyls	Aroclor-1016	8.17E-03	mg/kg	12674-11-2	EPA SW-846 8082
	Aroclor-1221	8.17E-03	mg/kg	11104-28-2	
	Aroclor-1232	8.17E-03	mg/kg	11141-16-5	
	Aroclor-1242	8.17E-03	mg/kg	53469-21-9	
	Aroclor-1248	8.17E-03	mg/kg	12672-29-6	
	Aroclor-1254	8.17E-03	mg/kg	11097-69-1	
	Aroclor-1260	8.17E-03	mg/kg	11096-82-5	
	Aroclor-1268	8.17E-03	mg/kg	11100-14-4	
	Aroclor, Total	8.17E-03	mg/kg	1336-36-3	

Table 7. Soil COPCs and RLs for Parcel 4 (Continued)

	COPCs	Recommended RL[1,2]	Units	CAS Number	Laboratory Method[3]
Radionuclides	Uranium-233/234	2.00E-01	pCi/g	NS632	Alpha Spec
	Uranium-235/236	5.00E-02	pCi/g	N1047	
	Uranium-238	2.00E-01	pCi/g	24678-82-8	
	Technetium-99	3.59E+00	pCi/g	14133-76-7	LSC/ICP-MS
General Chemistry	Chromium, hexavalent	1.60E-01	mg/kg	18540-29-9	ASTM D2216
	Cyanide, total	8.35E-02	mg/kg	57-12-5	Method 9056
	Fluoride	9.37E+00	mg/kg	16984-48-8	EPA SW-846
	Percent Moisture	NA	%	N544	9012/7196

Notes:
[1]With the exception of radionuclide results, the laboratory will report results to the MDL; results between the RL and MDL will qualify as estimated values.
[2]The recommended RL listed is based on risk criteria. Achieving the recommended RL may not be supported by standard methodology. The laboratory will report results to the MDL. Samples will be analyzed and results reported "as is" (i.e., not on a dry-weight basis).
[3]Equivalent methods may be used provided DQOs and MQOs are satisfied.

ASTM = American Society for Testing and Materials Standards
CAS = Chemical Abstracts Service
COPC = chemicals of potential concern
DQO = data quality objective
EPA = U.S. Environmental Protection Agency
ICP-MS = Inductively Coupled Plasma – Mass Spectrometry
LSC = Liquid Scintillation Counting
MDL = method detection limit
MQO = measurement quality objective
NA = not applicable
RL = reporting limit

Table 8. Sediment COPCs and RL for Parcel 4

COPCs		Recommended RL[1,2]	Units	CAS Number	Laboratory Method[3]
Metals	Aluminum	4.55E+00	mg/kg	7429-90-5	EPA SW-846
	Antimony	3.30E-01	mg/kg	7440-36-0	6010/6020/7471
	Arsenic	6.12E-01	mg/kg	7440-38-2	
	Barium	1.00E-01	mg/kg	7440-39-3	
	Beryllium	2.00E-02	mg/kg	7440-41-7	
	Cadmium	2.00E-02	mg/kg	7440-43-9	
	Chromium	2.00E-01	mg/kg	7440-47-3	
	Chromium, trivalent	Calculation	mg/kg	16065-83-1	
	Cobalt	2.12E-02	mg/kg	7440-48-4	
	Copper	6.60E-02	mg/kg	7440-50-8	
	Iron	6.60E+00	mg/kg	7439-89-6	
	Lead	1.00E-01	mg/kg	7439-92-1	
	Manganese	5.86E-01	mg/kg	7439-96-5	
	Mercury	1.80E-01	mg/kg	7439-97-6	
	Nickel	1.00E-01	mg/kg	7440-02-0	
	Selenium	3.60E-01	mg/kg	7782-49-2	
	Silver	6.00E-02	mg/kg	7440-22-4	
	Thallium	1.40E-01	mg/kg	7440-28-0	
	Total Uranium	4.32E-01	mg/kg	7440-61-1	
	Vanadium	3.00E-01	mg/kg	7440-62-2	
	Zinc	8.00E-01	mg/kg	7440-66-6	
Noncarcinogenic Polycyclic Aromatic Hydrocarbons	Acenaphthene	1.71E-02	mg/kg	83-32-9	EPA SW-846 8270
	Anthracene	1.71E-02	mg/kg	120-12-7	
	Benzo(g,h,i)perylene	1.71E-02	mg/kg	191-24-2	
	Fluorene	1.71E-02	mg/kg	86-73-7	
	Fluoranthene	1.71E-02	mg/kg	206-44-0	
	Methylnaphthalene, 2-	1.71E-02	mg/kg	91-57-6	
	Naphthalene	1.71E-02	mg/kg	91-20-3	
	Phenanthrene	1.71E-02	mg/kg	85-01-8	
	Pyrene	1.71E-02	mg/kg	129-00-0	
Carcinogenic Polycyclic Aromatic Hydrocarbons	Benzo(a)anthracene	1.48E-02	mg/kg	56-55-3	EPA SW-846 8270
	Benzo(a)pyrene	1.48E-02	mg/kg	50-32-8	
	Benzo(b)fluoranthene	1.48E-02	mg/kg	205-99-2	
	Benzo(k)fluoranthene	1.48E-02	mg/kg	207-08-9	
	Chrysene	1.48E-02	mg/kg	218-01-9	
	Dibenz(a,h)anthracene	1.48E-02	mg/kg	53-70-3	
	Indeno(1,2,3-cd)pyrene	1.48E-02	mg/kg	193-39-5	
Polychlorinated Biphenyls	Aroclor-1016	8.17E-03	mg/kg	12674-11-2	EPA SW-846 8082
	Aroclor-1221	8.17E-03	mg/kg	11104-28-2	
	Aroclor-1232	8.17E-03	mg/kg	11141-16-5	
	Aroclor-1242	8.17E-03	mg/kg	53469-21-9	
	Aroclor-1248	8.17E-03	mg/kg	12672-29-6	
	Aroclor-1254	8.17E-03	mg/kg	11097-69-1	
	Aroclor-1260	8.17E-03	mg/kg	11096-82-5	
	Aroclor-1268	8.17E-03	mg/kg	11100-14-4	
	Aroclor, Total	8.17E-03	mg/kg	1336-36-3	

Table 8. Sediment COPCs and RLs for Parcel 4 (Continued)

	COPCs	Recommended RL[1,2]	Units	CAS Number	Laboratory Method[3]
Radionuclides	Uranium-233/234	2.00E-01	pCi/g	NS632	Alpha Spec
	Uranium-235/236	5.00E-02	pCi/g	N1047	
	Uranium-238	2.00E-01	pCi/g	24678-82-8	
	Technetium-99	3.59E+00	pCi/g	14133-76-7	LSC/ICP-MS
General Chemistry	Chromium, hexavalent	1.60E-01	mg/kg	18540-29-9	ASTM D2216
	Cyanide, total	8.35E-02	mg/kg	57-12-5	EPA SW-846
	Fluoride	9.37E+00	mg/kg	16984-48-8	9012/7196/9060
	Total Organic Carbon	5.00E+02	mg/kg	N997	Method 9056
	Percent Moisture	NA	%	N544	

Notes:
[1]With the exception of radionuclide results, the laboratory will report results to the MDL; results between the RL and MDL will qualify as estimated values.
[2]The recommended RL listed is based on risk criteria. Achieving the recommended RL may not be supported by standard methodology. The laboratory will report results to the MDL. Samples will be analyzed and results reported "as is" (i.e., not on a dry-weight basis).
[3]Equivalent methods may be used provided DQOs and MQOs are satisfied.

ASTM = American Society for testing and Materials Standards
CAS = Chemical Abstracts Service
COPC = chemicals of potential concern
DQO = data quality objective
EPA = U.S. Environmental Protection Agency
LSC = Liquid Scintillation Counting
ICP-MS = Inductively Coupled Plasma – Mass Spectrometry
MDL = method detection limit
MQO = measurement quality objective
NA = not applicable
RL = reporting limit

Table 9. Surface Water COPCs and RLs for Parcel 4

	COPCs	Recommended RLs[1,2]	Units	CAS Number	Laboratory Method[3]
Volatile Organic Compounds	Benzene	4.00E-01	ug/L	71-43-2	EPA SW-846 8260
	Dichloroethene, 1,1-	7.00E+00	ug/L	75-35-4	
	Dichloroethene, 1,2-	1.31E+01	ug/L	540-59-0	
	Dichloroethene, cis-1,2-	2.90E+00	ug/L	156-59-2	
	Dichloroethene, trans-1,2-	8.74E+00	ug/L	156-60-5	
	Ethylbenzene	1.35E+00	ug/L	100-41-4	
	Toluene	3.00E-01	ug/L	108-88-3	
	Trichloroethane, 1,1,1-	3.00E-01	ug/L	71-55-6	
	Trichloroethane, 1,1,2-	1.24E+00	ug/L	79-00-5	
	Trichloroethene	2.63E-01	ug/L	79-01-6	
	Vinyl Chloride	3.00E-01	ug/L	75-01-4	
	Xylene, total	1.91E+01	ug/L	1330-20-7	
Noncarcinogenic Polycyclic Aromatic Hydrocarbons	Acenaphthene	3.32E+00	ug/L	83-32-9	EPA SW-846 8270
	Anthracene	3.00E-01	ug/L	120-12-7	
	Benzo(g,h,i)perylene	3.00E-01	ug/L	191-24-2	
	Fluorene	3.32E+00	ug/L	86-73-7	
	Fluoranthene	3.00E-01	ug/L	206-44-0	
	Methylnaphthalene, 2-	3.32E+00	ug/L	91-57-6	
	Naphthalene	3.32E+00	ug/L	91-20-3	
	Pyrene	3.32E+00	ug/L	129-00-0	
Carcinogenic Polycyclic Aromatic Hydrocarbons	Benzo(a)anthracene	2.95E-01	ug/L	56-55-3	EPA SW-846 8270
	Benzo(a)pyrene	3.00E-01	ug/L	50-32-8	
	Benzo(b)fluoranthene	2.95E-01	ug/L	205-99-2	
	Benzo(k)fluoranthene	2.95E-01	ug/L	207-08-9	
	Chrysene	2.95E-01	ug/L	218-01-9	
	Dibenz(a,h)anthracene	2.95E-01	ug/L	53-70-3	
	Indeno(1,2,3-cd)pyrene	3.00E-01	ug/L	193-39-5	
Polychlorinated Biphenyls	Aroclor-1016	3.36E-02	ug/L	12674-11-2	EPA SW-846 8082
	Aroclor-1221	3.36E-02	ug/L	11104-28-2	
	Aroclor-1232	3.36E-02	ug/L	11141-16-5	
	Aroclor-1242	3.36E-02	ug/L	53469-21-9	
	Aroclor-1248	3.36E-02	ug/L	12672-29-6	
	Aroclor-1254	3.36E-02	ug/L	11097-69-1	
	Aroclor-1260	3.36E-02	ug/L	11096-82-5	
	Aroclor-1268	3.36E-02	ug/L	11100-14-4	
	Aroclor, total	3.36E-02	ug/L	1336-36-3	

Table 9. Surface Water COPCs and RLs for Parcel 4 (Continued)

	COPCs	Recommended RLs[1,2]	Units	CAS Number	Laboratory Method[3]
Metals	Antimony	6.14E-01	ug/L	7440-36-0	EPA SW-846
	Arsenic	1.66E+00	ug/L	7440-38-2	6010B/6020/7196
	Barium	5.00E-01	ug/L	7440-39-3	
	Beryllium	2.24E+00	ug/L	7440-41-7	
	Cadmium	3.00E-02	ug/L	7440-43-9	
	Chromium	1.00E+00	ug/L	7440-47-3	
	Chromium (VI)	1.30E+00	ug/L	18540-29-9	
	Cobalt	4.69E-01	ug/L	7440-48-4	
	Lead	1.50E+01	ug/L	7439-92-1	
	Manganese	3.51E+01	ug/L	7439-96-5	
	Nickel	3.09E+01	ug/L	7440-02-0	
	Selenium	1.50E+00	ug/L	7782-49-2	
	Silver	2.00E-01	ug/L	7440-22-4	
	Thallium	1.25E-01	ug/L	7440-28-0	
	Uranium	6.70E-02	ug/L	7440-61-1	
	Vanadium	2.00E+00	ug/L	7440-62-2	
	Zinc	3.00E+00	ug/L	7440-66-6	
	Mercury	6.26E-02	ug/L	7439-97-6	Method 7470
Radionuclides	Uranium-233/234	7.48E-01	pCi/L	NS632	Alpha Spec
	Uranium-235/236	4.66E-01	pCi/L	N1047	
	Uranium-238	8.27E-01	pCi/L	24678-82-8	
	Technetium-99	1.92E+01	pCi/L	14133-76-7	LSC/ICP-MS
General Chemistry	Cyanide, total	1.67E+00	ug/L	57-12-5	Method 9012
	Fluoride	6.24E+01	ug/L	16984-48-8	Method 9056

Notes:
[1]With the exception of radionuclide results, the laboratory will report results to the MDL; results between the RL and MDL will qualify as estimated values.
[2]The recommended RL listed is based on risk criteria. Achieving the recommended RL may not be supported by standard methodology. The laboratory will report results to the MDL.
[3]Equivalent methods may be used provided DQOs and MQOs are satisfied.
CAS = Chemical Abstracts Service
COPC = chemicals of potential concern
DQO = data quality objective
EPA = U.S. Environmental Protection Agency
ICP-MS = Inductively Coupled Plasma – Mass Spectrometry
LSC = Liquid Scintillation Counting
MDL = method detection limit
MQO = measurement quality objective
RL = reporting limit

Table 10 presents the minimum detectable concentration (MDC) for which real-time technology may be used in Parcel 4. Not all analytes listed as soil COPCs in Table 7 can be detected by real-time methods; however, the probability for detection of radiological COPCs will be the highest at locations of elevated uranium-238, which for the purpose of this SAP is greater than 8 pCi/g for HPGe measurements. Physical samples will be collected based on results of the radiological survey, in addition to other criteria discussed in Section 8. An explanation of how real-time MDCs were established for uranium is presented in Section 9. Section 8 discusses how MDCs will be used during field activities.

Table 10. Real-time COPCs and MDCs for Parcel 4

Analyte[a]	MDC	
	NaI	HPGe
Uranium, Total	TBD[b]	NA
Uranium-238(+D)	NA	8 pCi/g[c]

Notes:
[a]For the area being investigated, the chemicals and radionuclides of potential concern for field screening were determined to be site-related metals and radionuclides.
[b]The MDC associated with NaI for total gamma counts in the uranium regions of interest will be defined as the mean minus 3-sigma on the control chart established at the soil background area. Note that the background area will be the same area used during the scoping survey for the Parcel 1 investigation/scoping survey (DOE 2017c).
[c]MDC value is based on one-half of the PORTS-specific AL value (DOE 2018). The AL for uranium-238(+D) is deemed appropriate to meet the DOE Order 458.1 requirements that are protective of human health and the environment.

AL = Authorized Limit
COPC = chemicals of potential concern
DOE = U.S. Department of Energy
HPGe = high-purity germanium
NA = not applicable
NaI = sodium iodide
MDC = minimum detectable concentration
PORTS = Portsmouth Gaseous Diffusion Plant
TBD = to be determined

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6. DATA QUALITY OBJECTIVES

The DQO process provides a structured approach to planning projects where environmental data are used to support decision making. Use of the DQO process leads to consensus on the type, quality, and quantity of data needed to meet the project goals.

In accordance with EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA 2006a), there are seven steps in the DQO process:

- Step 1 – State the problem.
- Step 2 – Identify the goal of the study.
- Step 3 – Identify information inputs.
- Step 4 – Define the boundaries of the study.
- Step 5 – Develop the analytic approach.
- Step 6 – Specify performance or acceptance criteria.
- Step 7 – Develop the plan for obtaining data.

A copy of the DQOs for this SAP is provided in Appendix A.

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7. SAMPLING DESIGN

There are four components to the approach for sampling Parcel 4: (1) defining the parcel boundary and evaluating historical data, (2) conducting a visual walkover assessment, (3) conducting a radiological scoping survey, and (4) collecting physical samples for fixed-base laboratory analyses. The area for Parcel 4 was identified by DOE and a working boundary was developed using a Geographical Information System (GIS). A visual walkover survey was performed to identify anomalies and locations for physical sampling, and a radiological scoping survey will be conducted as described in this SAP. Physical samples will be collected from locations identified by historical data and/or process knowledge, the visual walkover, the radiological scoping survey, and any additional samples needed to ensure adequate coverage of the area. A general process diagram for the evaluation approach is shown in Figure 6. The following sections provide the details of accomplishing these components.

7.1 SAMPLING STRATEGY

This SAP is designed to guide the collection of environmental data that will be evaluated to satisfy the due diligence requirements of CERCLA 120(h). DOE Order 458.1 requirements and MARSSIM guidance for classification as "non-impacted" are also considered in this approach. Initial classification determination will take into consideration all available information (such as historical site characterization data, historical operations information, aerial photographs, and other pertinent information). The significance of the initial classification is that it focuses the field program on potentially impacted areas where there is a higher probability of contamination. The initial assumption is that Parcel 4 is non-impacted by plant operations and is not expected to contain any residual contaminants above PORTS-specific ALs[5], based on site operating history and/or previous characterization data.

The approach used in this SAP for evaluating non-impacted areas is similar to that in MARSSIM guidance, consisting of an evaluation of historical information (data and aerial photographs), walkover surveys, and (if needed) the collection of judgmental samples/measurements to support the property's classification. This SAP incorporates elements of the MARSSIM guidance approach for non-radiological contaminants as well. If contamination is located, the area (or a portion of the area) will be reclassified as an impacted area. Investigation activities performed in this SAP include historical photograph analysis, records research, visual inspection, walkovers, collection of real-time measurements, and if applicable, the collection of physical samples.

7.1.1 Visual Walkover

A visual walkover assessment (Step 2 of Figure 6) was conducted in January 2024 to systematically inspect the parcel to identify, map any observed features, and identify potential sample collection locations. The assessment focused primarily on identifying anthropogenic features, delineating the boundaries of the features, and determining if biased media sampling is warranted. Identified anomalies were based on areas of mounding, depressions, and debris (e.g., concrete, metal), areas of disturbance, lack of vegetation, or distressed vegetation, and evidence of infrastructure that could be a potential source of contamination.

While traversing the area, the walkover assessment team documented details of anomalies, took photographs, and logged locations using a Global Positioning System (GPS). Besides anomalies, surface water or sediment features were identified for sampling during the walkover. Physical sample locations based on anomalies and other observed features were identified during the walkover and are discussed in Section 7.1.3.

[5] PORTS site-specific Authorized Limits, found in the May 2, 2018, communication from DOE to FBP (DOE 2018), are used to demonstrate compliance with both DOE Order 458.1 and CERCLA 120(h) and to result in radiation doses less than the DOE public dose limit.

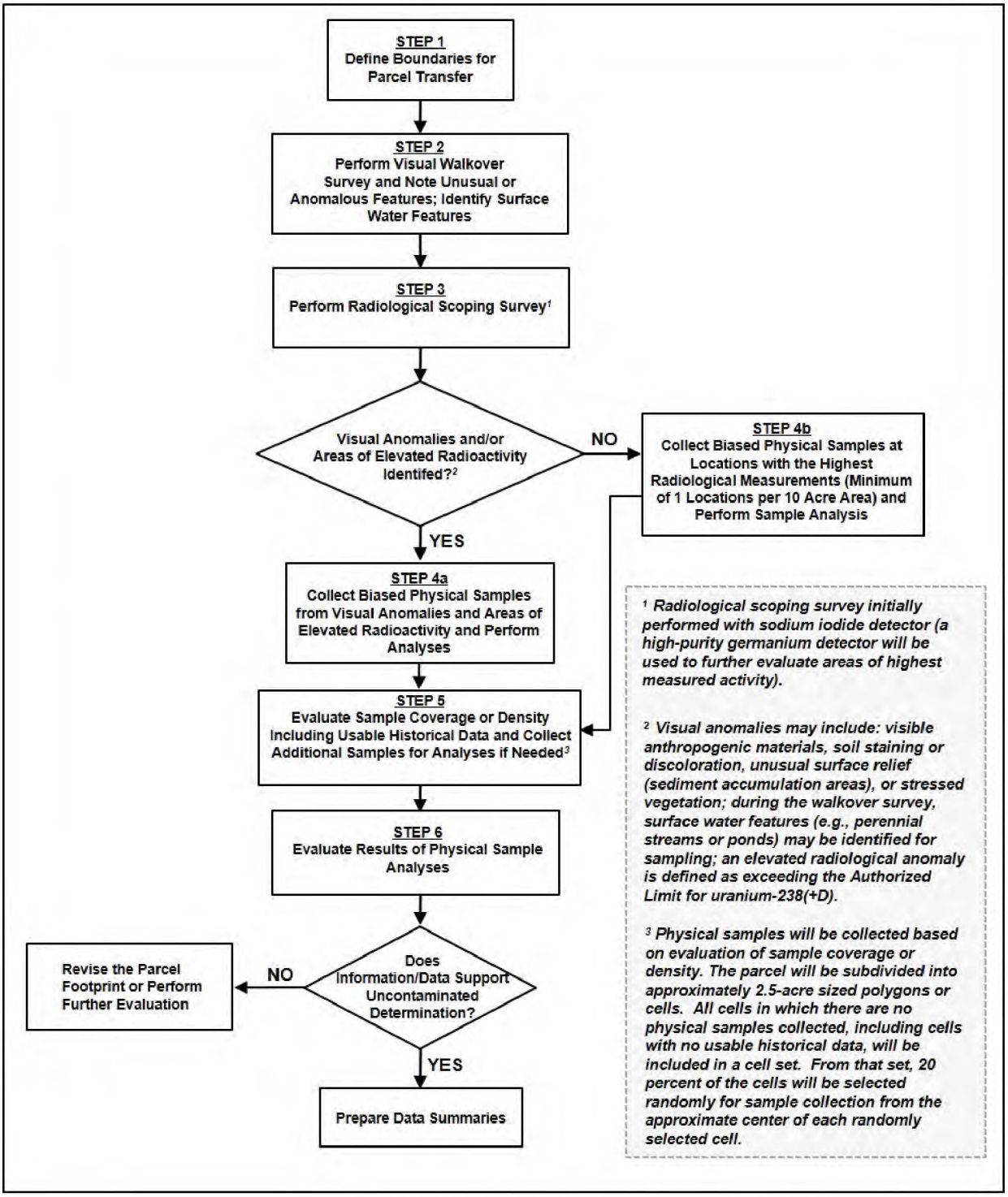

Figure 6. Process Flow for Parcel Evaluation

7.1.2 Radiological Scoping Survey Strategy

A field radiological scoping survey (Step 3 of Figure 6) will utilize approaches outlined in MARSSIM, as appropriate for non-impacted areas. MARSSIM was developed to address potential radiological contamination on surface soil and building surfaces and makes use of survey instruments designed to detect the presence of ionizing radiation in the field.

The initial assumption is that Parcel 4 is non-impacted and uncontaminated; however, in order to confirm this assumption, the area will undergo a radiological scoping survey. If any residual radioactive material exists in Parcel 4, it may have been randomly deposited from air emissions dispersed over the area. Given this assumption, a systematic approach will be used to the extent practical. The parcel will be divided into a grid where blocks are approximately 10,000 m^2 (approximately 2.5 acres) as shown in Figure 7. Each grid block is assigned an identification (ID) number. This grid layout will facilitate uniform coverage of the radiological survey since limited measurements will be used to determine if residual radioactive material is present.

The radiological scoping survey will begin with a NaI scan of the Parcel 4 study area. The grid blocks consisting of primarily grassy vegetation will have 20 percent of the surface area scanned by a NaI detector (unless associated with roads or other infrastructure). Grid blocks consisting of primarily wooded area will be scanned with serpentine traverses across the grid block as accessible (no minimum coverage of wooded areas is specified). Asphalt, anomalies, and other infrastructure areas will be subject to a scan providing 100 percent coverage[6], or, if anomalies occurred within dense vegetation, as close to 100 percent coverage as reasonably achievable. Within each grid block, the area of highest gamma activity, as determined by the NaI scan, will be identified as a location for HPGe measurement. In addition to the NaI survey results, HPGe measurements may also be taken at anomalies identified during the visual walkover survey.

Based on the visual walkover survey, areas of soil disturbance (mounds/spoil piles) in Section C and areas with distressed vegetation in Sections H and K were identified for 100 percent coverage with the radiological survey (Figures 8 and 9). Another soil area for 100 percent survey coverage was identified near materials stored outside the X-625 Groundwater Passive Treatment Facility in Section H.

A radiological survey of Section A was performed in November 2015 (DOE 2017c), which achieved 20 percent coverage of open areas. Based on the November 2015 survey, proposed HPGe measurement locations for Section A are shown in Figure 10, and coordinate locations are provided in Table 11.

[6] Asphalt or concrete areas will only be scanned after the detectors are calibrated for the appropriate surface.

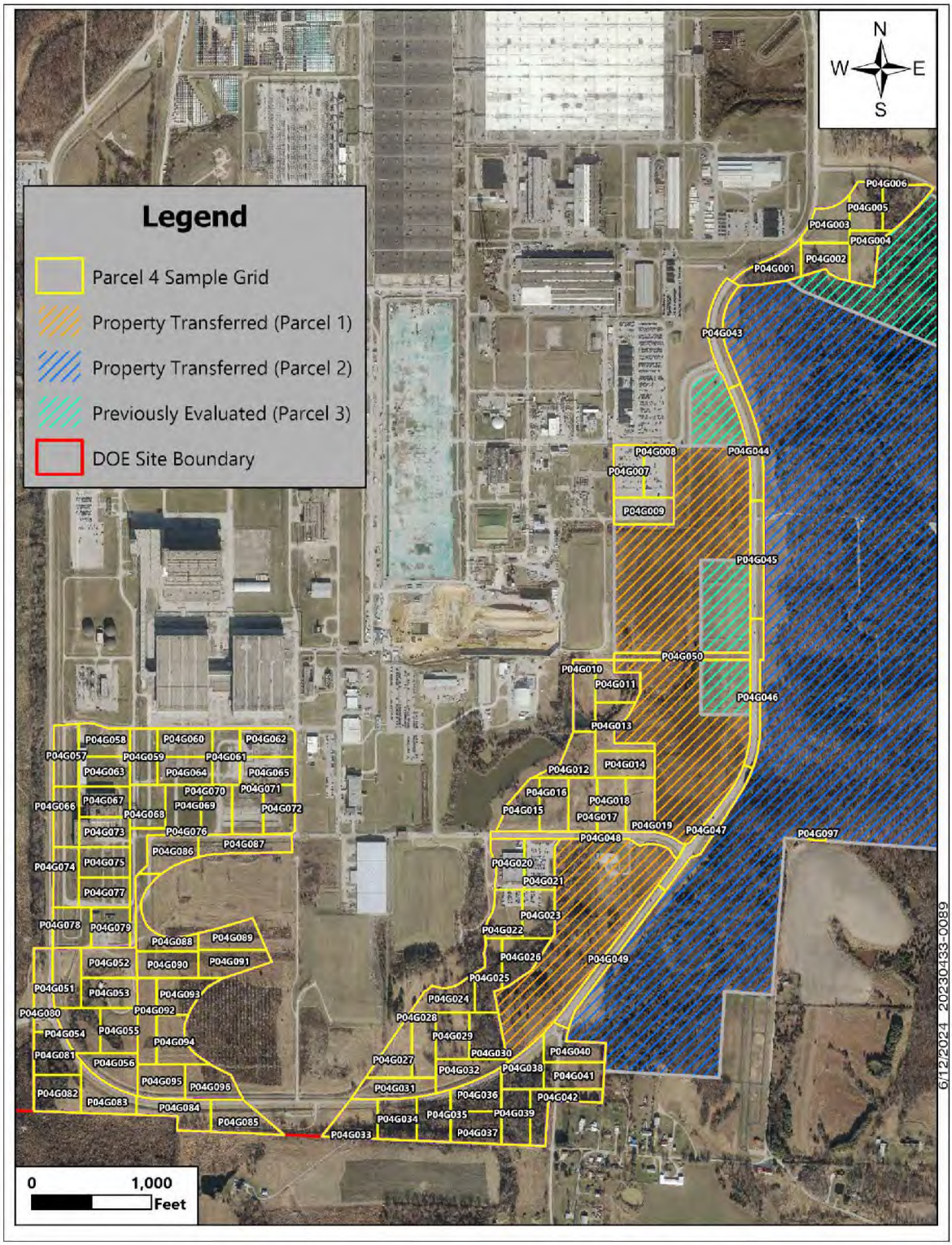

Figure 7. Parcel 4 Sampling Strategy Layout

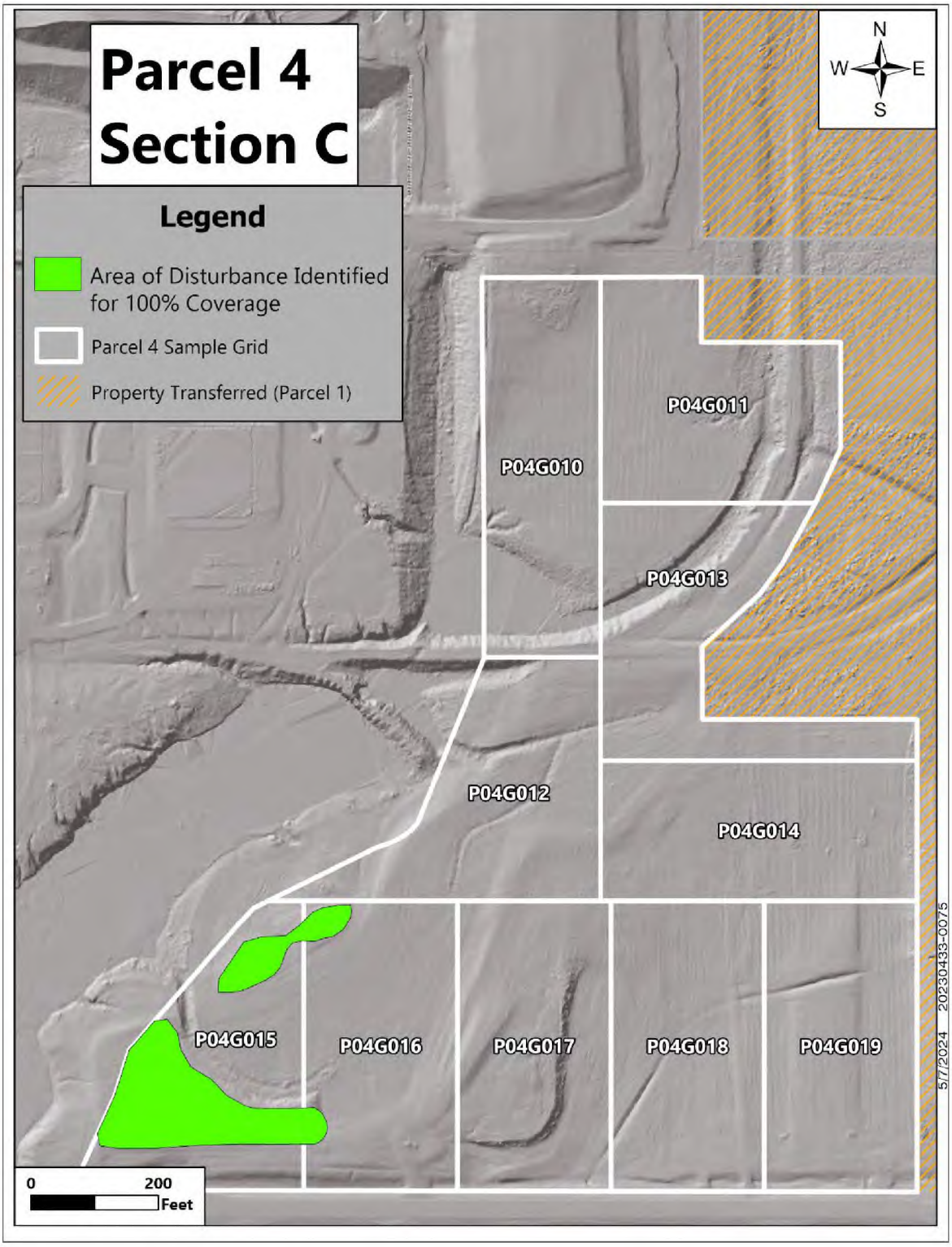

Figure 8. Soil Areas Identified for 100 Percent Radiological Survey Coverage in Parcel 4 Section C

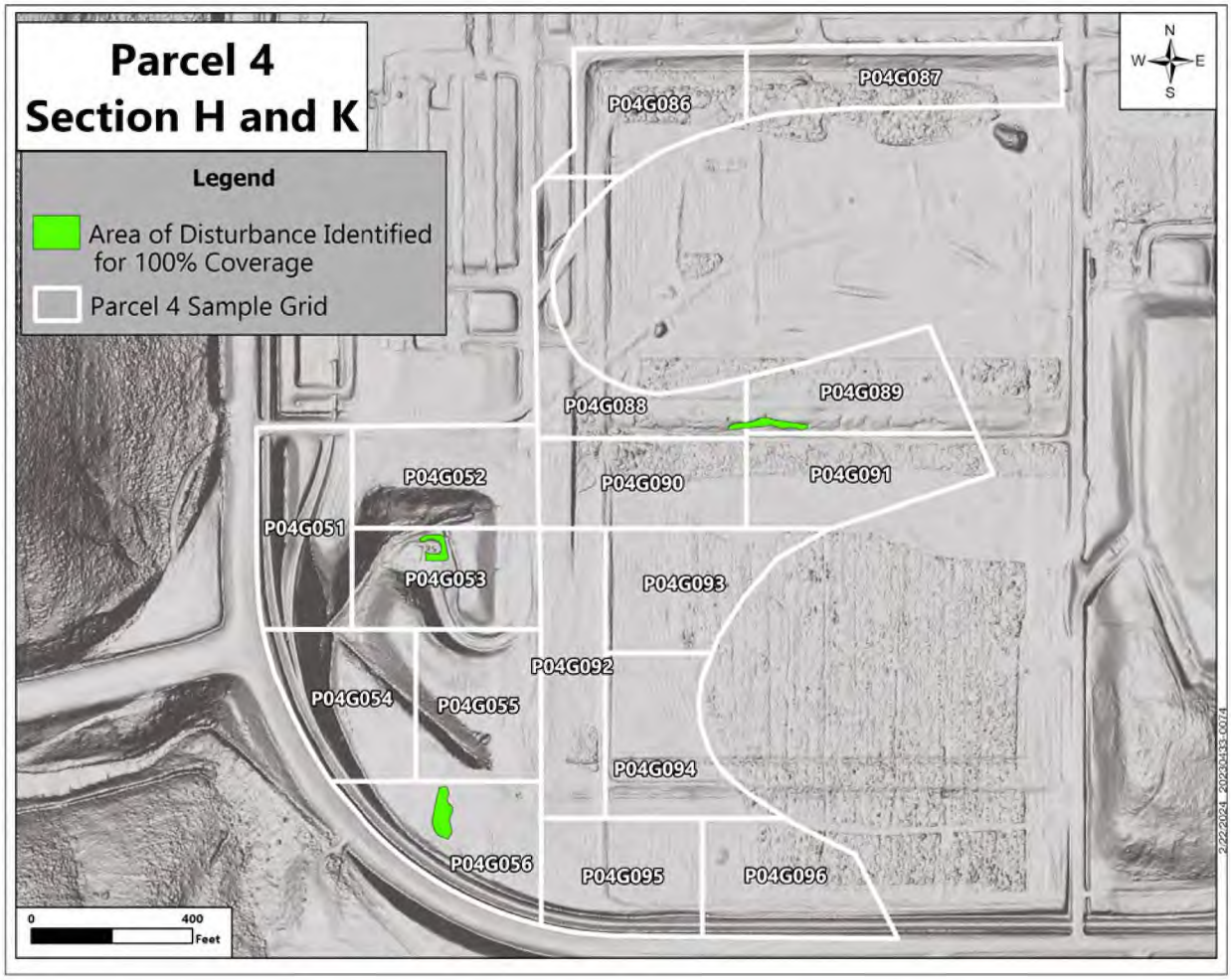

Figure 9. Soil Areas Identified for 100 Percent Radiological Survey Coverage in Parcel 4 Sections H and K

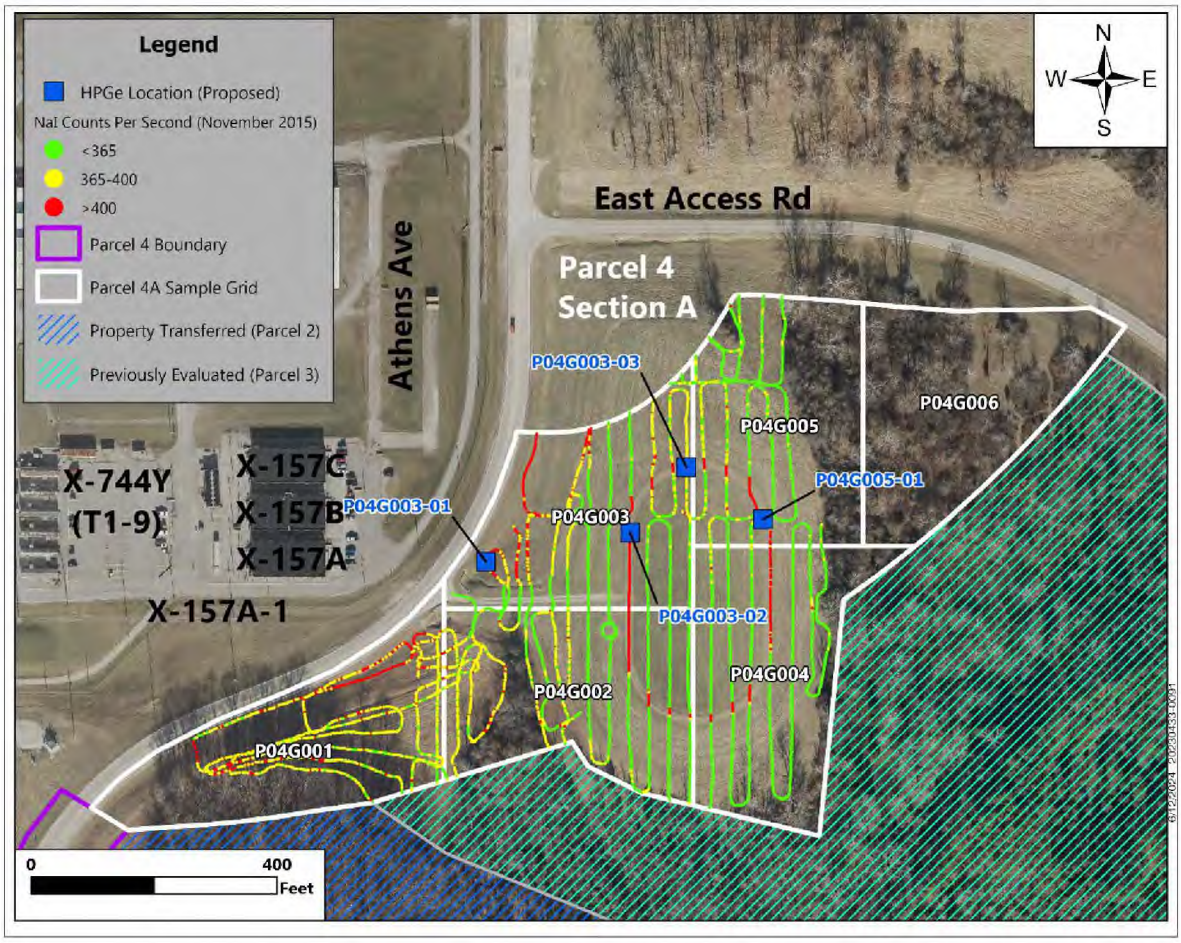

Figure 10. Parcel 4 Section A Proposed High-purity Germanium Locations Based on Existing Data

Table 11. Proposed HPGe Locations Based on Existing NaI Survey Data

Location ID	Rationale	Easting	Northing
P04G003-01	NaI Survey	1829514.6	369844.4
P04G003-02	NaI Survey	1829749.2	369891.9
P04G003-03	NaI Survey	1829840.6	369998.1
P04G005-01	NaI Survey	1829965.2	369913.4

Notes:
HPGe = high-purity germanium
ID = identification
NaI = sodium iodide

7.1.3 Physical Sampling Strategy

In addition to the radiological survey, biased or judgmental physical sampling locations will be selected based on historical photograph analysis, records research, anomalies determined from the visual walkover survey, surface water features, sediment accumulation areas, and areas of elevated radioactivity based on the radiological survey (Steps 4a and 4b of Figure 6). Physical samples will be collected and analyzed for

area-specific COPCs (Tables 7, 8, and 9) using fixed-base laboratory analytical methods. Additionally, random soil samples will be collected in areas where no anomalies have been identified and no historical data exists in order to ensure adequate sample coverage to demonstrate that contamination does not exist in this parcel.

Soil sampling locations were selected based on historical information and observations from the visual walkover assessment. They include areas of mounding, debris (e.g., concrete, metal), areas of disturbance, lack of vegetation, or distressed vegetation, and evidence of infrastructure (parking lots) that could be a potential source of contamination. Additionally, a confirmation soil sample will be collected from a historical soil location exceeding the soil background value and human health screening values.

Biased or judgmental sampling will also be conducted when observation or real-time measurement indicates that the presumption of no contamination may not be valid. If the HPGe measurement exceeds the AL, a physical sample will be collected for fixed-base laboratory analysis. At a minimum, soil samples will be collected from the highest HPGe (or NaI) locations at a ratio of one sample per 10-acre area for fixed base laboratory analysis. Although not consistent with the HHRA Risk Evaluation, where physical soil samples are recommended to be collected at 0-12 in. below ground surface (bgs), the approach in this SAP is to sample the 0-6 in. depth interval to ensure compatibility of physical samples with HPGe measurements that only detect gamma radiation from the top 6 in. of soil. Exceptions to this depth interval will apply to the confirmation soil samples for historical exceedances; those samples, if collected, will mirror the depth of the original exceedance.

For remaining areas, where no physical soil samples are collected due to observation or real-time measurement, and where no historical data (collected from 2006 to present) exist, random soil samples may be collected to ensure adequate coverage of analytical data across the parcel (Step 5 of Figure 6). Using the grid blocks created to facilitate the radiological survey, 20 percent of the grid blocks in these remaining areas will be selected randomly for soil sampling using a random number generator. A soil sample will be collected from the approximate center of each randomly selected grid block.

Care must be taken to ensure that sampling for Parcel 4 includes enough data to provide a statistically significant dataset for evaluation and risk screening. For instance, a minimum of eight samples per media type should be planned in order to achieve the required statistics for the Parcel 4 dataset.

Sample locations have been identified in Figure 11 and Table 12.

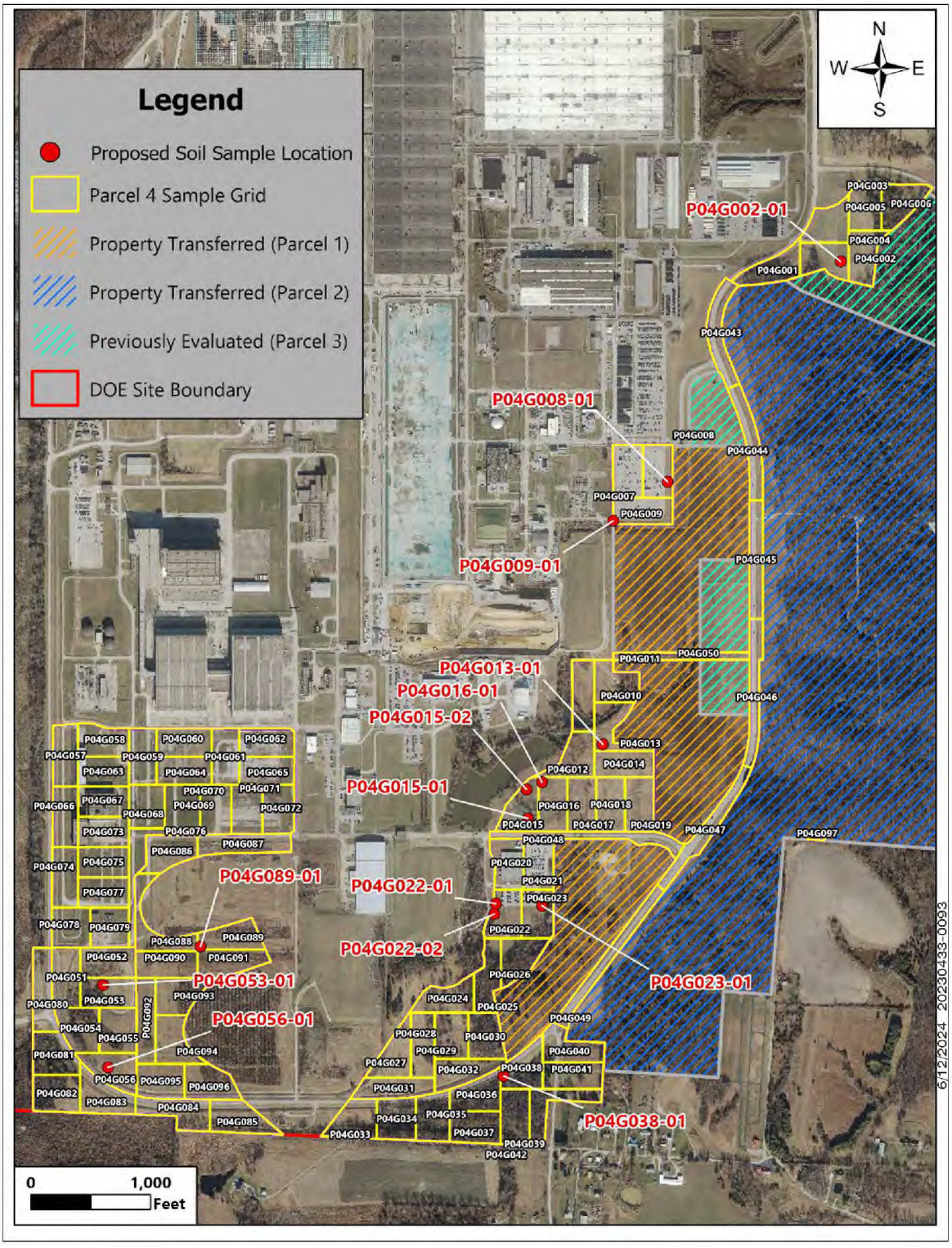

Figure 11. Parcel 4 Physical Sample Locations

Table 12. Parcel 4 Proposed Sample Locations

Location Name	Media	Rationale	Easting	Northing	Depth (ft)
P04G002-01	Soil	Former Athletic Training Track	1829784.8	369611.5	0-0.5
P04G008-01	Soil	Soil near X-206B South Main Parking Lot	1828340.3	367769.5	0-0.5
P04G009-01	Soil	Soil near X-206B South Main Parking Lot	1827884.4	367443.3	0-0.5
P04G013-01	Soil	Area of former impoundment	1827798.0	365576.0	0-0.5
P04G015-01	Soil	Soil mound/spoil	1827173.0	364956.6	0-0.5
P04G015-02	Soil	Soil mound/spoil	1827160.5	365198.7	0-0.5
P04G016-01	Soil	Soil mound/spoil	1827289.0	365259.8	0-0.5
P04G022-01	Soil	Soil mound/spoil	1826902.8	364244.8	0-0.5
P04G022-02	Soil	Soil near X-206J Parking Lot	1826891.0	364158.0	0-0.5
P04G023-01	Soil	Soil near X-206J Parking Lot	1827289.0	364227.0	0-0.5
P04G038-01	Soil/ Sediment	Confirmation of BRC-SS07 background exceedance	1826969.4	362803.7	0-0.5
P04G053-01	Soil	Area near stored tanks/material	1823620.0	363564.6	0-0.5
P04G056-01	Soil	Distressed Vegetation Feature	1823662.2	362875.8	0-0.5
P04G089-01	Soil	Distressed Vegetation Feature	1824436.1	363885.8	0-0.5

8. SURVEY AND SAMPLE COLLECTION METHODS

This section provides details on the implementation approach for performing a radiological scoping survey and collecting physical samples within Parcel 4.

8.1 REAL-TIME FIELD ACTIVITIES

Real-time technologies, such as NaI scans and HPGe measurements, will be used to acquire radiological data in accordance with all procedures and analytical field techniques approved by the project team. This field screening data, along with fixed-base laboratory data, will be used to support the DQO decision statement.

NaI scans will be executed in the field with results delivered daily in order to produce a gamma activity map. NaI data will be evaluated to identify the area with the highest gamma activity per each approximate 10,000 m^2 grid block. Within each grid block, the location with the highest total gamma activity will be selected for an *in situ* measurement by the HPGe detector. At the completion of HPGe measurements, soil samples will be collected from the highest HPGe (or NaI) measurements at a minimum ratio of 1 sample per 10-acre area for fixed-base laboratory analysis. The fixed-base laboratory data will augment results obtained from real-time scans.

8.1.1 Sodium Iodide Detector

The NaI detector provides gross gamma characterization of surface soil. The NaI detectors will respond to gamma-emitting radionuclides in the uranium decay chains in the top 6 in. of soil and will be used to determine if the area has elevated measurements[7] of gamma activity. A nominal scanning rate of approximately 1 m^2/s is estimated based on a 2-m field of view and scanning speed of 0.5 m/s. Given the uneven terrain and sinuous traverse pattern needed to cover approximately 20 percent of each grid block in the open areas on Figure 7, it is estimated that the NaI scanning will cover about 2,000 m^2 every hour. Total gamma counts will be collected at each measuring point, which is a 2-m x 2-m area, and a coordinate will be logged with a GPS using the State Plane coordinate system[8]. See Section 12.1 for more information on management of data results.

Prior to initiation of daily radiological surveys, NaI detectors will undergo daily source checks (Table 13) to establish control charts before fixed measurements are taken. These controls ensure detectors are within the QC limits during operation and comply with the method given in the QC requirements listed in Section 8.4.2.

Table 13. NaI Detector Quality Control Criteria and Requirements

QC Element	Counting Parameter	QC Criteria	Frequency	Control Chart
Detector Counting Efficiency Check	Total Counts	Predetermined check source value ± 3 sigma	Days used, prior to and following use	Yes

Notes:
NaI = sodium iodide
QC = quality control

Background readings for soil/gravel or concrete/asphalt will be established for each detector at the start of each day, additionally upon encountering changing conditions (e.g., changes in weather or precipitation), and at the end of the day. The background areas will be identified by the subcontractor performing the

[7] For the purpose of this SAP, elevated is defined as the values above the inflection point on a cumulative probability plot or, in the absence of an inflection point, the NaI measurements for each survey grid block will be reviewed and the highest total gamma measurement will be selected.

[8] North American Datum 1983 (NAD83) State Plane Ohio South Federal Information Processing Standards (FIPS) 3,402 ft

radiological survey. The soil/gravel background area is located southeast of the intersection between the south access road and Perimeter Road, while background measurements for concrete/asphalt have previously been taken in the parking lot adjacent to the XT-801 South Office Building (Figure 12). At the background areas, the NaI detectors will collect 1-minute static counts at 10 unique locations each day. The coordinates for these 10 background readings should be logged along with the results.

The gamma survey dataset will be plotted by a GIS to evaluate results. Graphical probability plots, or similar evaluation, will be used to identify data greater than the specified target level (e.g., greater than the mean plus 2-sigma on the background control chart). Gamma survey data will be downloaded to an external hard drive for backup on a daily basis.

8.1.2 High-purity Germanium Detector

The HPGe detector provides high-resolution *in situ* gamma spectroscopy for the characterization of uranium in the top 6 in. of surface soil. The HPGe detector system is mounted on a tripod with a multi-channel analyzer that can be used to interface with the detector in the field. Generated gamma spectra are saved on the controlling computer at the end of the data acquisition. The count geometry will be set for a field of view that is approximately 4 m^2, which is similar to the field of view for the NaI scan.

The purpose of the HPGe measurement is to provide quantitative information on uranium-238 in surface soils with an MDC at 8 pCi/g, which is one-half the AL value of 16 pCi/g for uranium-238(+D)[9] (DOE 2018). The counting time for the HPGe measurement will be set to achieve the MDC in Table 10. This MDC ensures data acceptance should the AL for uranium-238(+D) be revised before the completion of this SAP. All measurements will be tabulated and reported at the end of the day.

HPGe locations are chosen based on the highest gamma activity measured in each approximately 10,000 m^2 grid block during the NaI scan. The measurement will be used to determine if uranium-238 exceeds the AL. If an HPGe measurement for uranium-238 exceeds the AL for uranium-238(+D), a physical sample will be collected for further analysis (fixed-base laboratory analysis and/or field screening analysis). If no HPGe measurements exceed the AL, the locations for physical samples to be collected for further analysis will be determined by the highest overall HPGe readings recorded for Parcel 4, at a ratio of one physical sample per 10-acre area.

HPGe measurements will include spectral acquisition duration. Geometry can affect HPGe measurement quality, mostly along steep slopes associated with mounds or ditch banks. In these cases, the effects will be minimized by maintaining the HPGe instrument in a perpendicular position to the ground surface using tie-offs and anchors. If tie-offs and anchors cannot be configured for safe operation, an alternate location will be selected for the measurement.

Each HPGe measurement will also be accompanied by a measurement of the surface soil moisture in order to correct the HPGe measurement to a dry weight. The *in situ* soil moisture measurement will be site-specific to the corresponding HPGe measurement and taken within 2 hours of the *in situ* HPGe reading. Field conditions, such as weather, will be noted on the applicable field worksheet. HPGe measurements will not be taken on saturated soil, standing water, or gravel/cobbles/boulders/riprap.

[9] Results for other uranium isotopes, such as uranium-235, may be determined with the HPGe detector, but this information will not be used to evaluate the DQO decision statement.

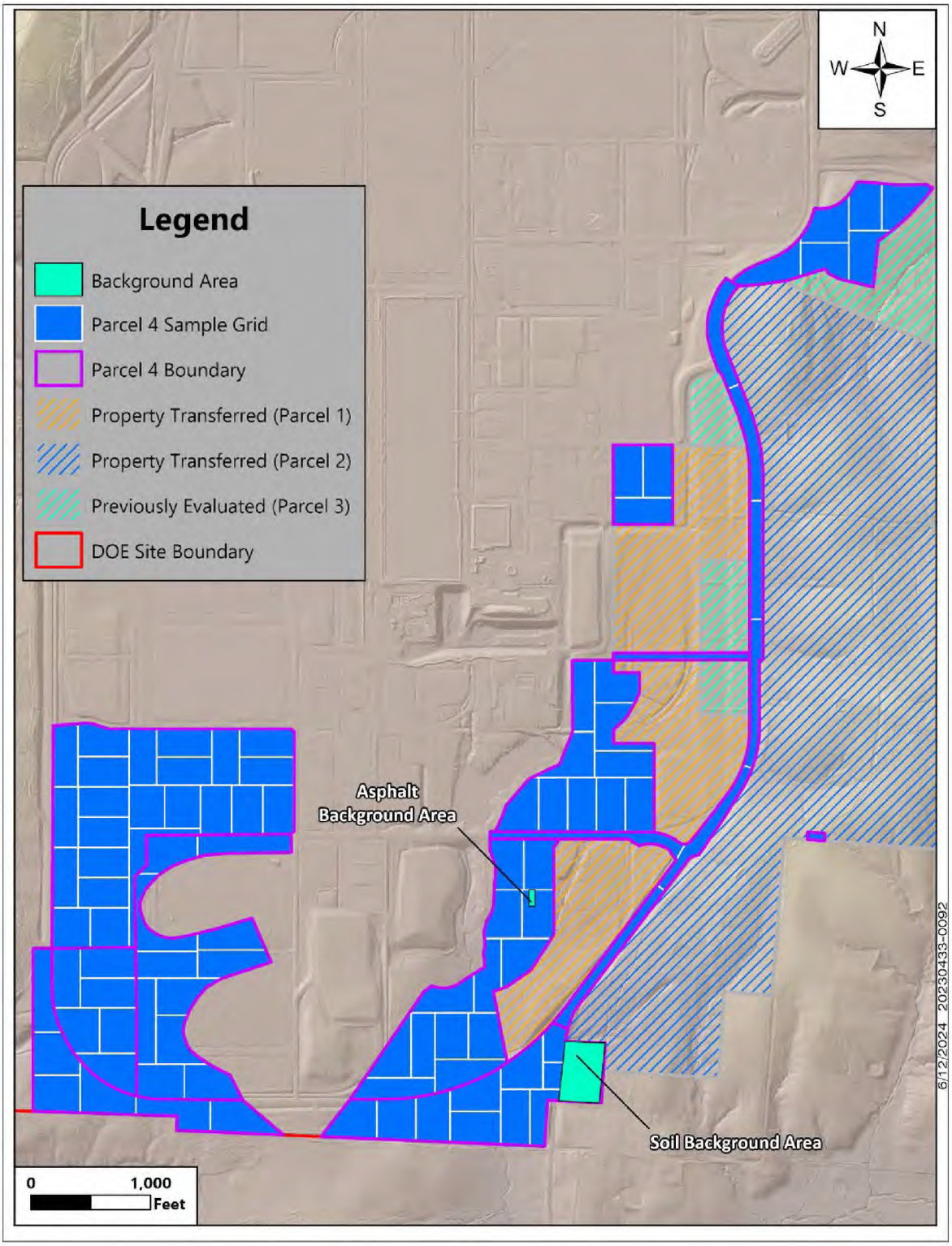

Figure 12. Radiological Background Areas

For soils commingled with gravel, corrections can be made for gravel-type materials covering the soil where measurements are performed. If a significant amount of gravel is present, the HPGe measurement location can either be relocated to the nearest soil area without gravel or the gravel removed to expose the underlying soil. If HPGe locations are not accessible due to excessive vegetation, the measurement may be moved to the next highest accessible NaI reading location.

HPGe instruments will undergo daily source checks (Table 14) using a sodium-22/europium-155 check source with gamma energies encompassing the uranium region of interest. The subcontractor procedures for HPGe calibration and operation will be reviewed and approved by FBP before field work can be performed. The procedures will address calibration and daily verification requirements for interference-corrected ID. The HPGe measurement methods and techniques will be evaluated against the data quality indicators (DQIs) in Section 8. The procedures shall address the QC requirements identified in Section 8.4.2 and Table 14.

Table 14. HPGe Detector Quality Control Criteria and Requirements

QC Element	Nuclide	Gamma Energy	QC Criteria	Frequency	Control Chart
Detector Counting Efficiency and Energy Calibration Check	Eu-155	60.01, 86.06, 86.54, 105.31 keV	1 µCi original activity decay-corrected to 1st of each month ±3 sigma	Days used, prior to and following use	Yes
	Na-22	1,274.51 keV			

Notes:
HPGe = high-purity germanium
QC = quality control

A background measurement will be made each day using the HPGe detector at a location in the background reference area for the associated media type (soil, concrete, or asphalt). The background areas will be identified by the subcontractor performing the radiological survey. The soil/gravel background area is located southeast of the intersection between the south access road and Perimeter Road, and background measurements for concrete/asphalt are taken in the parking lot adjacent to the XT-801 South Office Building. Figure 12 identifies the proposed locations for the background areas.

8.1.3 Real-time Measurement Sample Identification

Location names/identifiers are generated for each unique geographical sample collection point (an X, Y coordinate on the State Plane coordinate system[10]). Multiple samples may then be collected from one sample location. All individual samples will have a unique sample ID number, a component of which may be the location identifier. Location names will be unique (used only once at PORTS), with no more than 15 alpha-numeric characters, dashes, or periods. Any variation in the location (e.g., location moves > 2 ft) or sample ID number presented below will be identified in an approved FCN to this SAP.

The NaI detector is equipped with a GPS and will produce data with a corresponding coordinate for each measurement. A coordinate will also be logged at each HPGe measurement location. These coordinates will be given a unique location identifier that corresponds to the grid block on the layout, and a map will be generated using a GIS to display the collected data for review and analysis. Coordinates will be collected using the State Plane coordinate system.

[10] NAD83 State Plane Ohio South FIPS 3,402 ft

Sample location names are not sample ID numbers; however, the location name may be a component of the sample ID numbers (the number given to each individual sample collected).

Real-time sample measurement ID will be created using the following format:

P04G###-RTNNNNN, where:
P04 = Parcel 4
G = Grid block
= grid block number (as labeled in Figure 7)
RT = real-time
NNNNN = sequential sampling location within the grid block

For example, the sample measurement ID: P04G001-RT00001 would correspond to the radiological survey measurement at Location 1 in the 001-grid block of Parcel 4. Field QC measurements (duplicates) will be collected with the HPGe instrument at the rate of one per 10 HPGe measurements (see Section 8.4.2). One of the field duplicate samples will be collected from the location with the highest HPGe measurement.

8.1.4 Real-time Data Mapping

The NaI survey will collect data for total gamma counts and the data will be submitted by the following work day to be electronically loaded into mapping software. The data will be analyzed, and a map will be generated for the SRM, or designee, each day with the areas of highest gamma activity in each 10,000 m^2 grid block clearly defined. Graphical probability plots will be used to identify data above an inflection point, or an alternate trigger level will be used (e.g., greater than background mean plus 2-sigma) if an inflection point is not easily discernible. A GPS will be used to identify the elevated location for HPGe measurement. The HPGe measurement location should be flagged in the field for easy physical ID should it need to be revisited.

8.2 PHYSICAL SAMPLE COLLECTION

When physical soil, surface water, and/or sediment samples are collected within Parcel 4, they will be based upon results of historical information, including photograph analysis, process knowledge, visual walkover assessment, and the radiological scoping survey. The collection of soil samples will be done by using a hand auger, or a similar method, at the surface (0-6 in. bgs). Sediment samples, if needed, will be collected from the stream bottom (starting downstream and continuing upstream), or within the top 6 in. of the sediment accumulation area. Sample collection will follow all applicable PORTS procedures and the SADQ for the associated collection methods.

8.2.1 Physical Sample Collection Methods

The primary focus of the field sampling is to collect soil, sediment, and/or surface water samples from the locations identified during the visual walkover survey and the radiological survey, as well as any randomly selected locations. This section identifies the media to be sampled during the field investigation and specifies the methods for collecting and analyzing the samples. Investigation activities will use standard industry practices that are consistent with EPA procedures and protocols. If field conditions differ from conditions acceptable for the collection of surface soil, sediment, or surface water samples, then the sampling approach, if appropriate, will be evaluated, and revisions to the sampling program will be made as needed through the FCN process. Any additional locations not identified in this SAP will require the approval of an FCN in accordance with the SADQ.

Soil
Surface soil samples will be collected from 0-6 in. bgs using decontaminated stainless-steel hand augers, or similar methods. Soil samples will be well-homogenized in the field. Decontamination of sampling equipment is performed in accordance with applicable site procedures. Soil samples will be collected per the SADQ in accordance with applicable site procedures. Ultimately, the method of sample collection will be left to the discretion of the Environmental Field Characterization Manager.

Surface Water
Surface water grab samples, if needed, will be collected at locations within streams, using due care to avoid disturbance of bottom sediments. Surface water samples will be collected per the SADQ in accordance with applicable site procedures. Ultimately, the method of sample collection will be left to the discretion of the Environmental Field Characterization Manager.

Sediment
Sediment samples, if needed, will be collected within the top 6 in. of the sediment accumulation area, ditch, or stream bottom. Sediment samples will be well-homogenized in the field. Sediment samples will be collected per the SADQ in accordance with applicable site procedures. Sediment sampling will also be conducted in a manner consistent with Ohio EPA's *Sediment Sampling Guide and Methodologies* (Ohio EPA 2001). Ultimately, the method of sample collection will be left to the discretion of the Environmental Field Characterization Manager.

8.2.2 Physical Sample Identification

Location names/identifiers are generated for each unique sample collection point (X, Y coordinate on the State Plane coordinate system). Multiple samples may then be collected from one sample location. All individual physical samples collected for laboratory analysis will have a unique sample ID number, a component of which may be the location identifier. Location names will be unique (used only once at PORTS), with no more than 15 alpha-numeric characters, dashes, or periods. Any variation in the geographical location (e.g., location moves > 2 ft) or sample ID number presented below will be identified in an approved FCN to this SAP. Any geographical information that is obtained will be recorded in State Plane coordinates (NAD83 State Plane Ohio South FIPS 3,402 ft).

Location identifiers for physical sampling will be created using the following format:

P04G###-XX, where:

P04 =	Parcel 4
G =	Grid block
### =	Grid block number
XX =	Sequential sampling location within the grid block

For example, the sample location identifier P04G001-01 would correspond to Location 1 in the 001-grid block of Parcel 4.

Environmental media sample ID numbers collected under this SAP will generally consist of a combination of the project, area/location identifier, the project-specific analytical code, and a sequential number. The analytical code identifies the groups of project-specific analytes that will be containerized in the same sample bottle.

Physical sample ID numbers will be created using the following format:

P04G###-NNMAADD, where:

P04 = Parcel 4

G = Grid block

= Grid block number (as labeled in Figure 7)

NN = Sequential sampling location within the grid block

M = Matrix/media designator, which indicates the sampled matrix or media (X = soil; Y = surface water; Z = sediment)

AA = Analytical code that identifies the project-specific individual analyte numbers (the analytical suite lists are defined in Section 5)

DD = Depth interval designator that indicates the sample interval as measured at the surface (e.g., the "-SS" designator would be for the sample collected from 0-6 in. bgs).

Example: P04G001-01X01SS would correspond to a surface sample (0-6 in. bgs) for soil collected from Location 1 in 001-grid block of Parcel 4 for analyte code 1.

The sample identifier codes listed above are for sample ID only. Other information loaded into the Project Environmental Measurements System (PEMS) uses standard codes (e.g., the sample type code "FD" is loaded into PEMS to indicate field duplicate samples.)

8.3 DECONTAMINATION OF SAMPLING EQUIPMENT

Decontamination is performed on the sampling equipment to protect worker health and safety and to prevent the introduction of contaminants into subsequent media samples. Sampling equipment will be decontaminated prior to transport to the field site, between sampling locations, and after the sampling performed under this SAP is completed. Equipment that comes into contact with sample material will be decontaminated at Level II (Section 6.12, *Decontamination Requirements*, of the SADQ) as described in appropriate site procedures.

8.4 QUALITY CONTROL SAMPLES

8.4.1 Analytical Laboratory Sample Quality Control

To ensure the quality of analytical data generated by fixed-base laboratories, physical soil, sediment, and surface water samples will be analyzed at analytical support level (ASL) D (full data deliverable and full analytical QC as defined in the SADQ).

Field QC samples are collected to evaluate the quality of sample collection and handling, and in some cases, can also be used to evaluate the quality of laboratory analyses. A field QC sample will be collected for every 20 field samples as indicated below, or one per each sample delivery group. Field QC samples may consist of field blanks, field duplicate samples, trip blanks, and/or equipment rinsate samples. To ensure the quality of the data collected, field QC samples will consist of field duplicate samples for all analytical groups, and field blank samples may be collected for PAH samples.

- Field Blanks – Field blanks serve as a check for cross-contamination that may occur during sample collection, storage, or transport. Distilled, deionized water will be transported to the site, opened in the field, transferred into each type of sample bottle used at that sampling location, and sent to the laboratory for analysis of all parameters associated with that particular sampling location. It is also acceptable for field blanks to be filled in the field support area or sample staging area, transported to

the field, and opened. A field blank may be used as a reagent blank, as needed. One field blank will be collected for every 20 field samples. Field blank samples will be analyzed using the same set of analytical parameters as the non-QA/QC samples being collected.

- Field Duplicate Samples – Field duplicate media samples help determine sampling variance. One field duplicate sample will be collected for every 20 samples per sample media. A minimum of one field duplicate will be analyzed for the same set of analytical parameters as the non-QA/QC samples being collected.

- Trip Blank Samples – Trip blanks are used to evaluate contamination from VOCs originating from the field handling and transport of the samples. A trip blank is a sample of organic-free media taken to the sampling site in a sealed sample container and shipped to the laboratory unopened. One trip blank sample will be collected for every 20 VOC samples per sample date[11]. Trip blank samples will be analyzed for the same VOCs as the non-QA/QC VOC samples being collected.

- Rinsate Samples – Rinsate samples are samples of deionized water passed through or over decontaminated sampling equipment. Rinsate samples are used as a measure of decontamination process effectiveness and are analyzed for the same parameters as the samples collected with the equipment. Rinsate samples are required only when non-disposable equipment is used. One rinsate sample will be collected for every 20 samples collected using non-disposable equipment. The samples will be analyzed for the same set of analytical parameters as the non-QA/QC samples being collected.

8.4.2 Real-time Measurement Quality Control

Prior to mobilizing their equipment and personnel to the PORTS site, the real-time monitoring subcontractor must pass a QA/QC audit to ensure that the quality of the data collected with the NaI and HPGe instruments will meet the programmatic and performance requirements. The HPGe energy calibration range shall encompass the gamma energies of the uranium daughters thorium-234 and protactinium-234m. The energy calibration and counting efficiency will be performed using a mixed gamma source working reference material traceable to National Institute of Standards and Technology standards (Table 14). The NaI and HPGe performance requirements are provided in Tables 13 and 14.

Prior to the initiation of field work for the NaI survey, NaI detector energy response will be measured by scanning a check source placed in a repeatable geometry within a low background area. Control charts for the energy source checks and initial background measurements will be developed to show the mean and two or three standard deviations above and below the mean. At the start and end of each day field measurements will be performed, detector energy response will be checked with a known check source, and background measurements will also be performed. When these checks and background measurements show the instruments are functioning properly (within three standard deviations of the mean), the instruments will be deployed to the field to begin the NaI scans. Unexpected detector responses at the start of the day (i.e., more than three standard deviations from the mean as plotted on a control chart) will be flagged, investigated, and corrected prior to performing field measurements. If the instrument fails a response check at the end of the day (i.e., more than three standard deviations from the mean as plotted on a control chart), the measurements performed that day (since the last successful response check) will be rejected and repeated. The instrument will be tagged out of service until it is repaired, and a new control chart is established. NaI scans will be performed at ASL A.

[11] A minimum of one trip blank must accompany each individual shipping container used to ship VOCs.

For HPGe, energy source checks and background measurements will be collected with the HPGe detectors to establish control charts before field measurements are taken. For each day field measurements will be performed, energy response and background measurements will be collected at the start and end of the day. A certified check source will be used for verifying the energy response, and the sources and energy regions used will be clearly identified in the subcontractor's procedures (i.e., sodium-22/europium-155 at the energies specified in Table 14). The original certified check source activity, decay-corrected to the 1st of each month, will be recorded and tracked to document the detector is operating as expected.

The energy source check and background measurement at the start and end of each day must be within control. Unexpected detector responses at the start of the day (i.e., more than three standard deviations from the mean as plotted on a control chart) will be flagged, investigated, and corrected prior to performing field measurements. If a detector fails two consecutive energy checks at the end of the day, all data collected between the last pass check and fail check will be rejected and measurements repeated with a detector that is in control. If a second measurement fails the response check, the instrument will be tagged out of service until it is repaired and initial measurements are performed to establish a new control chart, and the instrument shall undergo calibration verification. HPGe measurements will be at ASL E.

In addition, control charts will be established over a period of days to account for measurement variations resulting from changing weather conditions. Unexpected detector responses (i.e., more than three standard deviations from the mean as plotted on a control chart) will be investigated, and measurements performed that day (since the last successful response check) may be repeated.

Background QC measurements for the HPGe instrument will be collected each day, and measurements will be performed at the designated background location (at the start or end of the day). Additionally, a field QC measurement (duplicate) will be collected with the HPGe instrument at the rate of one per 10 HPGe measurements. Duplicate measurements for HPGe will follow the same protocol as physical soil samples submitted to a fixed-base laboratory, as described in Section 8.4.1.

8.5 DATA VERIFICATION AND VALIDATION

8.5.1 Laboratory Sample Data Verification and Validation

Data will be verified against the requirements of the DQOs (Appendix A). Data will be validated using a graded approach, which may include examination of field measurements, field QC, sampling and handling procedures, laboratory analysis, reporting, and nonconformance. Verification is 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 will receive 100 percent verification and 100 percent validation. Data validation of laboratory results will be 80 percent at VSL B and 20 percent at VSL D. Following completion of data validation, a data quality assessment (DQA) 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.

The DQA process is used to determine whether the collected data meet the project DQOs in accordance with the PORTS SADQ and EPA's DQA guidance documents: *Data Quality Assessment: Statistical Methods for Practitioners* (EPA 2006b) and *Data Quality Assessment: A Reviewer's Guide* (EPA 2006c). The DQA process compares the data produced to the project/program requirements or overall project DQOs. This assessment includes data verification, data validation, field validation, and an assessment for precision, accuracy, representativeness, completeness, comparability, and sensitivity. 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. The degree of confidence with which conclusions are drawn will be discussed in the investigation report.

Various statistical methods may be employed to evaluate the data. These comparisons may not involve statistical tests, but rather, plots and other geostatistical methods may be employed to gain a clearer understanding of the nature and extent of contamination, if present, in the area. Summary statistics will be computed for the area.

8.5.2 Real-time Data Verification

Real-time data will be verified against DQOs and instrument/measurement protocols identified in Tables 13 and 14. Real-time data (NaI and HPGe) will be collected and reported at ASL A for NaI and ASL E for HPGe. Fixed-base laboratory analysis will be completed on a minimum ratio of one physical sample per 10-acre area based on the highest HPGe measurements for verification.

8.5.3 Field Validation

Independent field validation is performed to ensure that sample collection and documentation are in accordance with the DQO, SAP, SADQ, and related task-specific documents. As part of the field validation, sampling event logs and documentation will be reviewed to ensure completeness and compliance with the requirements in those documents. The field validation report will provide management feedback regarding the completeness of field sampling events and track noncompliant sampling issues. This review will verify that any field measuring instruments were calibrated and checked as required and assure the comparability of documented information on the different sampling logs and chain-of-custody forms. The field validation effort also provides the analytical data validation function assurance that compliant field activities support qualified laboratory data results.

Field validation will follow a technically sound and consistent approach to evaluate field measurements and data obtained. The process will be documented and defensible. The validator will assess field records to determine that the data meets SADQ QA/QC standards for usability and the requirements of the DQOs, SAP, and other task-related documents.

The field documentation review must be objective and be performed independently of the sampling functions and their management. All field validation team members will have the authority to access and review all required sampling information, field measurements, and results generated. When field validation is being performed, the validator(s) shall report to the QA data quality function.

8.6 MEASUREMENT PERFORMANCE CRITERIA

The project DQOs provide the basis for acquiring field (real-time, field documentation, etc.) and laboratory data. DQIs are specific parameters that measure performance as reflected in the DQOs and acceptance criteria. Performance and acceptance criteria are often expressed in terms of DQIs. The principal indicators of data quality are precision, bias, accuracy, representativeness, comparability, completeness, and sensitivity. Measurement quality objectives (MQOs) are the acceptance thresholds or goals for this project's data, usually based on the individual DQIs for each method and analyte, to meet the defined sensitivity levels to demonstrate levels that are capable of achieving values less than the defined RL identified in Table 7 (soil COPCs), Table 8 (sediment COPCs), and Table 9 (surface water COPCs). The evaluation of these indicators helps ensure DQOs are met. The project will meet the DQIs discussed below. Table 15 presents a crosswalk of DQIs and MQOs.

Precision/Sensitivity. Precision is a measure of agreement or reproducibility among individual measurements for the same property under the same analytical conditions. To determine the precision and sensitivity of the field and laboratory analysis, a routine program of replicate/duplicate analyses is

performed in accordance with the analytical method requirements. Physical samples, when collected and analyzed as field duplicate samples, are used to determine total measurement (sampling and analytical) precision. Laboratory duplicates are analyzed to measure the precision of the method. Field duplicates assess the sample-specific criteria of the sampling event. In-situ duplicate measurements for HPGe check the field-testing instrument measurement precision. Precision is expressed as a relative error ratio, sometimes called duplicate error ratio for HPGe analysis. Sensitivity is a measurement of agreement or reproducibility to achieve the required MDC. RLs and/or MDCs, in accordance with the analytical method, are defined in Tables 7, 8, and 9.

Table 15. Data Quality Indicator and Measurement Quality Objective Crosswalk Summary

DQI	MQO
Precision/Sensitivity	< or = method specific detection limits
Bias	< 25% method LSC or verification check sample
Accuracy	< 30 RPD for measurement and field duplicate
Representativeness	Is the data less than 2x background?
Comparability	Lab data vs. field data
Completeness	> 90% satisfy project requirements

Notes:
DQI = data quality indicator
LSC = liquid scintillation counting
MQO = measurement quality objective
RPD = relative percent difference

Inorganic, organic, or radiochemical precision will be evaluated for duplicate pairs (laboratory) with concentrations reported at or above the project reporting levels or sample-specific detection limits (when both results are greater than five times the RL). Precision will be evaluated by analysis type and method to determine compliance with EPA or program-specific criteria. Radiological precision will only be evaluated for duplicate pairs (laboratory) with concentrations reported above the sample-specific MDC or minimum detectable activity.

Precision will be measured by comparing the results obtained for laboratory duplicate samples for inorganic, organic, and radionuclide analyses and for matrix spike and matrix spike duplicate pairs. Precision will be evaluated by analysis type and method to determine compliance with project or EPA criteria. Project criteria will be in accordance with the EPA precision criterion of ≤ 35 percent relative percent difference for soils (when both results are greater than five times the RL). For radiological samples, the criterion is for the radiation counting uncertainty to be less than 50 percent of the analytical result (if the counting uncertainty is greater than 50 percent of the analytical result, the data are still usable but may be qualified). The objective for each analysis type is to achieve 90 percent compliance with the prescribed precision criteria (i.e., at a minimum, nine out of 10 samples will have associated laboratory duplicates or matrix spike duplicates showing agreement with the precision criteria).

Results qualified as estimated quantities due to imprecision are signified by a 'J' validation flag. During the DQA process, the program may review data for precision goals and consider data points outside of the precision goals for this project if they are grossly imprecise (> 50 percent). Although likely biased somewhat due to imprecision, these results can be used in the site evaluation process. In such cases, biases in reported results will be considered during the DQA process. Sample results may not be qualified as rejected quantities due to imprecision during the validation process, signified by an 'R' validation flag. Rejected results are not suitable for use in evaluating site conditions because of the excessive QC exceedances that led to the assignment of this qualifier.

Accuracy. Accuracy is the degree of agreement between an observed value and an accepted reference value and includes a combination of random error (precision) and systematic error (bias) components attributable to sampling and analysis. Accuracy is measured by the comparison of a known quantity of a reference standard to the value measured by the laboratory during analysis. Accuracy is expressed as percent recovery, defined as the measured value divided by the true value, expressed as a percent. Accuracy is assessed during data validation by evaluating percent recoveries obtained from laboratory control samples, radioactive tracers, matrix spikes, matrix spike duplicates, and surrogate compounds.

To determine the accuracy of an analytical method and/or the laboratory analysis, a program of periodic sample spiking is conducted (minimum one spike and one spike duplicate per 20 samples). Spike recoveries will be assessed during data validation in accordance with data validation procedures. Any spike recoveries that result in the qualification of sample results because of poor performance will be considered outside of QC requirements. Results assigned "J" qualifiers during validation may contain analytical biases, but they are of sufficient quality to be used in evaluating site conditions. Results qualified as "R," rejected during validation, may not be used in evaluating site conditions.

Representativeness. Representativeness is a measure of the degree to which data accurately and precisely represent the characteristics of a population at a sampling point, process condition, or environmental condition. Representativeness is a qualitative term and is evaluated to determine if sample measurements and physical sampling locations yield data that appropriately reflect the population for the parameter of interest in the media and phenomenon measured or studied.

Completeness. Completeness is a measure of the percentage of valid, usable data obtained from the sampling effort compared to the amount expected under normal conditions. The goal of completeness is to generate a sufficient amount of valid usable data to satisfy project needs. For this project, the completeness objective for field and laboratory measurements is 90 percent completeness. Completeness will be applied to all of the samples and will be segregated by analysis type.

Comparability. Comparability is the degree to which different methods or data agree or can be represented as similar. It describes the confidence that two datasets can contribute to a common analysis and interpolation. Comparability will be achieved through the use of consistent sampling procedures, experienced sampling personnel, the same or comparable analytical methods, standard field and laboratory documentation, and traceable laboratory standards.

9. ANALYTICAL METHODS AND DETECTION LIMITS

Tables 7, 8, and 9 present the laboratory analytical methods to be used and the recommended RLs. RLs were developed specifically for this SAP and are discussed in Section 5. Analytical data will be generated using EPA-approved methods or other well-established and approved methods or screening protocols. Soil and sediment samples will be analyzed and reported "as is." Results will be corrected by applying the moisture content where appropriate to get the dry-weight result.

The real-time NaI and HPGe measurements will be required to meet the MDCs presented in Table 10. MDCs are defined to meet the project sensitivity levels in accordance with the analytical method requirements. The suggested values are based on one-half of the value of the ALs, which is deemed appropriate to meet the DOE Order 458.1 requirements that are protective of human health and the environment.

The Sample Management Office will verify that the analytical laboratory is in compliance with the laboratory statement of work and that the laboratory selected is on the qualified vendor's list. DOE utilizes approved laboratories per the SADQ.

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10. SAMPLE CONTAINER AND PRESERVATION REQUIREMENTS

Sample container and preservation requirements will be in accordance with the SADQ or method-specific requirements.

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11. NONCONFORMANCE

Field conditions that warrant a different decision process for defining the extent of potential contamination may arise. Factors that will be considered under special circumstances include the safety of the workers, cost-effectiveness, the need for a timely response, and impending weather conditions. In the event that a change in the characterization approach is needed, the FCN process in the SADQ is to be followed. An FCN is a means of accomplishing changes to the SAP. The FCN is approved only for the specific activity described in the documentation. The proposed SAP changes will be made in accordance with the approved DQOs. Any changes outside the scope of the DQOs will be accomplished through a revision of the SAP and/or DQO. Changes to the SAP via FCNs will be noted in the applicable Field Activity Logs.

For example, implementation of alternative sampling procedures could be necessary if an unanticipated issue develops during the field investigation. Alternative sampling procedures, or deviations, consist of either sampling plan field changes or sampling plan nonconformances.

If it becomes necessary to deviate from a standard operating procedure for sampling, such a field change will be handled in the following manner and be documented on an FCN:

1) The field sampling technician, Field Characterization Manager, or geologist will identify the need to deviate from the sampling plan or procedure.

2) The field sampling technician, Field Characterization Manager, or geologist will bring the deviation to the attention of the SRM and make recommendations on how best to proceed with sample collection with minimal impact to the existing sampling procedures and project DQOs.

3) Possible solutions and the impacts of the solutions on the project DQOs will be determined.

4) An FCN will be completed, and it will describe the nature of the field change, the need for the field change, and how the variation from the SAP will minimize or have no impacts to the project DQOs.

5) The SRM, Environmental Field Characterization Manager, and QA Manager will evaluate and approve the FCN. Approval from the QA Manager will be received prior to implementation of the field change. If the FCN affects the environmental, safety, and/or health aspects of the project, the Environment Safety and Health Manager will also approve the variance prior to implementation.

6) Completed FCNs will be forwarded to DOE for approval prior to implementation.

7) The approved FCN will become part of the project file and be included in the project documentation.

Sampling plan nonconformances are defined as field activities that have been completed, but they are subsequently found not to have been performed according to the SAP. A nonconformance may have a significant impact on the usability of field-derived investigation results. Resolution of a project nonconformance will be the responsibility of the SRM.

Any field changes or sample deviations to this SAP require authorization from the Environmental Field Characterization Manager and SRM. Authorizations may be communicated via telephone, verbal, email, or written instructions. Telephone and verbal changes shall be documented in the appropriate logbook by the Sample Lead. The logbook and any written instructions are maintained in the project files. Changes to this SAP will be documented using the FCN process as described in the SADQ.

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12. DATA MANAGEMENT, EVALUATION, AND STORAGE

A data management process will be implemented so that information collected during the investigation will be properly managed to satisfy data end-use requirements after the field activities are completed. Field and analytical data generated during the sampling activities described in this SAP will be handled in accordance with the data management and reporting processes described in Section 13, *Data Management and Reporting*, of the SADQ.

12.1 REAL-TIME

Hard copy maps (using State Plane coordinates[12]) and/or summary reports will be provided to the SRM or designees. Real-time data (e.g., NaI and/or HPGe measurements) will be collected and reported at ASL A (NaI results) and ASL E (HPGe), as specified in this SAP.

NaI survey results will be provided electronically in comma-delimited text files. Each file will have a unique name indicating the date and area scanned. The file from the NaI detector will include, at a minimum:

- Unique identifier (e.g., sequential number)
- Date and time of reading
- Survey grid block location of the readings
- Coordinates[12]
- Elevation (ft above mean sea level [AMSL], if available)
- Total counts
- Unit of measure (cps or cpm)
- Corresponding background value for each measurement
- Unique detector ID or serial number.

The electronic file from the HPGe detectors will also be provided electronically, in comma-delimited text files if possible. The file from the HPGe detector will include, at a minimum:

- Unique location name
- Date and time of reading
- Coordinates[12]
- Elevation (ft AMSL, if available)
- Concentration/assay (pCi/g)
- Uranium-238 pCi/g, uranium-238 counting uncertainty (pCi/g)
- Uranium-235 pCi/g, uranium-235 counting uncertainty (pCi/g)
- Unique detector ID or serial number

[12] NAD83 State Plane Ohio South FIPS 3,402 ft.

- MDC for potassium-40, uranium-238, and uranium-235 for each measurement (data for other radionuclides, such as uranium-235 and potassium-40, may be determined with the HPGe detector, but this information will not be used to evaluate the DQO decision statement).

Supporting electronic files, including spectra data and moisture readings, will be provided with the above measurement files.

Electronically recorded data from the HPGe and NaI systems will be downloaded to an external hard drive for backup on a daily basis. The SRM or designee will be informed by the real-time survey lead or designee when equipment measurements do not meet data QC checklist criteria. The SRM or designee will determine whether additional scanning, confirmation, or delineation measurements are required.

The Field Characterization Manager or designee will maintain the survey data. All records associated with the SAPs should reference the SAP number and will be archived.

12.2 PHYSICAL SAMPLES

Field sampling teams will collect soil, sediment, and surface water samples, where needed, for fixed-base laboratory analysis. These samples will be collected at locations identified based on results of historical information (including photograph analysis), process knowledge, visual walkover assessment, and radiological scoping survey. Physical sample collection methods are discussed in Section 8.2.1. Sample ID is discussed in Section 8.2.2. The sample ID numbers are entered into the designated data management system (i.e., PEMS) and linked with all information for that sample, including location name, sampling information, QC records, and analytical results.

As specified in the SADQ, sampling teams will describe daily activities in the field logbook, which should provide enough detail for accurate reconstruction of events without reliance on memory. A logbook is a narrative record of events describing the field activities. All field measurements, observations, and sample collection information associated with physical sample collection will be recorded in the field logbook, as required per procedure. A copy of the logbook will be sent to the Field Characterization Manager upon request.

Sample logs, as applicable, will be completed according to the SADQ and applicable site procedures. Samples will be assigned a unique sample ID number, as explained in Section 8. The sample ID number, method of sample collection, SAP number, and other details will be specified in the sample log, which is generated by PEMS. The date and time of sample collection, in addition to other pertinent details, will be recorded on the sample log in the field by the field technician. The sample ID number will also be used to identify the samples during analysis, data entry, and data management, and on the chain-of-custody form (for samples being submitted to a fixed-base laboratory). All physical samples submitted to a fixed-base laboratory will be collected and reported at ASL D as specified in this SAP or on an FCN.

Laboratory analytical data packages are transferred in electronic formats and/or in standard hard copy. The receipt of data packages from and off-site laboratories is tracked in Tracker. Tracker, which interfaces with PEMS, is a sample management database used to create laboratory statements of work based on SAP requirements, which communicates with analytical laboratories and tracks samples from sample shipment to data reporting to sample disposal (i.e., cradle-to-grave tracking). Data packages will be filed and distributed in accordance with existing data management processes.

13. SURVEILLANCE

Prior to the award of the radiological survey contract, vendors bidding on the work will be audited by a QA representative to ensure that their QA documents, systems, and equipment conform to the PORTS work standards for safety and quality.

All laboratories used to analyze characterization samples will be audited by a QA representative or participate in the DOE Consolidated Audit Program (DOECAP) with a review of the DOECAP report by QA for compliance with PORTS QA requirements. These laboratories are listed on the qualified vendor's list. QA personnel and/or, in conjunction with DOECAP, perform annual audits and periodic assessments, as necessary, of all participating laboratory facilities. These audits and assessments are focused on, but not limited to, the following: laboratory QA program, information management systems, materials, management operations, waste disposal, and analytical method performance and compliance.

Surveillances and inspections follow the same general format as an assessment. A surveillance or inspection is designed to give project staff rapid feedback concerning QA compliance and facilitate corrective action. The following field activities and documentation may be subject to surveillance:

- Visual walkover assessment
- Radiological scoping survey
- Sampling
- Chain of custody
- Field documentation
- Field training records
- Equipment calibration
- Field QC procedures.

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APPENDIX A: DATA QUALITY OBJECTIVES FOR THE PARCEL 4 SAMPLING AND ANALYSIS PLAN

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DATA QUALITY OBJECTIVES FOR THE PARCEL 4 SAMPLING AND ANALYSIS PLAN AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT, PIKETON, OHIO

U.S. Department of Energy
DOE/PPPO/03-1203&D1

September 2024

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DATA QUALITY OBJECTIVES FOR THE PARCEL 4 SAMPLING AND ANALYSIS PLAN AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT, PIKETON, OHIO

U.S. Department of Energy
DOE/PPPO/03-1203&D1

September 2024

Prepared for
U.S. Department of Energy

Prepared by
Fluor-BWXT Portsmouth LLC, Under Contract DE-AC30-10CC40017
FBP-ER-RCRA-WD-DQO-0441, Revision 3

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TABLES

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ACRONYMS

AL	Authorized Limit
ASL	Administrative Screening Level
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
COPC	chemical of potential concern
DOE	U.S. Department of Energy
DQA	data quality assessment
DQO	data quality objective
EBS	Environmental Baseline Survey
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
ERA	Ecological Risk Assessment
ESL	ecological screening level
FBP	Fluor-BWXT Portsmouth LLC
Gallia	Gallia Sand Member
HI	hazard index
HPGe	high-purity germanium
IVR	Independent Verification Report
MCL	maximum contaminant level
MQO	measurement quality objective
NaI	sodium iodide
OAC	*Ohio Administrative Code*
Ohio EPA	Ohio Environmental Protection Agency
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
PPPO	Portsmouth/Paducah Project Office
QA	quality assurance
QC	quality control
RL	reporting limit
SAP	Sampling and Analysis Plan
SRV	sediment reference value
SL	screening level
SVOC	semivolatile organic compound
TCE	trichloroethene
VISL	vapor intrusion screening level
VOC	volatile organic compound
VSL	validation support level

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1. DQO STEP 1 – STATE THE PROBLEM

Draft Problem Statement:
The U.S. Department of Energy (DOE) has identified an area of real property to be investigated for transfer, referred to as "Parcel 4." Information needs to be gathered or developed to meet the due diligence required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 120(h) to confirm the environmental conditions of the parcel and to demonstrate protectiveness under DOE Order 458.1.

To address the requirements of CERCLA 120(h), DOE has written protocols for the transfer of real property titled *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: CERCLA 120(h)(4) – Uncontaminated Property* (Protocol for Transfer of Uncontaminated Property) (DOE 2022a), and *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites VOLUME 2: CERCLA 120(h)(3) – Remediated Property* (Protocol for Transfer of Remediated Property) (DOE 2022b). These real property transfer protocols incorporate DOE real property transfer policy and guidance using *CERCLA Requirements Associated with Real Property Transfers* (DOE 1998) and require data gathering and reporting requirements. CERCLA 120(h) specifies the information needed to perform due diligence for the property. The different parcels may be transferred in accordance with CERCLA 120(h) depending on the conclusions of an Environmental Baseline Survey (EBS).

To support the initial request from the Community Reuse Organization, DOE has identified an area of real property to be investigated for transfer, referred to as "Parcel 4," which incorporates a total of approximately 245 acres. However, DOE may separate the area currently being evaluated for Parcel 4 into two or more parcels for transfer at a later time. The final configurations of the parcel(s) and features within the parcel(s) (e.g., XT-801 South Office Building, X-206J South Office Parking Lot, X-202 Roads) will be determined in the future. These guidelines will be used in an environmental due diligence effort 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 or its derivatives, including aviation fuel and motor oil" on the real property or demonstrate that the remediation of the property has been effective, including use restriction. A study will be designed to evaluate the parcel based on the intended future use of Parcel 4 (industrial) and for the unrestricted use of all media, as outlined in the Protocol for Transfer of Uncontaminated Property.

What is the description of the media?
The media consists of soil, sediment, surface water, groundwater, and any asphalt, concrete, or gravel areas, including buildings or structures, within the area designated as Parcel 4 at the Portsmouth Gaseous Diffusion Plant (PORTS).

Who needs this information regarding media constituents?
DOE and site contractors will use the data to demonstrate the environmental conditions of the property and conduct due diligence per CERCLA 120(h)(4), and demonstrate protectiveness under DOE Order 458.1, and whether the property is suitable for transfer. For portions of the parcel that have been remediated, the data will be used to determine the effectiveness of remedial action and provide the necessary information to demonstrate that the response action is complete, or that the remediation is operating properly and successfully, and protective of human health and the environment.

Who comprises the project planning team?

- DOE
- Site Contractors (primarily Fluor-BWXT Portsmouth LLC [FBP])
- Additional subject matter experts as needed to support DOE real property transfer (e.g., PPPO Reuse Lead, PPPO Certified Health Physicist, Technical Support subcontractors).

What is the project budget?
DOE, PORTS, and other site contractors will evaluate the project budget and resources.

What is the project schedule?
The goal is to have information/data available in sufficient time to support the development of an EBS and to support the completion of an Independent Verification Report (IVR).

2. DQO STEP 2 – IDENTIFY THE GOALS OF THE STUDY

The objective of this second step in the data quality objective (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?

a) What DOE infrastructure is located on or off the parcel that data or history show could be a potential source of contamination to Parcel 4?

b) Does any process history since completion of the *Quadrant I RFI Final Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, (Quadrant I RFI Report) (DOE 1996a) and the *Quadrant II RFI Final Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Quadrant II RFI Report) (DOE 1996b), indicate disposal or release of hazardous substances or petroleum products or their derivatives onto or within the boundaries of Parcel 4?

c) What are the measurement quality objectives (MQOs) for a radiological scoping survey, if needed?

d) What action level from the radiological scoping survey necessitates the collection of a physical sample (grab sample)?

e) What are the metrics for determining "non-impacted[1]" and "uncontaminated?" This includes storage and release of hazardous substances and presence of contamination in the media.

f) Does the radiological scoping survey meet the *Implementation Plan for Authorized Limits in DOE Owned Industrial Landuse Property Outside the Limited Area at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*) (DOE 2017a) for DOE Order 458.1 and demonstrate attainment of Authorized Limits (ALs)?

g) What are the requirements for DOE to conduct due diligence to demonstrate Parcel 4 is suitable for transfer under CERCLA 120(h)?

h) If analytical results for chemical constituents are necessary to comply with the ability to demonstrate there has not been a release or disposal of hazardous substances or petroleum products or their derivatives onto the property, 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] criteria), how are those results obtained and evaluated? What are the MQOs for the results?

i) What are the requirements for the visual walkover/physical inspection MQOs, and how will the information be evaluated?

[1] Per the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), Revision 1* (MARSSIM) (DOE et al. 2000) guidance, areas that have no reasonable potential for residual radioactivity or contamination are classified as "non-impacted areas."

What are the alternative actions related to the principal study questions?
The expected action, based upon the Problem Statement, is that the entire Parcel 4 area selected for evaluation is confirmed to be eligible for transfer per CERCLA 120(h) and protective under DOE Order 458.1.

The alternative actions are:

1) Only portions of Parcel 4 are found to be eligible for transfer pursuant to CERCLA 120(h). Evidence of a release of hazardous substances exists in some areas of Parcel 4 while no evidence of a release exists in other areas and are considered to be non-impacted. As a result of the presence of a release in some areas located in Parcel 4 and the Deferred Unit Decision Document requiring site-wide ground water and land use restrictions , DOE has determined property will be transferred under CERCLA 120(h)(3) regardless of the outcome of the due diligence and sampling effort

2) Parcel 4 is determined to be not eligible for transfer per CERCLA 120(h).

What is the primary decision statement?
Determine whether Parcel 4 is eligible for transfer per CERCLA 120(h)[2] or whether areas with higher levels of contamination (chemical and/or radiological) exist that would require further evaluation or prohibit property transfer.

[2] As protective measures, DOE will file an Environmental Covenant that includes groundwater and land use restrictions and/or prohibitions on future groundwater use and limits future use of Parcel 4 to industrial land use.

3. 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 Parcel 4 include 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 walkover survey (including any photographs taken during the walkover survey)
- Site utility drawings
- Aerial photographs (over time)
- Aerial radiological survey results (photographs/maps)
- PORTS documents including the *U.S. DOE Portsmouth Quadrant I Decision Document, Portsmouth Gaseous Diffusion Plant* (Ohio Environmental Protection Agency [Ohio EPA] 2001) and the *Decision Document for Resource Conservation and Recovery Act Deferred Units at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DU Decision Document) (Ohio EPA 2023) prepared under the State of Ohio Consent Decree entered on August 29, 1989 (1989 Consent Decree). The 1989 Consent Decree is a legal agreement between DOE and the State of Ohio for the Resource Conservation and Recovery Act of 1976, as amended corrective actions for certain waste units at PORTS
- Interviews with current or former employees involved in operations on or near the real property over the history of PORTS operations
- Historical environmental data (soil, groundwater, surface water, and sediment) and results from previous radiological surveys
- Initial list of chemicals of potential concern (COPCs) for all media, including common PORTS contaminants such as radionuclides, metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). In addressing buildings, additional COPCs may need to be evaluated
- Environmental data collected to address data gaps for due diligence, if applicable
- Documentation provided to DOE indicating the condition of the building/facility upon return, for buildings/facilities that were previously leased (e.g., to Centrus Energy or other Nuclear Regulatory Commission-regulated entities).

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

- The parcel has 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 (U.S. Environmental Protection Agency [EPA] 1997a).

- Areas that have no reasonable potential for residual radioactivity are classified by MARSSIM as "non-impacted areas," whereas areas with reasonable potential for residual radioactivity are classified as "impacted areas."

- The level of detection for the radiological survey equipment needs to be no greater than the ALs for PORTS. The PORTS site-specific ALs are used to demonstrate compliance with DOE Order 458.1 and to result in radiation doses less than DOE public dose limit. The ALs will be used to establish criteria for screening radiological soil data in Parcel 4. For example, the detection limit for a high-purity germanium (HPGe) detector, if used, will be set at a value of half the AL for uranium-238, or 8 pCi/g.

- Environmental data will be evaluated based upon background levels per media. Soil data will be evaluated based on PORTS soil background levels and a range of background for Ohio soils, both found in the *Final Soil Background Report for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (Final Soil Background Report) (DOE 2015). The soil background levels are also documented in Appendix E, *Comprehensive Screening Levels,* of the *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*) (DU RFI/CMS Report) (DOE 2021). This soil background investigation was completed and documented at PORTS to provide representative background data for each major soil formation on DOE property, on property easements, and DOE leased property. Surface water, sediment, and groundwater data do not have established background levels at PORTS. Supplemental background data for radionuclides in soil, sediment, and surface water can be found in the *Final Human Health Risk Assessment, Pike County Community, Piketon, Ohio* (Auxier 2023).

- If applicable, environmental analytical data for constituents exceeding background (or, for media without established background levels, detected constituents) will be included in the human health risk evaluation during the EBS and compared to appropriate risk-based concentrations (i.e., concentrations calculated at an excess lifetime cancer risk [ELCR] of 1×10^{-5} and a hazard index [HI] of 1.0) for the intended future use (industrial), as well as the unrestricted use of all media. Scenarios other than the intended use include residential, recreational, and construction worker land use scenarios. Risk screening levels (SLs) for human health will be based on the *Methods for Conducting Human Health Risk Assessments and Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (HHRA Risk Evaluation) (DOE 2017b). The HHRA Risk Evaluation includes SLs for soil, surface water, and groundwater media types. Sediment SLs are based on the soil SLs for the recreational user in the HHRA Risk Evaluation (no separate SLs for sediment were developed). SLs are also documented in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report.

- Radiological soil data will also be evaluated against the ALs and against the ASLs approved in the May 2, 2018, communication from DOE to FBP (DOE 2018). The ASLs are derived for residential use with the RESidual RADioactivity (RESRAD) computer code (Version 7.2) (Kamboj et al. 2018) to ensure the public does not receive greater than 25 mrem/year of dose through all exposure pathways, including groundwater, consistent with *Ohio Administrative Code (OAC)* 3701:1-38-22(B).

- The EBS will include a screening-level Ecological Risk Assessment (ERA) performed for Parcel 4 to determine whether the property is suitable for transfer from an ecological perspective and will be conducted in accordance with the *Methods for Conducting Ecological Risk Assessments and Ecological Risk Evaluations at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (ERA Methods) (DOE 2013). The ERA Methods has not been updated since 2013; therefore, the ERA will use the updated ecological screening levels (ESLs) from Appendix E, *Comprehensive Screening*

Levels, of the DU RFI/CMS Report. Soil, sediment, and surface water media will be screened using these ESLs.

- Other applicable standards may be used for screening surface water or sediment data. For example, surface water standards could include the *Derived Concentration Technical Standards* (DOE 2011) and Ohio Water Quality Standards found in *OAC* Chapter 3745-1. Sediment standards could include sediment reference values (SRVs) for the Western Allegheny Plateau ecoregion listed in the *Ecological Risk Assessment Guidance Document* (ERA Guidance Document) (Ohio EPA 2018).

- If collected, building surface data will be evaluated against SLs for residential use derived with the RESRAD computer code (Version 7.2) to ensure the public does not receive greater than 25 mrem/year of dose through all exposure pathways, including groundwater.

- Interior-to-the-building chemical data above SLs do not constitute a release to the environment, but these constituents may be removed to support property transfer. These data will be evaluated against SLs (at 1×10^{-5} ELCR and HI of 1.0) if not otherwise specified by ordinance for residential use, as available, to ensure the building can be documented as uncontaminated.

- The presence and condition of other interior-to-the-building constituents may need to be disclosed to support property transfer. For example, the presence and condition of asbestos-containing materials shall be evaluated (and sampled if necessary) to determine whether these materials may remain in a building considered uncontaminated.

- The potential for radon and vapor intrusion at levels of concern shall be evaluated per DOE O 458.1 and regulatory guidance. Other evaluations associated with disclosures to support real estate transfers shall also be performed and documented in the EBS, and these disclosures are confirmed as sufficient for residential use.

- Reporting limits (RLs) for fixed-base laboratories will be developed for this study in order to meet project objectives and evaluate the data against the SLs for the intended future use scenarios, as well as unrestricted use.

If additional data are needed to satisfy data gaps, the following criteria apply:

- The radiological scan coverage will be 100 percent near areas of infrastructure (e.g., roads), including infrastructure that data or history show could be a potential source of contamination (e.g., storm drains and sewer lines); 100 percent of identified anomalies from the visual walkover survey (identified visual anomalies will be based on areas of staining, mounding, depressions, debris, areas of disturbance [indications of possible anthropogenic activity], lack of vegetation or distressed vegetation, and evidence of infrastructure that could be a potential source of contamination from DOE operations); 100 percent for identified areas that have been backfilled or disturbed (unless the area is wooded); and 20 percent in open areas. In areas of dense vegetation, attempts will be made to provide as close to the required coverage as reasonably achievable. For wooded areas, serpentine traverses through the wooded areas will be used (there is no specified scan coverage for wooded areas and no plans to remove vegetation to facilitate the survey). The highest gamma activity, as determined by the sodium iodide (NaI) detector survey, for each 10,000 m^2 (approximately 2.5 acres) area will be identified as a location for HPGe measurements.

- Physical soil samples (grab samples) will be collected based on the radiological survey if the applicable AL is exceeded (based on HPGe measurements for uranium-238). If there are no

exceedances, sample collection will be based on locations with highest, or elevated, radiological survey results (physical samples will be identified based on results of the radiological surveys; a ratio of one sample per 10 acres will be collected based on highest measurements/readings recorded from the radiological survey from the HPGe measurements but could be supplemented by NaI measurements if necessary).

- Physical samples (grab samples) will be collected based on the evaluation of historical analytical data and visual walkover survey information (e.g., identification of contaminant anomalies from historical data and visual anomalies). One sample will be collected at each location where a visual anomaly is identified. In addition, one sample will be collected at each location where historical data concentrations exceed both the soil background levels (DOE 2015) and human health risk SLs (DOE 2017b). During the walkover survey, surface water and sediment features (e.g., perennial streams, primary headwater habitat streams, and/or sediment accumulation areas) may be identified for sampling, particularly if there are no historical data related to the surface water features. Also, if the evaluation and mapping of the historical data indicate an area of potential contamination, a sample will be collected from the approximate center of the area identified from the evaluation and mapping. Sample details will be presented in a Sampling and Analysis Plan (SAP).

- Physical soil samples (grab samples) will be collected based on evaluation of sample coverage, or sample density, after the identification of physical sampling locations based upon radiologic survey results and sampling conducted based upon identification of anomalies and with consideration of the historical data set. The parcel will be subdivided into grid blocks of approximately 10,000 m^2 (approximately 2.5 acres). All grid blocks in which there are no physical samples collected resulting from the application of the above criteria will be included in a set. From that set, 20 percent of the grid blocks will be randomly selected, and a physical soil sample will be collected from the approximate center of the grid block for laboratory analysis.

- Physical samples will be analyzed using fixed-base laboratories. If additional laboratory data are to be collected, the RLs should be low enough to allow comparison to the intended future use scenarios as well as unrestricted use (residential) criteria. Field screening methods may also be used to assist DOE in developing correlations between the results of various field screening methods and fixed-base laboratory results. This information may support the use of cost-effective screening tools during future DOE actions. Field screening methods, if used, will be employed at established physical sample locations described above.

4. DQO STEP 4 – DEFINE THE BOUNDARIES OF THE STUDY

What are the spatial boundaries?

The spatial boundaries for Parcel 4 are designated in Figure 1. Parcel 4 contains approximately 245 acres in 12 sections, as identified in Figure 1 as Sections A through L (Table 1). Parcel 4 is in the eastern and southern portions of PORTS and includes areas both inside and outside the industrialized process area. Section I is located inside the industrial process area (within the fence) and is not included in the current investigation (Section I is leased to Centrus Energy Corporation but is being returned to DOE; access to Section I is currently limited). The visual survey will include areas adjacent to the parcel. In areas where bounding roads and ditches are not present, the visual survey area will extend approximately 25 ft beyond the parcel boundary (except when the parcel boundary coincides with DOE property boundary).

Table 1. Parcel 4 Acreage by Section

Parcel 4 Section	Acres
A	14.9
B	7.6
C	25.2
D	32.5
E	25.9
F	18.2
G	1.6
H	16.2
I	57.0
J	16.8
K	29.1
L	0.2
Total	245.0

What are the vertical boundaries for this project?

In most areas, the vertical boundary is 0-10 ft below ground surface (bgs) (for example, soil samples, if needed, will be collected from the 0-1 ft depth interval [surface] to the 0-10 ft depth interval [subsurface], except where subsurface infrastructure may exist). In areas where subsurface infrastructure exists, the vertical boundary is the depth of the infrastructure.

What are the temporal boundaries for this project?

The temporal boundaries for this project are related to the schedule needed to support the development and completion of the EBS and IVR. The project goal is to have information/data available in a timely manner to support the development of the EBS.

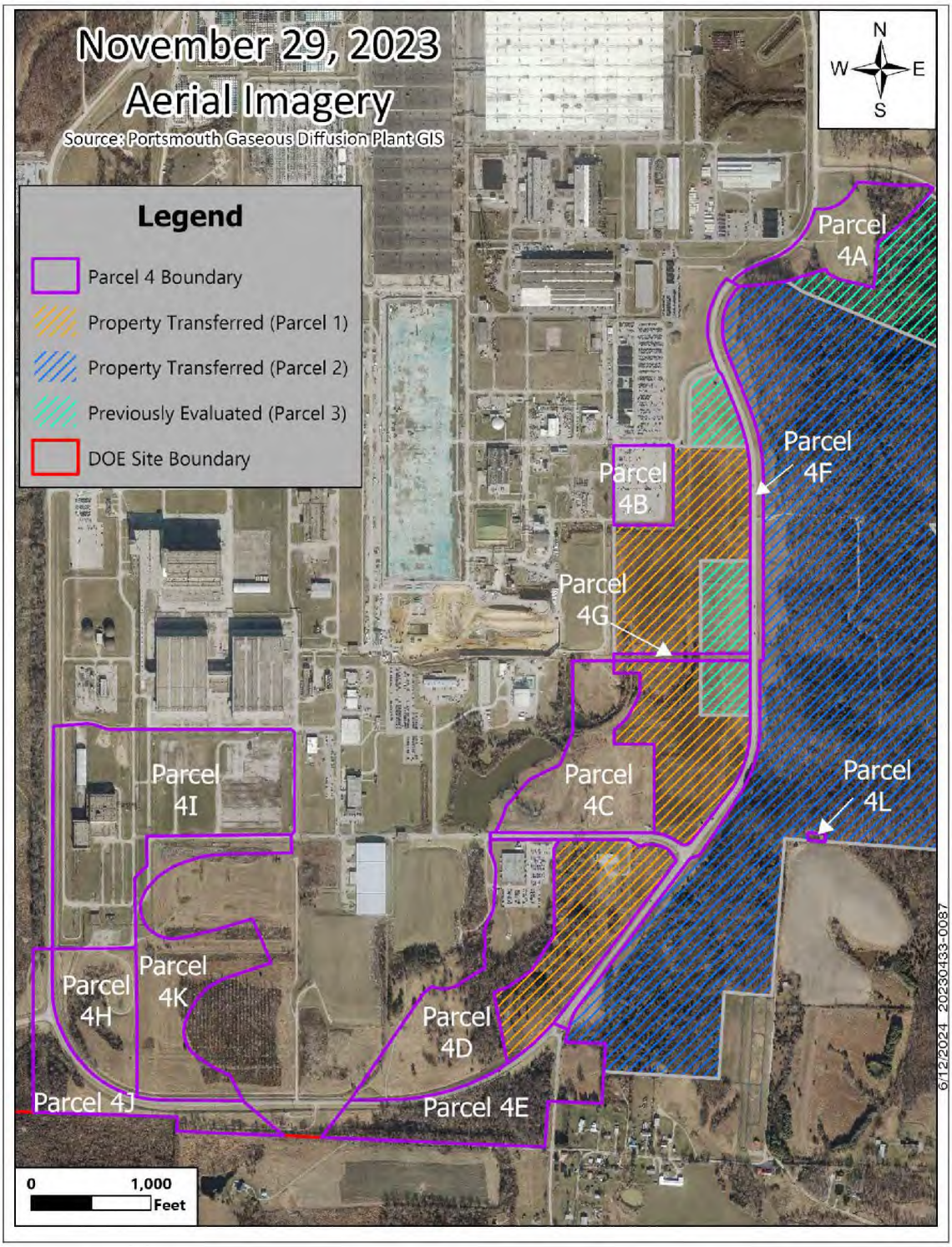

Figure 1. Parcel 4 Area Proposed for Evaluation

5. DQO STEP 5 – DEVELOP THE ANALYTIC APPROACH

The goal of DQO Step 5 is to screen existing data against decision rules. The fifth step in the DQO process specifies appropriate population parameters, defines the action levels, and develops an "if...then...else/otherwise…" decision rule. Successful confirmation demonstrates that media within the boundaries of Parcel 4 have concentrations of site-specific COPCs that are below the action levels identified for the intended future use and for the unrestricted use of all media. The decision rules for Parcel 4, related to satisfying identified data gaps, are provided in Tables 2 through 4. In accordance with the Protocol for Transfer of Uncontaminated Property and the Protocol for Transfer of Remediated Property, additional building-specific DQOs are not required under CERCLA 120; rather disclosure of site conditions to meet local/state requirements and facilitate property transfer will support the CERCLA 120 process.

Existing or historical data and information are evaluated to determine if they are adequate and representative to meet the due diligence requirements of CERCLA 120(h). If data are not adequate and representative, or data gaps are identified, additional data are gathered to ensure adequate, sufficient, and representative data to support the due diligence effort.

Historical data evaluation
Historical data is separated by pre-2006 and post-2006 (inclusive) collection timeframes. The date of 2006 was chosen based on the following two considerations: (1) environmental media data collected from 2006 to the present are data with more relevance and are more representative of current conditions at PORTS than data collected prior to 2006, and (2) the 2006 timeframe was the approximate date when DOE began to conduct individual investigations for the DU RFI/CMS Report approved by Ohio EPA, in relation to inactive facility removals at PORTS. The historical data for Parcel 4 will be evaluated similarly; data collected from 2006 and later (post-2006) will be used for quantitative evaluation, and data collected prior to 2006 (pre-2006) will be used qualitatively (as applicable).

Historical data were collected from several soil, sediment, surface water, and groundwater sampling locations associated with Parcel 4 as part of previous environmental studies and investigations at PORTS (Figure 2). Historical soil data were categorized into depth intervals of 0-1 ft bgs, 1-16 ft bgs, and greater than 16 ft bgs, to facilitate screening against soil background levels.

Tables 5 through 8 identify the number of samples associated with each analytical group for soil, groundwater, surface water, and sediment, respectively. Due to the large volume of historical data analyzed for Parcel 4 the historical data summary tables for all media are presented in Appendix B, *Parcel 4 Historical Data Summary Tables*, of the Parcel 4 SAP.

Tables B.1 and B.2 in the Parcel 4 SAP summarize the frequency of detection and maximum detected values based on the historical soil data (data shown include only the detected constituents) and show a comparison to background[3], as well as human health risk SLs[4] for construction worker, residential, and industrial scenarios. As described above and consistent with the DU RFI/CMS Report, only data from 2006 through the present will be used in a quantitative manner.

[3] Background soil SLs are listed in the Final Soil Background Report.

[4] Human health risk soil SLs for residential, industrial, and construction worker are listed in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report.

Table 2. 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), areas of disturbance (indications of possible anthropogenic activity), lack of vegetation and/or distressed vegetation, and evidence of infrastructure that could be a potential source of contamination from DOE operations (such as storage pads or storm sewer lines);	Verify that radiological survey data exists for the anomaly;	Implement a radiological survey of the anomaly with 100 percent coverage (unless the area is wooded, and 100 percent coverage is not feasible).
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 contamination from DOE operations (such as storage pads or storm sewers);	Verify that sampling data exists for the anomaly;	Collect a grab sample of the media that shows the visual anomaly for laboratory analysis (if the anomaly is on concrete or other man-made object, sample soil media immediately adjacent to and downgradient of the observed anomaly).
3	Areas of subsurface infrastructure that could be a potential source of contamination from DOE operations are identified;	Historical data from areas of subsurface infrastructure will be evaluated;	Determine if infrastructure should be sampled or excluded.
4	The radiological scoping of a previously identified anomaly (from Decision Rule 1) exceeds the AL for uranium-238(+D);	Determine whether adequate radiological data exists;	Determine the extent of the area with elevated measurements and collect a grab sample for laboratory analysis to determine if the area has been delineated and should be excluded.
5	The radiological scoping survey of the open areas or traverses through the wooded areas identifies elevated areas based on exceedance of the AL for uranium-238(+D);	Determine whether sampling data exists;	Collect a grab sample from the area of elevated activity for laboratory analysis.
6	Analytical results from physical samples exceed the soil SLs, ESLs, or ALs;	Designate a location as needing further evaluation;	Exclude the portion of the parcel with exceedances.
7	Additional data are going to be collected;	Subdivide the parcel into 10,000 m^2 grid blocks and randomly sample 20 percent of the grid blocks that do not contain a sample location (including historical data from 2006 to present) and conduct a radiological scoping survey to eliminate large tracts with no survey data;	Proceed with the development of the EBS.

Notes:
Field screening methods may be used to assist DOE in developing correlations between results of various field screening methods and fixed-base laboratory results. Methods will be specified in the applicable SAP.
COPCs and analytical requirements will be defined in the applicable SAP.

AL = Authorized Limit
COPC = chemical of potential concern
DOE = U.S. Department of Energy
EBS = Environmental Baseline Survey
ESL = Ecological Screening Level
SAP = Sampling and Analysis Plan
SL = screening level

Table 3. Decision Rules for Roads and Other "Non-soil" Areas

Decision Rule No.	If	Then	Otherwise
8	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 evaluation is performed.

Table 4. Decision Rules for Surface Water, Sediment, and Groundwater

Decision Rule No.	If	Then	Otherwise
9	Surface water bodies (e.g., primary headwater habitat) exist within the area;	Evaluate historical data to see if contamination exists;	Collect grab samples for further evaluation.
10	Sediment accumulation areas[a] (such as low-lying areas, areas along streams and open-water bodies) exist within the area;	Evaluate historical data to see if contamination exists;	Collect grab samples for further evaluation.
11	Groundwater concentrations of Site COPCs exceed background, drinking water standards (MCLs), or risk-based levels;	Evaluate the historical data for potential cause/source(s) of the elevated levels and determine if a groundwater contamination source exists within the parcel;	Collect samples for further evaluation.

Notes:
[a]Sediment accumulation areas are those areas where overland flow and surface drainage gradients decrease, allowing for sediment accumulation. These areas will generally be low-lying area that would tend to accumulate surface water runoff and any associated sediments. Sampling these areas may indicate if any potential contaminants lie within the area of surface water runoff.

COPCs and analytical requirements will be defined in the applicable SAP.

COPC = chemical of potential concern
MCL = maximum contaminant level
SAP = Sampling and Analysis Plan

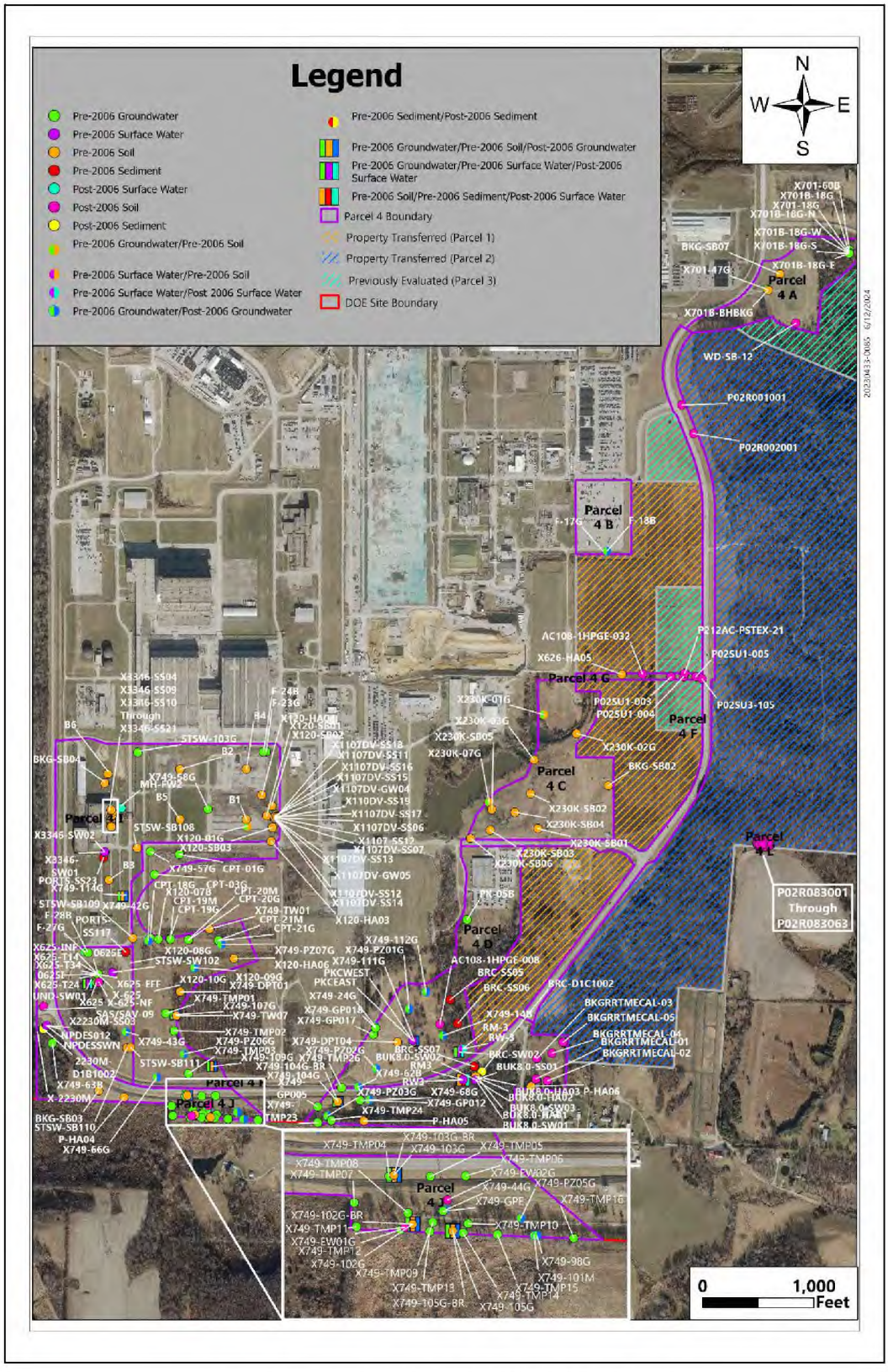

Figure 2. Historical Sample Locations by Media

Table 5. Historical Soil Depth Intervals and Analytical Groups in Parcel 4 Sections

Section	Soil Horizon (ft bgs)	Analysis Type	Total Samples
A	Surface (0-1)	METAL	1
		RADS	1
	Subsurface (1-16)	ANION	1
		METAL	3
		PAHC	2
		PAHNC	2
		PCB	3
		RADS	2
		SVOA	2
		VOA	3
		WETCHEM	1
	Subsurface (>16)	ANION	1
		METAL	3
		PAHC	2
		PAHNC	2
		PCB	3
		RADS	3
		SVOA	2
		VOA	3
		WETCHEM	1
C	Subsurface (1-16)	ANION	10
		METAL	10
		PAHC	10
		PAHNC	10
		PCB	10
		RADS	10
		SVOA	10
		VOA	11
		WETCHEM	1
	Subsurface (>16)	ANION	1
		METAL	1
		PAHC	1
		PAHNC	1
		PCB	1
		RADS	1
		SVOA	1
		VOA	1
		WETCHEM	1
D	Surface (0-1)	ANION	1
		METAL	2

Table 5. Historical Soil Depth Intervals and Analytical Groups in Parcel 4 Sections (Continued)

Section	Soil Horizon (ft bgs)	Analysis Type	Total Samples
D	Surface (0-1)	PAHC	2
		PAHNC	2
		PCB	1
		RADS	2
		SVOA	2
		VOA	1
		WETCHEM	1
E	Surface (0-1)	ANION	1
		METAL	9
		PAHC	9
		PAHNC	9
		PCB	2
		RADS	9
		SVOA	9
		VOA	4
		WETCHEM	5
	Subsurface (1-16)	ANION	2
		METAL	2
		PAHC	2
		PAHNC	2
		PCB	2
		RADS	2
		SVOA	2
		VOA	2
F	Surface (0-1)	METAL	2
		PAHC	2
		PAHNC	2
		PCB	2
		RADS	2
		SVOA	2
		WETCHEM	2
G	Surface (0-1)	METAL	5
		PAHC	1
		PAHNC	1
		RADS	5
		SVOA	1
		WETCHEM	5
	Subsurface (1-16)	METAL	1
H	Subsurface (1-16)	ANION	1
		METAL	2
		PAHC	1
		PAHNC	1

Table 5. Historical Soil Depth Intervals and Analytical Groups in Parcel 4 Sections (Continued)

Section	Soil Horizon (ft bgs)	Analysis Type	Total Samples
H	Subsurface (1-16)	PCB	1
		RADS	2
		SVOA	1
		VOA	1
I	Subsurface (1-16)	ANION	3
		METAL	5
		PAHC	5
		PAHNC	5
		PCB	5
		RADS	5
		SVOA	5
		VOA	8
		WETCHEM	1
	Subsurface (>16)	ANION	1
		METAL	1
		PAHC	1
		PAHNC	1
		PCB	1
		RADS	1
		SVOA	1
		VOA	1
		WETCHEM	1
J	Surface (0-1)	METAL	1
		RADS	1
	Subsurface (1-16)	ANION	2
		METAL	2
		PAHC	2
		PAHNC	2
		PCB	2
		RADS	2
		SVOA	2
		VOA	2
		WETCHEM	1
	Subsurface (>16)	ANION	1
		METAL	1
		PAHC	1
		PAHNC	1
		PCB	1
		RADS	1
		SVOA	1
		VOA	1
		WETCHEM	1

Table 5. Historical Soil Depth Intervals and Analytical Groups in Parcel 4 Sections (Continued)

Section	Soil Horizon (ft bgs)	Analysis Type	Total Samples
K	Subsurface (1-16)	ANION	2
		METAL	2
		PAHC	2
		PAHNC	2
		PCB	2
		RADS	2
		SVOA	2
		VOA	2
L	Surface (0-1)	METAL	59
		PAHC	1
		PAHNC	1
		PCB	1
		RADS	12
		SVOA	1
		WETCHEM	48
	Subsurface (1-16)	METAL	9
		WETCHEM	9

Notes:

bgs = below ground surface
PAHC = carcinogenic polycyclic aromatic hydrocarbons
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
RADS = radionuclides
SVOA = semivolatile organic analyses
VOA = volatile organic analyses
WETCHEM = wet chemistry analyses

Table 6. Historical Groundwater Analytical Groups in Parcel 4 Sections

Section	Analysis Type	Total Samples
A	ANION	16
	METAL	37
	RADIONUCLIDES	33
	SVOA	27
	VOA	38
	WETCHEM	7
B	ANION	31
	DIBENZOFURANS	1
	HERBICIDES	1
	METAL	38
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	35
	SVOA	10
	VOA	34
	WETCHEM	28
C	ANION	1
	DIBENZOFURANS	1
	HERBICIDES	1
	METAL	3
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	1
	SVOA	1
	VOA	3
	WETCHEM	1
D	ANION	53
	DIBENZOFURANS	2
	HERBICIDES	2
	METAL	84
	PAHC	2
	PAHNC	2
	PCB	2
	RADIONUCLIDES	86
	SVOA	159
	VOA	202
	WETCHEM	31
E	ANION	61
	DIBENZOFURANS	2
	HERBICIDES	2
	METAL	86

Table 6. Historical Groundwater Analytical Groups in Parcel 4 Sections (Continued)

Section	Analysis Type	Total Samples
	PAHC	2
	PAHNC	2
	PCB	2
	RADIONUCLIDES	78
	SVOA	159
	VOA	178
	WETCHEM	53
H	ANION	50
	DIBENZOFURANS	1
	METAL	85
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	82
	SVOA	68
	VOA	124
	WETCHEM	25
I	ANION	3
	DIBENZOFURANS	1
	HERBICIDES	1
	METAL	16
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	13
	SVOA	23
	VOA	30
	WETCHEM	1
J	ANION	151
	DIBENZOFURANS	1
	HERBICIDES	1
	METAL	199
	METHYLMERCURY	1
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	187
	SVOA	501
	VOA	551
	WETCHEM	134
K	ANION	48
	DIBENZOFURANS	3
	HERBICIDES	3

Table 6. Historical Groundwater Analytical Groups in Parcel 4 Sections (Continued)

Section	Analysis Type	Total Samples
	METAL	77
	PAHC	3
	PAHNC	3
	PCB	3
	RADIONUCLIDES	70
	SVOA	244
	VOA	261
	WETCHEM	46

Notes:
PAHC = carcinogenic polycyclic aromatic hydrocarbons
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
SVOA = semivolatile organic analyses
VOA = volatile organic analyses
WETCHEM = wet chemistry analyses

Table 7. Historical Surface Water Analytical Groups in Parcel 4 Sections

Section	Analysis Type	Total Samples
D	ANION	66
	DIBENZOFURANS	1
	METAL	178
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	180
	SVOA	98
	VOA	140
	WETCHEM	80
E	METAL	13
	PAHC	3
	PAHNC	3
	PCB	3
	RADIONUCLIDES	13
	SVOA	3
	VOA	3

Table 7. Historical Surface Water Analytical Groups in Parcel 4 Sections (Continued)

Section	Analysis Type	Total Samples
H	ANION	66
	DIBENZOFURANS	1
	HERB	1
	METAL	135
	PAHC	1
	PAHNC	1
	PCB	1
	RADIONUCLIDES	135
	SVOA	99
	VOA	134
	WETCHEM	66
I	RADIONUCLIDES	1
	SVOA	1
	VOA	3
J	ANION	1
	METAL	281
	OIL/GREASE	267
	PCB	43
	RADIONUCLIDES	131
	SVOA	3
	VOA	285
	WETCHEM	270

Notes:
PAHC = carcinogenic polycyclic aromatic hydrocarbons
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
SVOA = semivolatile organic analyses
VOA = volatile organic analyses
WETCHEM = wet chemistry analyses

Table 8. Historical Sediment Analytical Groups in Parcel 4 Sections

Section	Analysis Type	Total Samples
D	ANION	1
	METAL	24
	PAHC	1
	PAHNC	1
	PCB	24
	RADIONUCLIDES	24
	SVOA	1
	VOA	1
	WETCHEM	8
E	ANION	1
	METAL	2
	PAHC	2
	PAHNC	2
	PCB	2
	RADIONUCLIDES	2
	SVOA	2
	VOA	2
	WETCHEM	1
J	ANION	2
	METAL	2
	PAHC	2
	PAHNC	2
	PCB	2
	RADIONUCLIDES	2
	SVOA	2
	VOA	2
	WETCHEM	1

Notes:
PAHC = carcinogenic polycyclic aromatic hydrocarbons
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
SVOA = semivolatile organic analyses
VOA = volatile organic analyses
WETCHEM = wet chemistry analyses

As indicated in Tables B.1 and B.2, detected radiological parameters in soil include alpha activity, beta activity, technetium-99, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, and uranium-238. Radionuclides detected in soil above background were found in Section F (uranium-233/234, uranium-235/236, and uranium-238) and Section G (uranium-233/234 and uranium-238). The area where these background exceedances occurred was in an area previously identified as having elevated levels of isotopic uranium and being radiologically impacted. No radiological parameters were detected above SLs or ALs in soil at any depth interval in Parcel 4. Also indicated in Tables B.1 and B.2, several metals, including aluminum, antimony, arsenic, barium, beryllium, cadmium, cobalt, lead, manganese, mercury, nickel, selenium, silver, uranium, vanadium, and zinc exceeded soil background levels in one or more depth intervals; however, only antimony, arsenic, cobalt and manganese also exceeded the human health risk-based residential SL. Most of the arsenic exceedances occurred in Section L, which had an area of soil contaminated by arsenic, which was identified during sampling for

Parcel 2 (DOE 2019a). The area of arsenic contamination was approximately 3,000 sq ft and coincides with the location of a former county road that was used prior to DOE's acquisition of the property for PORTS. The source of the arsenic was unknown. DOE performed a maintenance action in Section L in late 2023 (DOE 2023) to remove contaminated soil above the final remediation level for arsenic of 29 mg/kg. No other chemicals besides metals exceeded any of the SLs.

Tables B.3 and B.4 of the Parcel 4 SAP summarize the historical groundwater data for Parcel 4. Tables B.3 and B.4 summarize the frequency of detection and maximum detected values based on the historical groundwater data (data shown include only the detected constituents) and show a comparison to groundwater MCLs, as well as human health risk SLs[5] for residential and industrial scenarios and vapor intrusion. No groundwater radiological parameters were detected above MCLs or SLs in Parcel 4.

Several metals in groundwater, including antimony, arsenic, beryllium, cadmium, chromium, lead, mercury, thallium, and uranium exceeded MCLs; however, only antimony, arsenic, cadmium, lead, thallium, and uranium also exceeded the human health risk-based residential SLs. Metals exceeding the residential SL that have no MCL include cobalt, cyanide, iron, manganese, nickel, silver, and vanadium. One PAH, 2-methylnaphthalene exceeded the MCL. Several VOCs exceeded MCLs and residential SLs with 1,1-dichloroethene, 1,2-dichloroethane, and trichloroethene (TCE) being most frequently detected in Parcel 4 groundwater. TCE and chloroform groundwater concentrations exceeded vapor intrusion screening levels (VISLs) most commonly. Cyanide and 1,2-Dibromo-3-chloropropane in groundwater exceeded VISLs in one sample each. Sections D, E, H, I, J, and K are near a Gallia Sand Member (Gallia) groundwater plume contaminated with TCE associated with the X-749 Contaminated Materials Disposal Facility/X-120 Former Training Facility. Section A is near the southern extent of the X-701B Former Holding Pond Gallia groundwater TCE plume.

Tables B.5 and B.6 of the Parcel 4 SAP summarize the historical surface water data for Parcel 4. The historical surface water data shown in these tables includes only the detected constituents. Historical chemical surface water data are only available for Sections D, E, H, and J where Big Run Creek and the Unnamed Southwest Drainage Ditch exist. These tables summarize the minimum and maximum detected values and screens detected values against human health risk-based surface water SLs[6] (outdoor worker and recreational scenarios). Bis(2-ethylhexyl)phthalate is the only chemical that exceeded all of the human health risk-based SLs in one surface water sample collected in Section H. Arsenic also exceeded the recreational lifetime SL in two surface water samples collected in Section E.

Tables B.7 and B.8 of the Parcel 4 SAP summarize the historical sediment data for Parcel 4. These tables summarize the minimum and maximum detected values and screens detected values against human health risk-based SLs (outdoor worker and recreational scenarios). For the outdoor worker at PORTS, sediment and surface water SLs are the same as the recreational adult soil and surface water SLs, respectively (DOE 2021). Uranium isotopes, technetium-99, and transuranics (americium-241, neptunium-237, and plutonium-238) were frequently detected in Parcel 4 sediment samples, but no radiological parameters in sediment were detected above SLs in Parcel 4. Chemicals exceeding human health risk-based SLs in sediment include arsenic and thallium. Arsenic exceeded the recreational child and recreational lifetime scenario SLs in Sections D and E. Thallium also exceeded the recreational child scenario in Section D.

[5] MCLs and groundwater SLs for residential and industrial scenarios, and vapor intrusion are listed in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report.

[6] Surface water SLs for outdoor worker and recreational scenarios are listed in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report.

Tables B.9 through B.11 of the Parcel 4 SAP summarize the frequency of detection and maximum detected values based on the historical soil, surface water, and sediment data, respectively, and show a screening against ESLs identified in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report to follow the ERA based on the process described in the ERA Methods. This data is also separated based on pre-2006 data and post-2006 data, with only the post-2006 data being used in a quantitative manner consistent with the DU RFI/CMS Report. In surface soil, the maximum detected concentrations of arsenic, barium, cadmium, cobalt, silver, and zinc exceeded PORTS site background concentrations and Tier 1 ESLs. Bis(2-ethylhelxyl)phthalate also exceeded the Tier 1 ESLs.

Surface water data were compared to Tier 1 and Tier 2 ESLs. The maximum concentrations of aluminum, iron, lead, manganese, silver, uranium, PCBs, and carbon disulfide exceeded their Tier 1 ESLs. All of these, except iron, lead, and manganese, also exceeded their Tier 2 ESLs.

Sediment data were compared to SRVs for the Western Allegheny Plateau ecoregion (where PORTS is located) listed in the ERA Guidance Document and Tier 1 and Tier 2 ESLs in Appendix E, *Comprehensive Screening Levels*, of the DU RFI/CMS Report. Using the maximum detected concentration, several metals exceeded these SLs in sediment, including antimony, arsenic, barium, beryllium, cadmium cobalt, cyanide, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc. As shown in Table B.11, the maximum detected concentrations of several PAHs, SVOCs and pesticides/PCBs also exceeded the Tier 1 ESLs.

To summarize, the site-wide COPCs for PORTS environmental media include metals, radionuclides, PCBs, SVOCs, PAHs, and VOCs. Overall, the historical data available for soil within Parcel 4 is limited, but historical data for groundwater, surface water, and sediment within the Parcel 4 area appear adequate for evaluation.

Radiological scoping surveys of Parcel 4 Sections A, C, D, F, and G, and Parcel 4 Sections F and L were completed in 2015 (DOE 2017c) and 2018 (DOE 2019b), respectively (Figure 3). Grid blocks of approximately 10,000 m^2 were traversed with a NaI detector array to achieve a 20 percent coverage of open areas. Seven HPGe measurements were taken on Parcel 4 Sections C, D, and G during the 2015 survey (Figure 4). Six HPGe survey locations within areas now considered part of Parcel 4 were measured in 2018. One of the 2018 HPGe locations was in Section L, and five of the HPGe locations are located in Parcel 4 Section F. One of the locations in Section F, P02R001, had a uranium-235 detection of 0.35 pCi/g, which is greater than twice the background. A soil sample from that location had elevated uranium (7.3 mg/kg), uranium-233/234 (35.78 pCi/g), uranium-235/236 (1.729 pCi/g), and uranium-238 (1.558 pCi/g). These results are less than the ALs of uranium-234, uranium-235, and uranium-238 of 329 pCi/g, 3 pCi/g, and 16 pCi/g, respectively.

Data gaps identified in Parcel 4 are provided in Table 9. There were no data gaps identified with groundwater, surface water, and sediment due to the sufficient data collected during ongoing monitoring programs and the recent DU RFI/CMS Report.

Table 9. Parcel 4 Data Gaps

Data Gap No.	Identified Data Gap	Rationale
1	Visual walkover survey	Verification of any visual anomalies existing in Parcel 4.
2	Radiological scoping survey	Determine if areas with elevated radioactivity are present.
3	Surface soil characterization adequacy	Verification of uncontaminated/contaminated status of soil on Parcel 4. Complete characterization for Parcel 4 area for PORTS-related COPCs, especially the 0-6 in. bgs depth interval. (Historical soil data do not fully characterize the Parcel 4 area for PORTS site-wide COPCs; therefore, additional samples are needed for the 0-1 ft bgs interval for a broader list of COPCs and also to provide better coverage for areas where no data exist).
4	Biological survey	Provide a description of the ecological setting, including major habitat types, dominant vegetation, and animal species observed or expected to be observed in order to complete an ecological risk assessment checklist.

Notes:
bgs = below ground surface
COPC = chemical of potential concern
PORTS = Portsmouth Gaseous Diffusion Plant

Analytic approach to address data gaps

To address the data gaps identified above, additional information on Parcel 4 is needed. Types of measurements/data include the following:

- Radiological scoping measurements (e.g., NaI detector measurements; HPGe measurements)
- Analytical data for all COPCs identified in the SAP from fixed-base laboratories.

The parameters of interest for this project include the following:

- Visual walkover anomalies
- Areas of potential contamination, based on an evaluation of historical data, including potential confirmation soil samples for sample locations where concentrations exceed both the soil background levels and human health risk SLs
- Real-time measurements (e.g., measurements from radiological scoping surveys using NaI detectors or HPGe detectors)
- Individual analytical results for all COPCs from fixed-base laboratories
- In addition to the visual walkover survey for anomalies and the radiological walkover survey, a biological survey will be conducted to complete the EPA's ERA Checklist (EPA 1997b). The ecological checklist will provide a description of the ecological setting, including major habitat types, dominant vegetation, and animal species observed or expected to be observed at Parcel 4. Photographs of the parcel and surrounding area will also be taken to catalog habitat types and potential ecological receptors (EPA 1997b).

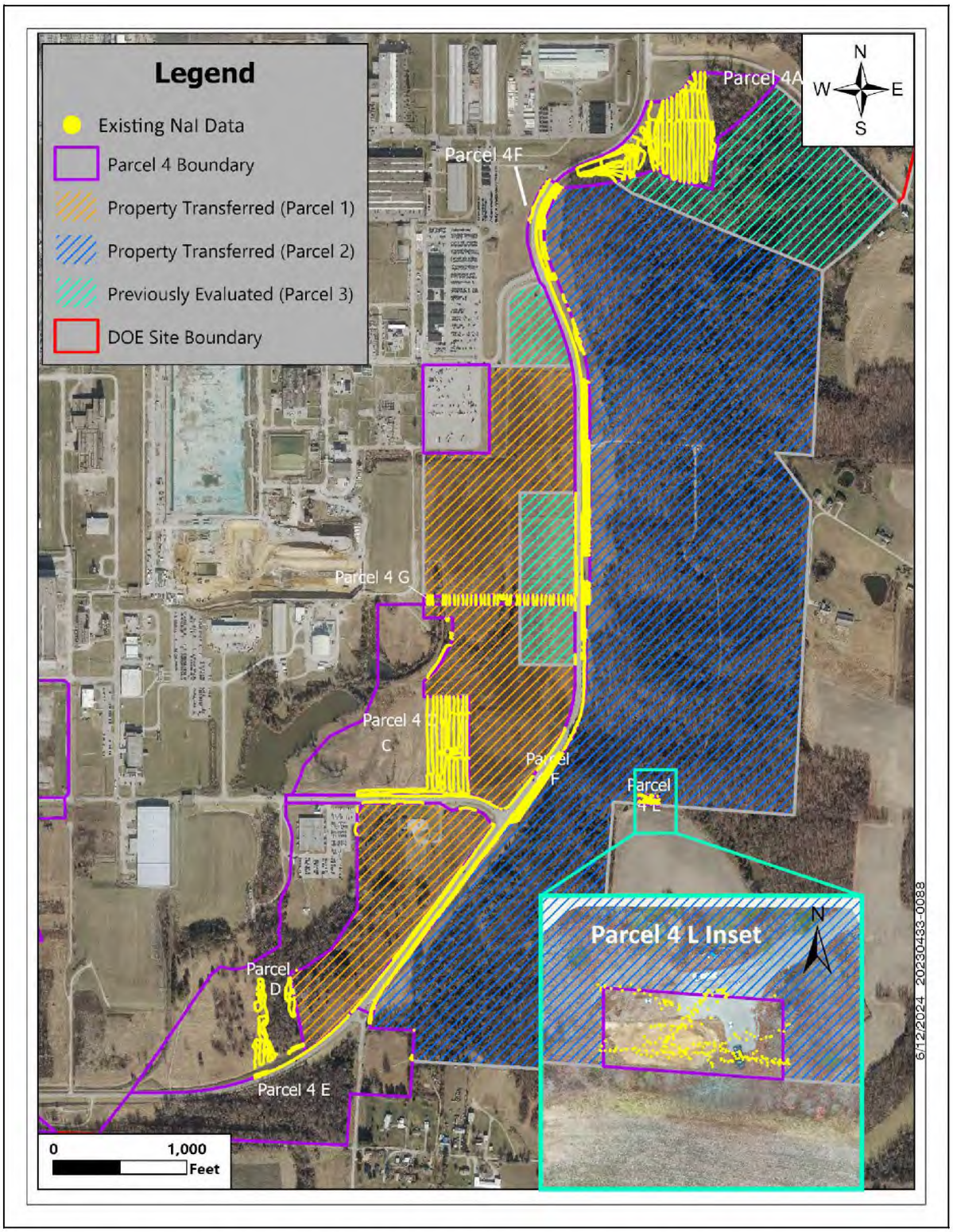

Figure 3. Historical Radiological Scoping Surveys in Parcel 4

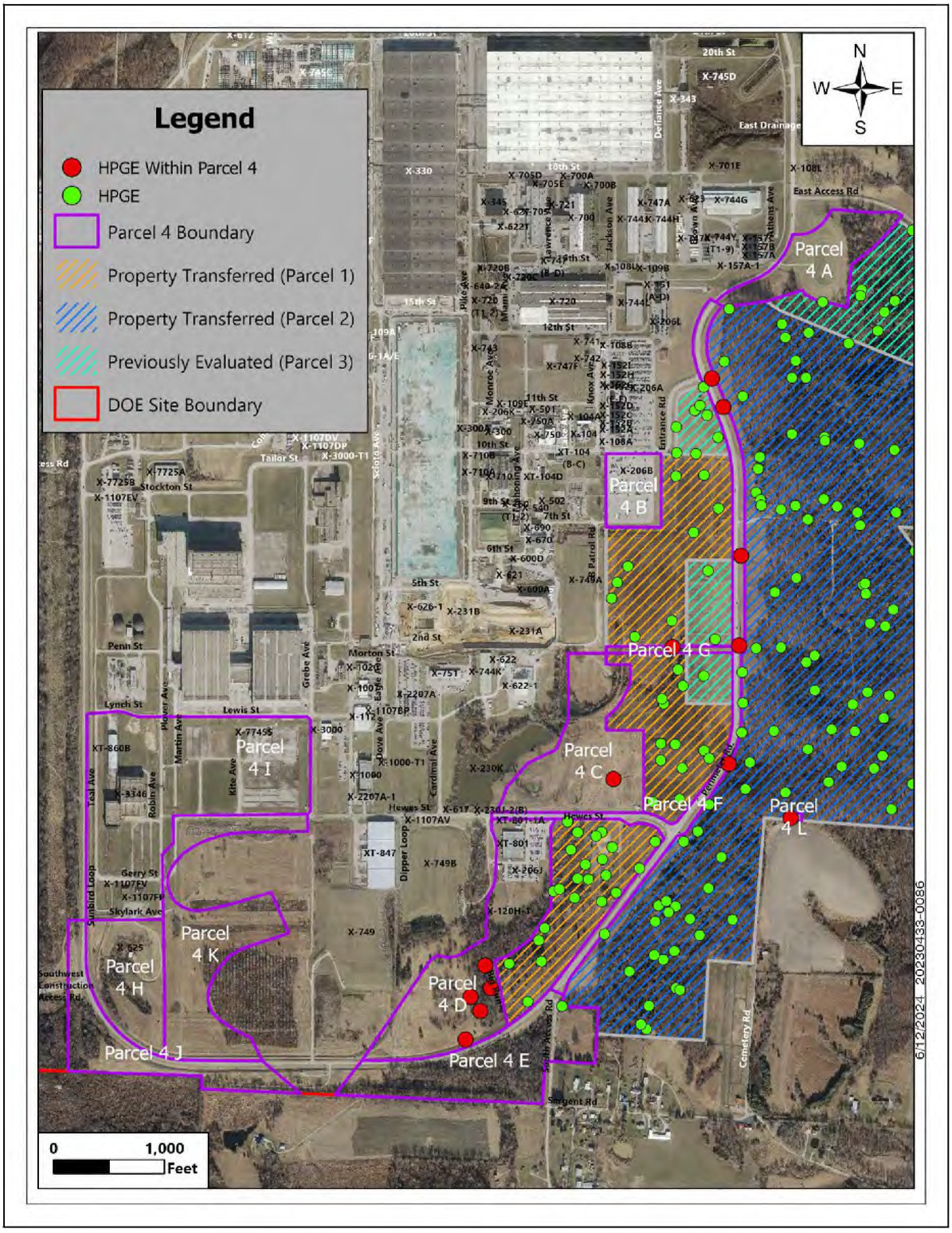

Figure 4. Historical High-Purity Germanium Measurements Within and Adjacent to Parcel 4

The action levels include the following:

- For the visual walkover survey/physical inspection, identified anomalies will be based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), areas of disturbance (indications of possible anthropogenic activity), lack of vegetation or distressed vegetation, and evidence of infrastructure that could be a potential source of contamination. Also, during the visual walkover survey, surface water features (e.g., primary headwater habitat streams) may be identified for sampling, particularly if there are no historical data related to the surface water features.

- For evaluation of the historical data set, potential contamination will be based on screening historical data against soil background levels, a range of background for Ohio soils, and appropriate risk-based concentrations for the intended future use (industrial), as well as the unrestricted use of all media (i.e., concentrations calculated at an ELCR of 1×10^{-5} and HI of 1.0). Scenarios other than the intended use include residential, recreational, and construction worker land use scenarios. The evaluation of all historical data will be used to determine spatial data gaps that warrant further evaluation under the current project, but only historical data collected from 2006 through present will be used in a quantitative manner (use of historical data from 2006 through present in this manner is consistent with the DU RFI/CMS Report). Note that for Parcel 4, the oldest analytical soil data to be used quantitatively was collected in the spring of 2007.

- For the radiological scoping survey, the action level (for HPGe measurements) will be defined as the AL for uranium-238(+D). The area with the highest gamma activity, as determined by the NaI iodide survey, for each approximately 10,000 m^2 area will be identified as a location for an HPGe measurement.

- For analytical results from physical grab samples (for soil/sediment and surface water), the action levels will be the SLs identified in DQO Step 3. For radiological soil data, SLs also include the ASLs approved in the May 2, 2018, communication from DOE to FBP (DOE 2018), which ensures the public does not receive greater than 25 mrem/year of dose through all exposure pathways, including groundwater, consistent with *OAC* 3701:1-38-22(B).

- For the ERA analytical results from physical grab samples (for soil/sediment and surface water), the action levels will be the ESLs and surface water SLs identified in DQO Step 3. In addition to ESLs, sediment data will be compared to SRVs for the Western Allegheny Plateau ecoregion listed in the ERA Guidance Document.

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6. 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 will be evaluated with a scoping survey, a probability-based sampling design (for the collection of physical 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 obtain data that will be able to do the following:

- Detect areas of radionuclide and/or chemical contamination
- Detect action level exceedances in analytical results for each physical sample.

A null hypothesis is developed to demonstrate compliance of data with the constraints imposed by the decision rules and to establish the parameters against which decisions can be made. The null hypothesis typically represents the baseline condition and is defined in terms of the decision error that has the most adverse potential consequences. For this evaluation, the null hypothesis for Parcel 4 is stated as:

> H_0: Parcel 4 is eligible for transfer under CERCLA 120(h) and is protective per DOE Order 458.1.

The alternative hypothesis is:

> H_a: Parcel 4 is not eligible for transfer under CERCLA 120(h) or is not protective per DOE Order 458.1.

The null hypothesis will hold if the radiological survey and laboratory data show that all results are below the SLs, ALs, or ASLs.

The null hypothesis will be rejected if there is confirmed contamination that requires response or corrective action based upon evaluation of analytical data. In such case, the contaminated areas will be removed from the Parcel 4 property being evaluated so the remaining property is eligible for transfer per CERCLA 120(h).

For uncertainties associated with this project, possible decision errors should be identified and their consequences evaluated. The two types of decision errors of interest are termed Type I (α) and Type II (β). A false rejection decision error, or a Type I error, occurs when you reject the null hypothesis when it is true (i.e., conclude the survey unit does not meet the criteria for property transfer, when actually, it does meet the release criteria). This error would result in unnecessary added costs due to potential additional data collection and evaluation of media. A false acceptance decision error, or a Type II error, occurs when you fail to reject the null hypothesis when it is false (i.e., conclude the survey unit meets the criteria for property transfer when, in reality, it does not meet the criteria). This situation could result in an increased risk to human health and the environment. Based on how the null hypothesis is set up (i.e., the parcel is eligible for transfer), the Type II error is the more severe decision error, and therefore, criteria placed on an acceptable value of beta (β) would be more stringent than for alpha (α).

If additional data needs to be collected, the following performance criteria will be used to minimize uncertainty

During this project, field and lab quality assurance/quality control (QA/QC) samples will be used to evaluate data quality. The appropriate number of QC samples will be documented in the SAP; any deviations from the *Sample Analysis Data Quality Assurance Project Plan (SADQ) at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (SADQ) (DOE 2014) will be noted. The SADQ is a comprehensive document addressing all the data quality requirements for decontamination and decommissioning, and environmental cleanup.

Real-time data (NaI and HPGe) will be collected and reported at analytical support level A for NaI and analytical support level E for HPGe. 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.

Laboratory analytical results will receive 100 percent verification and 100 percent validation. Data validation of laboratory results will be 80 percent at validation support level (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 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 (DQA) 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.

The DQA process compares the data produced to the project/program requirements or overall project DQOs. This assessment includes data verification, data validation, field validation, and an assessment for precision, accuracy, representativeness, completeness, comparability, and sensitivity. 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.

7. 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 if additional sampling is required to fill data gaps, 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. Data gaps were identified in the discussion of DQO Step 5; therefore, a SAP is needed to obtain additional data, which will address the data gaps and complete the due diligence for the property. The SAP will include the details of the sampling design and approach. In accordance with the Protocol for Transfer of Uncontaminated Property and the Protocol for Transfer of Remediated Property, additional building-specific DQOs are not required under CERCLA 120; rather, disclosure of site conditions to meet local/state requirements and facilitate property transfer will support the CERCLA 120 process. A high-level summary of the sampling approach follows.

Minimum number of samples required
Because the Parcel 4 property is presumed to be non-impacted (per DOE Order 458.1) and uncontaminated for this evaluation (no to very low potential for contaminant concentrations or residual radioactivity to exceed the media cleanup standard values), no physical sampling is required except for biased or judgmental sampling. Based on the data gaps presented in DQO Step 5, a visual walkover survey and radiological scoping survey (using both NaI and HPGe detectors) will be performed at a minimum. The radiological scoping survey coverage will be 100 percent for infrastructure, 100 percent for anomalies identified during the visual walkover survey, 100 percent for identified areas that have been backfilled or disturbed (unless the area is wooded), and 20 percent for open areas. For wooded areas, serpentine traverses through the wooded areas will be used if accessible (there is no specified scan coverage for wooded areas and no plans to remove vegetation to facilitate the survey).

Biased physical samples (a judgmental sample design) will be used as needed to evaluate areas with the greatest potential for contamination (based on anomalies identified during the visual walkover survey, results of the radiological scoping survey, and/or historical data/information). Random physical samples will also be collected as described under DQO Steps 3 and 5 to ensure an adequate sample density. These samples will be submitted to a fixed-base laboratory for analyses of PORTS-related COPCs to be defined in the SAP.

Data collection approach
Based on existing process knowledge (primarily from the description of current conditions reports and the Quadrant I RFI Report and Quadrant II RFI Report) and historical data, the Parcel 4 area has no to very low potential for contaminant concentrations or residual radioactivity to exceed the media cleanup standards (with the exception of areas with known groundwater contamination). The area will be primarily assessed by visual walkover surveys and radiological scoping surveys to satisfy data gaps 1 and 2 from DQO Step 5. Biased sampling will be conducted when observation indicates the area may be impacted (visual anomaly or radiological survey anomaly) and the presumption of no contamination may not be valid.

To begin, a visual walkover survey or assessment is conducted (an initial field reconnaissance is completed to support the development of the historical site assessment, DQOs, and SAP). The goal for the visual walkover survey is 100 percent coverage. A visual walkover inspection is conducted to systematically inspect the area to identify and map any observed features. The walkover assessment focuses on identifying any anthropogenic or anomalous features, delineating the boundaries of the features, and determining if biased sampling is warranted. While traversing the parcel area, the walkover assessment team will take note of any unusual or anthropogenic features (i.e., the identification of

anomalies) and select locations for subsequent detailed radiological scoping surveys and/or physical soil sampling. Anomaly locations will be logged with a global positioning system instrument and recorded. During the walkover assessment, sediment accumulation areas related to surface water runoff may be identified for biased sampling by the assessment teams. Sediment accumulation areas are those areas where overland flow and surface drainage gradients decrease, allowing for sediment accumulation; these areas will generally be low-lying areas that would tend to accumulate surface water runoff and any associated sediments. The condition of the soils/sediments in these areas would be representative of the upstream conditions, and if elevated levels of contamination are found, they would be indicative of a source of contamination in the watershed. Also, surface water features may be identified for sampling, particularly if there is no historical data related to the surface water features.

For this project, the requirement for radiological scoping survey scan coverage will be 100 percent for infrastructure, 100 percent for anomalies identified during the visual walkover survey, 100 percent for identified areas that have been backfilled or disturbed (unless the area is wooded), and 20 percent for open areas. To facilitate the radiological scoping and physical sampling, the parcel will be subdivided into grid blocks with an approximate area of 10,000 m^2 each (the grid blocks will be defined in the SAP). For wooded areas, serpentine traverses through the wooded areas will be used unless the undergrowth is too thick.

To satisfy data gap 3 from DQO Step 5, biased physical samples from identified anomalies (this includes anomalies determined from the visual walkover survey, confirmation samples of sample locations where concentrations exceed both soil background levels and human health risk SLs, and areas of elevated radioactivity based on the radiological survey) will be collected and analyzed for area-specific COPCs using fixed-base laboratory analytical methods. Grab samples from surface water features (including surface water and sediment), where they exist, may be collected if warranted and insufficient historical data exists. Additionally, random samples will be collected in areas where no anomalies have been identified to provide better coverage/density of data. A field change notice will be processed to document the final sample locations not already identified in the SAP.

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APPENDIX B: PARCEL 4 HISTORICAL DATA SUMMARY TABLES

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TABLES

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Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section A - Subsurface Soil (1-16 ft bgs)												
Aluminum	7/8	1.30E+02	5.11E+02	mg/kg	2.07E+04	0/7	1.56E+05	0/7	7.73E+04	0/7	2.15E+06	0/7
Antimony	7/8	1.00E-02	1.00E-02	mg/kg	1.83E+00	0/7	6.20E+02	0/7	3.13E+01	0/7	9.34E+02	0/7
Arsenic	1/1	5.30E+00	5.30E+00	mg/kg	2.90E+01	0/1	2.15E+02	0/1	6.77E+00	0/1	7.25E+01	0/1
Barium	8/8	1.00E-02	1.00E+02	mg/kg	1.36E+02	0/8	1.64E+04	0/8	1.53E+04	0/8	3.99E+05	0/8
Beryllium	8/8	1.00E-02	8.00E-01	mg/kg	1.60E+00	0/8	5.72E+02	0/8	1.55E+02	0/8	4.48E+03	0/8
Cadmium	7/8	1.00E-02	1.00E-02	mg/kg	2.82E-01	0/7	5.38E+01	0/7	7.10E+01	0/7	2.24E+03	0/7
Chromium	8/8	3.60E-01	8.70E+00	mg/kg	2.94E+01	0/8	--	--	--	--	--	--
Cobalt	8/8	7.00E-02	1.30E+01	mg/kg	3.74E+01	0/8	2.04E+02	0/8	2.34E+01	0/8	6.86E+02	0/8
Copper	8/8	5.20E-01	7.90E+00	mg/kg	2.62E+01	0/8	1.70E+04	0/8	3.13E+03	0/8	9.34E+04	0/8
Iron	8/8	1.08E+02	1.90E+04	mg/kg	6.28E+04	0/8	1.19E+06	0/8	5.48E+04	0/8	1.64E+06	0/8
Lead	8/8	1.00E-02	2.00E+01	mg/kg	2.26E+01	0/8	8.00E+02	0/8	4.00E+02	0/8	8.00E+02	0/8
Manganese	8/8	2.82E+00	1.60E+03	mg/kg	1.49E+03	**1/8**	1.65E+03	0/8	1.82E+03	0/8	4.65E+04	0/8
Mercury	7/8	1.00E-02	1.00E-02	mg/kg	5.20E-02	0/7	4.87E+02	0/7	2.35E+01	0/7	7.00E+02	0/7
Nickel	8/8	1.00E-02	1.10E+01	mg/kg	5.03E+01	0/8	2.84E+03	0/8	1.54E+03	0/8	4.26E+04	0/8
Selenium	7/8	1.00E-02	1.00E-02	mg/kg	6.39E-01	0/7	8.41E+03	0/7	3.91E+02	0/7	1.17E+04	0/7
Silver	7/8	5.00E-02	1.30E-01	mg/kg	7.48E+00	0/7	8.52E+03	0/7	3.91E+02	0/7	1.17E+04	0/7
Vanadium	8/8	1.00E-02	2.70E+01	mg/kg	5.80E+01	0/8	2.86E+03	0/8	3.93E+02	0/8	1.15E+04	0/8
Zinc	7/7	5.10E-01	1.39E+00	mg/kg	1.17E+02	0/7	5.11E+05	0/7	2.35E+04	0/7	7.01E+05	0/7
Bis(2-ethylhexyl)phthalate	1/1	2.10E-02	2.10E-02	mg/kg	--	--	4.99E+04	0/1	3.88E+02	0/1	4.67E+03	0/1
1,1,1-Trichloroethane	7/8	1.00E-02	1.00E-02	mg/kg	--	--	6.40E+02	0/7	6.40E+02	0/7	6.40E+02	0/7
1,1-Dichloroethane	7/8	1.00E-02	1.00E-02	mg/kg	--	--	1.69E+03	0/7	4.81E+01	0/7	2.15E+02	0/7
1,1-Dichloroethene	7/8	1.00E-02	1.00E-02	mg/kg	--	--	1.19E+03	0/7	3.04E+02	0/7	1.19E+03	0/7
Chloroform	7/8	1.00E-02	1.00E-02	mg/kg	--	--	6.54E+02	0/7	4.31E+00	0/7	1.90E+01	0/7
Ethylbenzene	1/1	3.10E-03	3.10E-03	mg/kg	--	--	4.80E+02	0/1	7.67E+01	0/1	3.58E+02	0/1
Methylene chloride	7/8	1.00E-02	1.00E-02	mg/kg	--	--	3.32E+03	0/7	3.75E+02	0/7	3.32E+03	0/7
Tetrachloroethene	7/8	1.00E-02	1.00E-02	mg/kg	--	--	1.66E+02	0/7	1.04E+02	0/7	1.66E+02	0/7
Toluene	8/8	3.30E-03	1.00E-02	mg/kg	--	--	8.18E+02	0/8	8.18E+02	0/8	8.18E+02	0/8
trans-1,2-Dichloroethene	7/7	1.00E-02	1.00E-02	mg/kg	--	--	8.31E+02	0/7	1.36E+02	0/7	6.19E+02	0/7
Trichloroethene	7/8	1.00E-02	1.00E-02	mg/kg	--	--	3.38E+01	0/7	5.44E+00	0/7	2.59E+01	0/7
Vinyl chloride	7/8	1.00E-02	1.00E-02	mg/kg	--	--	6.61E+02	0/7	6.58E-01	0/7	2.60E+01	0/7
Technetium-99	7/7	1.00E-02	3.20E-01	dpm/g	--	--	1.87E+05	0/7	1.14E+03	0/7	1.70E+04	0/7

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section A - Subsurface Soil (16-30 ft bgs)												
Aluminum	5/5	1.86E+02	1.20E+04	mg/kg	1.27E+04	0/5	1.56E+05	0/5	7.73E+04	0/5	2.15E+06	0/5
Antimony	3/5	1.00E-02	1.00E-02	mg/kg	3.51E+00	0/3	6.20E+02	0/3	3.13E+01	0/3	9.34E+02	0/3
Arsenic	2/2	2.00E+01	2.60E+01	mg/kg	8.56E+01	0/2	2.15E+02	0/2	6.77E+00	**2/2**	7.25E+01	0/2
Barium	5/5	1.00E-02	8.00E+01	mg/kg	7.21E+01	**1/5**	1.64E+04	0/5	1.53E+04	0/5	3.99E+05	0/5
Beryllium	5/5	1.00E-02	9.60E-01	mg/kg	1.17E+00	0/5	5.72E+02	0/5	1.55E+02	0/5	4.48E+03	0/5
Cadmium	3/5	1.00E-02	1.00E-02	mg/kg	6.88E-01	0/3	5.38E+01	0/3	7.10E+01	0/3	2.24E+03	0/3
Chromium	5/5	3.60E-01	1.20E+01	mg/kg	2.46E+01	0/5	--	--	--	--	--	--
Cobalt	5/5	1.50E-01	1.80E+01	mg/kg	1.86E+01	0/5	2.04E+02	0/5	2.34E+01	0/5	6.86E+02	0/5
Copper	5/5	1.05E+00	2.30E+01	mg/kg	2.31E+01	0/5	1.70E+04	0/5	3.13E+03	0/5	9.34E+04	0/5
Iron	5/5	4.56E+02	4.00E+04	mg/kg	5.64E+04	0/5	1.19E+06	0/5	5.48E+04	0/5	1.64E+06	0/5
Lead	5/5	1.00E-02	2.60E+01	mg/kg	1.27E+01	**2/5**	8.00E+02	0/5	4.00E+02	0/5	8.00E+02	0/5
Manganese	5/5	6.38E+00	5.90E+02	mg/kg	4.65E+02	**1/5**	1.65E+03	0/5	1.82E+03	0/5	4.65E+04	0/5
Mercury	3/5	1.00E-02	1.00E-02	mg/kg	4.10E-02	0/3	4.87E+02	0/3	2.35E+01	0/3	7.00E+02	0/3
Nickel	5/5	4.20E-01	3.70E+01	mg/kg	5.27E+01	0/5	2.84E+03	0/5	1.54E+03	0/5	4.26E+04	0/5
Selenium	3/5	1.00E-02	1.00E-02	mg/kg	6.37E-01	0/3	8.41E+03	0/3	3.91E+02	0/3	1.17E+04	0/3
Silver	3/5	9.00E-02	1.00E-01	mg/kg	3.66E+00	0/3	8.52E+03	0/3	3.91E+02	0/3	1.17E+04	0/3
Total Uranium	1/1	3.50E+00	3.50E+00	mg/kg	7.19E+00	0/1	2.73E+02	0/1	2.34E+02	0/1	6.79E+03	0/1
Vanadium	5/5	1.00E-02	3.20E+01	mg/kg	6.51E+01	0/5	2.86E+03	0/5	3.93E+02	0/5	1.15E+04	0/5
Zinc	3/3	1.17E+00	1.60E+00	mg/kg	1.48E+02	0/3	5.11E+05	0/3	2.35E+04	0/3	7.01E+05	0/3
Bis(2-ethylhexyl)phthalate	1/2	3.60E-02	3.60E-02	mg/kg	--	--	4.99E+04	0/1	3.88E+02	0/1	4.67E+03	0/1
1,1,1-Trichloroethane	3/5	1.00E-02	1.00E-02	mg/kg	--	--	6.40E+02	0/3	6.40E+02	0/3	6.40E+02	0/3
1,1-Dichloroethane	3/5	1.00E-02	1.00E-02	mg/kg	--	--	1.69E+03	0/3	4.81E+01	0/3	2.15E+02	0/3
1,1-Dichloroethene	3/5	1.00E-02	1.00E-02	mg/kg	--	--	1.19E+03	0/3	3.04E+02	0/3	1.19E+03	0/3
Chloroform	3/5	1.00E-02	1.00E-02	mg/kg	--	--	6.54E+02	0/3	4.31E+00	0/3	1.90E+01	0/3
Methylene chloride	3/5	1.00E-02	1.00E-02	mg/kg	--	--	3.32E+03	0/3	3.75E+02	0/3	3.32E+03	0/3
Tetrachloroethene	3/5	1.00E-02	1.00E-02	mg/kg	--	--	1.66E+02	0/3	1.04E+02	0/3	1.66E+02	0/3
Toluene	4/5	1.00E-02	2.20E-02	mg/kg	--	--	8.18E+02	0/4	8.18E+02	0/4	8.18E+02	0/4
trans-1,2-Dichloroethene	3/3	1.00E-02	1.00E-02	mg/kg	--	--	8.31E+02	0/3	1.36E+02	0/3	6.19E+02	0/3
Trichloroethene	3/5	1.00E-02	1.00E-02	mg/kg	--	--	3.38E+01	0/3	5.44E+00	0/3	2.59E+01	0/3
Vinyl chloride	3/5	1.00E-02	1.00E-02	mg/kg	--	--	6.61E+02	0/3	6.58E-01	0/3	2.60E+01	0/3
Technetium-99	4/4	1.00E-02	3.00E-01	pCi/g	--	--	1.87E+05	0/4	1.14E+03	0/4	1.70E+04	0/4
Section C - Subsurface Soil (1-16 ft bgs)												
Fluoride	1/20	1.10E+01	1.10E+01	mg/kg	--	--	5.91E+04	0/1	3.13E+03	0/1	9.33E+04	0/1
Aluminum	20/20	6.70E+03	2.90E+04	mg/kg	2.07E+04	**2/20**	1.56E+05	0/20	7.73E+04	0/20	2.15E+06	0/20
Arsenic	20/20	2.70E+00	1.90E+01	mg/kg	2.90E+01	0/20	2.15E+02	0/20	6.77E+00	**15/20**	7.25E+01	0/20
Barium	20/20	3.40E+01	2.00E+02	mg/kg	1.36E+02	**1/20**	1.64E+04	0/20	1.53E+04	0/20	3.99E+05	0/20
Beryllium	11/20	6.00E-01	1.70E+00	mg/kg	1.60E+00	**1/11**	5.72E+02	0/11	1.55E+02	0/11	4.48E+03	0/11

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Cadmium	10/20	5.70E-01	1.30E+00	mg/kg	2.82E-01	**10/10**	5.38E+01	0/10	7.10E+01	0/10	2.24E+03	0/10
Chromium	20/20	5.40E+00	2.20E+01	mg/kg	2.94E+01	0/20	--	--	--	--	--	--
Cobalt	20/20	4.70E+00	2.80E+01	mg/kg	3.74E+01	0/20	2.04E+02	0/20	2.34E+01	**1/20**	6.86E+02	0/20
Copper	20/20	7.40E+00	2.00E+01	mg/kg	2.62E+01	0/20	1.70E+04	0/20	3.13E+03	0/20	9.34E+04	0/20
Iron	20/20	1.70E+04	4.80E+04	mg/kg	6.28E+04	0/20	1.19E+06	0/20	5.48E+04	0/20	1.64E+06	0/20
Lead	20/20	8.00E+00	2.60E+01	mg/kg	2.26E+01	**4/20**	8.00E+02	0/20	4.00E+02	0/20	8.00E+02	0/20
Manganese	20/20	7.70E+01	6.60E+02	mg/kg	1.49E+03	0/20	1.65E+03	0/20	1.82E+03	0/20	4.65E+04	0/20
Mercury	4/20	1.20E-02	4.20E-02	mg/kg	5.20E-02	0/4	4.87E+02	0/4	2.35E+01	0/4	7.00E+02	0/4
Nickel	20/20	8.20E+00	4.50E+01	mg/kg	5.03E+01	0/20	2.84E+03	0/20	1.54E+03	0/20	4.26E+04	0/20
Silver	18/20	4.30E+00	1.20E+01	mg/kg	7.48E+00	**5/18**	8.52E+03	0/18	3.91E+02	0/18	1.17E+04	0/18
Total Uranium	21/21	2.70E+00	5.30E+00	mg/kg	4.73E+00	**1/21**	2.73E+02	0/21	2.34E+02	0/21	6.79E+03	0/21
Vanadium	20/20	2.60E+01	8.70E+01	mg/kg	5.80E+01	**2/20**	2.86E+03	0/20	3.93E+02	0/20	1.15E+04	0/20
Zinc	18/20	2.50E+01	1.20E+02	mg/kg	1.17E+02	**1/18**	5.11E+05	0/18	2.35E+04	0/18	7.01E+05	0/18
Benz(a)anthracene	1/20	1.30E-01	1.30E-01	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(a)pyrene	1/20	1.30E-01	1.30E-01	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(b)fluoranthene	1/20	1.50E-01	1.50E-01	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(k)fluoranthene	1/20	2.80E-02	2.80E-02	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Chrysene	1/20	2.00E-01	2.00E-01	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Indeno(1,2,3-cd)pyrene	1/20	7.50E-02	7.50E-02	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Total PAHc	1/20	5.66E-01	5.66E-01	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
2-Methylnaphthalene	1/20	1.70E-02	1.70E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Anthracene	1/20	5.00E-02	5.00E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Benzo(ghi)perylene	1/20	8.10E-02	8.10E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Fluoranthene	2/20	3.60E-02	4.60E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Fluorene	1/20	4.70E-02	4.70E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Phenanthrene	2/20	4.50E-02	3.80E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Pyrene	2/20	4.40E-02	3.80E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Total PAHnc	2/20	2.25E+00	3.06E+00	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Bis(2-ethylhexyl)phthalate	2/20	1.30E-02	7.40E-02	mg/kg	--	--	4.99E+04	0/2	3.88E+02	0/2	4.67E+03	0/2
Dibenzofuran	1/20	1.90E-02	1.90E-02	mg/kg	--	--	1.71E+02	0/1	7.82E+01	0/1	1.71E+02	0/1
2-Hexanone	1/21	6.50E-03	6.50E-03	mg/kg	--	--	2.31E+03	0/1	2.32E+02	0/1	1.99E+03	0/1
4-Methyl-2-pentanone	1/21	3.40E-03	3.40E-03	mg/kg	--	--	3.36E+03	0/1	3.36E+03	0/1	3.36E+03	0/1
Acetone	1/20	5.60E-03	5.60E-03	mg/kg	--	--	1.14E+05	0/1	6.30E+04	0/1	1.14E+05	0/1
Carbon disulfide	1/21	8.70E-04	8.70E-04	mg/kg	--	--	7.38E+02	0/1	7.38E+02	0/1	7.38E+02	0/1
Methylene chloride	1/21	4.90E-03	4.90E-03	mg/kg	--	--	3.32E+03	0/1	3.75E+02	0/1	3.32E+03	0/1
Toluene	2/21	8.50E-04	1.20E-03	mg/kg	--	--	8.18E+02	0/2	8.18E+02	0/2	8.18E+02	0/2
Technetium-99	4/20	2.00E-01	3.00E-01	pCi/g	--	--	1.87E+05	0/4	1.14E+03	0/4	1.70E+04	0/4

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section C - Subsurface Soil (16-30 ft bgs)												
Aluminum	2/2	4.70E+03	7.80E+03	mg/kg	1.27E+04	0/2	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	1.20E+01	1.50E+01	mg/kg	8.56E+01	0/2	2.15E+02	0/2	6.77E+00	**2/2**	7.25E+01	0/2
Barium	2/2	3.10E+01	4.70E+01	mg/kg	7.21E+01	0/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Beryllium	1/2	8.20E-01	8.20E-01	mg/kg	1.17E+00	0/1	5.72E+02	0/1	1.55E+02	0/1	4.48E+03	0/1
Cadmium	2/2	6.10E-01	7.10E-01	mg/kg	6.88E-01	**1/2**	5.38E+01	0/2	7.10E+01	0/2	2.24E+03	0/2
Chromium	2/2	1.10E+01	1.70E+01	mg/kg	2.46E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	1.10E+01	1.10E+01	mg/kg	1.86E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	1.10E+01	1.40E+01	mg/kg	2.31E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	2.30E+04	4.20E+04	mg/kg	5.64E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	1.10E+01	1.10E+01	mg/kg	1.27E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	1.20E+02	1.30E+02	mg/kg	4.65E+02	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Mercury	2/2	1.40E-02	1.40E-02	mg/kg	4.10E-02	0/2	4.87E+02	0/2	2.35E+01	0/2	7.00E+02	0/2
Nickel	2/2	2.50E+01	2.70E+01	mg/kg	5.27E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Total Uranium	2/2	3.00E+00	3.10E+00	mg/kg	7.19E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	2.50E+01	4.50E+01	mg/kg	6.51E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	6.80E+01	1.10E+02	mg/kg	1.48E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Carbon disulfide	2/2	5.00E-04	2.90E-03	mg/kg	--	--	7.38E+02	0/2	7.38E+02	0/2	7.38E+02	0/2
Methylene chloride	1/2	3.30E-03	3.30E-03	mg/kg	--	--	3.32E+03	0/1	3.75E+02	0/1	3.32E+03	0/1
Technetium-99	1/2	3.00E-01	3.00E-01	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Section D - Surface Soil (0-1 ft bgs)												
Aluminum	1/1	8.40E+03	8.40E+03	mg/kg	2.45E+04	0/1	1.56E+05	0/1	7.73E+04	0/1	2.15E+06	0/1
Arsenic	1/1	2.80E+01	2.80E+01	mg/kg	3.08E+01	0/1	2.15E+02	0/1	6.77E+00	**1/1**	7.25E+01	0/1
Barium	1/1	6.30E+01	6.30E+01	mg/kg	1.14E+02	0/1	1.64E+04	0/1	1.53E+04	0/1	3.99E+05	0/1
Beryllium	1/1	1.10E+00	1.10E+00	mg/kg	1.25E+00	0/1	5.72E+02	0/1	1.55E+02	0/1	4.48E+03	0/1
Cadmium	1/1	9.10E-01	9.10E-01	mg/kg	2.41E-01	**1/1**	5.38E+01	0/1	7.10E+01	0/1	2.24E+03	0/1
Chromium	1/1	2.10E+01	2.10E+01	mg/kg	3.24E+01	0/1	--	--	--	--	--	--
Cobalt	1/1	3.40E+01	3.40E+01	mg/kg	2.85E+01	**1/1**	2.04E+02	0/1	2.34E+01	**1/1**	6.86E+02	0/1
Copper	1/1	1.70E+01	1.70E+01	mg/kg	1.85E+01	0/1	1.70E+04	0/1	3.13E+03	0/1	9.34E+04	0/1
Iron	1/1	4.30E+04	4.30E+04	mg/kg	8.61E+04	0/1	1.19E+06	0/1	5.48E+04	0/1	1.64E+06	0/1
Lead	1/1	2.20E+01	2.20E+01	mg/kg	3.30E+01	0/1	8.00E+02	0/1	4.00E+02	0/1	8.00E+02	0/1
Manganese	1/1	1.20E+03	1.20E+03	mg/kg	1.86E+03	0/1	1.65E+03	0/1	1.82E+03	0/1	4.65E+04	0/1
Mercury	1/1	3.60E-02	3.60E-02	mg/kg	6.00E-02	0/1	4.87E+02	0/1	2.35E+01	0/1	7.00E+02	0/1
Nickel	1/1	2.70E+01	2.70E+01	mg/kg	2.26E+01	**1/1**	2.84E+03	0/1	1.54E+03	0/1	4.26E+04	0/1
Silver	1/1	9.90E+00	9.90E+00	mg/kg	1.10E+01	0/1	8.52E+03	0/1	3.91E+02	0/1	1.17E+04	0/1
Total Uranium	1/1	6.40E+00	6.40E+00	mg/kg	4.05E+00	**1/1**	2.73E+02	0/1	2.34E+02	0/1	6.79E+03	0/1
Vanadium	1/1	4.80E+01	4.80E+01	mg/kg	7.80E+01	0/1	2.86E+03	0/1	3.93E+02	0/1	1.15E+04	0/1
Zinc	1/1	1.30E+02	1.30E+02	mg/kg	9.31E+01	**1/1**	5.11E+05	0/1	2.35E+04	0/1	7.01E+05	0/1

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Anthracene	1/1	1.90E-02	1.90E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Fluoranthene	1/1	1.10E-01	1.10E-01	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Phenanthrene	1/1	7.50E-02	7.50E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Pyrene	1/1	1.10E-01	1.10E-01	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Total PAHnc	1/1	3.73E+00	3.73E+00	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Bis(2-ethylhexyl)phthalate	1/1	5.40E-02	5.40E-02	mg/kg	--	--	4.99E+04	0/1	3.88E+02	0/1	4.67E+03	0/1
Technetium-99	1/1	1.60E+00	1.60E+00	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Section E - Surface Soil (0-1 ft bgs)												
Aluminum	4/4	5.70E+03	1.70E+04	mg/kg	2.45E+04	0/4	1.56E+05	0/4	7.73E+04	0/4	2.15E+06	0/4
Arsenic	4/4	7.60E+00	1.90E+01	mg/kg	3.08E+01	0/4	2.15E+02	0/4	6.77E+00	**4/4**	7.25E+01	0/4
Barium	4/4	5.40E+01	9.60E+01	mg/kg	1.14E+02	0/4	1.64E+04	0/4	1.53E+04	0/4	3.99E+05	0/4
Beryllium	3/4	7.00E-01	1.20E+00	mg/kg	1.25E+00	0/3	5.72E+02	0/3	1.55E+02	0/3	4.48E+03	0/3
Cadmium	1/4	9.90E-01	9.90E-01	mg/kg	2.41E-01	**1/1**	5.38E+01	0/1	7.10E+01	0/1	2.24E+03	0/1
Chromium	4/4	1.00E+01	1.80E+01	mg/kg	3.24E+01	0/4	--	--	--	--	--	--
Cobalt	4/4	9.30E+00	1.50E+03	mg/kg	2.85E+01	**1/4**	2.04E+02	**1/4**	2.34E+01	**1/4**	6.86E+02	**1/4**
Copper	4/4	8.20E+00	1.70E+01	mg/kg	1.85E+01	0/4	1.70E+04	0/4	3.13E+03	0/4	9.34E+04	0/4
Iron	4/4	1.60E+04	2.60E+04	mg/kg	8.61E+04	0/4	1.19E+06	0/4	5.48E+04	0/4	1.64E+06	0/4
Lead	4/4	1.20E+01	1.80E+01	mg/kg	3.30E+01	0/4	8.00E+02	0/4	4.00E+02	0/4	8.00E+02	0/4
Manganese	4/4	4.70E+02	9.50E+02	mg/kg	1.86E+03	0/4	1.65E+03	0/4	1.82E+03	0/4	4.65E+04	0/4
Mercury	1/4	2.50E-02	2.50E-02	mg/kg	6.00E-02	0/1	4.87E+02	0/1	2.35E+01	0/1	7.00E+02	0/1
Nickel	4/4	1.10E+01	2.50E+01	mg/kg	2.26E+01	**1/4**	2.84E+03	0/4	1.54E+03	0/4	4.26E+04	0/4
Silver	1/4	6.60E+00	6.60E+00	mg/kg	1.10E+01	0/1	8.52E+03	0/1	3.91E+02	0/1	1.17E+04	0/1
Total Uranium	4/4	3.60E+00	5.80E+00	mg/kg	4.05E+00	**2/4**	2.73E+02	0/4	2.34E+02	0/4	6.79E+03	0/4
Vanadium	4/4	2.00E+01	4.60E+01	mg/kg	7.80E+01	0/4	2.86E+03	0/4	3.93E+02	0/4	1.15E+04	0/4
Zinc	4/4	3.70E+01	9.30E+01	mg/kg	9.31E+01	0/4	5.11E+05	0/4	2.35E+04	0/4	7.01E+05	0/4
Bis(2-ethylhexyl)phthalate	1/4	3.50E-02	3.50E-02	mg/kg	--	--	4.99E+04	0/1	3.88E+02	0/1	4.67E+03	0/1
Technetium-99	1/4	4.00E-01	4.00E-01	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Section E - Subsurface Soil (1-16 ft bgs)												
Aluminum	2/2	1.30E+04	2.10E+04	mg/kg	2.07E+04	**1/2**	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	5.50E+00	1.20E+01	mg/kg	2.90E+01	0/2	2.15E+02	0/2	6.77E+00	**1/2**	7.25E+01	0/2
Barium	2/2	6.10E+01	7.90E+01	mg/kg	1.36E+02	0/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Beryllium	2/2	6.00E-01	8.00E-01	mg/kg	1.60E+00	0/2	5.72E+02	0/2	1.55E+02	0/2	4.48E+03	0/2
Cadmium	2/2	8.80E-01	9.60E-01	mg/kg	2.82E-01	**2/2**	5.38E+01	0/2	7.10E+01	0/2	2.24E+03	0/2
Chromium	2/2	1.50E+01	2.30E+01	mg/kg	2.94E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	9.10E+00	1.00E+01	mg/kg	3.74E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	7.70E+00	1.80E+01	mg/kg	2.62E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	3.40E+04	4.30E+04	mg/kg	6.28E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	1.50E+01	1.60E+01	mg/kg	2.26E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Manganese	2/2	2.20E+02	9.50E+02	mg/kg	1.49E+03	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Mercury	2/2	1.20E-02	3.70E-02	mg/kg	5.20E-02	0/2	4.87E+02	0/2	2.35E+01	0/2	7.00E+02	0/2
Nickel	2/2	1.10E+01	1.50E+01	mg/kg	5.03E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Total Uranium	2/2	3.30E+00	3.40E+00	mg/kg	4.73E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	4.40E+01	4.40E+01	mg/kg	5.80E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	3.30E+01	5.00E+01	mg/kg	1.17E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Section G - Subsurface Soil (1-16 ft bgs)												
Chromium	1/1	1.10E+01	1.10E+01	mg/kg	2.94E+01	0/1	--	--	--	--	--	--
Zinc	1/1	4.70E+01	4.70E+01	mg/kg	1.17E+02	0/1	5.11E+05	0/1	2.35E+04	0/1	7.01E+05	0/1
Section H - Subsurface Soil (1-16 ft bgs)												
Aluminum	1/1	5.80E+03	5.80E+03	mg/kg	2.07E+04	0/1	1.56E+05	0/1	7.73E+04	0/1	2.15E+06	0/1
Arsenic	1/1	4.40E+01	4.40E+01	mg/kg	2.90E+01	**1/1**	2.15E+02	0/1	6.77E+00	**1/1**	7.25E+01	0/1
Barium	1/1	4.00E+01	4.00E+01	mg/kg	1.36E+02	0/1	1.64E+04	0/1	1.53E+04	0/1	3.99E+05	0/1
Beryllium	1/1	8.70E-01	8.70E-01	mg/kg	1.60E+00	0/1	5.72E+02	0/1	1.55E+02	0/1	4.48E+03	0/1
Cadmium	1/1	1.20E+00	1.20E+00	mg/kg	2.82E-01	**1/1**	5.38E+01	0/1	7.10E+01	0/1	2.24E+03	0/1
Cobalt	1/1	1.30E+00	1.30E+00	mg/kg	3.74E+01	0/1	2.04E+02	0/1	2.34E+01	0/1	6.86E+02	0/1
Copper	1/1	2.00E+01	2.00E+01	mg/kg	2.62E+01	0/1	1.70E+04	0/1	3.13E+03	0/1	9.34E+04	0/1
Iron	1/1	5.00E+04	5.00E+04	mg/kg	6.28E+04	0/1	1.19E+06	0/1	5.48E+04	0/1	1.64E+06	0/1
Lead	1/1	8.30E+00	8.30E+00	mg/kg	2.26E+01	0/1	8.00E+02	0/1	4.00E+02	0/1	8.00E+02	0/1
Manganese	1/1	3.00E+01	3.00E+01	mg/kg	1.49E+03	0/1	1.65E+03	0/1	1.82E+03	0/1	4.65E+04	0/1
Mercury	1/1	6.90E-02	6.90E-02	mg/kg	5.20E-02	**1/1**	4.87E+02	0/1	2.35E+01	0/1	7.00E+02	0/1
Nickel	1/1	1.50E+01	1.50E+01	mg/kg	5.03E+01	0/1	2.84E+03	0/1	1.54E+03	0/1	4.26E+04	0/1
Selenium	1/1	1.70E+00	1.70E+00	mg/kg	6.39E-01	**1/1**	8.41E+03	0/1	3.91E+02	0/1	1.17E+04	0/1
Silver	1/1	1.20E+01	1.20E+01	mg/kg	7.48E+00	**1/1**	8.52E+03	0/1	3.91E+02	0/1	1.17E+04	0/1
Total Uranium	2/2	6.20E+00	1.15E+01	mg/kg	4.73E+00	**2/2**	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	1/1	1.30E+02	1.30E+02	mg/kg	5.80E+01	**1/1**	2.86E+03	0/1	3.93E+02	0/1	1.15E+04	0/1
Zinc	1/1	5.20E+01	5.20E+01	mg/kg	1.17E+02	0/1	5.11E+05	0/1	2.35E+04	0/1	7.01E+05	0/1
Section I - Subsurface Soil (1-16 ft bgs)												
Fluoride	2/3	6.70E+00	6.80E+00	mg/kg	--	--	5.91E+04	0/2	3.13E+03	0/2	9.33E+04	0/2
Aluminum	5/5	8.40E+03	1.10E+04	mg/kg	2.07E+04	0/5	1.56E+05	0/5	7.73E+04	0/5	2.15E+06	0/5
Antimony	1/3	5.90E+01	5.90E+01	mg/kg	1.83E+00	**1/1**	6.20E+02	0/1	3.13E+01	**1/1**	9.34E+02	0/1
Arsenic	4/5	3.60E+00	4.10E+01	mg/kg	2.90E+01	**1/4**	2.15E+02	0/4	6.77E+00	**3/4**	7.25E+01	0/4
Barium	5/5	5.50E+01	6.80E+01	mg/kg	1.36E+02	0/5	1.64E+04	0/5	1.53E+04	0/5	3.99E+05	0/5
Beryllium	2/5	6.50E-01	7.80E-01	mg/kg	1.60E+00	0/2	5.72E+02	0/2	1.55E+02	0/2	4.48E+03	0/2
Cadmium	1/5	6.30E-01	6.30E-01	mg/kg	2.82E-01	**1/1**	5.38E+01	0/1	7.10E+01	0/1	2.24E+03	0/1
Chromium	5/5	6.80E+00	1.60E+01	mg/kg	2.94E+01	0/5	--	--	--	--	--	--
Cobalt	5/5	3.80E+00	1.30E+01	mg/kg	3.74E+01	0/5	2.04E+02	0/5	2.34E+01	0/5	6.86E+02	0/5
Copper	4/5	1.10E+01	1.60E+01	mg/kg	2.62E+01	0/4	1.70E+04	0/4	3.13E+03	0/4	9.34E+04	0/4

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Iron	5/5	1.10E+04	3.20E+04	mg/kg	6.28E+04	0/5	1.19E+06	0/5	5.48E+04	0/5	1.64E+06	0/5
Lead	5/5	1.00E+01	1.50E+01	mg/kg	2.26E+01	0/5	8.00E+02	0/5	4.00E+02	0/5	8.00E+02	0/5
Manganese	5/5	2.40E+01	1.80E+02	mg/kg	1.49E+03	0/5	1.65E+03	0/5	1.82E+03	0/5	4.65E+04	0/5
Mercury	1/5	3.10E-02	3.10E-02	mg/kg	5.20E-02	0/1	4.87E+02	0/1	2.35E+01	0/1	7.00E+02	0/1
Nickel	4/5	1.10E+01	2.20E+01	mg/kg	5.03E+01	0/4	2.84E+03	0/4	1.54E+03	0/4	4.26E+04	0/4
Silver	2/5	3.60E+00	6.40E+00	mg/kg	7.48E+00	0/2	8.52E+03	0/2	3.91E+02	0/2	1.17E+04	0/2
Total Uranium	5/5	3.10E+00	4.20E+00	mg/kg	4.73E+00	0/5	2.73E+02	0/5	2.34E+02	0/5	6.79E+03	0/5
Vanadium	5/5	2.30E+01	3.80E+01	mg/kg	5.80E+01	0/5	2.86E+03	0/5	3.93E+02	0/5	1.15E+04	0/5
Zinc	3/5	3.30E+01	5.10E+01	mg/kg	1.17E+02	0/3	5.11E+05	0/3	2.35E+04	0/3	7.01E+05	0/3
Bis(2-ethylhexyl)phthalate	1/5	4.10E+00	4.10E+00	mg/kg	--	--	4.99E+04	0/1	3.88E+02	0/1	4.67E+03	0/1
1,1,1-Trichloroethane	1/11	3.60E-03	3.60E-03	mg/kg	--	--	6.40E+02	0/1	6.40E+02	0/1	6.40E+02	0/1
2-Butanone	1/8	2.10E-02	2.10E-02	mg/kg	--	--	2.84E+04	0/1	2.84E+04	0/1	2.84E+04	0/1
Acetone	1/11	3.60E-02	3.60E-02	mg/kg	--	--	1.14E+05	0/1	6.30E+04	0/1	1.14E+05	0/1
Methylene chloride	1/11	2.80E-02	2.80E-02	mg/kg	--	--	3.32E+03	0/1	3.75E+02	0/1	3.32E+03	0/1
Section I - Subsurface Soil (16-30 ft bgs)												
Aluminum	2/2	7.30E+03	3.40E+04	mg/kg	1.27E+04	**1/2**	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	1.80E+01	2.00E+01	mg/kg	8.56E+01	0/2	2.15E+02	0/2	6.77E+00	**2/2**	7.25E+01	0/2
Barium	2/2	4.80E+01	1.90E+02	mg/kg	7.21E+01	**1/2**	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Beryllium	2/2	6.30E-01	1.10E+00	mg/kg	1.17E+00	0/2	5.72E+02	0/2	1.55E+02	0/2	4.48E+03	0/2
Chromium	2/2	7.40E+00	2.00E+01	mg/kg	2.46E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	5.10E+00	5.40E+00	mg/kg	1.86E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	6.30E+00	1.80E+01	mg/kg	2.31E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	1.50E+04	2.10E+04	mg/kg	5.64E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	7.70E+00	1.30E+01	mg/kg	1.27E+01	**1/2**	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	8.50E+01	3.10E+02	mg/kg	4.65E+02	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Nickel	2/2	1.60E+01	3.00E+01	mg/kg	5.27E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Silver	2/2	4.20E+00	5.10E+00	mg/kg	3.66E+00	**2/2**	8.52E+03	0/2	3.91E+02	0/2	1.17E+04	0/2
Total Uranium	2/2	3.00E+00	3.40E+00	mg/kg	7.19E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	2.50E+01	4.70E+01	mg/kg	6.51E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	5.60E+01	8.80E+01	mg/kg	1.48E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
1,1,1-Trichloroethane	1/2	8.20E-04	8.20E-04	mg/kg	--	--	6.40E+02	0/1	6.40E+02	0/1	6.40E+02	0/1
Acetone	2/2	1.20E-02	3.50E-02	mg/kg	--	--	1.14E+05	0/2	6.30E+04	0/2	1.14E+05	0/2
Section J - Subsurface Soil (1-16 ft bgs)												
Aluminum	2/2	1.30E+04	2.20E+04	mg/kg	2.07E+04	**1/2**	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	9.30E+00	1.60E+01	mg/kg	2.90E+01	0/2	2.15E+02	0/2	6.77E+00	**2/2**	7.25E+01	0/2
Barium	2/2	7.30E+01	7.60E+01	mg/kg	1.36E+02	0/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Beryllium	2/2	6.50E-01	7.70E-01	mg/kg	1.60E+00	0/2	5.72E+02	0/2	1.55E+02	0/2	4.48E+03	0/2
Cadmium	2/2	7.80E-01	8.40E-01	mg/kg	2.82E-01	**2/2**	5.38E+01	0/2	7.10E+01	0/2	2.24E+03	0/2

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Chromium	2/2	1.30E+01	1.50E+01	mg/kg	2.94E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	1.70E+01	1.70E+01	mg/kg	3.74E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	1.40E+01	2.20E+01	mg/kg	2.62E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	3.00E+04	3.30E+04	mg/kg	6.28E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	1.70E+01	1.80E+01	mg/kg	2.26E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	5.50E+02	4.50E+03	mg/kg	1.49E+03	1/2	1.65E+03	1/2	1.82E+03	1/2	4.65E+04	0/2
Mercury	2/2	1.60E-02	4.50E-02	mg/kg	5.20E-02	0/2	4.87E+02	0/2	2.35E+01	0/2	7.00E+02	0/2
Nickel	2/2	1.90E+01	2.00E+01	mg/kg	5.03E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Total Uranium	2/2	3.40E+00	4.10E+00	mg/kg	4.73E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	4.30E+01	4.70E+01	mg/kg	5.80E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	6.60E+01	6.70E+01	mg/kg	1.17E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Carbon disulfide	1/2	2.70E-03	2.70E-03	mg/kg	--	--	7.38E+02	0/1	7.38E+02	0/1	7.38E+02	0/1
Technetium-99	1/2	4.00E-01	4.00E-01	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Section J - Subsurface Soil (16-30 ft bgs)												
Aluminum	2/2	3.70E+03	6.00E+03	mg/kg	1.27E+04	0/2	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	1/2	2.40E+00	2.40E+00	mg/kg	8.56E+01	0/1	2.15E+02	0/1	6.77E+00	0/1	7.25E+01	0/1
Barium	2/2	3.10E+01	4.90E+01	mg/kg	7.21E+01	0/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Chromium	2/2	5.90E+00	8.50E+00	mg/kg	2.46E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	2.60E+00	5.70E+00	mg/kg	1.86E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	5.70E+00	5.70E+00	mg/kg	2.31E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	4.30E+03	6.30E+03	mg/kg	5.64E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	5.00E+00	6.20E+00	mg/kg	1.27E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	2.40E+01	5.00E+01	mg/kg	4.65E+02	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Mercury	2/2	1.20E-02	1.40E-02	mg/kg	4.10E-02	0/2	4.87E+02	0/2	2.35E+01	0/2	7.00E+02	0/2
Nickel	2/2	1.10E+01	1.20E+01	mg/kg	5.27E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Total Uranium	2/2	2.70E+00	3.60E+00	mg/kg	7.19E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	1.40E+01	1.70E+01	mg/kg	6.51E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	2.80E+01	5.30E+01	mg/kg	1.48E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Carbon disulfide	1/2	2.10E-03	2.10E-03	mg/kg	--	--	7.38E+02	0/1	7.38E+02	0/1	7.38E+02	0/1
Technetium-99	1/2	6.00E-01	6.00E-01	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Section K - Subsurface Soil (1-16 ft bgs)												
Aluminum	2/2	8.40E+03	1.10E+04	mg/kg	2.07E+04	0/2	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	6.90E+00	1.10E+01	mg/kg	2.90E+01	0/2	2.15E+02	0/2	6.77E+00	2/2	7.25E+01	0/2
Barium	2/2	6.10E+01	6.80E+01	mg/kg	1.36E+02	0/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Chromium	2/2	9.40E+00	1.00E+01	mg/kg	2.94E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	3.90E+00	8.00E+00	mg/kg	3.74E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	6.90E+00	1.20E+01	mg/kg	2.62E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	2.10E+04	2.40E+04	mg/kg	6.28E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2

Table B.1. Historical Soil Data Summary for Parcel 4 (Pre-2006) (Continued)

Units	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Lead	2/2	9.00E+00	1.20E+01	mg/kg	2.26E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	3.00E+01	1.60E+02	mg/kg	1.49E+03	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Nickel	2/2	6.50E+00	1.20E+01	mg/kg	5.03E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Silver	1/2	5.80E+00	5.80E+00	mg/kg	7.48E+00	0/1	8.52E+03	0/1	3.91E+02	0/1	1.17E+04	0/1
Total Uranium	2/2	2.80E+00	3.70E+00	mg/kg	4.73E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	2.80E+01	3.30E+01	mg/kg	5.80E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	1.90E+01	3.90E+01	mg/kg	1.17E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Acetone	2/2	7.40E-02	1.20E-01	mg/kg	--	--	1.14E+05	0/2	6.30E+04	0/2	1.14E+05	0/2

Notes:
Background levels and risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No background value or SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

bgs = below ground surface
DOE = U.S. Department of Energy
PAHC = carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,4-cd)pyrene]
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons [2-methlynaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene]
SL = screening level

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Table B.2. Historical Soil Data Summary for Parcel 4 (Post-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section A - Surface Soil (0-1 ft bgs)												
Total Uranium	1/1	2.43E+00	2.43E+00	mg/kg	4.05E+00	0/1	2.73E+02	0/1	2.34E+02	0/1	6.79E+03	0/1
Technetium-99	1/1	-1.40E-01	-1.40E-01	pCi/g	--	--	1.87E+05	0/1	1.14E+03	0/1	1.70E+04	0/1
Uranium-233/234	1/1	8.19E-01	8.19E-01	pCi/g	1.30E+00	0/1	5.60E+02	0/1	5.83E+01	0/1	5.69E+02	0/1
Uranium-235	1/1	4.14E-02	4.14E-02	pCi/g	--	--	1.26E+02	0/1	1.94E+00	0/1	7.51E+00	0/1
Uranium-238	1/1	8.10E-01	8.10E-01	pCi/g	1.36E+00	0/1	3.55E+02	0/1	8.13E+00	0/1	3.52E+01	0/1
Section A - Subsurface Soil (1-16 ft bgs)												
Aluminum	3/3	1.10E+04	1.50E+04	mg/kg	2.07E+04	0/3	1.56E+05	0/3	7.73E+04	0/3	2.15E+06	0/3
Arsenic	3/3	6.60E+00	9.80E+00	mg/kg	2.90E+01	0/3	2.15E+02	0/3	6.77E+00	**1/3**	7.25E+01	0/3
Barium	3/3	5.30E+01	9.30E+01	mg/kg	1.36E+02	0/3	1.64E+04	0/3	1.53E+04	0/3	3.99E+05	0/3
Beryllium	3/3	4.00E-01	9.90E-01	mg/kg	1.60E+00	0/3	5.72E+02	0/3	1.55E+02	0/3	4.48E+03	0/3
Cadmium	3/3	3.70E-02	1.60E-01	mg/kg	2.82E-01	0/3	5.38E+01	0/3	7.10E+01	0/3	2.24E+03	0/3
Chromium	3/3	1.20E+01	2.10E+01	mg/kg	2.94E+01	0/3	--	--	--	--	--	--
Cobalt	3/3	7.60E+00	1.30E+01	mg/kg	3.74E+01	0/3	2.04E+02	0/3	2.34E+01	0/3	6.86E+02	0/3
Copper	3/3	8.70E+00	1.90E+01	mg/kg	2.62E+01	0/3	1.70E+04	0/3	3.13E+03	0/3	9.34E+04	0/3
Iron	3/3	2.10E+04	2.40E+04	mg/kg	6.28E+04	0/3	1.19E+06	0/3	5.48E+04	0/3	1.64E+06	0/3
Lead	3/3	1.10E+01	1.20E+01	mg/kg	2.26E+01	0/3	8.00E+02	0/3	4.00E+02	0/3	8.00E+02	0/3
Manganese	3/3	2.50E+02	7.60E+02	mg/kg	1.49E+03	0/3	1.65E+03	0/3	1.82E+03	0/3	4.65E+04	0/3
Mercury	3/3	2.20E-02	2.40E-02	mg/kg	5.20E-02	0/3	4.87E+02	0/3	2.35E+01	0/3	7.00E+02	0/3
Nickel	3/3	8.00E+00	2.90E+01	mg/kg	5.03E+01	0/3	2.84E+03	0/3	1.54E+03	0/3	4.26E+04	0/3
Selenium	3/3	1.90E-01	4.10E-01	mg/kg	6.39E-01	0/3	8.41E+03	0/3	3.91E+02	0/3	1.17E+04	0/3
Thallium	3/3	1.90E-01	2.90E-01	mg/kg	3.59E-01	0/3	1.70E+01	0/3	7.82E-01	0/3	2.34E+01	0/3
Total Uranium	4/4	8.70E-01	2.45E+00	mg/kg	4.73E+00	0/4	2.73E+02	0/4	2.34E+02	0/4	6.79E+03	0/4
Vanadium	3/3	2.30E+01	2.80E+01	mg/kg	5.80E+01	0/3	2.86E+03	0/3	3.93E+02	0/3	1.15E+04	0/3
Zinc	3/3	2.70E+01	5.40E+01	mg/kg	1.17E+02	0/3	5.11E+05	0/3	2.35E+04	0/3	7.01E+05	0/3
2-Butanone	1/3	2.90E-02	2.90E-02	mg/kg	--	--	2.84E+04	0/1	2.84E+04	0/1	2.84E+04	0/1
Acetone	1/3	1.50E-01	1.50E-01	mg/kg	--	--	1.14E+05	0/1	6.30E+04	0/1	1.14E+05	0/1
Benzene	1/3	4.90E-04	4.90E-04	mg/kg	--	--	7.53E+02	0/1	1.53E+01	0/1	7.17E+01	0/1
M + P Xylene	2/3	1.00E-03	1.40E-03	mg/kg	--	--	2.60E+02	0/2	2.60E+02	0/2	2.60E+02	0/2
Thorium-228	3/3	8.58E-01	1.42E+00	pCi/g	1.88E+00	0/3	--	--	--	--	--	--
Thorium-230	3/3	1.17E+00	1.62E+00	pCi/g	1.74E+00	0/3	--	--	--	--	--	--
Thorium-232	3/3	8.09E-01	1.27E+00	pCi/g	1.91E+00	0/3	--	--	--	--	--	--
Uranium-233/234	4/4	7.03E-01	1.00E+00	pCi/g	1.57E+00	0/4	5.60E+02	0/4	5.83E+01	0/4	5.69E+02	0/4
Uranium-235	2/4	4.57E-02	6.77E-02	pCi/g	--	--	1.26E+02	0/2	1.94E+00	0/2	7.51E+00	0/2
Uranium-238	4/4	8.17E-01	9.79E-01	pCi/g	1.59E+00	0/4	3.55E+02	0/4	8.13E+00	0/4	3.52E+01	0/4

Table B.2. Historical Soil Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section A - Subsurface Soil (16-30 ft bgs)												
Aluminum	2/2	7.70E+03	1.50E+04	mg/kg	1.27E+04	1/2	1.56E+05	0/2	7.73E+04	0/2	2.15E+06	0/2
Arsenic	2/2	5.60E+00	6.00E+00	mg/kg	8.56E+01	0/2	2.15E+02	0/2	6.77E+00	0/2	7.25E+01	0/2
Barium	2/2	4.60E+01	8.10E+01	mg/kg	7.21E+01	1/2	1.64E+04	0/2	1.53E+04	0/2	3.99E+05	0/2
Beryllium	2/2	4.50E-01	8.50E-01	mg/kg	1.17E+00	0/2	5.72E+02	0/2	1.55E+02	0/2	4.48E+03	0/2
Cadmium	2/2	7.90E-02	1.10E-01	mg/kg	6.88E-01	0/2	5.38E+01	0/2	7.10E+01	0/2	2.24E+03	0/2
Chromium	2/2	1.00E+01	2.00E+01	mg/kg	2.46E+01	0/2	--	--	--	--	--	--
Cobalt	2/2	6.50E+00	1.10E+01	mg/kg	1.86E+01	0/2	2.04E+02	0/2	2.34E+01	0/2	6.86E+02	0/2
Copper	2/2	8.70E+00	1.80E+01	mg/kg	2.31E+01	0/2	1.70E+04	0/2	3.13E+03	0/2	9.34E+04	0/2
Iron	2/2	1.30E+04	2.20E+04	mg/kg	5.64E+04	0/2	1.19E+06	0/2	5.48E+04	0/2	1.64E+06	0/2
Lead	2/2	7.70E+00	9.30E+00	mg/kg	1.27E+01	0/2	8.00E+02	0/2	4.00E+02	0/2	8.00E+02	0/2
Manganese	2/2	1.50E+02	1.70E+02	mg/kg	4.65E+02	0/2	1.65E+03	0/2	1.82E+03	0/2	4.65E+04	0/2
Mercury	2/2	2.00E-02	4.40E-02	mg/kg	4.10E-02	1/2	4.87E+02	0/2	2.35E+01	0/2	7.00E+02	0/2
Nickel	2/2	9.90E+00	2.60E+01	mg/kg	5.27E+01	0/2	2.84E+03	0/2	1.54E+03	0/2	4.26E+04	0/2
Thallium	2/2	2.10E-01	2.20E-01	mg/kg	8.21E-01	0/2	1.70E+01	0/2	7.82E-01	0/2	2.34E+01	0/2
Total Uranium	2/2	6.70E-01	7.90E-01	mg/kg	7.19E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Vanadium	2/2	2.50E+01	2.70E+01	mg/kg	6.51E+01	0/2	2.86E+03	0/2	3.93E+02	0/2	1.15E+04	0/2
Zinc	2/2	3.60E+01	5.10E+01	mg/kg	1.48E+02	0/2	5.11E+05	0/2	2.35E+04	0/2	7.01E+05	0/2
Thorium-228	2/2	1.09E+00	1.33E+00	pCi/g	1.56E+00	0/2	--	--	--	--	--	--
Thorium-230	2/2	1.19E+00	1.31E+00	pCi/g	2.42E+00	0/2	--	--	--	--	--	--
Thorium-232	2/2	1.07E+00	1.25E+00	pCi/g	1.63E+00	0/2	--	--	--	--	--	--
Uranium-233/234	2/2	8.11E-01	9.06E-01	pCi/g	2.36E+00	0/2	5.60E+02	0/2	5.83E+01	0/2	5.69E+02	0/2
Uranium-235	2/2	4.29E-02	5.53E-02	pCi/g	--	--	1.26E+02	0/2	1.94E+00	0/2	7.51E+00	0/2
Uranium-238	2/2	8.10E-01	8.31E-01	pCi/g	2.41E+00	0/2	3.55E+02	0/2	8.13E+00	0/2	3.52E+01	0/2
Section D - Surface Soil (0-1 ft bgs)												
Total Uranium	1/1	3.86E+00	3.86E+00	mg/kg	4.05E+00	0/1	2.73E+02	0/1	2.34E+02	0/1	6.79E+03	0/1
Benz(a)anthracene	1/1	1.45E-03	1.45E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(a)pyrene	1/1	1.28E-03	1.28E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(b)fluoranthene	1/1	2.33E-03	2.33E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Chrysene	1/1	1.14E-03	1.14E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Total PAHc	1/1	5.21E-03	5.21E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(ghi)perylene	1/1	1.09E-03	1.09E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Fluoranthene	1/1	2.29E-03	2.29E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Phenanthrene	1/1	1.26E-03	1.26E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Pyrene	1/1	2.10E-03	2.10E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Total PAHnc	1/1	2.27E-02	2.27E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Uranium-233/234	1/1	1.02E+00	1.02E+00	pCi/g	1.30E+00	0/1	5.60E+02	0/1	5.83E+01	0/1	5.69E+02	0/1
Uranium-238	1/1	1.29E+00	1.29E+00	pCi/g	1.36E+00	0/1	3.55E+02	0/1	8.13E+00	0/1	3.52E+01	0/1

Table B.2. Historical Soil Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section E - Surface Soil (0-1 ft bgs)												
Arsenic	5/5	6.83E+00	1.21E+01	mg/kg	3.08E+01	0/5	2.15E+02	0/5	6.77E+00	**5/5**	7.25E+01	0/5
Barium	5/5	3.56E+02	4.64E+02	mg/kg	1.14E+02	**5/5**	1.64E+04	0/5	1.53E+04	0/5	3.99E+05	0/5
Cadmium	5/5	1.38E-01	2.30E-01	mg/kg	2.41E-01	0/5	5.38E+01	0/5	7.10E+01	0/5	2.24E+03	0/5
Chromium	5/5	2.22E+01	2.44E+01	mg/kg	3.24E+01	0/5	--	--	--	--	--	--
Lead	5/5	2.15E+01	2.99E+01	mg/kg	3.30E+01	0/5	8.00E+02	0/5	4.00E+02	0/5	8.00E+02	0/5
Mercury	5/5	4.50E-02	7.05E-02	mg/kg	6.00E-02	**1/5**	4.87E+02	0/5	2.35E+01	0/5	7.00E+02	0/5
Selenium	5/5	7.55E-01	1.51E+00	mg/kg	1.79E+00	0/5	8.41E+03	0/5	3.91E+02	0/5	1.17E+04	0/5
Silver	5/5	1.08E-01	2.30E-01	mg/kg	1.10E+01	0/5	8.52E+03	0/5	3.91E+02	0/5	1.17E+04	0/5
Total Uranium	10/10	1.91E+00	3.43E+00	mg/kg	4.05E+00	0/10	2.73E+02	0/10	2.34E+02	0/10	6.79E+03	0/10
Benz(a)anthracene	4/5	3.38E-03	5.53E-03	mg/kg	--	--	6.11E+02	0/4	1.13E+00	0/4	6.54E+01	0/4
Benzo(a)pyrene	4/5	3.44E-03	6.13E-03	mg/kg	--	--	6.11E+02	0/4	1.13E+00	0/4	6.54E+01	0/4
Benzo(b)fluoranthene	5/5	8.14E-03	1.30E-02	mg/kg	--	--	6.11E+02	0/5	1.13E+00	0/5	6.54E+01	0/5
Benzo(k)fluoranthene	5/5	2.38E-03	5.44E-03	mg/kg	--	--	6.11E+02	0/5	1.13E+00	0/5	6.54E+01	0/5
Chrysene	5/5	4.85E-03	8.20E-03	mg/kg	--	--	6.11E+02	0/5	1.13E+00	0/5	6.54E+01	0/5
Indeno(1,2,3-cd)pyrene	5/5	4.39E-03	7.10E-03	mg/kg	--	--	6.11E+02	0/5	1.13E+00	0/5	6.54E+01	0/5
Total PAHc	5/5	8.43E-03	1.21E-02	mg/kg	--	--	6.11E+02	0/5	1.13E+00	0/5	6.54E+01	0/5
2-Methylnaphthalene	5/5	2.84E-03	5.80E-03	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Acenaphthene	4/5	3.15E-03	4.20E-03	mg/kg	--	--	3.68E+03	0/4	2.39E+02	0/4	3.68E+02	0/4
Benzo(ghi)perylene	4/5	5.02E-03	8.36E-03	mg/kg	--	--	3.68E+03	0/4	2.39E+02	0/4	3.68E+02	0/4
Fluoranthene	5/5	7.36E-03	1.25E-02	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Naphthalene	5/5	1.55E-03	2.95E-03	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Phenanthrene	5/5	4.69E-03	6.99E-03	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Pyrene	5/5	6.21E-03	9.76E-03	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Total PAHnc	5/5	3.88E-02	5.36E-02	mg/kg	--	--	3.68E+03	0/5	2.39E+02	0/5	3.68E+02	0/5
Uranium-233/234	5/5	8.60E-01	1.11E+00	pCi/g	1.30E+00	0/5	5.60E+02	0/5	5.83E+01	0/5	5.69E+02	0/5
Uranium-235/236	2/5	5.22E-02	7.29E-02	pCi/g	9.87E-02	0/2	1.26E+02	0/2	1.94E+00	0/2	7.51E+00	0/2
Uranium-238	5/5	8.12E-01	1.14E+00	pCi/g	1.36E+00	0/5	3.55E+02	0/5	8.13E+00	0/5	3.52E+01	0/5
Section F - Surface Soil (0-1 ft bgs)												
Total Uranium	2/2	2.10E+00	7.30E+00	mg/kg	4.05E+00	**1/2**	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
PCB-1260	2/2	5.93E-02	2.69E-01	mg/kg	--	--	2.97E+02	0/2	1.17E+00	0/2	3.27E+01	0/2
Benz(a)anthracene	2/2	2.11E-02	7.85E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Benzo(a)pyrene	2/2	2.08E-02	7.99E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Benzo(b)fluoranthene	2/2	3.04E-02	1.22E-01	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Benzo(k)fluoranthene	2/2	1.06E-02	4.06E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Chrysene	2/2	2.47E-02	9.72E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Dibenz(a,h)anthracene	2/2	4.00E-03	2.25E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
Indeno(1,2,3-cd)pyrene	2/2	2.13E-02	8.10E-02	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2

Table B.2. Historical Soil Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Total PAHc	2/2	3.22E-02	1.25E-01	mg/kg	--	--	6.11E+02	0/2	1.13E+00	0/2	6.54E+01	0/2
2-Methylnaphthalene	2/2	1.23E-03	2.02E-03	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Acenaphthene	2/2	2.42E-03	5.14E-03	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Anthracene	2/2	4.36E-03	6.57E-02	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Benzo(ghi)perylene	2/2	1.60E-02	6.14E-02	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Fluoranthene	2/2	6.31E-02	2.23E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Fluorene	2/2	2.07E-03	4.64E-03	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Naphthalene	1/2	1.58E-03	1.58E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Phenanthrene	2/2	2.77E-02	6.73E-02	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Pyrene	2/2	3.98E-02	1.41E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Total PAHnc	2/2	1.58E-01	5.32E-01	mg/kg	--	--	3.68E+03	0/2	2.39E+02	0/2	3.68E+02	0/2
Uranium-233/234	2/2	4.72E+00	3.58E+01	pCi/g	1.30E+00	2/2	5.60E+02	0/2	5.83E+01	0/2	5.69E+02	0/2
Uranium-235/236	2/2	2.36E-01	1.73E+00	pCi/g	9.87E-02	2/2	1.26E+02	0/2	1.94E+00	0/2	7.51E+00	0/2
Uranium-238	2/2	4.70E-01	1.56E+00	pCi/g	1.36E+00	1/2	3.55E+02	0/2	8.13E+00	0/2	3.52E+01	0/2
Section G - Surface Soil (0-1 ft bgs)												
Total Uranium	5/5	1.30E+00	4.25E+00	mg/kg	4.05E+00	1/5	2.73E+02	0/5	2.34E+02	0/5	6.79E+03	0/5
Benz(a)anthracene	1/1	2.26E-03	2.26E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(a)pyrene	1/1	1.82E-03	1.82E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(b)fluoranthene	1/1	2.27E-03	2.27E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Benzo(k)fluoranthene	1/1	2.03E-03	2.03E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Chrysene	1/1	1.80E-03	1.80E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Dibenz(a,h)anthracene	1/1	1.91E-03	1.91E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Indeno(1,2,3-cd)pyrene	1/1	2.05E-03	2.05E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
Total PAHc	1/1	4.41E-03	4.41E-03	mg/kg	--	--	6.11E+02	0/1	1.13E+00	0/1	6.54E+01	0/1
2-Methylnaphthalene	1/1	1.49E-03	1.49E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Acenaphthene	1/1	1.47E-03	1.47E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Anthracene	1/1	1.66E-03	1.66E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Benzo(ghi)perylene	1/1	2.14E-03	2.14E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Fluoranthene	1/1	2.09E-03	2.09E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Fluorene	1/1	1.67E-03	1.67E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Naphthalene	1/1	1.35E-03	1.35E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Phenanthrene	1/1	2.00E-03	2.00E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Pyrene	1/1	2.24E-03	2.24E-03	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Total PAHnc	1/1	1.61E-02	1.61E-02	mg/kg	--	--	3.68E+03	0/1	2.39E+02	0/1	3.68E+02	0/1
Uranium-233/234	5/5	3.93E-01	1.55E+00	pCi/g	1.30E+00	3/5	5.60E+02	0/5	5.83E+01	0/5	5.69E+02	0/5
Uranium-235/236	2/5	5.04E-02	6.91E-02	pCi/g	9.87E-02	0/2	1.26E+02	0/2	1.94E+00	0/2	7.51E+00	0/2
Uranium-238	5/5	2.94E-01	1.42E+00	pCi/g	1.36E+00	1/5	3.55E+02	0/5	8.13E+00	0/5	3.52E+01	0/5

Table B.2. Historical Soil Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background Value	Construction Worker SL	Frequency of Detects Exceeding Construction Worker SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	Industrial SL	Frequency of Detects Exceeding Industrial SLs
Section J - Surface Soil (0-1 ft bgs)												
Total Uranium	2/2	1.38E+00	1.55E+00	mg/kg	4.05E+00	0/2	2.73E+02	0/2	2.34E+02	0/2	6.79E+03	0/2
Section L - Surface Soil (0-1 ft bgs)												
Arsenic	20/20	5.06E+00	2.19E+01	mg/kg	3.08E+01	0/20	2.15E+02	0/20	6.77E+00	**16/20**	7.25E+01	0/20
Total Uranium	8/8	1.73E+00	2.94E+00	mg/kg	4.05E+00	0/8	2.73E+02	0/8	2.34E+02	0/8	6.79E+03	0/8
Section L - Subsurface Soil (1-16 ft bgs)												
Arsenic	9/9	6.98E+00	1.70E+01	mg/kg	2.90E+01	0/9	2.15E+02	0/9	6.77E+00	**9/9**	7.25E+01	0/9

Notes:
Background levels and risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No background value or SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

bgs = below ground surface
DOE = U.S. Department of Energy
PAHC = carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,4-cd)pyrene]
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons [2-methlynaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene]
PCB = polychlorinated biphenyl
SL = screening level

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Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Section A												
Arsenic	1/4	6.50E+01	6.50E+01	ug/L	1.00E+01	**1/1**	1.72E+00	**1/1**	5.17E-01	**1/1**	--	--
Barium	12/12	1.32E-04	2.72E+02	ug/L	2.00E+03	0/12	1.60E+05	0/12	3.77E+03	0/12	--	--
Chromium	13/15	3.90E-05	2.10E+02	ug/L	1.00E+02	**1/13**	--	--	--	--	--	--
Cobalt	2/4	1.70E+00	5.80E+01	ug/L	--	--	2.79E+03	0/2	6.01E+00	**1/2**	--	--
Copper	2/4	3.40E+00	1.00E+02	ug/L	--	--	9.23E+03	0/2	7.99E+02	0/2	--	--
Iron	9/11	8.35E-03	2.43E+04	ug/L	--	--	6.46E+05	0/9	1.40E+04	**1/9**	--	--
Lead	8/13	3.90E-05	6.60E+01	ug/L	1.50E+01	**2/8**	1.50E+01	**2/8**	1.50E+01	**2/8**	--	--
Manganese	8/8	1.54E-04	2.63E+02	ug/L	--	--	1.73E+04	0/8	4.33E+02	0/8	--	--
Nickel	2/4	4.90E+00	2.20E+02	ug/L	--	--	1.76E+04	0/2	3.92E+02	0/2	--	--
Total Uranium	10/14	1.00E-06	3.68E+01	ug/L	3.00E+01	**1/10**	1.85E+02	0/10	5.99E+01	0/10	--	--
Vanadium	3/5	4.90E+00	1.20E+02	ug/L	--	--	6.42E+03	0/3	8.64E+01	**1/3**	--	--
Zinc	3/5	9.70E+00	2.30E+02	ug/L	--	--	2.78E+05	0/3	6.00E+03	0/3	--	--
1,1,1-Trichloroethane	1/21	8.00E+00	8.00E+00	ug/L	2.00E+02	0/1	4.01E+05	0/1	8.01E+03	0/1	3.12E+04	0/1
Acetone	1/18	6.00E+00	6.00E+00	ug/L	--	--	1.10E+06	0/1	1.41E+04	0/1	9.49E+07	0/1
Carbon disulfide	3/19	5.80E-01	1.70E+01	ug/L	--	--	3.38E+04	0/3	8.11E+02	0/3	5.21E+03	0/3
Chloroform	1/21	3.00E+00	3.00E+00	ug/L	--	--	9.27E+00	0/1	2.21E+00	**1/1**	3.55E+01	0/1
cis-1,2-Dichloroethene	1/18	3.00E+00	3.00E+00	ug/L	7.00E+01	0/1	1.48E+04	0/1	3.61E+01	0/1	--	--
Methylene chloride	5/21	5.20E-01	2.00E+00	ug/L	5.00E+00	0/5	1.16E+03	0/5	1.07E+02	0/5	1.98E+04	0/5
Tetrachloroethene	1/21	8.10E-01	8.10E-01	ug/L	5.00E+00	0/1	3.51E+02	0/1	4.06E+01	0/1	2.42E+02	0/1
Toluene	1/21	1.00E-01	1.00E-01	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
Trichloroethene	3/21	7.80E+01	8.20E+02	ug/L	5.00E+00	**3/3**	2.48E+01	**3/3**	2.82E+00	**3/3**	2.18E+01	**3/3**
Technetium-99	3/15	2.00E+00	1.03E+02	ug/L	9.00E+02	0/3	5.82E+02	0/3	1.90E+02	0/3	--	--
Uranium-233/234	1/4	6.42E-02	6.42E-02	ug/L	1.02E+01	0/1	2.26E+01	0/1	7.39E+00	0/1	--	--
Uranium-238	2/4	6.34E-02	1.70E-01	ug/L	9.99E+00	0/2	1.84E+01	0/2	6.01E+00	0/2	--	--
Section B												
Barium	29/30	2.60E-05	4.93E+01	ug/L	2.00E+03	0/29	1.60E+05	0/29	3.77E+03	0/29	--	--
Cadmium	5/25	5.00E-06	5.25E+01	ug/L	5.00E+00	**1/5**	3.78E+02	0/5	9.21E+00	**1/5**	--	--
Chromium	13/30	1.10E-05	2.22E+01	ug/L	1.00E+02	0/13	--	--	--	--	--	--
Copper	4/13	3.20E+00	4.90E+00	ug/L	--	--	9.23E+03	0/4	7.99E+02	0/4	--	--
Iron	28/34	6.81E-04	1.56E+03	ug/L	--	--	6.46E+05	0/28	1.40E+04	0/28	--	--
Lead	6/26	5.80E-05	8.64E+01	ug/L	1.50E+01	**4/6**	1.50E+01	**4/6**	1.50E+01	**4/6**	--	--
Manganese	23/23	2.84E-04	3.36E+02	ug/L	--	--	1.73E+04	0/23	4.33E+02	0/23	--	--
Nickel	18/25	6.50E+00	4.72E+01	ug/L	--	--	1.76E+04	0/18	3.92E+02	0/18	--	--
Silver	2/12	3.00E+00	6.90E+00	ug/L	--	--	3.97E+03	0/2	9.40E+01	0/2	--	--
Total Uranium	3/33	1.46E+00	4.40E+00	ug/L	3.00E+01	0/3	1.85E+02	0/3	5.99E+01	0/3	--	--
Zinc	16/17	2.37E+01	1.40E+02	ug/L	--	--	2.78E+05	0/16	6.00E+03	0/16	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Cyanide	1/10	4.00E-05	4.00E-05	ug/L	2.00E+02	0/1	6.98E+01	0/1	1.46E+00	0/1	3.54E+00	0/1
1,2-Dichloroethane	1/37	1.00E+00	1.00E+00	ug/L	5.00E+00	0/1	6.93E+00	0/1	1.71E+00	0/1	9.78E+01	0/1
Acetone	1/30	7.00E+02	7.00E+02	ug/L	--	--	1.10E+06	0/1	1.41E+04	0/1	9.49E+07	0/1
Benzene	1/31	5.00E+00	5.00E+00	ug/L	5.00E+00	1/1	1.68E+01	0/1	4.54E+00	1/1	6.93E+01	0/1
Carbon disulfide	6/30	2.00E+00	1.40E+01	ug/L	--	--	3.38E+04	0/6	8.11E+02	0/6	5.21E+03	0/6
Chloroform	1/37	2.00E+00	2.00E+00	ug/L	--	--	9.27E+00	0/1	2.21E+00	0/1	3.55E+01	0/1
M + P Xylene	1/9	4.90E+00	4.90E+00	ug/L	--	--	2.89E+04	0/1	1.93E+02	0/1	2.07E+03	0/1
Methylene chloride	3/37	2.30E-01	2.00E+00	ug/L	5.00E+00	0/3	1.16E+03	0/3	1.07E+02	0/3	1.98E+04	0/3
Toluene	1/31	2.80E+00	2.80E+00	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
Total Xylene	1/21	6.00E+00	6.00E+00	ug/L	1.00E+04	0/1	--	--	--	--	--	--
Technetium-99	6/33	1.40E+01	1.00E+02	ug/L	9.00E+02	0/6	5.82E+02	0/6	1.90E+02	0/6	--	--
Uranium-233/234	3/6	5.95E-02	2.21E-01	ug/L	1.02E+01	0/3	2.26E+01	0/3	7.39E+00	0/3	--	--
Section C												
Arsenic	1/4	1.20E+01	1.20E+01	ug/L	1.00E+01	1/1	1.72E+00	1/1	5.17E-01	1/1	--	--
Barium	4/4	1.80E+01	1.40E+02	ug/L	2.00E+03	0/4	1.60E+05	0/4	3.77E+03	0/4	--	--
Chromium	3/5	3.90E+01	5.30E+01	ug/L	1.00E+02	0/3	--	--	--	--	--	--
Cobalt	1/4	2.90E+01	2.90E+01	ug/L	--	--	2.79E+03	0/1	6.01E+00	1/1	--	--
Copper	2/4	2.80E+01	4.20E+01	ug/L	--	--	9.23E+03	0/2	7.99E+02	0/2	--	--
Lead	2/5	1.00E+01	1.80E+01	ug/L	1.50E+01	1/2	1.50E+01	1/2	1.50E+01	1/2	--	--
Nickel	2/4	8.50E+01	8.60E+01	ug/L	--	--	1.76E+04	0/2	3.92E+02	0/2	--	--
Vanadium	2/4	2.90E+01	1.00E+02	ug/L	--	--	6.42E+03	0/2	8.64E+01	1/2	--	--
Zinc	1/4	1.60E+02	1.60E+02	ug/L	--	--	2.78E+05	0/1	6.00E+03	0/1	--	--
2-Methylnaphthalene	1/1	8.50E-01	8.50E-01	ug/L	2.00E-01	1/1	9.59E+02	0/1	3.59E+01	0/1	--	--
Phenanthrene	1/1	1.30E-01	1.30E-01	ug/L	2.00E-01	0/1	9.59E+02	0/1	3.59E+01	0/1	--	--
2-Butanone	1/3	1.90E+00	1.90E+00	ug/L	--	--	8.36E+04	0/1	5.57E+03	0/1	9.42E+06	0/1
Chlorobenzene	1/3	7.00E-01	7.00E-01	ug/L	1.00E+02	0/1	2.03E+04	0/1	7.77E+01	0/1	1.72E+03	0/1
Section D												
Arsenic	2/6	1.50E+01	2.20E+01	ug/L	1.00E+01	2/2	1.72E+00	2/2	5.17E-01	2/2	--	--
Barium	4/4	2.00E+01	9.20E+01	ug/L	2.00E+03	0/4	1.60E+05	0/4	3.77E+03	0/4	--	--
Cadmium	20/53	1.90E+00	1.90E+04	ug/L	5.00E+00	5/20	3.78E+02	1/20	9.21E+00	3/20	--	--
Chromium	12/51	3.60E+00	1.90E+01	ug/L	1.00E+02	0/12	--	--	--	--	--	--
Cobalt	1/7	1.60E+01	1.60E+01	ug/L	--	--	2.79E+03	0/1	6.01E+00	1/1	--	--
Iron	55/55	1.32E+04	2.29E+04	ug/L	--	--	6.46E+05	0/55	1.40E+04	54/55	--	--
Lead	10/48	5.10E+00	3.80E+01	ug/L	1.50E+01	9/10	1.50E+01	9/10	1.50E+01	9/10	--	--
Manganese	4/4	1.44E+03	1.56E+03	ug/L	--	--	1.73E+04	0/4	4.33E+02	4/4	--	--
Nickel	2/8	6.40E+01	8.60E+01	ug/L	--	--	1.76E+04	0/2	3.92E+02	0/2	--	--
Total Uranium	5/69	1.54E-01	6.00E+00	ug/L	3.00E+01	0/5	1.85E+02	0/5	5.99E+01	0/5	--	--
Vanadium	6/8	3.50E+00	3.90E+01	ug/L	--	--	6.42E+03	0/6	8.64E+01	0/6	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Zinc	4/4	2.10E+01	1.10E+02	ug/L	--	--	2.78E+05	0/4	6.00E+03	0/4	--	--
Bis(2-ethylhexyl)phthalate	1/2	3.00E+00	3.00E+00	ug/L	6.00E+00	0/1	1.87E+02	0/1	8.03E-01	**1/1**	--	--
1,1,1-Trichloroethane	3/77	1.80E-01	3.40E-01	ug/L	2.00E+02	0/3	4.01E+05	0/3	8.01E+03	0/3	3.12E+04	0/3
1,1-Dichloroethane	3/77	3.30E-01	4.10E-01	ug/L	--	--	1.10E+02	0/3	2.75E+01	0/3	3.34E+02	0/3
1,1-Dichloroethene	6/77	2.20E-01	9.10E-01	ug/L	7.00E+00	0/6	3.38E+03	0/6	2.85E+02	0/6	8.21E+02	0/6
Acetone	3/74	3.20E+00	8.20E+00	ug/L	--	--	1.10E+06	0/3	1.41E+04	0/3	9.49E+07	0/3
Carbon disulfide	16/74	1.00E+00	1.02E+02	ug/L	--	--	3.38E+04	0/16	8.11E+02	0/16	5.21E+03	0/16
cis-1,2-Dichloroethene	4/72	1.40E-01	2.30E-01	ug/L	7.00E+01	0/4	1.48E+04	0/4	3.61E+01	0/4	--	--
Methylene chloride	10/77	3.00E-01	4.00E+00	ug/L	5.00E+00	0/10	1.16E+03	0/10	1.07E+02	0/10	1.98E+04	0/10
Toluene	3/75	2.00E-01	5.80E-01	ug/L	1.00E+03	0/3	2.19E+05	0/3	1.10E+03	0/3	8.07E+04	0/3
Trichloroethene	11/77	3.50E-01	6.00E+00	ug/L	5.00E+00	**1/11**	2.48E+01	0/11	2.82E+00	**2/11**	2.18E+01	0/11
Americium-241	1/23	3.62E-02	3.62E-02	ug/L	1.50E+01	0/1	1.54E+01	0/1	5.02E+00	0/1	--	--
Technetium-99	5/71	1.70E+00	3.60E+01	ug/L	9.00E+02	0/5	5.82E+02	0/5	1.90E+02	0/5	--	--
Uranium-233/234	9/27	6.03E-02	8.81E-01	ug/L	1.02E+01	0/9	2.26E+01	0/9	7.39E+00	0/9	--	--
Uranium-238	3/27	5.16E-02	1.30E-01	ug/L	9.99E+00	0/3	1.84E+01	0/3	6.01E+00	0/3	--	--
Section E												
Arsenic	2/5	2.40E+00	4.80E+01	ug/L	1.00E+01	**1/2**	1.72E+00	**2/2**	5.17E-01	**2/2**	--	--
Barium	4/4	3.00E+01	1.50E+02	ug/L	2.00E+03	0/4	1.60E+05	0/4	3.77E+03	0/4	--	--
Cadmium	6/24	2.00E+00	3.60E+00	ug/L	5.00E+00	0/6	3.78E+02	0/6	9.21E+00	0/6	--	--
Chromium	9/27	3.30E-01	5.20E+01	ug/L	1.00E+02	0/9	--	--	--	--	--	--
Cobalt	2/4	1.40E+00	3.50E+01	ug/L	--	--	2.79E+03	0/2	6.01E+00	**1/2**	--	--
Copper	1/5	5.30E+01	5.30E+01	ug/L	--	--	9.23E+03	0/1	7.99E+02	0/1	--	--
Iron	47/47	3.40E+01	3.60E+04	ug/L	--	--	6.46E+05	0/47	1.40E+04	**25/47**	--	--
Lead	8/29	5.20E+00	6.67E+01	ug/L	1.50E+01	**7/8**	1.50E+01	**7/8**	1.50E+01	**7/8**	--	--
Manganese	7/7	7.40E+02	1.10E+03	ug/L	--	--	1.73E+04	0/7	4.33E+02	**7/7**	--	--
Nickel	3/5	1.40E+00	1.40E+02	ug/L	--	--	1.76E+04	0/3	3.92E+02	0/3	--	--
Selenium	1/4	5.50E-01	5.50E-01	ug/L	5.00E+01	0/1	4.62E+03	0/1	9.98E+01	0/1	--	--
Silver	1/3	1.33E+01	1.33E+01	ug/L	--	--	3.97E+03	0/1	9.40E+01	0/1	--	--
Total Uranium	11/56	4.00E-06	4.53E+00	ug/L	3.00E+01	0/11	1.85E+02	0/11	5.99E+01	0/11	--	--
Vanadium	1/4	1.40E+02	1.40E+02	ug/L	--	--	6.42E+03	0/1	8.64E+01	**1/1**	--	--
Zinc	5/5	1.50E+01	3.40E+02	ug/L	--	--	2.78E+05	0/5	6.00E+03	0/5	--	--
1,2-Dichloroethane	2/69	3.00E-01	3.00E+00	ug/L	5.00E+00	0/2	6.93E+00	0/2	1.71E+00	**1/2**	9.78E+01	0/2
2-Butanone	1/66	5.60E+00	5.60E+00	ug/L	--	--	8.36E+04	0/1	5.57E+03	0/1	9.42E+06	0/1
Acetone	5/66	2.10E+00	1.70E+01	ug/L	--	--	1.10E+06	0/5	1.41E+04	0/5	9.49E+07	0/5
Chloromethane	2/67	7.00E-01	7.70E-01	ug/L	--	--	7.93E+01	0/2	2.03E+01	0/2	1.09E+03	0/2
Methylene chloride	10/69	3.50E-01	2.00E+00	ug/L	5.00E+00	0/10	1.16E+03	0/10	1.07E+02	0/10	1.98E+04	0/10
Toluene	1/68	3.90E-01	3.90E-01	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
Technetium-99	2/63	-2.00E+00	3.00E+00	ug/L	9.00E+02	0/2	5.82E+02	0/2	1.90E+02	0/2	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Uranium-233/234	16/36	5.03E-02	5.58E+00	ug/L	1.02E+01	0/16	2.26E+01	0/16	7.39E+00	0/16	--	--
Uranium-238	10/36	5.93E-02	1.51E+00	ug/L	9.99E+00	0/10	1.84E+01	0/10	6.01E+00	0/10	--	--
Section H												
Aluminum	1/1	7.15E+01	7.15E+01	ug/L	--	--	9.23E+05	0/1	2.00E+04	0/1	--	--
Arsenic	2/8	1.60E+01	1.70E+01	ug/L	1.00E+01	**2/2**	1.72E+00	**2/2**	5.17E-01	**2/2**	--	--
Barium	15/16	2.80E-04	3.65E+02	ug/L	2.00E+03	0/15	1.60E+05	0/15	3.77E+03	0/15	--	--
Cadmium	7/57	3.10E+00	1.49E+01	ug/L	5.00E+00	**2/7**	3.78E+02	0/7	9.21E+00	**2/7**	--	--
Chromium	60/71	1.50E-05	1.45E+03	ug/L	1.00E+02	**28/60**	--	--	--	--	--	--
Cobalt	5/9	1.10E+01	2.90E+01	ug/L	--	--	2.79E+03	0/5	6.01E+00	**5/5**	--	--
Copper	2/8	3.90E+01	4.60E+01	ug/L	--	--	9.23E+03	0/2	7.99E+02	0/2	--	--
Iron	49/53	6.71E-02	7.49E+04	ug/L	--	--	6.46E+05	0/49	1.40E+04	**3/49**	--	--
Lead	34/66	8.70E-05	1.58E+02	ug/L	1.50E+01	**30/34**	1.50E+01	**30/34**	1.50E+01	**30/34**	--	--
Manganese	10/10	6.90E-03	7.79E+03	ug/L	--	--	1.73E+04	0/10	4.33E+02	**4/10**	--	--
Mercury	1/6	2.40E-01	2.40E-01	ug/L	2.00E+00	0/1	1.60E+03	0/1	5.66E+00	0/1	--	--
Nickel	4/10	1.44E+01	1.40E+02	ug/L	--	--	1.76E+04	0/4	3.92E+02	0/4	--	--
Total Uranium	48/70	5.00E-06	1.42E+02	ug/L	3.00E+01	**2/48**	1.85E+02	0/48	5.99E+01	**1/48**	--	--
Vanadium	3/9	2.20E+01	1.50E+02	ug/L	--	--	6.42E+03	0/3	8.64E+01	**2/3**	--	--
Zinc	6/8	3.20E+01	2.10E+02	ug/L	--	--	2.78E+05	0/6	6.00E+03	0/6	--	--
1,1,1-Trichloroethane	33/77	1.00E+00	2.10E+02	ug/L	2.00E+02	**1/33**	4.01E+05	0/33	8.01E+03	0/33	3.12E+04	0/33
1,1,2-Trichloroethane	12/77	3.10E-01	2.00E+00	ug/L	5.00E+00	0/12	1.11E+01	0/12	4.15E-01	**10/12**	2.60E+01	0/12
1,1-Dichloroethane	39/77	1.00E+00	2.70E+01	ug/L	--	--	1.10E+02	0/39	2.75E+01	0/39	3.34E+02	0/39
1,1-Dichloroethene	33/77	1.50E+01	1.30E+02	ug/L	7.00E+00	**33/33**	3.38E+03	0/33	2.85E+02	0/33	8.21E+02	0/33
1,2-Dichloroethane	26/77	2.00E-01	5.00E+00	ug/L	5.00E+00	**2/26**	6.93E+00	0/26	1.71E+00	**19/26**	9.78E+01	0/26
1,2-Dichloroethene	1/34	3.00E+00	3.00E+00	ug/L	--	--	6.68E+03	0/1	1.63E+02	0/1	--	--
1,4-Dioxane	1/1	5.40E+01	5.40E+01	ug/L	--	--	1.70E+01	**1/1**	7.76E+00	**1/1**	1.25E+05	0/1
Acetone	3/73	2.70E+00	4.00E+00	ug/L	--	--	1.10E+06	0/3	1.41E+04	0/3	9.49E+07	0/3
Bromodichloromethane	1/77	1.00E+00	1.00E+00	ug/L	--	--	5.62E+00	0/1	1.34E+00	0/1	3.83E+01	0/1
Bromoform	1/77	2.00E+00	2.00E+00	ug/L	--	--	1.26E+02	0/1	9.19E+01	0/1	5.10E+03	0/1
Carbon disulfide	2/73	3.00E+00	1.30E+01	ug/L	--	--	3.38E+04	0/2	8.11E+02	0/2	5.21E+03	0/2
Carbon tetrachloride	4/77	3.30E-01	7.00E+00	ug/L	5.00E+00	**3/4**	1.51E+01	0/4	4.53E+00	**3/4**	1.81E+01	0/4
Chloroform	20/77	5.50E-01	9.60E+01	ug/L	--	--	9.27E+00	**1/20**	2.21E+00	**7/20**	3.55E+01	**1/20**
cis-1,2-Dichloroethene	14/67	2.00E-01	5.00E+00	ug/L	7.00E+01	0/14	1.48E+04	0/14	3.61E+01	0/14	--	--
Methylene chloride	8/77	2.50E-01	5.00E+00	ug/L	5.00E+00	**1/8**	1.16E+03	0/8	1.07E+02	0/8	1.98E+04	0/8
Trichloroethene	39/77	4.50E-01	1.20E+02	ug/L	5.00E+00	**31/39**	2.48E+01	**4/39**	2.82E+00	**31/39**	2.18E+01	**7/39**
Technetium-99	9/71	-6.00E+00	5.90E+01	ug/L	9.00E+02	0/9	5.82E+02	0/9	1.90E+02	0/9	--	--
Uranium-233/234	5/14	1.09E-01	4.53E+00	ug/L	1.02E+01	0/5	2.26E+01	0/5	7.39E+00	0/5	--	--
Uranium-238	4/14	8.21E-02	9.34E-01	ug/L	9.99E+00	0/4	1.84E+01	0/4	6.01E+00	0/4	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Section I												
Arsenic	7/9	1.00E+01	1.20E+02	ug/L	1.00E+01	**7/7**	1.72E+00	**7/7**	5.17E-01	**7/7**	--	--
Barium	9/9	3.00E+01	5.60E+02	ug/L	2.00E+03	0/9	1.60E+05	0/9	3.77E+03	0/9	--	--
Chromium	10/12	2.30E-04	5.80E+03	ug/L	1.00E+02	**4/10**	--	--	--	--	--	--
Cobalt	3/7	4.40E+01	8.60E+01	ug/L	--	--	2.79E+03	0/3	6.01E+00	**3/3**	--	--
Copper	4/8	3.10E+01	1.00E+02	ug/L	--	--	9.23E+03	0/4	7.99E+02	0/4	--	--
Lead	4/8	2.20E+01	5.70E+01	ug/L	1.50E+01	**4/4**	1.50E+01	**4/4**	1.50E+01	**4/4**	--	--
Mercury	2/6	3.00E-01	1.10E+00	ug/L	2.00E+00	0/2	1.60E+03	0/2	5.66E+00	0/2	--	--
Nickel	4/8	4.50E+01	1.90E+02	ug/L	--	--	1.76E+04	0/4	3.92E+02	0/4	--	--
Total Uranium	4/8	5.00E+00	2.30E+01	ug/L	3.00E+01	0/4	1.85E+02	0/4	5.99E+01	0/4	--	--
Vanadium	8/9	1.10E+01	2.40E+02	ug/L	--	--	6.42E+03	0/8	8.64E+01	**4/8**	--	--
Zinc	9/9	2.50E+01	5.10E+02	ug/L	--	--	2.78E+05	0/9	6.00E+03	0/9	--	--
Bis(2-ethylhexyl)phthalate	1/1	6.20E-01	6.20E-01	ug/L	6.00E+00	0/1	1.87E+02	0/1	8.03E-01	0/1	--	--
1,1,1-Trichloroethane	2/10	2.80E-01	9.40E-01	ug/L	2.00E+02	0/2	4.01E+05	0/2	8.01E+03	0/2	3.12E+04	0/2
1,1-Dichloroethane	2/10	5.40E-01	6.00E-01	ug/L	--	--	1.10E+02	0/2	2.75E+01	0/2	3.34E+02	0/2
1,1-Dichloroethene	2/10	1.40E-01	4.30E-01	ug/L	7.00E+00	0/2	3.38E+03	0/2	2.85E+02	0/2	8.21E+02	0/2
1,2-Dichloroethene	1/2	6.00E+00	6.00E+00	ug/L	--	--	6.68E+03	0/1	1.63E+02	0/1	--	--
4-Methyl-2-pentanone	1/8	1.40E+00	1.40E+00	ug/L	--	--	6.37E+04	0/1	1.24E+03	0/1	2.33E+06	0/1
Benzene	2/10	5.00E-01	5.70E-01	ug/L	5.00E+00	0/2	1.68E+01	0/2	4.54E+00	0/2	6.93E+01	0/2
Chloroform	1/10	5.00E+00	5.00E+00	ug/L	--	--	9.27E+00	0/1	2.21E+00	**1/1**	3.55E+01	0/1
cis-1,2-Dichloroethene	2/8	2.00E-01	2.30E-01	ug/L	7.00E+01	0/2	1.48E+04	0/2	3.61E+01	0/2	--	--
Methylene chloride	1/10	2.00E+00	2.00E+00	ug/L	5.00E+00	0/1	1.16E+03	0/1	1.07E+02	0/1	1.98E+04	0/1
Toluene	1/10	3.20E-01	3.20E-01	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
Technetium-99	1/9	6.00E+00	6.00E+00	ug/L	9.00E+02	0/1	5.82E+02	0/1	1.90E+02	0/1	--	--
Uranium-233/234	2/2	4.11E+00	4.87E+00	ug/L	1.02E+01	0/2	2.26E+01	0/2	7.39E+00	0/2	--	--
Uranium-235	2/2	1.63E-01	2.70E-01	ug/L	--	--	2.23E+01	0/2	--	--	--	--
Uranium-238	2/2	3.92E+00	4.92E+00	ug/L	9.99E+00	0/2	1.84E+01	0/2	6.01E+00	0/2	--	--
Section J												
Fluoride	1/1	2.50E+02	2.50E+02	ug/L	--	--	3.69E+04	0/1	7.99E+02	0/1	--	--
Arsenic	2/5	3.30E+00	3.70E+01	ug/L	1.00E+01	**1/2**	1.72E+00	**2/2**	5.17E-01	**2/2**	--	--
Barium	2/2	1.50E+01	2.20E+02	ug/L	2.00E+03	0/2	1.60E+05	0/2	3.77E+03	0/2	--	--
Cadmium	18/50	8.80E-02	1.31E+04	ug/L	5.00E+00	**8/18**	3.78E+02	**1/18**	9.21E+00	**4/18**	--	--
Chromium	43/55	1.90E+00	1.17E+04	ug/L	1.00E+02	**8/43**	--	--	--	--	--	--
Cobalt	2/7	3.10E-01	1.50E+01	ug/L	--	--	2.79E+03	0/2	6.01E+00	**1/2**	--	--
Copper	1/3	6.00E+01	6.00E+01	ug/L	--	--	9.23E+03	0/1	7.99E+02	0/1	--	--
Cyanide	1/1	3.20E+01	3.20E+01	ug/L	2.00E+02	0/1	6.98E+01	0/1	1.46E+00	**1/1**	3.54E+00	**1/1**
Iron	98/122	1.27E+01	2.00E+04	ug/L	--	--	6.46E+05	0/98	1.40E+04	**2/98**	--	--
Lead	24/51	7.70E-01	1.98E+02	ug/L	1.50E+01	**23/24**	1.50E+01	**23/24**	1.50E+01	**23/24**	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Manganese	21/25	1.20E+00	2.40E+01	ug/L	--	--	1.73E+04	0/21	4.33E+02	0/21	--	--
Nickel	6/7	2.80E+00	1.10E+02	ug/L	--	--	1.76E+04	0/6	3.92E+02	0/6	--	--
Selenium	1/2	2.40E+00	2.40E+00	ug/L	5.00E+01	0/1	4.62E+03	0/1	9.98E+01	0/1	--	--
Total Uranium	68/130	2.00E-06	8.02E+01	ug/L	3.00E+01	**3/68**	1.85E+02	0/68	5.99E+01	**1/68**	--	--
Vanadium	4/7	3.30E+00	2.50E+02	ug/L	--	--	6.42E+03	0/4	8.64E+01	**1/4**	--	--
Zinc	2/3	9.80E+00	2.60E+02	ug/L	--	--	2.78E+05	0/2	6.00E+03	0/2	--	--
1,1,1-Trichloroethane	20/158	5.80E-01	4.80E+00	ug/L	2.00E+02	0/20	4.01E+05	0/20	8.01E+03	0/20	3.12E+04	0/20
1,1,2,2-Tetrachloroethane	1/155	1.70E-01	1.70E-01	ug/L	--	--	3.01E+00	0/1	7.57E-01	0/1	1.41E+02	0/1
1,1-Dichloroethane	21/158	1.60E+00	1.80E+01	ug/L	--	--	1.10E+02	0/21	2.75E+01	0/21	3.34E+02	0/21
1,1-Dichloroethene	22/158	1.30E+00	1.20E+01	ug/L	7.00E+00	**6/22**	3.38E+03	0/22	2.85E+02	0/22	8.21E+02	0/22
1,2-Dichloroethane	24/158	3.00E-01	6.10E+00	ug/L	5.00E+00	**2/24**	6.93E+00	0/24	1.71E+00	**11/24**	9.78E+01	0/24
1,2-Dichloroethene	6/30	4.40E-01	6.00E+00	ug/L	--	--	6.68E+03	0/6	1.63E+02	0/6	--	--
2-Butanone	3/149	4.40E+00	5.60E+00	ug/L	--	--	8.36E+04	0/3	5.57E+03	0/3	9.42E+06	0/3
4-Methyl-2-pentanone	1/153	9.40E-01	9.40E-01	ug/L	--	--	6.37E+04	0/1	1.24E+03	0/1	2.33E+06	0/1
Acetone	11/149	3.00E+00	1.90E+01	ug/L	--	--	1.10E+06	0/11	1.41E+04	0/11	9.49E+07	0/11
Bromoform	1/158	1.00E+00	1.00E+00	ug/L	--	--	1.26E+02	0/1	9.19E+01	0/1	5.10E+03	0/1
Carbon disulfide	7/154	2.00E+00	1.00E+02	ug/L	--	--	3.38E+04	0/7	8.11E+02	0/7	5.21E+03	0/7
Carbon tetrachloride	1/158	1.40E+00	1.40E+00	ug/L	5.00E+00	0/1	1.51E+01	0/1	4.53E+00	0/1	1.81E+01	0/1
Chloroform	20/158	1.90E-01	6.00E+00	ug/L	--	--	9.27E+00	0/20	2.21E+00	**1/20**	3.55E+01	0/20
Chloromethane	1/155	4.80E-01	4.80E-01	ug/L	--	--	7.93E+01	0/1	2.03E+01	0/1	1.09E+03	0/1
cis-1,2-Dichloroethene	24/155	2.00E-01	6.00E+00	ug/L	7.00E+01	0/24	1.48E+04	0/24	3.61E+01	0/24	--	--
Ethylbenzene	1/155	2.10E-01	2.10E-01	ug/L	7.00E+02	0/1	5.11E+01	0/1	1.49E+01	0/1	1.52E+02	0/1
M + P Xylene	1/120	8.50E-01	8.50E-01	ug/L	--	--	2.89E+04	0/1	1.93E+02	0/1	2.07E+03	0/1
Methylene chloride	22/158	2.50E-01	1.20E+00	ug/L	5.00E+00	0/22	1.16E+03	0/22	1.07E+02	0/22	1.98E+04	0/22
Toluene	2/155	3.50E-01	1.30E+00	ug/L	1.00E+03	0/2	2.19E+05	0/2	1.10E+03	0/2	8.07E+04	0/2
Trichloroethene	37/165	1.00E-01	2.27E+05	ug/L	5.00E+00	**22/37**	2.48E+01	**8/37**	2.82E+00	**30/37**	2.18E+01	**9/37**
Trichlorofluoromethane	1/157	3.00E+00	3.00E+00	ug/L	--	--	7.39E+04	0/1	1.14E+03	0/1	7.73E+02	0/1
Technetium-99	18/140	-1.00E+00	3.70E+01	ug/L	9.00E+02	0/18	5.82E+02	0/18	1.90E+02	0/18	--	--
Uranium-233/234	45/81	5.41E-02	2.81E+00	ug/L	1.02E+01	0/45	2.26E+01	0/45	7.39E+00	0/45	--	--
Uranium-235	3/81	5.60E-02	1.24E-01	ug/L	--	--	2.23E+01	0/3	--	--	--	--
Uranium-238	40/81	5.07E-02	1.11E+00	ug/L	9.99E+00	0/40	1.84E+01	0/40	6.01E+00	0/40	--	--
Section K												
Aluminum	3/4	4.64E+02	1.82E+03	ug/L	--	--	9.23E+05	0/3	2.00E+04	0/3	--	--
Antimony	2/18	7.10E+01	7.10E+01	ug/L	6.00E+00	**2/2**	3.46E+02	0/2	7.79E+00	**2/2**	--	--
Arsenic	8/29	1.40E+01	2.40E+02	ug/L	1.00E+01	**8/8**	1.72E+00	**8/8**	5.17E-01	**8/8**	--	--
Barium	20/22	2.80E+01	1.20E+03	ug/L	2.00E+03	0/20	1.60E+05	0/20	3.77E+03	0/20	--	--
Beryllium	5/29	3.70E-01	1.30E+01	ug/L	4.00E+00	**3/5**	1.73E+03	0/5	2.46E+01	0/5	--	--
Cadmium	8/39	2.20E+00	8.89E+03	ug/L	5.00E+00	**7/8**	3.78E+02	**4/8**	9.21E+00	**4/8**	--	--

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Chromium	15/39	3.20E+00	6.10E+02	ug/L	1.00E+02	5/15	--	--	--	--	--	--
Cobalt	14/36	1.30E+01	1.90E+02	ug/L	--	--	2.79E+03	0/14	6.01E+00	14/14	--	--
Copper	8/19	1.06E+01	3.80E+02	ug/L	--	--	9.23E+03	0/8	7.99E+02	0/8	--	--
Iron	38/54	5.12E+00	5.65E+03	ug/L	--	--	6.46E+05	0/38	1.40E+04	0/38	--	--
Lead	9/30	1.30E+01	3.70E+02	ug/L	1.50E+01	8/9	1.50E+01	8/9	1.50E+01	8/9	--	--
Manganese	19/25	2.90E+00	3.06E+02	ug/L	--	--	1.73E+04	0/19	4.33E+02	0/19	--	--
Mercury	3/15	3.40E-01	5.40E+00	ug/L	2.00E+00	1/3	1.60E+03	0/3	5.66E+00	0/3	--	--
Nickel	22/37	9.04E+00	5.40E+02	ug/L	--	--	1.76E+04	0/22	3.92E+02	2/22	--	--
Silver	1/18	1.09E+02	1.09E+02	ug/L	--	--	3.97E+03	0/1	9.40E+01	1/1	--	--
Thallium	1/18	1.60E+01	1.60E+01	ug/L	2.00E+00	1/1	3.69E+01	0/1	2.00E-01	1/1	--	--
Total Uranium	9/52	1.17E-01	1.80E+01	ug/L	3.00E+01	0/9	1.85E+02	0/9	5.99E+01	0/9	--	--
Vanadium	11/36	1.00E+01	7.90E+02	ug/L	--	--	6.42E+03	0/11	8.64E+01	7/11	--	--
Zinc	15/19	8.22E+00	1.40E+03	ug/L	--	--	2.78E+05	0/15	6.00E+03	0/15	--	--
1,2-Dichlorobenzene	2/45	3.50E-01	5.10E-01	ug/L	6.00E+02	0/2	9.92E+04	0/2	3.04E+02	0/2	1.12E+04	0/2
1,1,1-Trichloroethane	17/66	4.30E-01	3.40E+02	ug/L	2.00E+02	1/17	4.01E+05	0/17	8.01E+03	0/17	3.12E+04	0/17
1,1,2-Trichloroethane	6/66	3.90E-01	6.00E+00	ug/L	5.00E+00	1/6	1.11E+01	0/6	4.15E-01	5/6	2.60E+01	0/6
1,1-Dichloroethane	14/66	3.00E-01	1.20E+02	ug/L	--	--	1.10E+02	1/14	2.75E+01	6/14	3.34E+02	0/14
1,1-Dichloroethene	15/66	1.50E-01	5.20E+02	ug/L	7.00E+00	9/15	3.38E+03	0/15	2.85E+02	3/15	8.21E+02	0/15
1,2,3-Trichloropropane	1/21	8.30E+00	8.30E+00	ug/L	--	--	7.00E-02	1/1	7.16E-03	1/1	9.37E+01	0/1
1,2-Dibromo-3-chloropropane	1/21	8.60E+00	8.60E+00	ug/L	2.00E-01	1/1	4.02E-02	1/1	3.16E-03	1/1	3.40E+00	1/1
1,2-Dichloroethane	11/66	4.00E-01	1.30E+01	ug/L	5.00E+00	4/11	6.93E+00	2/11	1.71E+00	7/11	9.78E+01	0/11
1,2-Dichloroethene	1/9	2.80E-01	2.80E-01	ug/L	--	--	6.68E+03	0/1	1.63E+02	0/1	--	--
2-Hexanone	1/21	1.20E+01	1.20E+01	ug/L	--	--	1.63E+03	0/1	3.80E+01	0/1	3.45E+04	0/1
4-Methyl-2-pentanone	1/62	7.60E+00	7.60E+00	ug/L	--	--	6.37E+04	0/1	1.24E+03	0/1	2.33E+06	0/1
Acetone	4/62	5.00E+00	8.60E+00	ug/L	--	--	1.10E+06	0/4	1.41E+04	0/4	9.49E+07	0/4
Acrylonitrile	1/19	2.80E+01	2.80E+01	ug/L	--	--	2.05E+00	1/1	5.23E-01	1/1	3.20E+02	0/1
Bromoform	1/66	1.70E+00	1.70E+00	ug/L	--	--	1.26E+02	0/1	9.19E+01	0/1	5.10E+03	0/1
Carbon disulfide	2/62	9.60E-01	1.00E+01	ug/L	--	--	3.38E+04	0/2	8.11E+02	0/2	5.21E+03	0/2
Chloroethane	1/64	4.90E-01	4.90E-01	ug/L	--	--	6.74E+04	0/1	2.09E+04	0/1	9.65E+04	0/1
Chloroform	11/66	2.60E-01	1.20E+01	ug/L	--	--	9.27E+00	2/11	2.21E+00	6/11	3.55E+01	0/11
cis-1,2-Dichloroethene	11/64	2.40E-01	8.00E+00	ug/L	7.00E+01	0/11	1.48E+04	0/11	3.61E+01	0/11	--	--
Methylene chloride	9/66	2.90E-01	9.00E+00	ug/L	5.00E+00	1/9	1.16E+03	0/9	1.07E+02	0/9	1.98E+04	0/9
Tetrachloroethene	4/66	5.50E-01	3.00E+00	ug/L	5.00E+00	0/4	3.51E+02	0/4	4.06E+01	0/4	2.42E+02	0/4
Toluene	1/64	2.20E+00	2.20E+00	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
trans-1,2-Dichloroethene	1/64	6.20E+01	6.20E+01	ug/L	1.00E+02	0/1	4.73E+04	0/1	9.29E+01	0/1	--	--
Trichloroethene	45/69	1.70E-01	2.20E+02	ug/L	5.00E+00	**28/45**	2.48E+01	25/45	2.82E+00	34/45	2.18E+01	25/45
Trichlorofluoromethane	1/66	4.30E+00	4.30E+00	ug/L	--	--	7.39E+04	0/1	1.14E+03	0/1	7.73E+02	0/1
Vinyl chloride	1/72	1.00E+00	1.00E+00	ug/L	2.00E+00	0/1	2.95E+00	0/1	3.24E-02	1/1	2.45E+01	0/1

Table B.3. Historical Groundwater Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Technetium-99	4/51	2.00E-01	2.20E+01	ug/L	9.00E+02	0/4	5.82E+02	0/4	1.90E+02	0/4	--	--
Uranium-233/234	10/29	6.61E-02	1.52E+00	ug/L	1.02E+01	0/10	2.26E+01	0/10	7.39E+00	0/10	--	--
Uranium-238	6/30	3.91E-02	4.23E-01	ug/L	9.99E+00	0/6	1.84E+01	0/6	6.01E+00	0/6	--	--

Notes:
MCLs and risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No MCL or SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
MCL = maximum contaminant level
SL = screening level
VISL = vapor intrusion screening level

Table B.4. Historical Groundwater Data Summary for Parcel 4 (Post-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Section A												
Iron	2/3	2.80E+01	3.20E+01	ug/L	--	--	6.46E+05	0/2	1.40E+04	0/2	--	--
Total Uranium	3/25	1.66E-01	2.13E-01	ug/L	3.00E+01	0/3	1.85E+02	0/3	5.99E+01	0/3	--	--
Acetone	3/25	1.20E+01	2.60E+01	ug/L	--	--	1.10E+06	0/3	1.41E+04	0/3	9.49E+07	0/3
Benzene	1/25	2.40E-01	2.40E-01	ug/L	5.00E+00	0/1	1.68E+01	0/1	4.54E+00	0/1	6.93E+01	0/1
Methylene chloride	1/25	3.20E-01	3.20E-01	ug/L	5.00E+00	0/1	1.16E+03	0/1	1.07E+02	0/1	1.98E+04	0/1
Trichloroethene	1/25	1.70E-01	1.70E-01	ug/L	5.00E+00	0/1	2.48E+01	0/1	2.82E+00	0/1	2.18E+01	0/1
Uranium-233/234	1/25	6.42E-02	6.42E-02	ug/L	1.02E+01	0/1	2.26E+01	0/1	7.39E+00	0/1	--	--
Uranium-238	1/25	5.49E-02	5.49E-02	ug/L	9.99E+00	0/1	1.84E+01	0/1	6.01E+00	0/1	--	--
Section B												
Iron	1/2	9.70E+01	9.70E+01	ug/L	--	--	6.46E+05	0/1	1.40E+04	0/1	--	--
Methylene chloride	1/2	3.90E-01	3.90E-01	ug/L	5.00E+00	0/1	1.16E+03	0/1	1.07E+02	0/1	1.98E+04	0/1
Section D												
Total Uranium	6/21	1.58E-01	3.58E-01	ug/L	3.00E+01	0/6	1.85E+02	0/6	5.99E+01	0/6	--	--
1,4-Dichlorobenzene	2/170	1.80E-01	1.80E-01	ug/L	7.50E+01	0/2	2.00E+01	0/2	4.81E+00	0/2	1.13E+02	0/2
1,1,1-Trichloroethane	2/170	2.30E-01	2.60E-01	ug/L	2.00E+02	0/2	4.01E+05	0/2	8.01E+03	0/2	3.12E+04	0/2
1,1-Dichloroethane	4/170	2.10E-01	3.10E-01	ug/L	--	--	1.10E+02	0/4	2.75E+01	0/4	3.34E+02	0/4
1,1-Dichloroethene	15/170	2.30E-01	8.10E-01	ug/L	7.00E+00	0/15	3.38E+03	0/15	2.85E+02	0/15	8.21E+02	0/15
4-Methyl-2-pentanone	1/170	1.87E+01	1.87E+01	ug/L	--	--	6.37E+04	0/1	1.24E+03	0/1	2.33E+06	0/1
Acetone	22/170	2.10E+00	2.20E+02	ug/L	--	--	1.10E+06	0/22	1.41E+04	0/22	9.49E+07	0/22
Carbon disulfide	2/170	2.20E-01	2.20E-01	ug/L	--	--	3.38E+04	0/2	8.11E+02	0/2	5.21E+03	0/2
cis-1,2-Dichloroethene	3/170	1.60E-01	1.80E-01	ug/L	7.00E+01	0/3	1.48E+04	0/3	3.61E+01	0/3	--	--
Methylene chloride	12/170	3.70E-01	6.00E+00	ug/L	5.00E+00	**1/12**	1.16E+03	0/12	1.07E+02	0/12	1.98E+04	0/12
Trichloroethene	52/175	1.70E-01	6.70E+00	ug/L	5.00E+00	**1/52**	2.48E+01	0/52	2.82E+00	**1/52**	2.18E+01	0/52
Uranium-233/234	10/21	6.23E-02	1.78E-01	ug/L	1.02E+01	0/10	2.26E+01	0/10	7.39E+00	0/10	--	--
Uranium-238	6/21	5.19E-02	1.20E-01	ug/L	9.99E+00	0/6	1.84E+01	0/6	6.01E+00	0/6	--	--
Section E												
Arsenic	5/5	1.70E+00	6.00E+00	ug/L	1.00E+01	0/5	1.72E+00	**4/5**	5.17E-01	**5/5**	--	--
Barium	3/3	2.40E+01	2.50E+01	ug/L	2.00E+03	0/3	1.60E+05	0/3	3.77E+03	0/3	--	--
Chromium	3/5	5.80E-01	5.00E+00	ug/L	1.00E+02	0/3	--	--	--	--	--	--
Cobalt	2/2	1.20E+00	1.30E+00	ug/L	--	--	2.79E+03	0/2	6.01E+00	0/2	--	--
Iron	12/12	1.10E+04	2.60E+04	ug/L	--	--	6.46E+05	0/12	1.40E+04	**11/12**	--	--
Lead	1/5	3.00E-01	3.00E-01	ug/L	1.50E+01	0/1	1.50E+01	0/1	1.50E+01	0/1	--	--
Manganese	4/4	7.90E+02	1.10E+03	ug/L	--	--	1.73E+04	0/4	4.33E+02	**4/4**	--	--
Nickel	2/2	1.50E+00	1.70E+00	ug/L	--	--	1.76E+04	0/2	3.92E+02	0/2	--	--
Selenium	3/5	9.90E-01	1.20E+00	ug/L	5.00E+01	0/3	4.62E+03	0/3	9.98E+01	0/3	--	--

Table B.4. Historical Groundwater Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Silver	1/3	1.60E-02	1.60E-02	ug/L	--	--	3.97E+03	0/1	9.40E+01	0/1	--	--
Total Uranium	4/21	1.05E-01	6.21E-01	ug/L	3.00E+01	0/4	1.85E+02	0/4	5.99E+01	0/4	--	--
Vanadium	1/2	3.30E-01	3.30E-01	ug/L	--	--	6.42E+03	0/1	8.64E+01	0/1	--	--
Zinc	2/2	2.60E+01	3.40E+01	ug/L	--	--	2.78E+05	0/2	6.00E+03	0/2	--	--
1,2-Dichlorobenzene	1/141	1.50E-01	1.50E-01	ug/L	6.00E+02	0/1	9.92E+04	0/1	3.04E+02	0/1	1.12E+04	0/1
1,4-Dichlorobenzene	1/141	1.60E-01	1.60E-01	ug/L	7.50E+01	0/1	2.00E+01	0/1	4.81E+00	0/1	1.13E+02	0/1
Acetone	18/141	1.90E+00	2.90E+01	ug/L	--	--	1.10E+06	0/18	1.41E+04	0/18	9.49E+07	0/18
Benzene	1/141	1.80E-01	1.80E-01	ug/L	5.00E+00	0/1	1.68E+01	0/1	4.54E+00	0/1	6.93E+01	0/1
Bromomethane	3/141	2.30E-01	2.30E-01	ug/L	--	--	2.92E+03	0/3	7.55E+00	0/3	7.30E+01	0/3
cis-1,2-Dichloroethene	1/141	8.03E-01	8.03E-01	ug/L	7.00E+01	0/1	1.48E+04	0/1	3.61E+01	0/1	--	--
Methylene chloride	11/141	3.20E-01	7.20E+00	ug/L	5.00E+00	**2/11**	1.16E+03	0/11	1.07E+02	0/11	1.98E+04	0/11
Trichloroethene	4/141	1.90E-01	3.67E-01	ug/L	5.00E+00	0/4	2.48E+01	0/4	2.82E+00	0/4	2.18E+01	0/4
Uranium-233/234	6/21	5.46E-02	2.28E-01	ug/L	1.02E+01	0/6	2.26E+01	0/6	7.39E+00	0/6	--	--
Uranium-238	4/21	3.55E-02	2.09E-01	ug/L	9.99E+00	0/4	1.84E+01	0/4	6.01E+00	0/4	--	--
Section H												
Total Uranium	3/10	1.28E-01	5.46E-01	ug/L	3.00E+01	0/3	1.85E+02	0/3	5.99E+01	0/3	--	--
1,1,1-Trichloroethane	32/60	1.70E-01	5.90E+00	ug/L	2.00E+02	0/32	4.01E+05	0/32	8.01E+03	0/32	3.12E+04	0/32
1,1,2-Trichloroethane	17/60	2.80E-01	6.10E-01	ug/L	5.00E+00	0/17	1.11E+01	0/17	4.15E-01	**7/17**	2.60E+01	0/17
1,1-Dichloroethane	45/60	2.50E-01	8.20E+00	ug/L	--	--	1.10E+02	0/45	2.75E+01	0/45	3.34E+02	0/45
1,1-Dichloroethene	41/60	2.30E-01	2.90E+01	ug/L	7.00E+00	**20/41**	3.38E+03	0/41	2.85E+02	0/41	8.21E+02	0/41
1,2-Dichloroethane	18/60	1.30E-01	9.80E-01	ug/L	5.00E+00	0/18	6.93E+00	0/18	1.71E+00	0/18	9.78E+01	0/18
Acetone	6/60	2.90E+00	1.40E+01	ug/L	--	--	1.10E+06	0/6	1.41E+04	0/6	9.49E+07	0/6
Chloroform	24/60	2.40E-01	9.90E-01	ug/L	--	--	9.27E+00	0/24	2.21E+00	0/24	3.55E+01	0/24
cis-1,2-Dichloroethene	34/60	1.50E-01	1.34E+00	ug/L	7.00E+01	0/34	1.48E+04	0/34	3.61E+01	0/34	--	--
Methylene chloride	5/60	4.00E-01	7.50E-01	ug/L	5.00E+00	0/5	1.16E+03	0/5	1.07E+02	0/5	1.98E+04	0/5
Tetrachloroethene	7/60	2.00E-01	2.30E-01	ug/L	5.00E+00	0/7	3.51E+02	0/7	4.06E+01	0/7	2.42E+02	0/7
Trichloroethene	45/60	1.70E-01	1.60E+01	ug/L	5.00E+00	**26/45**	2.48E+01	0/45	2.82E+00	**26/45**	2.18E+01	0/45
Uranium-233/234	3/10	1.59E-01	2.59E-01	ug/L	1.02E+01	0/3	2.26E+01	0/3	7.39E+00	0/3	--	--
Uranium-238	3/10	4.32E-02	1.84E-01	ug/L	9.99E+00	0/3	1.84E+01	0/3	6.01E+00	0/3	--	--
Section I												
Total Uranium	4/4	7.34E+00	1.25E+01	ug/L	3.00E+01	0/4	1.85E+02	0/4	5.99E+01	0/4	--	--
1,1,1-Trichloroethane	17/27	1.80E-01	4.60E-01	ug/L	2.00E+02	0/17	4.01E+05	0/17	8.01E+03	0/17	3.12E+04	0/17
1,1-Dichloroethane	16/27	2.70E-01	6.10E-01	ug/L	--	--	1.10E+02	0/16	2.75E+01	0/16	3.34E+02	0/16
1,1-Dichloroethene	5/27	1.80E-01	2.00E-01	ug/L	7.00E+00	0/5	3.38E+03	0/5	2.85E+02	0/5	8.21E+02	0/5
Acetone	1/27	2.60E+00	2.60E+00	ug/L	--	--	1.10E+06	0/1	1.41E+04	0/1	9.49E+07	0/1
Benzene	21/27	1.70E-01	4.80E-01	ug/L	5.00E+00	0/21	1.68E+01	0/21	4.54E+00	0/21	6.93E+01	0/21
cis-1,2-Dichloroethene	27/27	2.60E-01	1.40E+00	ug/L	7.00E+01	0/27	1.48E+04	0/27	3.61E+01	0/27	--	--
Methylene chloride	2/27	3.60E-01	3.70E-01	ug/L	5.00E+00	0/2	1.16E+03	0/2	1.07E+02	0/2	1.98E+04	0/2

Table B.4. Historical Groundwater Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Trichloroethene	9/27	1.70E-01	1.30E+00	ug/L	5.00E+00	0/9	2.48E+01	0/9	2.82E+00	0/9	2.18E+01	0/9
Uranium-233/234	4/4	2.69E+00	5.03E+00	ug/L	1.02E+01	0/4	2.26E+01	0/4	7.39E+00	0/4	--	--
Uranium-235	4/4	1.08E-01	2.91E-01	ug/L	--	--	2.23E+01	0/4	--	--	--	--
Uranium-238	4/4	2.46E+00	4.19E+00	ug/L	9.99E+00	0/4	1.84E+01	0/4	6.01E+00	0/4	--	--
Section J												
Arsenic	5/5	4.60E-01	2.70E+00	ug/L	1.00E+01	0/5	1.72E+00	**2/5**	5.17E-01	**4/5**	--	--
Barium	3/3	5.90E+01	1.00E+02	ug/L	2.00E+03	0/3	1.60E+05	0/3	3.77E+03	0/3	--	--
Cadmium	5/5	6.30E-02	1.80E-01	ug/L	5.00E+00	0/5	3.78E+02	0/5	9.21E+00	0/5	--	--
Chromium	3/5	5.60E-01	5.10E+00	ug/L	1.00E+02	0/3	--	--	--	--	--	--
Cobalt	2/2	8.80E-02	9.70E-02	ug/L	--	--	2.79E+03	0/2	6.01E+00	0/2	--	--
Iron	24/32	3.10E+01	2.20E+03	ug/L	--	--	6.46E+05	0/24	1.40E+04	0/24	--	--
Lead	2/5	1.80E-01	8.90E-01	ug/L	1.50E+01	0/2	1.50E+01	0/2	1.50E+01	0/2	--	--
Manganese	12/12	3.40E-01	6.50E+01	ug/L	--	--	1.73E+04	0/12	4.33E+02	0/12	--	--
Mercury	2/4	4.80E-04	3.00E-02	ug/L	2.00E+00	0/2	1.60E+03	0/2	5.66E+00	0/2	--	--
Nickel	2/2	9.50E+00	1.10E+01	ug/L	--	--	1.76E+04	0/2	3.92E+02	0/2	--	--
Selenium	5/5	1.90E+00	3.10E+00	ug/L	5.00E+01	0/5	4.62E+03	0/5	9.98E+01	0/5	--	--
Silver	1/3	3.40E-02	3.40E-02	ug/L	--	--	3.97E+03	0/1	9.40E+01	0/1	--	--
Total Uranium	21/50	1.24E-01	4.38E-01	ug/L	3.00E+01	0/21	1.85E+02	0/21	5.99E+01	0/21	--	--
Vanadium	2/2	6.00E-01	9.50E-01	ug/L	--	--	6.42E+03	0/2	8.64E+01	0/2	--	--
Zinc	2/2	4.70E+00	5.50E+00	ug/L	--	--	2.78E+05	0/2	6.00E+03	0/2	--	--
1,2-Dichlorobenzene	1/525	3.50E-01	3.50E-01	ug/L	6.00E+02	0/1	9.92E+04	0/1	3.04E+02	0/1	1.12E+04	0/1
1,1,1-Trichloroethane	32/525	1.70E-01	5.00E+00	ug/L	2.00E+02	0/32	4.01E+05	0/32	8.01E+03	0/32	3.12E+04	0/32
1,1-Dichloroethane	125/525	1.60E-01	2.10E+01	ug/L	--	--	1.10E+02	0/125	2.75E+01	0/125	3.34E+02	0/125
1,1-Dichloroethene	108/525	1.70E-01	1.40E+01	ug/L	7.00E+00	**4/108**	3.38E+03	0/108	2.85E+02	0/108	8.21E+02	0/108
1,2-Dichloroethane	43/525	1.30E-01	7.50E+00	ug/L	5.00E+00	**4/43**	6.93E+00	**3/43**	1.71E+00	**12/43**	9.78E+01	0/43
Acetone	49/525	1.90E+00	5.00E+01	ug/L	--	--	1.10E+06	0/49	1.41E+04	0/49	9.49E+07	0/49
Carbon disulfide	3/525	2.70E-01	7.80E-01	ug/L	--	--	3.38E+04	0/3	8.11E+02	0/3	5.21E+03	0/3
Chloroform	20/525	1.70E-01	1.10E+00	ug/L	--	--	9.27E+00	0/20	2.21E+00	0/20	3.55E+01	0/20
Chloromethane	5/525	3.40E-01	1.19E+00	ug/L	--	--	7.93E+01	0/5	2.03E+01	0/5	1.09E+03	0/5
cis-1,2-Dichloroethene	45/525	1.50E-01	2.80E+00	ug/L	7.00E+01	0/45	1.48E+04	0/45	3.61E+01	0/45	--	--
Methylene chloride	37/525	3.20E-01	5.50E+00	ug/L	5.00E+00	**1/37**	1.16E+03	0/37	1.07E+02	0/37	1.98E+04	0/37
Trichloroethene	194/525	1.60E-01	3.42E+01	ug/L	5.00E+00	**25/194**	2.48E+01	**7/194**	2.82E+00	**29/194**	2.18E+01	**8/194**
Technetium-99	1/54	2.45E+01	2.45E+01	ug/L	9.00E+02	0/1	5.82E+02	0/1	1.90E+02	0/1	--	--
Uranium-233/234	14/50	4.47E-02	1.66E-01	ug/L	1.02E+01	0/14	2.26E+01	0/14	7.39E+00	0/14	--	--
Uranium-238	19/50	4.17E-02	1.45E-01	ug/L	9.99E+00	0/19	1.84E+01	0/19	6.01E+00	0/19	--	--
Section K												
Iron	1/4	3.90E+01	3.90E+01	ug/L	--	--	6.46E+05	0/1	1.40E+04	0/1	--	--
Manganese	4/4	1.40E+00	9.40E+00	ug/L	--	--	1.73E+04	0/4	4.33E+02	0/4	--	--

Table B.4. Historical Groundwater Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	MCL	Frequency of Detects Exceeding MCL	Industrial SL	Frequency of Detects Exceeding Industrial SLs	Residential SL	Frequency of Detects Exceeding Residential SLs	VISL	Frequency of Detects Exceeding VISL
Total Uranium	9/17	1.43E-01	3.52E+00	ug/L	3.00E+01	0/9	1.85E+02	0/9	5.99E+01	0/9	--	--
1,1,1-Trichloroethane	196/259	1.60E-01	9.50E+01	ug/L	2.00E+02	0/196	4.01E+05	0/196	8.01E+03	0/196	3.12E+04	0/196
1,1,2-Trichloroethane	132/259	2.70E-01	4.90E+00	ug/L	5.00E+00	0/132	1.11E+01	0/132	4.15E-01	**122/132**	2.60E+01	0/132
1,1-Dichloroethane	208/259	2.00E-01	7.70E+01	ug/L	--	--	1.10E+02	0/208	2.75E+01	**33/208**	3.34E+02	0/208
1,1-Dichloroethene	218/259	2.49E-01	3.40E+02	ug/L	7.00E+00	**150/218**	3.38E+03	0/218	2.85E+02	**2/218**	8.21E+02	0/218
1,2-Dichloroethane	145/259	2.40E-01	7.90E+00	ug/L	5.00E+00	**12/145**	6.93E+00	**3/145**	1.71E+00	**81/145**	9.78E+01	0/145
1,2-Dichloroethene	2/2	6.20E-01	9.30E-01	ug/L	--	--	6.68E+03	0/2	1.63E+02	0/2	--	--
2-Butanone	2/259	3.00E+00	3.00E+00	ug/L	--	--	8.36E+04	0/2	5.57E+03	0/2	9.42E+06	0/2
Acetone	41/259	1.90E+00	1.50E+01	ug/L	--	--	1.10E+06	0/41	1.41E+04	0/41	9.49E+07	0/41
Benzene	2/259	1.70E-01	2.80E-01	ug/L	5.00E+00	0/2	1.68E+01	0/2	4.54E+00	0/2	6.93E+01	0/2
Carbon tetrachloride	2/259	1.30E+00	2.00E+00	ug/L	5.00E+00	0/2	1.51E+01	0/2	4.53E+00	0/2	1.81E+01	0/2
Chlorobenzene	1/259	2.30E-01	2.30E-01	ug/L	1.00E+02	0/1	2.03E+04	0/1	7.77E+01	0/1	1.72E+03	0/1
Chloroethane	3/259	4.80E-01	2.80E+00	ug/L	--	--	6.74E+04	0/3	2.09E+04	0/3	9.65E+04	0/3
Chloroform	163/259	1.70E-01	9.20E+00	ug/L	--	--	9.27E+00	0/163	2.21E+00	**49/163**	3.55E+01	0/163
Chloromethane	2/259	4.00E-01	4.00E-01	ug/L	--	--	7.93E+01	0/2	2.03E+01	0/2	1.09E+03	0/2
cis-1,2-Dichloroethene	168/261	1.70E-01	6.50E+00	ug/L	7.00E+01	0/168	1.48E+04	0/168	3.61E+01	0/168	--	--
Ethylbenzene	1/259	5.70E-01	5.70E-01	ug/L	7.00E+02	0/1	5.11E+01	0/1	1.49E+01	0/1	1.52E+02	0/1
Methylene chloride	31/259	3.20E-01	6.60E+00	ug/L	5.00E+00	**1/31**	1.16E+03	0/31	1.07E+02	0/31	1.98E+04	0/31
Tetrachloroethene	93/259	2.10E-01	1.60E+00	ug/L	5.00E+00	0/93	3.51E+02	0/93	4.06E+01	0/93	2.42E+02	0/93
Toluene	1/259	1.70E-01	1.70E-01	ug/L	1.00E+03	0/1	2.19E+05	0/1	1.10E+03	0/1	8.07E+04	0/1
trans-1,2-Dichloroethene	1/261	1.80E-01	1.80E-01	ug/L	1.00E+02	0/1	4.73E+04	0/1	9.29E+01	0/1	--	--
Trichloroethene	235/261	5.30E-01	1.80E+02	ug/L	5.00E+00	**175/235**	2.48E+01	**98/235**	2.82E+00	**202/235**	2.18E+01	**107/235**
Vinyl chloride	4/320	1.10E-01	2.30E-01	ug/L	2.00E+00	0/4	2.95E+00	0/4	3.24E-02	**4/4**	2.45E+01	0/4
Uranium-233/234	8/17	1.55E-01	1.20E+00	ug/L	1.02E+01	0/8	2.26E+01	0/8	7.39E+00	0/8	--	--
Uranium-235/236	1/9	7.14E-02	7.14E-02	ug/L	4.66E-01	0/1	2.23E+01	0/1	7.28E+00	0/1	--	--
Uranium-238	9/17	4.82E-02	1.17E+00	ug/L	9.99E+00	0/9	1.84E+01	0/9	6.01E+00	0/9	--	--

Notes:
MCLs and risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No MCL or SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
MCL = maximum contaminant level
SL = screening level
VISL = vapor intrusion screening level

Table B.5. Historical Surface Water Data Summary for Parcel 4 (Pre-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section D														
Fluoride	1/1	2.40E+02	2.40E+02	ug/L	1.43E+05	0/1	1.93E+04	0/1	5.86E+04	0/1	1.43E+05	0/1	--	--
Barium	1/1	3.70E+01	3.70E+01	ug/L	5.00E+04	0/1	6.77E+03	0/1	7.21E+04	0/1	9.17E+04	0/1	--	--
Iron	52/52	3.69E+01	7.58E+03	ug/L	2.50E+06	0/52	3.39E+05	0/52	1.03E+06	0/52	2.50E+06	0/52	--	--
Total Uranium	55/72	1.00E-06	1.09E+02	ug/L	1.07E+04	0/55	1.45E+03	0/55	4.40E+03	0/55	1.07E+04	0/55	--	--
1,1,1-Trichloroethane	2/70	5.00E+00	5.00E+00	ug/L	6.75E+05	0/2	3.04E+05	0/2	5.50E+05	0/2	6.75E+05	0/2	--	--
1,1-Dichloroethene	2/70	4.00E+00	4.00E+00	ug/L	2.10E+04	0/2	8.91E+03	0/2	1.67E+04	0/2	2.10E+04	0/2	--	--
1,2-Dichloroethane	1/70	3.00E+00	3.00E+00	ug/L	1.00E+03	0/1	3.99E+02	0/1	4.49E+02	0/1	1.00E+03	0/1	7.40E+01	0/1
2-Butanone	1/64	3.50E+00	3.50E+00	ug/L	1.93E+06	0/1	2.83E+05	0/1	8.38E+05	0/1	1.93E+06	0/1	--	--
Acetone	11/65	4.90E+00	2.37E+02	ug/L	3.97E+06	0/11	4.55E+05	0/11	1.44E+06	0/11	3.97E+06	0/11	--	--
Bromodichloromethane	1/70	1.00E+00	1.00E+00	ug/L	1.19E+03	0/1	5.24E+02	0/1	5.60E+02	0/1	1.19E+03	0/1	8.75E+01	0/1
Bromoform	1/70	1.00E+00	1.00E+00	ug/L	9.04E+03	0/1	4.04E+03	0/1	4.29E+03	0/1	9.04E+03	0/1	6.65E+02	0/1
Carbon disulfide	4/66	8.80E-01	6.00E+00	ug/L	4.58E+04	0/4	1.90E+04	0/4	3.60E+04	0/4	4.58E+04	0/4	--	--
Methylene chloride	2/70	3.10E-01	3.90E-01	ug/L	7.51E+03	0/2	2.04E+03	0/2	4.79E+03	0/2	7.51E+03	0/2	2.71E+03	0/2
Toluene	1/64	6.20E-01	6.20E-01	ug/L	1.37E+04	0/1	7.00E+03	0/1	1.18E+04	0/1	1.37E+04	0/1	--	--
Trichloroethene	1/70	4.00E+00	4.00E+00	ug/L	1.84E+02	0/1	8.10E+01	0/1	1.49E+02	0/1	1.84E+02	0/1	5.02E+01	0/1
Plutonium-238	1/26	3.31E-01	3.31E-01	pCi/L	2.39E+03	0/1	1.27E+03	0/1	6.36E+02	0/1	2.39E+03	0/1	5.45E+02	0/1
Technetium-99	7/74	4.00E+00	1.42E+01	pCi/L	1.14E+05	0/7	6.06E+04	0/7	3.03E+04	0/7	1.14E+05	0/7	2.60E+04	0/7
Uranium-233/234	26/27	5.31E-01	8.80E+00	pCi/L	4.42E+03	0/26	2.36E+03	0/26	1.18E+03	0/26	4.42E+03	0/26	1.01E+03	0/26
Uranium-235	7/27	5.69E-02	4.20E-01	pCi/L	4.35E+03	0/7	2.32E+03	0/7	1.16E+03	0/7	4.35E+03	0/7	9.95E+02	0/7
Uranium-238	22/27	3.26E-02	1.73E+00	pCi/L	3.59E+03	0/22	1.92E+03	0/22	9.58E+02	0/22	3.59E+03	0/22	8.21E+02	0/22
Section E														
Aluminum	3/5	1.60E+03	1.90E+03	ug/L	3.57E+06	0/3	4.84E+05	0/3	1.47E+06	0/3	3.57E+06	0/3	--	--
Arsenic	4/6	1.00E+01	1.90E+01	ug/L	2.08E+02	0/4	3.76E+01	0/4	5.70E+01	0/4	2.08E+02	0/4	1.59E+01	**2/4**
Barium	6/6	2.05E+01	4.60E+01	ug/L	5.00E+04	0/6	6.77E+03	0/6	7.21E+04	0/6	9.17E+04	0/6	--	--
Iron	5/5	1.70E+02	3.40E+03	ug/L	2.50E+06	0/5	3.39E+05	0/5	1.03E+06	0/5	2.50E+06	0/5	--	--
Lead	3/6	5.40E+00	7.50E+00	ug/L	1.50E+01	0/3	1.50E+01	0/3	1.50E+01	0/3	1.50E+01	0/3	1.50E+01	0/3
Manganese	5/5	1.10E+02	3.00E+02	ug/L	3.43E+03	0/5	4.64E+02	0/5	5.38E+03	0/5	6.46E+03	0/5	--	--
Silver	1/4	3.20E+00	3.20E+00	ug/L	8.97E+02	0/1	1.01E+02	0/1	1.73E+03	0/1	2.19E+03	0/1	--	--
Total Uranium	9/15	3.00E-06	1.04E+01	ug/L	1.07E+04	0/9	1.45E+03	0/9	4.40E+03	0/9	1.07E+04	0/9	--	--
Zinc	5/5	4.10E+01	6.30E+01	ug/L	1.35E+06	0/5	1.52E+05	0/5	4.84E+05	0/5	1.35E+06	0/5	--	--
1,1,1-Trichloroethane	1/3	1.60E+00	1.60E+00	ug/L	6.75E+05	0/1	3.04E+05	0/1	5.50E+05	0/1	6.75E+05	0/1	--	--
Acetone	3/3	6.70E+00	1.10E+02	ug/L	3.97E+06	0/3	4.55E+05	0/3	1.44E+06	0/3	3.97E+06	0/3	--	--
Technetium-99	5/11	1.90E-01	2.70E+00	pCi/L	1.14E+05	0/5	6.06E+04	0/5	3.03E+04	0/5	1.14E+05	0/5	2.60E+04	0/5

Table B.5. Historical Surface Water Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section H														
Fluoride	1/1	2.50E+02	2.50E+02	ug/L	1.43E+05	0/1	1.93E+04	0/1	5.86E+04	0/1	1.43E+05	0/1	--	--
Iron	52/53	1.46E+01	1.17E+03	ug/L	2.50E+06	0/52	3.39E+05	0/52	1.03E+06	0/52	2.50E+06	0/52	--	--
Manganese	1/1	1.00E+01	1.00E+01	ug/L	3.43E+03	0/1	4.64E+02	0/1	5.38E+03	0/1	6.46E+03	0/1	--	--
Total Uranium	57/62	1.00E-06	9.30E+00	ug/L	1.07E+04	0/57	1.45E+03	0/57	4.40E+03	0/57	1.07E+04	0/57	--	--
Zinc	1/1	2.80E+01	2.80E+01	ug/L	1.35E+06	0/1	1.52E+05	0/1	4.84E+05	0/1	1.35E+06	0/1	--	--
Bis(2-ethylhexyl)phthalate	1/1	7.10E+00	7.10E+00	ug/L	6.14E+00	1/1	4.86E+00	1/1	3.72E+00	1/1	6.14E+00	1/1	4.47E-01	1/1
1,1-Dichloroethane	1/70	2.80E-01	2.80E-01	ug/L	1.06E+04	0/1	5.06E+03	0/1	5.19E+03	0/1	1.06E+04	0/1	7.76E+02	0/1
1,1-Dichloroethene	1/70	4.40E-01	4.40E-01	ug/L	2.10E+04	0/1	8.91E+03	0/1	1.67E+04	0/1	2.10E+04	0/1	--	--
Acetone	2/62	4.00E+00	9.70E+02	ug/L	3.97E+06	0/2	4.55E+05	0/2	1.44E+06	0/2	3.97E+06	0/2	--	--
Carbon disulfide	3/63	2.00E+00	3.40E+02	ug/L	4.58E+04	0/3	1.90E+04	0/3	3.60E+04	0/3	4.58E+04	0/3	--	--
cis-1,2-Dichloroethene	2/58	1.80E-01	5.00E-01	ug/L	8.89E+02	0/2	3.71E+02	0/2	7.02E+02	0/2	8.89E+02	0/2	--	--
Methylene chloride	5/70	2.80E-01	7.30E-01	ug/L	7.51E+03	0/5	2.04E+03	0/5	4.79E+03	0/5	7.51E+03	0/5	2.71E+03	0/5
Trichloroethene	52/70	3.80E-01	7.60E+00	ug/L	1.84E+02	0/52	8.10E+01	0/52	1.49E+02	0/52	1.84E+02	0/52	5.02E+01	0/52
Trichlorofluoromethane	4/67	6.60E-01	2.00E+00	ug/L	9.85E+04	0/4	4.46E+04	0/4	8.06E+04	0/4	9.85E+04	0/4	--	--
Technetium-99	7/63	2.63E+00	8.90E+00	pCi/L	1.14E+05	0/7	6.06E+04	0/7	3.03E+04	0/7	1.14E+05	0/7	2.60E+04	0/7
Uranium-233/234	20/21	3.63E-01	1.50E+00	pCi/L	4.42E+03	0/20	2.36E+03	0/20	1.18E+03	0/20	4.42E+03	0/20	1.01E+03	0/20
Uranium-235	2/22	5.57E-02	6.49E-02	pCi/L	4.35E+03	0/2	2.32E+03	0/2	1.16E+03	0/2	4.35E+03	0/2	9.95E+02	0/2
Uranium-238	21/22	3.00E-01	8.60E-01	pCi/L	3.59E+03	0/21	1.92E+03	0/21	9.58E+02	0/21	3.59E+03	0/21	8.21E+02	0/21
Section J														
Iron	94/95	1.34E+02	2.40E+04	ug/L	2.50E+06	0/94	3.39E+05	0/94	1.03E+06	0/94	2.50E+06	0/94	--	--
Total Uranium	80/99	1.24E-01	3.50E+00	ug/L	1.07E+04	0/80	1.45E+03	0/80	4.40E+03	0/80	1.07E+04	0/80	--	--
Zinc	10/10	5.70E+00	3.24E+01	ug/L	1.35E+06	0/10	1.52E+05	0/10	4.84E+05	0/10	1.35E+06	0/10	--	--
Chromium, hexavalent	45/124	1.00E-05	2.50E-05	ug/L	3.04E+01	0/45	5.95E-01	0/45	5.21E+01	0/45	2.59E+02	0/45	1.51E+01	0/45
PCB-1221	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1232	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1242	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1248	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1254	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1260	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
PCB-1268	6/7	1.00E+00	1.00E+00	ug/L	1.46E+02	0/6	1.09E+01	0/6	3.81E+01	0/6	1.46E+02	0/6	2.56E+01	0/6
trans-1,2-Dichloroethene	26/36	1.00E+00	1.00E+00	ug/L	8.89E+03	0/26	3.71E+03	0/26	7.02E+03	0/26	8.89E+03	0/26	--	--
Trichloroethene	72/229	2.30E-01	1.00E+00	ug/L	1.84E+02	0/72	8.10E+01	0/72	1.49E+02	0/72	1.84E+02	0/72	5.02E+01	0/72
Technetium-99	5/104	1.00E+00	1.00E+01	pCi/L	1.14E+05	0/5	6.06E+04	0/5	3.03E+04	0/5	1.14E+05	0/5	2.60E+04	0/5
Uranium-233/234	60/63	1.45E-01	1.35E+00	pCi/L	4.42E+03	0/60	2.36E+03	0/60	1.18E+03	0/60	4.42E+03	0/60	1.01E+03	0/60
Uranium-235	3/63	4.69E-02	1.11E-01	pCi/L	4.35E+03	0/3	2.32E+03	0/3	1.16E+03	0/3	4.35E+03	0/3	9.95E+02	0/3
Uranium-238	57/63	1.40E-01	5.91E-01	pCi/L	3.59E+03	0/57	1.92E+03	0/57	9.58E+02	0/57	3.59E+03	0/57	8.21E+02	0/57

Table B.5. Historical Surface Water Data Summary for Parcel 4 (Pre-2006) (Continued)

Notes:
Risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PCB = polychlorinated biphenyl
SL = screening level

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Table B.6. Historical Surface Water Data Summary for Parcel 4 (Post-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section D														
Iron	14/14	8.00E+01	2.00E+03	ug/L	2.50E+06	0/14	3.39E+05	0/14	1.03E+06	0/14	2.50E+06	0/14	--	--
Total Uranium	130/140	2.94E-01	2.91E+00	ug/L	1.07E+04	0/130	1.45E+03	0/130	4.40E+03	0/130	1.07E+04	0/130	--	--
2-Butanone	1/93	2.30E+00	2.30E+00	ug/L	1.93E+06	0/1	2.83E+05	0/1	8.38E+05	0/1	1.93E+06	0/1	--	--
Acetone	38/93	2.20E+00	1.60E+02	ug/L	3.97E+06	0/38	4.55E+05	0/38	1.44E+06	0/38	3.97E+06	0/38	--	--
Bromodichloromethane	1/93	2.00E+00	2.00E+00	ug/L	1.19E+03	0/1	5.24E+02	0/1	5.60E+02	0/1	1.19E+03	0/1	8.75E+01	0/1
Bromoform	1/93	9.40E-01	9.40E-01	ug/L	9.04E+03	0/1	4.04E+03	0/1	4.29E+03	0/1	9.04E+03	0/1	6.65E+02	0/1
Chloroform	3/93	1.60E-01	2.00E+00	ug/L	1.79E+03	0/3	8.84E+02	0/3	8.91E+02	0/3	1.79E+03	0/3	1.31E+02	0/3
Chloromethane	1/93	8.80E-01	8.80E-01	ug/L	9.64E+03	0/1	3.24E+03	0/1	3.93E+03	0/1	9.64E+03	0/1	7.15E+02	0/1
cis-1,2-Dichloroethene	1/93	2.30E-01	2.30E-01	ug/L	8.89E+02	0/1	3.71E+02	0/1	7.02E+02	0/1	8.89E+02	0/1	--	--
Dibromochloromethane	1/93	2.30E+00	2.30E+00	ug/L	9.13E+02	0/1	3.95E+02	0/1	4.26E+02	0/1	9.13E+02	0/1	6.72E+01	0/1
Methylene chloride	7/93	3.20E-01	3.30E+00	ug/L	7.51E+03	0/7	2.04E+03	0/7	4.79E+03	0/7	7.51E+03	0/7	2.71E+03	0/7
Toluene	3/93	1.70E-01	2.70E-01	ug/L	1.37E+04	0/3	7.00E+03	0/3	1.18E+04	0/3	1.37E+04	0/3	--	--
Trichloroethene	1/98	2.80E-01	2.80E-01	ug/L	1.84E+02	0/1	8.10E+01	0/1	1.49E+02	0/1	1.84E+02	0/1	5.02E+01	0/1
Americium-241	1/98	7.37E-02	7.37E-02	pCi/L	3.00E+03	0/1	1.60E+03	0/1	8.01E+02	0/1	3.00E+03	0/1	6.87E+02	0/1
Plutonium-238	1/99	2.26E-01	2.26E-01	pCi/L	2.39E+03	0/1	1.27E+03	0/1	6.36E+02	0/1	2.39E+03	0/1	5.45E+02	0/1
Plutonium-239/240	1/99	2.03E-01	2.03E-01	pCi/L	2.31E+03	0/1	1.23E+03	0/1	6.17E+02	0/1	2.31E+03	0/1	5.29E+02	0/1
Technetium-99	10/141	5.80E+00	6.02E+01	pCi/L	1.14E+05	0/10	6.06E+04	0/10	3.03E+04	0/10	1.14E+05	0/10	2.60E+04	0/10
Uranium-233/234	138/140	2.36E-01	2.59E+00	pCi/L	4.42E+03	0/138	2.36E+03	0/138	1.18E+03	0/138	4.42E+03	0/138	1.01E+03	0/138
Uranium-235	6/41	4.81E-02	8.10E-02	pCi/L	4.35E+03	0/6	2.32E+03	0/6	1.16E+03	0/6	4.35E+03	0/6	9.95E+02	0/6
Uranium-235/236	3/99	3.90E-02	1.44E-01	pCi/L	4.35E+03	0/3	2.32E+03	0/3	1.16E+03	0/3	4.35E+03	0/3	9.95E+02	0/3
Uranium-238	131/140	9.86E-02	9.66E-01	pCi/L	3.59E+03	0/131	1.92E+03	0/131	9.58E+02	0/131	3.59E+03	0/131	8.21E+02	0/131
Section H														
Iron	14/14	6.50E+01	4.00E+03	ug/L	2.50E+06	0/14	3.39E+05	0/14	1.03E+06	0/14	2.50E+06	0/14	--	--
Total Uranium	95/96	7.22E-01	3.54E+00	ug/L	1.07E+04	0/95	1.45E+03	0/95	4.40E+03	0/95	1.07E+04	0/95	--	--
1,1-Dichloroethane	9/96	1.70E-01	2.80E-01	ug/L	1.06E+04	0/9	5.06E+03	0/9	5.19E+03	0/9	1.06E+04	0/9	7.76E+02	0/9
1,1-Dichloroethene	40/96	1.50E-01	5.42E-01	ug/L	2.10E+04	0/40	8.91E+03	0/40	1.67E+04	0/40	2.10E+04	0/40	--	--
2-Butanone	1/96	7.60E+00	7.60E+00	ug/L	1.93E+06	0/1	2.83E+05	0/1	8.38E+05	0/1	1.93E+06	0/1	--	--
Acetone	13/96	2.00E+00	7.30E+00	ug/L	3.97E+06	0/13	4.55E+05	0/13	1.44E+06	0/13	3.97E+06	0/13	--	--
Bromomethane	1/96	2.24E-01	2.24E-01	ug/L	2.04E+03	0/1	5.09E+02	0/1	1.24E+03	0/1	2.04E+03	0/1	--	--
Chloromethane	2/96	8.34E-01	8.70E-01	ug/L	9.64E+03	0/2	3.24E+03	0/2	3.93E+03	0/2	9.64E+03	0/2	7.15E+02	0/2
cis-1,2-Dichloroethene	66/96	1.50E-01	6.90E-01	ug/L	8.89E+02	0/66	3.71E+02	0/66	7.02E+02	0/66	8.89E+02	0/66	--	--
Methylene chloride	6/96	3.30E-01	1.20E+00	ug/L	7.51E+03	0/6	2.04E+03	0/6	4.79E+03	0/6	7.51E+03	0/6	2.71E+03	0/6
Trichloroethene	91/96	2.40E-01	7.10E+00	ug/L	1.84E+02	0/91	8.10E+01	0/91	1.49E+02	0/91	1.84E+02	0/91	5.02E+01	0/91
Trichlorofluoromethane	2/96	4.20E-01	6.40E-01	ug/L	9.85E+04	0/2	4.46E+04	0/2	8.06E+04	0/2	9.85E+04	0/2	--	--
Americium-241	1/54	7.53E-02	7.53E-02	pCi/L	3.00E+03	0/1	1.60E+03	0/1	8.01E+02	0/1	3.00E+03	0/1	6.87E+02	0/1

Table B.6. Historical Surface Water Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Uranium-233/234	95/96	3.47E-01	1.53E+00	pCi/L	4.42E+03	0/95	2.36E+03	0/95	1.18E+03	0/95	4.42E+03	0/95	1.01E+03	0/95
Uranium-235	8/28	4.51E-02	8.43E-02	pCi/L	4.35E+03	0/8	2.32E+03	0/8	1.16E+03	0/8	4.35E+03	0/8	9.95E+02	0/8
Uranium-235/236	1/68	5.55E-02	5.55E-02	pCi/L	4.35E+03	0/1	2.32E+03	0/1	1.16E+03	0/1	4.35E+03	0/1	9.95E+02	0/1
Uranium-238	95/96	2.37E-01	1.18E+00	pCi/L	3.59E+03	0/95	1.92E+03	0/95	9.58E+02	0/95	3.59E+03	0/95	8.21E+02	0/95
Section J														
Fluoride	1/1	1.80E-04	1.80E-04	ug/L	1.43E+05	0/1	1.93E+04	0/1	5.86E+04	0/1	1.43E+05	0/1	--	--
Aluminum	1/1	2.50E+02	2.50E+02	ug/L	3.57E+06	0/1	4.84E+05	0/1	1.47E+06	0/1	3.57E+06	0/1	--	--
Barium	1/1	3.00E+01	3.00E+01	ug/L	5.00E+04	0/1	6.77E+03	0/1	7.21E+04	0/1	9.17E+04	0/1	--	--
Iron	62/62	1.10E+02	5.00E+03	ug/L	2.50E+06	0/62	3.39E+05	0/62	1.03E+06	0/62	2.50E+06	0/62	--	--
Manganese	1/1	2.70E+01	2.70E+01	ug/L	3.43E+03	0/1	4.64E+02	0/1	5.38E+03	0/1	6.46E+03	0/1	--	--
Total Uranium	29/29	4.25E-01	1.55E+00	ug/L	1.07E+04	0/29	1.45E+03	0/29	4.40E+03	0/29	1.07E+04	0/29	--	--
Zinc	1/1	1.90E+01	1.90E+01	ug/L	1.35E+06	0/1	1.52E+05	0/1	4.84E+05	0/1	1.35E+06	0/1	--	--
Trichloroethene	10/62	2.00E-01	3.70E-01	ug/L	1.84E+02	0/10	8.10E+01	0/10	1.49E+02	0/10	1.84E+02	0/10	5.02E+01	0/10
Uranium-233/234	28/28	1.61E-01	7.27E-01	pCi/L	4.42E+03	0/28	2.36E+03	0/28	1.18E+03	0/28	4.42E+03	0/28	1.01E+03	0/28
Uranium-238	28/28	1.40E-01	5.17E-01	pCi/L	3.59E+03	0/28	1.92E+03	0/28	9.58E+02	0/28	3.59E+03	0/28	8.21E+02	0/28

Notes:
Risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PCB = polychlorinated biphenyl
SL = screening level

Table B.7. Historical Sediment Data Summary for Parcel 4 (Pre-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section D														
Fluoride	1/1	5.50E+00	5.50E+00	mg/kg	1.17E+05	0/1	1.09E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Aluminum	4/4	2.55E+03	8.00E+03	mg/kg	2.89E+06	0/4	2.73E+05	0/4	1.89E+06	0/4	2.89E+06	0/4	--	--
Antimony	4/4	1.57E+00	1.07E+01	mg/kg	1.17E+03	0/4	1.09E+02	0/4	7.62E+02	0/4	1.17E+03	0/4	--	--
Arsenic	4/4	9.44E+00	5.80E+01	mg/kg	2.34E+02	0/4	3.17E+01	1/4	1.03E+02	0/4	2.34E+02	0/4	1.50E+01	1/4
Barium	4/4	3.09E+01	5.30E+01	mg/kg	5.72E+05	0/4	5.46E+04	0/4	3.76E+05	0/4	5.72E+05	0/4	--	--
Beryllium	4/4	3.19E-01	1.40E+00	mg/kg	5.81E+03	0/4	5.47E+02	0/4	3.80E+03	0/4	5.81E+03	0/4	6.09E+05	0/4
Cadmium	4/4	2.30E-01	1.68E+00	mg/kg	2.49E+03	0/4	2.50E+02	0/4	1.64E+03	0/4	2.49E+03	0/4	8.12E+05	0/4
Cobalt	4/4	8.54E+00	3.90E+01	mg/kg	8.74E+02	0/4	8.21E+01	0/4	5.71E+02	0/4	8.74E+02	0/4	1.62E+05	0/4
Copper	4/4	6.39E+00	1.70E+01	mg/kg	1.17E+05	0/4	1.10E+04	0/4	7.62E+04	0/4	1.17E+05	0/4	--	--
Cyanide	1/1	1.40E+00	1.40E+00	mg/kg	2.84E+01	0/1	2.45E+01	0/1	2.82E+01	0/1	2.84E+01	0/1	--	--
Iron	4/4	1.25E+04	7.60E+04	mg/kg	2.04E+06	0/4	1.92E+05	0/4	1.33E+06	0/4	2.04E+06	0/4	--	--
Lead	4/4	1.02E+01	3.80E+01	mg/kg	4.00E+02	0/4	4.00E+02	0/4	4.00E+02	0/4	4.00E+02	0/4	4.00E+02	0/4
Manganese	4/4	5.67E+02	1.30E+03	mg/kg	6.83E+04	0/4	6.55E+03	0/4	4.50E+04	0/4	6.83E+04	0/4	--	--
Mercury	4/4	2.50E-02	5.00E-02	mg/kg	8.76E+02	0/4	8.21E+01	0/4	5.72E+02	0/4	8.76E+02	0/4	--	--
Nickel	4/4	9.23E+00	2.30E+01	mg/kg	5.77E+04	0/4	5.47E+03	0/4	3.78E+04	0/4	5.77E+04	0/4	5.62E+06	0/4
Selenium	4/4	1.40E+00	1.24E+01	mg/kg	1.46E+04	0/4	1.37E+03	0/4	9.53E+03	0/4	1.46E+04	0/4	--	--
Silver	4/4	3.65E-01	1.70E+01	mg/kg	1.46E+04	0/4	1.37E+03	0/4	9.53E+03	0/4	1.46E+04	0/4	--	--
Thallium	4/4	1.40E+00	6.12E+00	mg/kg	2.92E+01	0/4	2.74E+00	2/4	1.91E+01	0/4	2.92E+01	0/4	--	--
Total Uranium	4/4	3.71E+00	4.80E+00	mg/kg	8.72E+03	0/4	8.21E+02	0/4	5.70E+03	0/4	8.72E+03	0/4	--	--
Vanadium	4/4	1.65E+01	6.50E+01	mg/kg	1.47E+04	0/4	1.38E+03	0/4	9.59E+03	0/4	1.47E+04	0/4	--	--
Zinc	4/4	5.23E+01	1.40E+02	mg/kg	8.76E+05	0/4	8.21E+04	0/4	5.72E+05	0/4	8.76E+05	0/4	--	--
Aldrin	1/1	2.60E-03	2.60E-03	mg/kg	1.06E+01	0/1	1.52E+00	0/1	4.67E+00	0/1	1.06E+01	0/1	1.12E+00	0/1
alpha-Chlordane	1/1	2.60E-03	2.60E-03	mg/kg	6.25E+02	0/1	8.33E+01	0/1	2.74E+02	0/1	6.25E+02	0/1	6.25E+01	0/1
Dieldrin	1/1	5.20E-03	5.20E-03	mg/kg	1.12E+01	0/1	1.61E+00	0/1	4.97E+00	0/1	1.12E+01	0/1	1.19E+00	0/1
Endosulfan I	1/1	5.20E-03	5.20E-03	mg/kg	1.23E+04	0/1	1.33E+03	0/1	8.17E+03	0/1	1.23E+04	0/1	--	--
Endosulfan II	1/1	1.30E-02	1.30E-02	mg/kg	1.23E+04	0/1	1.33E+03	0/1	8.17E+03	0/1	1.23E+04	0/1	--	--
Endosulfan sulfate	1/1	2.10E-02	2.10E-02	mg/kg	1.23E+04	0/1	1.33E+03	0/1	8.17E+03	0/1	1.23E+04	0/1	--	--
Endrin	1/1	5.20E-03	5.20E-03	mg/kg	6.16E+02	0/1	6.64E+01	0/1	4.09E+02	0/1	6.16E+02	0/1	--	--
Heptachlor	1/1	2.60E-03	2.60E-03	mg/kg	3.99E+01	0/1	5.74E+00	0/1	1.77E+01	0/1	3.99E+01	0/1	4.22E+00	0/1
Heptachlor epoxide	1/1	5.20E-03	5.20E-03	mg/kg	1.97E+01	0/1	2.84E+00	0/1	8.73E+00	0/1	1.97E+01	0/1	2.09E+00	0/1
Lindane	1/1	2.60E-03	2.60E-03	mg/kg	1.99E+02	0/1	2.65E+01	0/1	8.71E+01	0/1	1.99E+02	0/1	1.99E+01	0/1
Methoxychlor	1/1	1.00E-01	1.00E-01	mg/kg	1.03E+04	0/1	1.11E+03	0/1	6.81E+03	0/1	1.03E+04	0/1	--	--
PCB-1016	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1221	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1232	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4

Table B.7. Historical Sediment Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
PCB-1242	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1248	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1254	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1260	4/4	1.00E-01	1.00E+00	mg/kg	3.67E+01	0/4	4.11E+00	0/4	2.07E+01	0/4	3.67E+01	0/4	8.73E+00	0/4
PCB-1268	3/3	4.80E-01	1.00E+00	mg/kg	3.67E+01	0/3	4.11E+00	0/3	2.07E+01	0/3	3.67E+01	0/3	8.73E+00	0/3
Benz(a)anthracene	1/1	4.40E-01	4.40E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Benzo(a)pyrene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Benzo(b)fluoranthene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Benzo(k)fluoranthene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Chrysene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Dibenz(a,h)anthracene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Indeno(1,2,3-cd)pyrene	1/1	4.60E-01	4.60E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Total PAHc	1/1	1.02E+00	1.02E+00	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
2-Methylnaphthalene	1/1	1.50E-02	1.50E-02	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Acenaphthene	1/1	4.60E-01	4.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Acenaphthylene	1/1	4.60E-01	4.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Anthracene	1/1	4.40E-01	4.40E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Benzo(ghi)perylene	1/1	4.60E-01	4.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Fluoranthene	1/1	1.60E-01	1.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Fluorene	1/1	4.40E-01	4.40E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Naphthalene	1/1	4.60E-01	4.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Phenanthrene	1/1	1.70E-01	1.70E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Pyrene	1/1	1.40E-01	1.40E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Total PAHnc	1/1	2.72E+00	2.72E+00	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
1,2,4-Trichlorobenzene	1/1	4.60E-01	4.60E-01	mg/kg	4.04E+02	0/1	4.04E+02	0/1	4.04E+02	0/1	4.04E+02	0/1	4.04E+02	0/1
1,2-Dichlorobenzene	1/1	4.60E-01	4.60E-01	mg/kg	3.76E+02	0/1	3.76E+02	0/1	3.76E+02	0/1	3.76E+02	0/1	--	--
1,4-Dichlorobenzene	1/1	4.60E-01	4.60E-01	mg/kg	4.51E+03	0/1	3.13E+03	0/1	2.86E+03	0/1	4.51E+03	0/1	1.15E+03	0/1
2,4-Dinitrotoluene	1/1	4.60E-01	4.60E-01	mg/kg	5.76E+02	0/1	8.29E+01	0/1	2.55E+02	0/1	5.76E+02	0/1	6.10E+01	0/1
2-Chlorophenol	1/1	4.60E-01	4.60E-01	mg/kg	1.46E+04	0/1	1.37E+03	0/1	9.53E+03	0/1	1.46E+04	0/1	--	--
Bis(2-ethylhexyl)phthalate	1/1	6.70E-02	6.70E-02	mg/kg	1.28E+04	0/1	1.84E+03	0/1	5.67E+03	0/1	1.28E+04	0/1	1.36E+03	0/1
Dibenzofuran	1/1	4.60E-01	4.60E-01	mg/kg	1.71E+02	0/1	1.71E+02	0/1	1.71E+02	0/1	1.71E+02	0/1	--	--
Hexachlorobenzene	1/1	4.60E-01	4.60E-01	mg/kg	1.12E+02	0/1	1.61E+01	0/1	4.97E+01	0/1	1.12E+02	0/1	1.19E+01	0/1
Hexachlorobutadiene	1/1	4.60E-01	4.60E-01	mg/kg	2.05E+03	0/1	2.21E+02	0/1	1.02E+03	0/1	2.05E+03	0/1	2.43E+02	0/1
Nitrobenzene	1/1	4.60E-01	4.60E-01	mg/kg	3.05E+03	0/1	5.40E+02	0/1	3.05E+03	0/1	3.05E+03	0/1	2.96E+03	0/1
N-Nitroso-di-n-propylamine	1/1	4.60E-01	4.60E-01	mg/kg	2.57E+01	0/1	3.69E+00	0/1	1.13E+01	0/1	2.57E+01	0/1	2.71E+00	0/1
1,1,1-Trichloroethane	1/1	6.80E-03	6.80E-03	mg/kg	6.40E+02	0/1	6.40E+02	0/1	6.40E+02	0/1	6.40E+02	0/1	--	--
1,1,2,2-Tetrachloroethane	1/1	6.80E-03	6.80E-03	mg/kg	6.61E+02	0/1	1.47E+02	0/1	3.45E+02	0/1	6.61E+02	0/1	9.44E+01	0/1

Table B.7. Historical Sediment Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
1,1,2-Trichloroethane	1/1	6.80E-03	6.80E-03	mg/kg	8.60E+01	0/1	8.03E+01	0/1	8.57E+01	0/1	8.60E+01	0/1	2.69E+02	0/1
1,1-Dichloroethane	1/1	6.80E-03	6.80E-03	mg/kg	1.69E+03	0/1	1.69E+03	0/1	1.69E+03	0/1	1.69E+03	0/1	1.41E+03	0/1
1,1-Dichloroethene	1/1	6.80E-03	6.80E-03	mg/kg	1.19E+03	0/1	1.19E+03	0/1	1.19E+03	0/1	1.19E+03	0/1	--	--
1,2-Dichloroethane	1/1	6.80E-03	6.80E-03	mg/kg	6.96E+02	0/1	2.73E+02	0/1	4.10E+02	0/1	6.96E+02	0/1	1.38E+02	0/1
2-Hexanone	1/1	6.80E-02	6.80E-02	mg/kg	3.28E+03	0/1	1.29E+03	0/1	3.28E+03	0/1	3.28E+03	0/1	--	--
4-Methyl-2-pentanone	1/1	6.80E-02	6.80E-02	mg/kg	3.36E+03	0/1	3.36E+03	0/1	3.36E+03	0/1	3.36E+03	0/1	--	--
Acetone	1/1	1.40E-01	1.40E-01	mg/kg	1.14E+05	0/1	1.14E+05	0/1	1.14E+05	0/1	1.14E+05	0/1	--	--
Benzene	1/1	6.80E-03	6.80E-03	mg/kg	1.58E+03	0/1	4.91E+02	0/1	8.89E+02	0/1	1.58E+03	0/1	2.76E+02	0/1
Bromodichloromethane	1/1	6.80E-03	6.80E-03	mg/kg	4.95E+02	0/1	3.05E+02	0/1	3.10E+02	0/1	4.95E+02	0/1	1.20E+02	0/1
Bromoform	1/1	6.80E-03	6.80E-03	mg/kg	2.27E+04	0/1	3.27E+03	0/1	1.01E+04	0/1	2.27E+04	0/1	2.40E+03	0/1
Bromomethane	1/1	1.40E-02	1.40E-02	mg/kg	3.81E+02	0/1	2.00E+02	0/1	3.63E+02	0/1	3.81E+02	0/1	--	--
Carbon disulfide	1/1	6.80E-03	6.80E-03	mg/kg	7.38E+02	0/1	7.38E+02	0/1	7.38E+02	0/1	7.38E+02	0/1	--	--
Carbon tetrachloride	1/1	6.80E-03	6.80E-03	mg/kg	4.58E+02	0/1	3.62E+02	0/1	4.58E+02	0/1	4.58E+02	0/1	1.86E+02	0/1
Chlorobenzene	1/1	6.80E-03	6.80E-03	mg/kg	7.61E+02	0/1	7.61E+02	0/1	7.61E+02	0/1	7.61E+02	0/1	--	--
Chloroethane	1/1	1.40E-02	1.40E-02	mg/kg	2.12E+03	0/1	2.12E+03	0/1	2.12E+03	0/1	2.12E+03	0/1	--	--
Chloroform	1/1	6.80E-03	6.80E-03	mg/kg	5.59E+02	0/1	4.50E+02	0/1	3.60E+02	0/1	5.59E+02	0/1	1.49E+02	0/1
Chloromethane	1/1	1.40E-02	1.40E-02	mg/kg	1.32E+03	0/1	1.32E+03	0/1	1.32E+03	0/1	1.32E+03	0/1	6.74E+02	0/1
cis-1,2-Dichloroethene	1/1	6.80E-03	6.80E-03	mg/kg	2.37E+03	0/1	5.48E+02	0/1	2.37E+03	0/1	2.37E+03	0/1	--	--
Dibromochloromethane	1/1	6.80E-03	6.80E-03	mg/kg	8.02E+02	0/1	3.21E+02	0/1	5.80E+02	0/1	8.02E+02	0/1	1.80E+02	0/1
Ethylbenzene	1/1	6.80E-03	6.80E-03	mg/kg	4.80E+02	0/1	4.80E+02	0/1	4.80E+02	0/1	4.80E+02	0/1	4.80E+02	0/1
M + P Xylene	1/1	6.80E-03	6.80E-03	mg/kg	2.60E+02	0/1	2.60E+02	0/1	2.60E+02	0/1	2.60E+02	0/1	--	--
Methylene chloride	1/1	6.80E-03	6.80E-03	mg/kg	3.32E+03	0/1	1.61E+03	0/1	3.32E+03	0/1	3.32E+03	0/1	2.63E+03	0/1
Styrene	1/1	6.80E-03	6.80E-03	mg/kg	8.67E+02	0/1	8.67E+02	0/1	8.67E+02	0/1	8.67E+02	0/1	--	--
Tetrachloroethene	1/1	6.80E-03	6.80E-03	mg/kg	1.66E+02	0/1	1.66E+02	0/1	1.66E+02	0/1	1.66E+02	0/1	1.66E+02	0/1
Toluene	1/1	6.80E-03	6.80E-03	mg/kg	8.18E+02	0/1	8.18E+02	0/1	8.18E+02	0/1	8.18E+02	0/1	--	--
trans-1,2-Dichloroethene	1/1	6.80E-03	6.80E-03	mg/kg	1.67E+03	0/1	1.67E+03	0/1	1.67E+03	0/1	1.67E+03	0/1	--	--
Trichloroethene	1/1	6.80E-03	6.80E-03	mg/kg	2.24E+02	0/1	9.03E+01	0/1	2.07E+02	0/1	2.24E+02	0/1	3.28E+02	0/1
Vinyl chloride	1/1	1.40E-02	1.40E-02	mg/kg	2.94E+00	0/1	2.64E+00	0/1	2.90E+00	0/1	2.94E+00	0/1	7.52E-01	0/1
Americium-241	3/3	-4.80E-02	7.19E-03	pCi/g	8.20E+02	0/3	3.90E+02	0/3	3.42E+02	0/3	8.20E+02	0/3	2.25E+02	0/3
Neptunium-237	4/4	-3.26E-02	8.63E-03	pCi/g	7.67E+02	0/4	4.56E+02	0/4	3.46E+02	0/4	7.67E+02	0/4	2.21E+02	0/4
Plutonium-238	4/4	0.00E+00	4.73E-02	pCi/g	1.08E+03	0/4	3.78E+02	0/4	3.85E+02	0/4	1.08E+03	0/4	2.92E+02	0/4
Plutonium-239	1/1	0.00E+00	0.00E+00	pCi/g	1.01E+03	0/1	3.64E+02	0/1	3.62E+02	0/1	1.01E+03	0/1	2.54E+02	0/1
Technetium-99	4/4	2.71E-01	2.60E+00	pCi/g	8.35E+04	0/4	1.14E+04	0/4	1.12E+04	0/4	8.35E+04	0/4	2.14E+04	0/4
Uranium-233/234	3/3	1.76E+00	2.42E+00	pCi/g	2.37E+03	0/3	5.61E+02	0/3	5.58E+02	0/3	2.37E+03	0/3	5.97E+02	0/3
Uranium-234	1/1	1.56E+01	1.56E+01	pCi/g	2.37E+03	0/1	5.61E+02	0/1	5.58E+02	0/1	2.37E+03	0/1	5.97E+02	0/1
Uranium-235	4/4	6.63E-02	2.00E-01	pCi/g	9.15E+01	0/4	1.03E+02	0/4	5.67E+01	0/4	9.15E+01	0/4	2.90E+01	0/4
Uranium-238	4/4	1.24E+00	1.60E+00	pCi/g	3.87E+02	0/4	2.52E+02	0/4	1.80E+02	0/4	3.87E+02	0/4	1.14E+02	0/4

Table B.7. Historical Sediment Data Summary for Parcel 4 (Pre-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section E														
Aluminum	1/1	4.60E+03	4.60E+03	mg/kg	2.89E+06	0/1	2.73E+05	0/1	1.89E+06	0/1	2.89E+06	0/1	--	--
Arsenic	1/1	2.00E+01	2.00E+01	mg/kg	2.34E+02	0/1	3.17E+01	0/1	1.03E+02	0/1	2.34E+02	0/1	1.50E+01	1/1
Barium	1/1	3.60E+01	3.60E+01	mg/kg	5.72E+05	0/1	5.46E+04	0/1	3.76E+05	0/1	5.72E+05	0/1	--	--
Cobalt	1/1	1.30E+01	1.30E+01	mg/kg	8.74E+02	0/1	8.21E+01	0/1	5.71E+02	0/1	8.74E+02	0/1	1.62E+05	0/1
Copper	1/1	1.30E+01	1.30E+01	mg/kg	1.17E+05	0/1	1.10E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Iron	1/1	1.60E+04	1.60E+04	mg/kg	2.04E+06	0/1	1.92E+05	0/1	1.33E+06	0/1	2.04E+06	0/1	--	--
Lead	1/1	1.60E+01	1.60E+01	mg/kg	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1
Manganese	1/1	2.90E+02	2.90E+02	mg/kg	6.83E+04	0/1	6.55E+03	0/1	4.50E+04	0/1	6.83E+04	0/1	--	--
Mercury	1/1	5.80E-02	5.80E-02	mg/kg	8.76E+02	0/1	8.21E+01	0/1	5.72E+02	0/1	8.76E+02	0/1	--	--
Nickel	1/1	1.60E+01	1.60E+01	mg/kg	5.77E+04	0/1	5.47E+03	0/1	3.78E+04	0/1	5.77E+04	0/1	5.62E+06	0/1
Total Uranium	1/1	8.50E+00	8.50E+00	mg/kg	8.72E+03	0/1	8.21E+02	0/1	5.70E+03	0/1	8.72E+03	0/1	--	--
Vanadium	1/1	2.00E+01	2.00E+01	mg/kg	1.47E+04	0/1	1.38E+03	0/1	9.59E+03	0/1	1.47E+04	0/1	--	--
Zinc	1/1	1.20E+02	1.20E+02	mg/kg	8.76E+05	0/1	8.21E+04	0/1	5.72E+05	0/1	8.76E+05	0/1	--	--
Benzo(b)fluoranthene	1/1	1.50E-01	1.50E-01	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Total PAHc	1/1	1.72E+00	1.72E+00	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Fluoranthene	1/1	3.60E-01	3.60E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Pyrene	1/1	2.90E-01	2.90E-01	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Total PAHnc	1/1	6.81E+00	6.81E+00	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Section J														
Aluminum	1/1	6.30E+03	6.30E+03	mg/kg	2.89E+06	0/1	2.73E+05	0/1	1.89E+06	0/1	2.89E+06	0/1	--	--
Arsenic	1/1	9.20E+00	9.20E+00	mg/kg	2.34E+02	0/1	3.17E+01	0/1	1.03E+02	0/1	2.34E+02	0/1	1.50E+01	0/1
Barium	1/1	5.10E+01	5.10E+01	mg/kg	5.72E+05	0/1	5.46E+04	0/1	3.76E+05	0/1	5.72E+05	0/1	--	--
Cadmium	1/1	8.90E-01	8.90E-01	mg/kg	2.49E+03	0/1	2.50E+02	0/1	1.64E+03	0/1	2.49E+03	0/1	8.12E+05	0/1
Cobalt	1/1	9.20E+00	9.20E+00	mg/kg	8.74E+02	0/1	8.21E+01	0/1	5.71E+02	0/1	8.74E+02	0/1	1.62E+05	0/1
Copper	1/1	1.30E+01	1.30E+01	mg/kg	1.17E+05	0/1	1.10E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Iron	1/1	1.80E+04	1.80E+04	mg/kg	2.04E+06	0/1	1.92E+05	0/1	1.33E+06	0/1	2.04E+06	0/1	--	--
Lead	1/1	1.20E+01	1.20E+01	mg/kg	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1
Manganese	1/1	3.10E+02	3.10E+02	mg/kg	6.83E+04	0/1	6.55E+03	0/1	4.50E+04	0/1	6.83E+04	0/1	--	--
Nickel	1/1	1.50E+01	1.50E+01	mg/kg	5.77E+04	0/1	5.47E+03	0/1	3.78E+04	0/1	5.77E+04	0/1	5.62E+06	0/1
Silver	1/1	4.70E+00	4.70E+00	mg/kg	1.46E+04	0/1	1.37E+03	0/1	9.53E+03	0/1	1.46E+04	0/1	--	--
Total Uranium	1/1	2.50E+00	2.50E+00	mg/kg	8.72E+03	0/1	8.21E+02	0/1	5.70E+03	0/1	8.72E+03	0/1	--	--
Vanadium	1/1	2.10E+01	2.10E+01	mg/kg	1.47E+04	0/1	1.38E+03	0/1	9.59E+03	0/1	1.47E+04	0/1	--	--
Zinc	1/1	1.50E+02	1.50E+02	mg/kg	8.76E+05	0/1	8.21E+04	0/1	5.72E+05	0/1	8.76E+05	0/1	--	--
Total PAHc	1/1	0.00E+00	0.00E+00	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Total PAHnc	1/1	0.00E+00	0.00E+00	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Bis(2-ethylhexyl)phthalate	1/1	8.90E-02	8.90E-02	mg/kg	1.28E+04	0/1	1.84E+03	0/1	5.67E+03	0/1	1.28E+04	0/1	1.36E+03	0/1
Technetium-99	1/1	3.00E-01	3.00E-01	pCi/g	8.35E+04	0/1	1.14E+04	0/1	1.12E+04	0/1	8.35E+04	0/1	2.14E+04	0/1

Table B.6. Historical Surface Water Data Summary for Parcel 4 (Post-2006) (Continued)

Notes:
Risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PAHC = carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,4-cd)pyrene]
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons [2-methlynaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene]
PCB = polychlorinated biphenyl
SL = screening level

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Table B.8. Historical Surface Water Data Summary for Parcel 4 (Post-2006)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
							Section D							
Aluminum	20/20	2.72E+03	9.36E+03	mg/kg	2.89E+06	0/20	2.73E+05	0/20	1.89E+06	0/20	2.89E+06	0/20	--	--
Antimony	20/20	6.00E-02	2.60E+00	mg/kg	1.17E+03	0/20	1.09E+02	0/20	7.62E+02	0/20	1.17E+03	0/20	--	--
Arsenic	20/20	8.41E+00	6.06E+01	mg/kg	2.34E+02	0/20	3.17E+01	**4/20**	1.03E+02	0/20	2.34E+02	0/20	1.50E+01	**13/20**
Barium	20/20	2.95E+01	1.45E+02	mg/kg	5.72E+05	0/20	5.46E+04	0/20	3.76E+05	0/20	5.72E+05	0/20	--	--
Beryllium	20/20	3.57E-01	1.70E+00	mg/kg	5.81E+03	0/20	5.47E+02	0/20	3.80E+03	0/20	5.81E+03	0/20	6.09E+05	0/20
Cadmium	20/20	5.00E-02	4.50E-01	mg/kg	2.49E+03	0/20	2.50E+02	0/20	1.64E+03	0/20	2.49E+03	0/20	8.12E+05	0/20
Cobalt	4/4	1.10E+01	1.94E+01	mg/kg	8.74E+02	0/4	8.21E+01	0/4	5.71E+02	0/4	8.74E+02	0/4	1.62E+05	0/4
Copper	20/20	5.52E+00	2.04E+01	mg/kg	1.17E+05	0/20	1.10E+04	0/20	7.62E+04	0/20	1.17E+05	0/20	--	--
Iron	20/20	1.02E+04	6.73E+04	mg/kg	2.04E+06	0/20	1.92E+05	0/20	1.33E+06	0/20	2.04E+06	0/20	--	--
Lead	20/20	7.24E+00	4.99E+01	mg/kg	4.00E+02	0/20	4.00E+02	0/20	4.00E+02	0/20	4.00E+02	0/20	4.00E+02	0/20
Manganese	20/20	3.38E+02	2.98E+03	mg/kg	6.83E+04	0/20	6.55E+03	0/20	4.50E+04	0/20	6.83E+04	0/20	--	--
Mercury	20/20	1.00E-02	5.57E-02	mg/kg	8.76E+02	0/20	8.21E+01	0/20	5.72E+02	0/20	8.76E+02	0/20	--	--
Nickel	20/20	8.21E+00	3.65E+01	mg/kg	5.77E+04	0/20	5.47E+03	0/20	3.78E+04	0/20	5.77E+04	0/20	5.62E+06	0/20
Selenium	20/20	4.28E-01	2.17E+00	mg/kg	1.46E+04	0/20	1.37E+03	0/20	9.53E+03	0/20	1.46E+04	0/20	--	--
Silver	20/20	7.00E-02	8.40E+00	mg/kg	1.46E+04	0/20	1.37E+03	0/20	9.53E+03	0/20	1.46E+04	0/20	--	--
Thallium	20/20	1.47E-01	1.36E+00	mg/kg	2.92E+01	0/20	2.74E+00	0/20	1.91E+01	0/20	2.92E+01	0/20	--	--
Total Uranium	20/20	9.81E-01	5.73E+00	mg/kg	8.72E+03	0/20	8.21E+02	0/20	5.70E+03	0/20	8.72E+03	0/20	--	--
Vanadium	4/4	1.52E+01	4.31E+01	mg/kg	1.47E+04	0/4	1.38E+03	0/4	9.59E+03	0/4	1.47E+04	0/4	--	--
Zinc	20/20	4.18E+01	1.27E+02	mg/kg	8.76E+05	0/20	8.21E+04	0/20	5.72E+05	0/20	8.76E+05	0/20	--	--
PCB-1016	11/11	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1221	11/11	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1232	11/11	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1242	11/11	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1248	11/11	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1254	11/11	1.30E-02	3.30E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1260	11/11	1.90E-02	5.70E-02	mg/kg	3.67E+01	0/11	4.11E+00	0/11	2.07E+01	0/11	3.67E+01	0/11	8.73E+00	0/11
PCB-1268	10/10	7.04E-03	1.90E-02	mg/kg	3.67E+01	0/10	4.11E+00	0/10	2.07E+01	0/10	3.67E+01	0/10	8.73E+00	0/10
Americium-241	18/18	-7.82E-03	1.21E-02	pCi/g	8.20E+02	0/18	3.90E+02	0/18	3.42E+02	0/18	8.20E+02	0/18	2.25E+02	0/18
Neptunium-237	18/18	-2.96E-02	3.41E-03	pCi/g	7.67E+02	0/18	4.56E+02	0/18	3.46E+02	0/18	7.67E+02	0/18	2.21E+02	0/18
Plutonium-238	18/18	-3.69E-03	9.70E-03	pCi/g	1.08E+03	0/18	3.78E+02	0/18	3.85E+02	0/18	1.08E+03	0/18	2.92E+02	0/18
Technetium-99	20/20	1.18E-01	1.90E+00	pCi/g	8.35E+04	0/20	1.14E+04	0/20	1.12E+04	0/20	8.35E+04	0/20	2.14E+04	0/20
Uranium-233/234	18/18	5.35E-01	3.12E+00	pCi/g	2.37E+03	0/18	5.61E+02	0/18	5.58E+02	0/18	2.37E+03	0/18	5.97E+02	0/18
Uranium-235	7/7	3.89E-02	1.01E-01	pCi/g	9.15E+01	0/7	1.03E+02	0/7	5.67E+01	0/7	9.15E+01	0/7	2.90E+01	0/7
Uranium-235/236	11/11	2.63E-02	1.70E-01	pCi/g	9.15E+01	0/11	1.03E+02	0/11	5.67E+01	0/11	9.15E+01	0/11	2.90E+01	0/11
Uranium-238	18/18	3.26E-01	1.90E+00	pCi/g	3.87E+02	0/18	2.52E+02	0/18	1.80E+02	0/18	3.87E+02	0/18	1.14E+02	0/18

Table B.8. Historical Surface Water Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Section E														
Fluoride	1/1	1.32E+00	1.32E+00	mg/kg	1.17E+05	0/1	1.09E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Aluminum	1/1	5.47E+03	5.47E+03	mg/kg	2.89E+06	0/1	2.73E+05	0/1	1.89E+06	0/1	2.89E+06	0/1	--	--
Antimony	1/1	2.07E+00	2.07E+00	mg/kg	1.17E+03	0/1	1.09E+02	0/1	7.62E+02	0/1	1.17E+03	0/1	--	--
Arsenic	1/1	1.86E+01	1.86E+01	mg/kg	2.34E+02	0/1	3.17E+01	0/1	1.03E+02	0/1	2.34E+02	0/1	1.50E+01	1/1
Barium	1/1	6.70E+01	6.70E+01	mg/kg	5.72E+05	0/1	5.46E+04	0/1	3.76E+05	0/1	5.72E+05	0/1	--	--
Beryllium	1/1	7.82E-01	7.82E-01	mg/kg	5.81E+03	0/1	5.47E+02	0/1	3.80E+03	0/1	5.81E+03	0/1	6.09E+05	0/1
Cadmium	1/1	4.26E-01	4.26E-01	mg/kg	2.49E+03	0/1	2.50E+02	0/1	1.64E+03	0/1	2.49E+03	0/1	8.12E+05	0/1
Chromium, trivalent	1/1	1.49E+01	1.49E+01	mg/kg	4.38E+06	0/1	4.11E+05	0/1	2.86E+06	0/1	4.38E+06	0/1	--	--
Cobalt	1/1	1.61E+01	1.61E+01	mg/kg	8.74E+02	0/1	8.21E+01	0/1	5.71E+02	0/1	8.74E+02	0/1	1.62E+05	0/1
Copper	1/1	1.47E+01	1.47E+01	mg/kg	1.17E+05	0/1	1.10E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Iron	1/1	2.90E+04	2.90E+04	mg/kg	2.04E+06	0/1	1.92E+05	0/1	1.33E+06	0/1	2.04E+06	0/1	--	--
Lead	1/1	1.84E+01	1.84E+01	mg/kg	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1
Manganese	1/1	7.49E+02	7.49E+02	mg/kg	6.83E+04	0/1	6.55E+03	0/1	4.50E+04	0/1	6.83E+04	0/1	--	--
Nickel	1/1	2.04E+01	2.04E+01	mg/kg	5.77E+04	0/1	5.47E+03	0/1	3.78E+04	0/1	5.77E+04	0/1	5.62E+06	0/1
Selenium	1/1	1.80E+00	1.80E+00	mg/kg	1.46E+04	0/1	1.37E+03	0/1	9.53E+03	0/1	1.46E+04	0/1	--	--
Silver	1/1	6.84E-01	6.84E-01	mg/kg	1.46E+04	0/1	1.37E+03	0/1	9.53E+03	0/1	1.46E+04	0/1	--	--
Thallium	1/1	5.16E-01	5.16E-01	mg/kg	2.92E+01	0/1	2.74E+00	0/1	1.91E+01	0/1	2.92E+01	0/1	--	--
Total Uranium	1/1	2.96E+00	2.96E+00	mg/kg	8.72E+03	0/1	8.21E+02	0/1	5.70E+03	0/1	8.72E+03	0/1	--	--
Vanadium	1/1	3.76E+01	3.76E+01	mg/kg	1.47E+04	0/1	1.38E+03	0/1	9.59E+03	0/1	1.47E+04	0/1	--	--
Zinc	1/1	8.45E+01	8.45E+01	mg/kg	8.76E+05	0/1	8.21E+04	0/1	5.72E+05	0/1	8.76E+05	0/1	--	--
PCB-1254	1/1	2.04E-03	2.04E-03	mg/kg	3.67E+01	0/1	4.11E+00	0/1	2.07E+01	0/1	3.67E+01	0/1	8.73E+00	0/1
PCB-1260	1/1	2.79E-03	2.79E-03	mg/kg	3.67E+01	0/1	4.11E+00	0/1	2.07E+01	0/1	3.67E+01	0/1	8.73E+00	0/1
Total PAHc	1/1	0.00E+00	0.00E+00	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Total PAHnc	1/1	0.00E+00	0.00E+00	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Uranium-233/234	1/1	1.57E+00	1.57E+00	pCi/g	2.37E+03	0/1	5.61E+02	0/1	5.58E+02	0/1	2.37E+03	0/1	5.97E+02	0/1
Uranium-235/236	1/1	1.01E-01	1.01E-01	pCi/g	9.15E+01	0/1	1.03E+02	0/1	5.67E+01	0/1	9.15E+01	0/1	2.90E+01	0/1
Uranium-238	1/1	1.05E+00	1.05E+00	pCi/g	3.87E+02	0/1	2.52E+02	0/1	1.80E+02	0/1	3.87E+02	0/1	1.14E+02	0/1
Section J														
Fluoride	1/1	1.30E+00	1.30E+00	mg/kg	1.17E+05	0/1	1.09E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--
Aluminum	1/1	5.79E+03	5.79E+03	mg/kg	2.89E+06	0/1	2.73E+05	0/1	1.89E+06	0/1	2.89E+06	0/1	--	--
Arsenic	1/1	9.30E+00	9.30E+00	mg/kg	2.34E+02	0/1	3.17E+01	0/1	1.03E+02	0/1	2.34E+02	0/1	1.50E+01	0/1
Barium	1/1	5.06E+01	5.06E+01	mg/kg	5.72E+05	0/1	5.46E+04	0/1	3.76E+05	0/1	5.72E+05	0/1	--	--
Beryllium	1/1	3.90E-01	3.90E-01	mg/kg	5.81E+03	0/1	5.47E+02	0/1	3.80E+03	0/1	5.81E+03	0/1	6.09E+05	0/1
Cadmium	1/1	4.61E-01	4.61E-01	mg/kg	2.49E+03	0/1	2.50E+02	0/1	1.64E+03	0/1	2.49E+03	0/1	8.12E+05	0/1
Chromium, trivalent	1/1	1.23E+01	1.23E+01	mg/kg	4.38E+06	0/1	4.11E+05	0/1	2.86E+06	0/1	4.38E+06	0/1	--	--
Cobalt	1/1	9.13E+00	9.13E+00	mg/kg	8.74E+02	0/1	8.21E+01	0/1	5.71E+02	0/1	8.74E+02	0/1	1.62E+05	0/1
Copper	1/1	1.30E+01	1.30E+01	mg/kg	1.17E+05	0/1	1.10E+04	0/1	7.62E+04	0/1	1.17E+05	0/1	--	--

Table B.8. Historical Surface Water Data Summary for Parcel 4 (Post-2006) (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Outdoor Worker SL	Frequency of Detects Exceeding Outdoor Worker SLs	Recreational Child SL	Frequency of Detects Exceeding Recreational Child SL	Recreational Teen SL	Frequency of Detects Exceeding Recreational Teen SLs	Recreational Adult SL	Frequency of Detects Exceeding Recreational Adult SLs	Recreational Lifetime SL	Frequency of Detects Exceeding Recreational Lifetime SL
Iron	1/1	2.02E+04	2.02E+04	mg/kg	2.04E+06	0/1	1.92E+05	0/1	1.33E+06	0/1	2.04E+06	0/1	--	--
Lead	1/1	1.43E+01	1.43E+01	mg/kg	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1	4.00E+02	0/1
Manganese	1/1	2.11E+02	2.11E+02	mg/kg	6.83E+04	0/1	6.55E+03	0/1	4.50E+04	0/1	6.83E+04	0/1	--	--
Mercury	1/1	2.70E-02	2.70E-02	mg/kg	8.76E+02	0/1	8.21E+01	0/1	5.72E+02	0/1	8.76E+02	0/1	--	--
Nickel	1/1	1.29E+01	1.29E+01	mg/kg	5.77E+04	0/1	5.47E+03	0/1	3.78E+04	0/1	5.77E+04	0/1	5.62E+06	0/1
Silver	1/1	2.67E-01	2.67E-01	mg/kg	1.46E+04	0/1	1.37E+03	0/1	9.53E+03	0/1	1.46E+04	0/1	--	--
Thallium	1/1	2.29E-01	2.29E-01	mg/kg	2.92E+01	0/1	2.74E+00	0/1	1.91E+01	0/1	2.92E+01	0/1	--	--
Total Uranium	1/1	1.51E+00	1.51E+00	mg/kg	8.72E+03	0/1	8.21E+02	0/1	5.70E+03	0/1	8.72E+03	0/1	--	--
Vanadium	1/1	2.47E+01	2.47E+01	mg/kg	1.47E+04	0/1	1.38E+03	0/1	9.59E+03	0/1	1.47E+04	0/1	--	--
Zinc	1/1	5.85E+01	5.85E+01	mg/kg	8.76E+05	0/1	8.21E+04	0/1	5.72E+05	0/1	8.76E+05	0/1	--	--
Chromium, hexavalent	1/1	6.80E-01	6.80E-01	mg/kg	5.06E+02	0/1	1.20E+01	0/1	8.47E+01	0/1	5.06E+02	0/1	1.07E+01	0/1
Cyanide	1/1	7.37E-02	7.37E-02	mg/kg	2.84E+01	0/1	2.45E+01	0/1	2.82E+01	0/1	2.84E+01	0/1	--	--
PCB-1254	1/1	4.92E-03	4.92E-03	mg/kg	3.67E+01	0/1	4.11E+00	0/1	2.07E+01	0/1	3.67E+01	0/1	8.73E+00	0/1
PCB-1260	1/1	4.40E-03	4.40E-03	mg/kg	3.67E+01	0/1	4.11E+00	0/1	2.07E+01	0/1	3.67E+01	0/1	8.73E+00	0/1
Benz(a)anthracene	1/1	1.20E-02	1.20E-02	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Benzo(b)fluoranthene	1/1	1.10E-02	1.10E-02	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Total PAHc	1/1	2.34E-02	2.34E-02	mg/kg	1.65E+02	0/1	4.58E+00	0/1	2.80E+01	0/1	1.65E+02	0/1	4.02E+00	0/1
Fluoranthene	1/1	1.63E-02	1.63E-02	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Pyrene	1/1	1.93E-02	1.93E-02	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
Total PAHnc	1/1	9.56E-02	9.56E-02	mg/kg	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	3.68E+02	0/1	--	--
2-Butanone	1/1	4.51E-03	4.51E-03	mg/kg	2.84E+04	0/1	2.84E+04	0/1	2.84E+04	0/1	2.84E+04	0/1	--	--
Acetone	1/1	1.94E-02	1.94E-02	mg/kg	1.14E+05	0/1	1.14E+05	0/1	1.14E+05	0/1	1.14E+05	0/1	--	--
Uranium-233/234	1/1	3.94E-01	3.94E-01	pCi/g	2.37E+03	0/1	5.61E+02	0/1	5.58E+02	0/1	2.37E+03	0/1	5.97E+02	0/1
Uranium-238	1/1	3.86E-01	3.86E-01	pCi/g	3.87E+02	0/1	2.52E+02	0/1	1.80E+02	0/1	3.87E+02	0/1	1.14E+02	0/1

Notes:
Risk SLs are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PAHC = carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,4-cd)pyrene]
PAHNC = noncarcinogenic polycyclic aromatic hydrocarbons [2-methlynaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene]
PCB = polychlorinated biphenyl
SL = screening level

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Table B.9. Historical Soil Ecological Risk Screen for Parcel 4

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section C - Pre-2006										
Aluminum	4/4	9.50e+03	1.60e+04	mg/kg	2.45e+04	0/4	5.00e-02	4/4	5.00e+01	4/4
Arsenic	4/4	4.60e+00	1.50e+01	mg/kg	3.08e+01	0/4	1.80e+01	0/4	1.80e+01	0/4
Barium	4/4	3.60e+01	5.70e+01	mg/kg	1.14e+02	0/4	3.30e+02	0/4	5.00e+02	0/4
Beryllium	3/4	6.70e-01	1.00e+00	mg/kg	1.25e+00	0/3	1.00e+01	0/3	1.00e+01	0/3
Cadmium	3/4	6.20e-01	9.70e-01	mg/kg	2.41e-01	3/3	3.60e-01	3/3	4.00e+00	0/3
Chromium	4/4	5.40e+00	1.80e+01	mg/kg	3.24e+01	0/4	2.80e+01	0/4	4.50e+01	0/4
Cobalt	4/4	4.70e+00	1.90e+01	mg/kg	2.85e+01	0/4	1.30e+01	2/4	2.00e+01	0/4
Copper	4/4	8.80e+00	1.30e+01	mg/kg	1.85e+01	0/4	2.80e+01	0/4	1.00e+02	0/4
Iron	4/4	2.30e+04	4.30e+04	mg/kg	8.61e+04	0/4	2.00e+02	4/4	2.00e+02	4/4
Lead	4/4	1.20e+01	2.60e+01	mg/kg	3.30e+01	0/4	1.10e+01	4/4	5.00e+01	0/4
Manganese	4/4	7.70e+01	6.60e+02	mg/kg	1.86e+03	0/4	2.20e+02	1/4	5.00e+02	1/4
Mercury	1/4	4.20e-02	4.20e-02	mg/kg	6.00e-02	0/1	1.00e-01	0/1	3.00e-01	0/1
Nickel	4/4	8.20e+00	2.90e+01	mg/kg	2.26e+01	1/4	3.80e+01	0/4	3.00e+01	0/4
Silver	3/4	5.60e+00	1.10e+01	mg/kg	1.10e+01	1/3	4.20e+00	3/3	2.00e+00	3/3
Total Uranium	4/4	2.70e+00	4.40e+00	mg/kg	4.05e+00	1/4	2.50e+01	0/4	5.00e+00	0/4
Vanadium	4/4	2.70e+01	4.90e+01	mg/kg	7.80e+01	0/4	7.80e+00	4/4	2.00e+03	0/4
Zinc	3/4	2.50e+01	7.80e+01	mg/kg	9.31e+01	0/3	4.60e+01	1/3	5.00e+01	1/3
Technetium-99	1/4	2.00e-01	2.00e-01	pCi/g	--	--	4.23e+04	0/1	4.23e+04	0/1
Section C - Pre-2006										
Aluminum	1/1	8.40e+03	8.40e+03	mg/kg	2.45e+04	0/1	5.00e-02	1/1	5.00e+01	1/1
Arsenic	1/1	2.80e+01	2.80e+01	mg/kg	3.08e+01	0/1	1.80e+01	1/1	1.80e+01	1/1
Barium	1/1	6.30e+01	6.30e+01	mg/kg	1.14e+02	0/1	3.30e+02	0/1	5.00e+02	0/1
Beryllium	1/1	1.10e+00	1.10e+00	mg/kg	1.25e+00	0/1	1.00e+01	0/1	1.00e+01	0/1
Cadmium	1/1	9.10e-01	9.10e-01	mg/kg	2.41e-01	1/1	3.60e-01	1/1	4.00e+00	0/1
Chromium	1/1	2.10e+01	2.10e+01	mg/kg	3.24e+01	0/1	2.80e+01	0/1	4.50e+01	0/1
Cobalt	1/1	3.40e+01	3.40e+01	mg/kg	2.85e+01	1/1	1.30e+01	1/1	2.00e+01	1/1
Copper	1/1	1.70e+01	1.70e+01	mg/kg	1.85e+01	0/1	2.80e+01	0/1	1.00e+02	0/1
Iron	1/1	4.30e+04	4.30e+04	mg/kg	8.61e+04	0/1	2.00e+02	1/1	2.00e+02	1/1
Lead	1/1	2.20e+01	2.20e+01	mg/kg	3.30e+01	0/1	1.10e+01	1/1	5.00e+01	0/1
Manganese	1/1	1.20e+03	1.20e+03	mg/kg	1.86e+03	0/1	2.20e+02	1/1	5.00e+02	1/1
Mercury	1/1	3.60e-02	3.60e-02	mg/kg	6.00e-02	0/1	1.00e-01	0/1	3.00e-01	0/1
Nickel	1/1	2.70e+01	2.70e+01	mg/kg	2.26e+01	1/1	3.80e+01	0/1	3.00e+01	0/1
Silver	1/1	9.90e+00	9.90e+00	mg/kg	1.10e+01	0/1	4.20e+00	1/1	2.00e+00	1/1
Total Uranium	1/1	6.40e+00	6.40e+00	mg/kg	4.05e+00	1/1	2.50e+01	0/1	5.00e+00	1/1
Vanadium	1/1	4.80e+01	4.80e+01	mg/kg	7.80e+01	0/1	7.80e+00	1/1	2.00e+03	0/1
Zinc	1/1	1.30e+02	1.30e+02	mg/kg	9.31e+01	1/1	4.60e+01	1/1	5.00e+01	1/1
Anthracene	1/1	1.90e-02	1.90e-02	mg/kg	--	--	2.90e+01	0/1	--	--

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Fluoranthene	1/1	1.10e-01	1.10e-01	mg/kg	--	--	1.10e+00	0/1	--	--
Phenanthrene	1/1	7.50e-02	7.50e-02	mg/kg	--	--	2.90e+01	0/1	--	--
Pyrene	1/1	1.10e-01	1.10e-01	mg/kg	--	--	1.10e+00	0/1	--	--
Technetium-99	1/1	1.60e+00	1.60e+00	pCi/g	--	--	4.23e+04	0/1	4.23e+04	0/1
Bis(2-ethylhexyl)phthalate	1/1	5.40e-02	5.40e-02	mg/kg	--	--	2.00e-02	1/1	--	--
Section E - Pre-2006										
Aluminum	6/6	5.70e+03	2.10e+04	mg/kg	2.45e+04	0/6	5.00e-02	6/6	5.00e+01	6/6
Arsenic	6/6	5.50e+00	1.90e+01	mg/kg	3.08e+01	0/6	1.80e+01	1/6	1.80e+01	1/6
Barium	6/6	5.40e+01	9.60e+01	mg/kg	1.14e+02	0/6	3.30e+02	0/6	5.00e+02	0/6
Beryllium	5/6	6.00e-01	1.20e+00	mg/kg	1.25e+00	0/5	1.00e+01	0/5	1.00e+01	0/5
Cadmium	3/6	8.80e-01	9.90e-01	mg/kg	2.41e-01	3/3	3.60e-01	3/3	4.00e+00	0/3
Chromium	6/6	1.00e+01	2.30e+01	mg/kg	3.24e+01	0/6	2.80e+01	0/6	4.50e+01	0/6
Cobalt	6/6	9.10e+00	1.50e+03	mg/kg	2.85e+01	1/6	1.30e+01	3/6	2.00e+01	1/6
Copper	6/6	7.70e+00	1.80e+01	mg/kg	1.85e+01	0/6	2.80e+01	0/6	1.00e+02	0/6
Iron	6/6	1.60e+04	4.30e+04	mg/kg	8.61e+04	0/6	2.00e+02	6/6	2.00e+02	6/6
Lead	6/6	1.20e+01	1.80e+01	mg/kg	3.30e+01	0/6	1.10e+01	6/6	5.00e+01	0/6
Manganese	6/6	2.20e+02	9.50e+02	mg/kg	1.86e+03	0/6	2.20e+02	6/6	5.00e+02	4/6
Mercury	3/6	1.20e-02	3.70e-02	mg/kg	6.00e-02	0/3	1.00e-01	0/3	3.00e-01	0/3
Nickel	6/6	1.10e+01	2.50e+01	mg/kg	2.26e+01	1/6	3.80e+01	0/6	3.00e+01	0/6
Silver	1/6	6.60e+00	6.60e+00	mg/kg	1.10e+01	0/1	4.20e+00	1/1	2.00e+00	1/1
Total Uranium	6/6	3.30e+00	5.80e+00	mg/kg	4.05e+00	2/6	2.50e+01	0/6	5.00e+00	2/6
Vanadium	6/6	2.00e+01	4.60e+01	mg/kg	7.80e+01	0/6	7.80e+00	6/6	2.00e+03	0/6
Zinc	6/6	3.30e+01	9.30e+01	mg/kg	9.31e+01	0/6	4.60e+01	3/6	5.00e+01	2/6
Technetium-99	1/6	4.00e-01	4.00e-01	pCi/g	--	--	4.23e+04	0/1	4.23e+04	0/1
Bis(2-ethylhexyl)phthalate	1/6	3.50e-02	3.50e-02	mg/kg	--	--	2.00e-02	1/1	--	--
Section G - Pre-2006										
Chromium	1/1	1.10e+01	1.10e+01	mg/kg	3.24e+01	0/1	2.80e+01	0/1	4.50e+01	0/1
Zinc	1/1	4.70e+01	4.70e+01	mg/kg	9.31e+01	0/1	4.60e+01	1/1	5.00e+01	0/1
Section I - Pre-2006										
Aluminum	2/2	8.50e+03	9.00e+03	mg/kg	2.45e+04	0/2	5.00e-02	2/2	5.00e+01	2/2
Arsenic	1/2	2.20e+01	2.20e+01	mg/kg	3.08e+01	0/1	1.80e+01	1/1	1.80e+01	1/1
Barium	2/2	5.50e+01	6.80e+01	mg/kg	1.14e+02	0/2	3.30e+02	0/2	5.00e+02	0/2
Chromium	2/2	1.30e+01	1.60e+01	mg/kg	3.24e+01	0/2	2.80e+01	0/2	4.50e+01	0/2
Cobalt	2/2	4.40e+00	7.00e+00	mg/kg	2.85e+01	0/2	1.30e+01	0/2	2.00e+01	0/2
Copper	1/2	1.10e+01	1.10e+01	mg/kg	1.85e+01	0/1	2.80e+01	0/1	1.00e+02	0/1
Iron	2/2	1.70e+04	2.50e+04	mg/kg	8.61e+04	0/2	2.00e+02	2/2	2.00e+02	2/2
Lead	2/2	1.00e+01	1.40e+01	mg/kg	3.30e+01	0/2	1.10e+01	1/2	5.00e+01	0/2
Manganese	2/2	1.20e+02	1.60e+02	mg/kg	1.86e+03	0/2	2.20e+02	0/2	5.00e+02	0/2
Mercury	1/2	3.10e-02	3.10e-02	mg/kg	6.00e-02	0/1	1.00e-01	0/1	3.00e-01	0/1

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Nickel	1/2	1.10e+01	1.10e+01	mg/kg	2.26e+01	0/1	3.80e+01	0/1	3.00e+01	0/1
Total Uranium	2/2	3.40e+00	3.50e+00	mg/kg	4.05e+00	0/2	2.50e+01	0/2	5.00e+00	0/2
Vanadium	2/2	2.30e+01	2.90e+01	mg/kg	7.80e+01	0/2	7.80e+00	**2/2**	2.00e+03	0/2
Zinc	2/2	3.30e+01	3.60e+01	mg/kg	9.31e+01	0/2	4.60e+01	0/2	5.00e+01	0/2
Section J - Pre-2006										
Aluminum	1/1	2.20e+04	2.20e+04	mg/kg	2.45e+04	0/1	5.00e-02	**1/1**	5.00e+01	**1/1**
Arsenic	1/1	1.60e+01	1.60e+01	mg/kg	3.08e+01	0/1	1.80e+01	0/1	1.80e+01	0/1
Barium	1/1	7.60e+01	7.60e+01	mg/kg	1.14e+02	0/1	3.30e+02	0/1	5.00e+02	0/1
Beryllium	1/1	6.50e-01	6.50e-01	mg/kg	1.25e+00	0/1	1.00e+01	0/1	1.00e+01	0/1
Cadmium	1/1	7.80e-01	7.80e-01	mg/kg	2.41e-01	**1/1**	3.60e-01	**1/1**	4.00e+00	0/1
Chromium	1/1	1.50e+01	1.50e+01	mg/kg	3.24e+01	0/1	2.80e+01	0/1	4.50e+01	0/1
Cobalt	1/1	1.70e+01	1.70e+01	mg/kg	2.85e+01	0/1	1.30e+01	**1/1**	2.00e+01	0/1
Copper	1/1	2.20e+01	2.20e+01	mg/kg	1.85e+01	**1/1**	2.80e+01	0/1	1.00e+02	0/1
Iron	1/1	3.30e+04	3.30e+04	mg/kg	8.61e+04	0/1	2.00e+02	**1/1**	2.00e+02	**1/1**
Lead	1/1	1.70e+01	1.70e+01	mg/kg	3.30e+01	0/1	1.10e+01	**1/1**	5.00e+01	0/1
Manganese	1/1	5.50e+02	5.50e+02	mg/kg	1.86e+03	0/1	2.20e+02	**1/1**	5.00e+02	**1/1**
Mercury	1/1	4.50e-02	4.50e-02	mg/kg	6.00e-02	0/1	1.00e-01	0/1	3.00e-01	0/1
Nickel	1/1	1.90e+01	1.90e+01	mg/kg	2.26e+01	0/1	3.80e+01	0/1	3.00e+01	0/1
Total Uranium	1/1	3.40e+00	3.40e+00	mg/kg	4.05e+00	0/1	2.50e+01	0/1	5.00e+00	0/1
Vanadium	1/1	4.70e+01	4.70e+01	mg/kg	7.80e+01	0/1	7.80e+00	**1/1**	2.00e+03	0/1
Zinc	1/1	6.60e+01	6.60e+01	mg/kg	9.31e+01	0/1	4.60e+01	**1/1**	5.00e+01	**1/1**
Section K - Pre-2006										
Aluminum	1/1	8.40e+03	8.40e+03	mg/kg	2.45e+04	0/1	5.00e-02	**1/1**	5.00e+01	**1/1**
Arsenic	1/1	6.90e+00	6.90e+00	mg/kg	3.08e+01	0/1	1.80e+01	0/1	1.80e+01	0/1
Barium	1/1	6.80e+01	6.80e+01	mg/kg	1.14e+02	0/1	3.30e+02	0/1	5.00e+02	0/1
Chromium	1/1	9.40e+00	9.40e+00	mg/kg	3.24e+01	0/1	2.80e+01	0/1	4.50e+01	0/1
Cobalt	1/1	3.90e+00	3.90e+00	mg/kg	2.85e+01	0/1	1.30e+01	0/1	2.00e+01	0/1
Copper	1/1	6.90e+00	6.90e+00	mg/kg	1.85e+01	0/1	2.80e+01	0/1	1.00e+02	0/1
Iron	1/1	2.10e+04	2.10e+04	mg/kg	8.61e+04	0/1	2.00e+02	**1/1**	2.00e+02	**1/1**
Lead	1/1	9.00e+00	9.00e+00	mg/kg	3.30e+01	0/1	1.10e+01	0/1	5.00e+01	0/1
Manganese	1/1	3.00e+01	3.00e+01	mg/kg	1.86e+03	0/1	2.20e+02	0/1	5.00e+02	0/1
Nickel	1/1	6.50e+00	6.50e+00	mg/kg	2.26e+01	0/1	3.80e+01	0/1	3.00e+01	0/1
Total Uranium	1/1	3.70e+00	3.70e+00	mg/kg	4.05e+00	0/1	2.50e+01	0/1	5.00e+00	0/1
Vanadium	1/1	2.80e+01	2.80e+01	mg/kg	7.80e+01	0/1	7.80e+00	**1/1**	2.00e+03	0/1
Zinc	1/1	1.90e+01	1.90e+01	mg/kg	9.31e+01	0/1	4.60e+01	0/1	5.00e+01	0/1
Acetone	1/1	1.20e-01	1.20e-01	mg/kg	--	--	1.20e+00	0/1	--	--

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section A - Post-2006 (inclusive)										
Aluminum	1/1	1.10e+04	1.10e+04	mg/kg	2.45e+04	0/1	5.00e-02	1/1	5.00e+01	1/1
Arsenic	1/1	9.80e+00	9.80e+00	mg/kg	3.08e+01	0/1	1.80e+01	0/1	1.80e+01	0/1
Barium	1/1	5.30e+01	5.30e+01	mg/kg	1.14e+02	0/1	3.30e+02	0/1	5.00e+02	0/1
Beryllium	1/1	5.80e-01	5.80e-01	mg/kg	1.25e+00	0/1	1.00e+01	0/1	1.00e+01	0/1
Cadmium	1/1	3.70e-02	3.70e-02	mg/kg	2.41e-01	0/1	3.60e-01	0/1	4.00e+00	0/1
Chromium	1/1	1.50e+01	1.50e+01	mg/kg	3.24e+01	0/1	2.80e+01	0/1	4.50e+01	0/1
Cobalt	1/1	7.60e+00	7.60e+00	mg/kg	2.85e+01	0/1	1.30e+01	0/1	2.00e+01	0/1
Copper	1/1	8.70e+00	8.70e+00	mg/kg	1.85e+01	0/1	2.80e+01	0/1	1.00e+02	0/1
Iron	1/1	2.20e+04	2.20e+04	mg/kg	8.61e+04	0/1	2.00e+02	1/1	2.00e+02	1/1
Lead	1/1	1.20e+01	1.20e+01	mg/kg	3.30e+01	0/1	1.10e+01	1/1	5.00e+01	0/1
Manganese	1/1	5.30e+02	5.30e+02	mg/kg	1.86e+03	0/1	2.20e+02	1/1	5.00e+02	1/1
Mercury	1/1	2.20e-02	2.20e-02	mg/kg	6.00e-02	0/1	1.00e-01	0/1	3.00e-01	0/1
Nickel	1/1	8.00e+00	8.00e+00	mg/kg	2.26e+01	0/1	3.80e+01	0/1	3.00e+01	0/1
Selenium	1/1	3.80e-01	3.80e-01	mg/kg	1.79e+00	0/1	5.20e-01	0/1	1.00e+00	0/1
Thallium	1/1	1.90e-01	1.90e-01	mg/kg	3.27e-01	0/1	2.20e-01	0/1	1.00e+00	0/1
Total Uranium	2/2	9.10e-01	2.43e+00	mg/kg	4.05e+00	0/2	2.50e+01	0/2	5.00e+00	0/2
Vanadium	1/1	2.60e+01	2.60e+01	mg/kg	7.80e+01	0/1	7.80e+00	1/1	2.00e+03	0/1
Zinc	1/1	2.70e+01	2.70e+01	mg/kg	9.31e+01	0/1	4.60e+01	0/1	5.00e+01	0/1
Technetium-99	1/2	-1.40e-01	-1.40e-01	pCi/g	--	--	4.23e+04	0/1	4.23e+04	0/1
Thorium-228	1/1	1.10e+00	1.10e+00	pCi/g	1.64e+00	0/1	--	--	--	--
Thorium-230	1/1	1.24e+00	1.24e+00	pCi/g	1.59e+00	0/1	9.98e+03	0/1	9.98e+03	0/1
Thorium-232	1/1	1.02e+00	1.02e+00	pCi/g	1.56e+00	0/1	--	--	--	--
Uranium-233/234	2/2	8.19e-01	8.53e-01	pCi/g	1.30e+00	0/2	5.14e+03	0/2	5.14e+03	0/2
Uranium-235	1/2	4.14e-02	4.14e-02	pCi/g	--	--	2.75e+03	0/1	2.75e+03	0/1
Uranium-238	2/2	8.10e-01	9.17e-01	pCi/g	1.36e+00	0/2	1.57e+03	0/2	1.57e+03	0/2
M + P Xylene	1/1	1.00e-03	1.00e-03	mg/kg	--	--	1.00e-01	0/1	--	--
Section D - Post-2006 (inclusive)										
Total Uranium	1/1	3.86e+00	3.86e+00	mg/kg	4.05e+00	0/1	2.50e+01	0/1	5.00e+00	0/1
Benz(a)anthracene	1/1	1.45e-03	1.45e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(a)pyrene	1/1	1.28e-03	1.28e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(b)fluoranthene	1/1	2.33e-03	2.33e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Chrysene	1/1	1.14e-03	1.14e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(ghi)perylene	1/1	1.09e-03	1.09e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Fluoranthene	1/1	2.29e-03	2.29e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Phenanthrene	1/1	1.26e-03	1.26e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Pyrene	1/1	2.10e-03	2.10e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Uranium-233/234	1/1	1.02e+00	1.02e+00	pCi/g	1.30e+00	0/1	5.14e+03	0/1	5.14e+03	0/1
Uranium-238	1/1	1.29e+00	1.29e+00	pCi/g	1.36e+00	0/1	1.57e+03	0/1	1.57e+03	0/1

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section E - Post-2006 (inclusive)										
Arsenic	5/5	6.83e+00	1.21e+01	mg/kg	3.08e+01	0/5	1.80e+01	0/5	1.80e+01	0/5
Barium	5/5	3.56e+02	4.64e+02	mg/kg	1.14e+02	**5/5**	3.30e+02	**5/5**	5.00e+02	0/5
Cadmium	5/5	1.38e-01	2.30e-01	mg/kg	2.41e-01	0/5	3.60e-01	0/5	4.00e+00	0/5
Chromium	5/5	2.22e+01	2.44e+01	mg/kg	3.24e+01	0/5	2.80e+01	0/5	4.50e+01	0/5
Lead	5/5	2.15e+01	2.99e+01	mg/kg	3.30e+01	0/5	1.10e+01	**5/5**	5.00e+01	0/5
Mercury	5/5	4.50e-02	7.05e-02	mg/kg	6.00e-02	**1/5**	1.00e-01	0/5	3.00e-01	0/5
Selenium	5/5	7.55e-01	1.51e+00	mg/kg	1.79e+00	0/5	5.20e-01	**5/5**	1.00e+00	**3/5**
Silver	5/5	1.08e-01	2.30e-01	mg/kg	1.10e+01	0/5	4.20e+00	0/5	2.00e+00	0/5
Total Uranium	10/10	1.91e+00	3.43e+00	mg/kg	4.05e+00	0/10	2.50e+01	0/10	5.00e+00	0/10
Benz(a)anthracene	4/5	3.38e-03	5.53e-03	mg/kg	--	--	1.10e+00	0/4	--	--
Benzo(a)pyrene	4/5	3.44e-03	6.13e-03	mg/kg	--	--	1.10e+00	0/4	--	--
Benzo(b)fluoranthene	5/5	8.14e-03	1.30e-02	mg/kg	--	--	1.10e+00	0/5	--	--
Benzo(k)fluoranthene	5/5	2.38e-03	5.44e-03	mg/kg	--	--	1.10e+00	0/5	--	--
Chrysene	5/5	4.85e-03	8.20e-03	mg/kg	--	--	1.10e+00	0/5	--	--
Indeno(1,2,3-cd)pyrene	5/5	4.39e-03	7.10e-03	mg/kg	--	--	1.10e+00	0/5	--	--
2-Methylnaphthalene	5/5	2.84e-03	5.80e-03	mg/kg	--	--	2.90e+01	0/5	--	--
Acenaphthene	4/5	3.15e-03	4.20e-03	mg/kg	--	--	2.90e+01	0/4	2.00e+01	0/4
Benzo(ghi)perylene	4/5	5.02e-03	8.36e-03	mg/kg	--	--	1.10e+00	0/4	--	--
Fluoranthene	5/5	7.36e-03	1.25e-02	mg/kg	--	--	1.10e+00	0/5	--	--
Naphthalene	5/5	1.55e-03	2.95e-03	mg/kg	--	--	2.90e+01	0/5	--	--
Phenanthrene	5/5	4.69e-03	6.99e-03	mg/kg	--	--	2.90e+01	0/5	--	--
Pyrene	5/5	6.21e-03	9.76e-03	mg/kg	--	--	1.10e+00	0/5	--	--
Uranium-233/234	5/5	8.60e-01	1.11e+00	pCi/g	1.30e+00	0/5	5.14e+03	0/5	5.14e+03	0/5
Uranium-235/236	2/5	5.22e-02	7.29e-02	pCi/g	9.87e-02	0/2	2.75e+03	0/2	2.75e+03	0/2
Uranium-238	5/5	8.12e-01	1.14e+00	pCi/g	1.36e+00	0/5	1.57e+03	0/5	1.57e+03	0/5
Section F - Post-2006 (inclusive)										
Total Uranium	2/2	2.10e+00	7.30e+00	mg/kg	4.05e+00	**1/2**	2.50e+01	0/2	5.00e+00	**1/2**
Benz(a)anthracene	2/2	2.11e-02	7.85e-02	mg/kg	--	--	1.10e+00	0/2	--	--
Benzo(a)pyrene	2/2	2.08e-02	7.99e-02	mg/kg	--	--	1.10e+00	0/2	--	--
Benzo(b)fluoranthene	2/2	3.04e-02	1.22e-01	mg/kg	--	--	1.10e+00	0/2	--	--
Benzo(k)fluoranthene	2/2	1.06e-02	4.06e-02	mg/kg	--	--	1.10e+00	0/2	--	--
Chrysene	2/2	2.47e-02	9.72e-02	mg/kg	--	--	1.10e+00	0/2	--	--
Dibenz(a,h)anthracene	2/2	4.00e-03	2.25e-02	mg/kg	--	--	1.10e+00	0/2	--	--
Indeno(1,2,3-cd)pyrene	2/2	2.13e-02	8.10e-02	mg/kg	--	--	1.10e+00	0/2	--	--
2-Methylnaphthalene	2/2	1.23e-03	2.02e-03	mg/kg	--	--	2.90e+01	0/2	--	--
Acenaphthene	2/2	2.42e-03	5.14e-03	mg/kg	--	--	2.90e+01	0/2	2.00e+01	0/2
Anthracene	2/2	4.36e-03	6.57e-02	mg/kg	--	--	2.90e+01	0/2	--	--
Benzo(ghi)perylene	2/2	1.60e-02	6.14e-02	mg/kg	--	--	1.10e+00	0/2	--	--

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Fluoranthene	2/2	6.31e-02	2.23e-01	mg/kg	--	--	1.10e+00	0/2	--	--
Fluorene	2/2	2.07e-03	4.64e-03	mg/kg	--	--	2.90e+01	0/2	1.70e+02	0/2
Naphthalene	1/2	1.58e-03	1.58e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Phenanthrene	2/2	2.77e-02	6.73e-02	mg/kg	--	--	2.90e+01	0/2	--	--
Pyrene	2/2	3.98e-02	1.41e-01	mg/kg	--	--	1.10e+00	0/2	--	--
PCB-1260	2/2	5.93e-02	2.69e-01	mg/kg	--	--	8.80e-01	0/2	1.00e+01	0/2
Uranium-233/234	2/2	4.72e+00	3.58e+01	pCi/g	1.30e+00	2/2	5.14e+03	0/2	5.14e+03	0/2
Uranium-235/236	2/2	2.36e-01	1.73e+00	pCi/g	9.87e-02	2/2	2.75e+03	0/2	2.75e+03	0/2
Uranium-238	2/2	4.70e-01	1.56e+00	pCi/g	1.36e+00	1/2	1.57e+03	0/2	1.57e+03	0/2
Section G - Post-2006 (inclusive)										
Total Uranium	5/5	1.30e+00	4.25e+00	mg/kg	4.05e+00	1/5	2.50e+01	0/5	5.00e+00	0/5
Benz(a)anthracene	1/1	2.26e-03	2.26e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(a)pyrene	1/1	1.82e-03	1.82e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(b)fluoranthene	1/1	2.27e-03	2.27e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(k)fluoranthene	1/1	2.03e-03	2.03e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Chrysene	1/1	1.80e-03	1.80e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Dibenz(a,h)anthracene	1/1	1.91e-03	1.91e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Indeno(1,2,3-cd)pyrene	1/1	2.05e-03	2.05e-03	mg/kg	--	--	1.10e+00	0/1	--	--
2-Methylnaphthalene	1/1	1.49e-03	1.49e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Acenaphthene	1/1	1.47e-03	1.47e-03	mg/kg	--	--	2.90e+01	0/1	2.00e+01	0/1
Anthracene	1/1	1.66e-03	1.66e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Benzo(ghi)perylene	1/1	2.14e-03	2.14e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Fluoranthene	1/1	2.09e-03	2.09e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Fluorene	1/1	1.67e-03	1.67e-03	mg/kg	--	--	2.90e+01	0/1	1.70e+02	0/1
Naphthalene	1/1	1.35e-03	1.35e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Phenanthrene	1/1	2.00e-03	2.00e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Pyrene	1/1	2.24e-03	2.24e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Uranium-233/234	5/5	3.93e-01	1.55e+00	pCi/g	1.30e+00	3/5	5.14e+03	0/5	5.14e+03	0/5
Uranium-235/236	2/5	5.04e-02	6.91e-02	pCi/g	9.87e-02	0/2	2.75e+03	0/2	2.75e+03	0/2
Uranium-238	5/5	2.94e-01	1.42e+00	pCi/g	1.36e+00	1/5	1.57e+03	0/5	1.57e+03	0/5
Section J - Post-2006 (inclusive)										
Total Uranium	2/2	1.38e+00	1.55e+00	mg/kg	4.05e+00	0/2	2.50e+01	0/2	5.00e+00	0/2
Section L - Post-2006 (inclusive)										
Arsenic	98/98	6.11e+00	9.98e+02	mg/kg	3.08e+01	46/98	1.80e+01	64/98	1.80e+01	64/98
Cobalt	1/1	9.30e+00	9.30e+00	mg/kg	2.85e+01	0/1	1.30e+01	0/1	2.00e+01	0/1
Manganese	1/1	3.40e+02	3.40e+02	mg/kg	1.86e+03	0/1	2.20e+02	1/1	5.00e+02	0/1
Total Uranium	12/12	1.60e+00	2.94e+00	mg/kg	4.05e+00	0/12	2.50e+01	0/12	5.00e+00	0/12
Benz(a)anthracene	1/1	9.34e-03	9.34e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(a)pyrene	1/1	1.07e-02	1.07e-02	mg/kg	--	--	1.10e+00	0/1	--	--

Table B.9. Historical Soil Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Background Value	Frequency of Detects Exceeding Background	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Benzo(b)fluoranthene	1/1	1.57e-02	1.57e-02	mg/kg	--	--	1.10e+00	0/1	--	--
Benzo(k)fluoranthene	1/1	5.07e-03	5.07e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Chrysene	1/1	1.04e-02	1.04e-02	mg/kg	--	--	1.10e+00	0/1	--	--
Dibenz(a,h)anthracene	1/1	1.98e-03	1.98e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Indeno(1,2,3-cd)pyrene	1/1	8.97e-03	8.97e-03	mg/kg	--	--	1.10e+00	0/1	--	--
2-Methylnaphthalene	1/1	5.83e-03	5.83e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Anthracene	1/1	2.37e-03	2.37e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Benzo(ghi)perylene	1/1	9.65e-03	9.65e-03	mg/kg	--	--	1.10e+00	0/1	--	--
Fluoranthene	1/1	1.87e-02	1.87e-02	mg/kg	--	--	1.10e+00	0/1	--	--
Naphthalene	1/1	2.19e-03	2.19e-03	mg/kg	--	--	2.90e+01	0/1	--	--
Phenanthrene	1/1	2.24e-02	2.24e-02	mg/kg	--	--	2.90e+01	0/1	--	--
Pyrene	1/1	1.90e-02	1.90e-02	mg/kg	--	--	1.10e+00	0/1	--	--
Thorium-228	4/11	7.51e-01	1.02e+00	pCi/g	1.64e+00	0/4	--	--	--	--
Thorium-230	7/11	9.38e-01	1.35e+00	pCi/g	1.59e+00	0/7	9.98e+03	0/7	9.98e+03	0/7
Thorium-232	4/11	8.52e-01	1.35e+00	pCi/g	1.56e+00	0/4	--	--	--	--
Uranium-233/234	1/1	6.72e-01	6.72e-01	pCi/g	1.30e+00	0/1	5.14e+03	0/1	5.14e+03	0/1
Uranium-235	11/11	2.86e-02	4.66e-02	pCi/g	--	--	2.75e+03	0/11	2.75e+03	0/11
Uranium-238	12/12	5.76e-01	9.83e-01	pCi/g	1.36e+00	0/12	1.57e+03	0/12	1.57e+03	0/12

Notes:
Ecological background values and ecological screening values are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SLs
Exceedances are in bold red text.

DU RFI/CMS Report = DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PCB = polychlorinated biphenyl
SL = screening level

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Table B.10. Historical Surface Water Ecological Risk Screen for Parcel 4

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section D - Pre-2006								
Fluoride	1/1	2.40e+02	2.40e+02	ug/L	2.70e+03	0/1	9.80e+03	0/1
Barium	1/1	3.70e+01	3.70e+01	ug/L	2.20e+02	0/1	2.00e+03	0/1
Iron	52/52	3.69e+01	7.58e+03	ug/L	1.00e+03	**13/52**	--	--
Total Uranium	55/72	1.00e-06	1.09e+02	ug/L	2.60e+00	**8/55**	4.60e+01	**1/55**
Plutonium-238	1/26	3.31e-01	3.31e-01	pCi/L	1.76e+01	0/1	1.76e+01	0/1
Technetium-99	7/74	4.00e+00	1.42e+01	pCi/L	2.47e+05	0/7	2.47e+05	0/7
Uranium-233/234	26/27	5.31e-01	8.80e+00	pCi/L	2.02e+01	0/26	2.57e+02	0/26
Uranium-235	7/27	5.69e-02	4.20e-01	pCi/L	2.18e+01	0/7	2.01e+01	0/7
Uranium-238	22/27	3.26e-02	1.73e+00	pCi/L	2.24e+01	0/22	2.18e+01	0/22
1,1,1-Trichloroethane	2/70	5.00e+00	5.00e+00	ug/L	7.60e+01	0/2	6.90e+02	0/2
1,1-Dichloroethene	2/70	4.00e+00	4.00e+00	ug/L	2.10e+02	0/2	1.20e+03	0/2
1,2-Dichloroethane	1/70	3.00e+00	3.00e+00	ug/L	2.00e+03	0/1	8.20e+03	0/1
2-Butanone	1/64	3.50e+00	3.50e+00	ug/L	2.20e+04	0/1	2.00e+05	0/1
Acetone	11/65	4.90e+00	2.37e+02	ug/L	1.70e+03	0/11	1.50e+04	0/11
Bromodichloromethane	1/70	1.00e+00	1.00e+00	ug/L	3.40e+02	0/1	3.10e+03	0/1
Bromoform	1/70	1.00e+00	1.00e+00	ug/L	2.30e+02	0/1	1.10e+03	0/1
Carbon disulfide	4/66	8.80e-01	6.00e+00	ug/L	1.50e+01	0/4	1.30e+02	0/4
Methylene chloride	2/70	3.10e-01	3.90e-01	ug/L	1.90e+03	0/2	1.10e+04	0/2
Toluene	1/64	6.20e-01	6.20e-01	ug/L	6.20e+01	0/1	5.60e+02	0/1
Trichloroethene	1/70	4.00e+00	4.00e+00	ug/L	2.20e+02	0/1	2.00e+03	0/1
Section E - Pre-2006								
Aluminum	3/5	1.60e+03	1.90e+03	ug/L	8.70e+01	**3/3**	7.50e+02	**3/3**
Arsenic	4/6	1.00e+01	1.90e+01	ug/L	1.50e+02	0/4	3.40e+02	0/4
Barium	6/6	2.05e+01	4.60e+01	ug/L	2.20e+02	0/6	2.00e+03	0/6
Iron	5/5	1.70e+02	3.40e+03	ug/L	1.00e+03	**3/5**	--	--
Lead	3/6	5.40e+00	7.50e+00	ug/L	6.40e+00	**2/3**	6.50e+01	0/3
Manganese	5/5	1.10e+02	3.00e+02	ug/L	1.20e+02	**4/5**	2.30e+03	0/5
Silver	1/4	3.20e+00	3.20e+00	ug/L	3.60e-01	**1/1**	3.20e+00	**1/1**
Total Uranium	9/15	3.00e-06	1.04e+01	ug/L	2.60e+00	**4/9**	4.60e+01	0/9
Zinc	5/5	4.10e+01	6.30e+01	ug/L	1.20e+02	0/5	1.20e+02	0/5
Technetium-99	5/11	1.90e-01	2.70e+00	pCi/L	2.47e+05	0/5	2.47e+05	0/5
1,1,1-Trichloroethane	1/3	1.60e+00	1.60e+00	ug/L	7.60e+01	0/1	6.90e+02	0/1
Acetone	3/3	6.70e+00	1.10e+02	ug/L	1.70e+03	0/3	1.50e+04	0/3

Table B.10. Historical Surface Water Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section H - Pre-2006								
Fluoride	1/1	2.50e+02	2.50e+02	ug/L	2.70e+03	0/1	9.80e+03	0/1
Iron	52/53	1.46e+01	1.17e+03	ug/L	1.00e+03	**1/52**	--	--
Manganese	1/1	1.00e+01	1.00e+01	ug/L	1.20e+02	0/1	2.30e+03	0/1
Total Uranium	57/62	1.00e-06	9.30e+00	ug/L	2.60e+00	**4/57**	4.60e+01	0/57
Zinc	1/1	2.80e+01	2.80e+01	ug/L	1.20e+02	0/1	1.20e+02	0/1
Technetium-99	7/63	2.63e+00	8.90e+00	pCi/L	2.47e+05	0/7	2.47e+05	0/7
Uranium-233/234	20/21	3.63e-01	1.50e+00	pCi/L	2.02e+01	0/20	2.57e+02	0/20
Uranium-235	2/22	5.57e-02	6.49e-02	pCi/L	2.18e+01	0/2	2.01e+01	0/2
Uranium-238	21/22	3.00e-01	8.60e-01	pCi/L	2.24e+01	0/21	2.18e+01	0/21
Bis(2-ethylhexyl)phthalate	1/1	7.10e+00	7.10e+00	ug/L	8.40e+00	0/1	1.10e+03	0/1
1,1-Dichloroethane	1/70	2.80e-01	2.80e-01	ug/L	4.10e+02	0/1	3.70e+03	0/1
1,1-Dichloroethene	1/70	4.40e-01	4.40e-01	ug/L	2.10e+02	0/1	1.20e+03	0/1
Acetone	2/62	4.00e+00	9.70e+02	ug/L	1.70e+03	0/2	1.50e+04	0/2
Carbon disulfide	3/63	2.00e+00	3.40e+02	ug/L	1.50e+01	**2/3**	1.30e+02	**1/3**
cis-1,2-Dichloroethene	2/58	1.80e-01	5.00e-01	ug/L	9.70e+02	0/2	5.50e+03	0/2
Methylene chloride	5/70	2.80e-01	7.30e-01	ug/L	1.90e+03	0/5	1.10e+04	0/5
Trichloroethene	52/70	3.80e-01	7.60e+00	ug/L	2.20e+02	0/52	2.00e+03	0/52
Section J - Pre-2006								
Chromium	61/124	1.00e+00	1.47e+01	ug/L	7.40e+01	0/61	5.70e+02	0/61
Iron	94/95	1.34e+02	2.40e+04	ug/L	1.00e+03	**27/94**	--	--
Total Uranium	80/99	1.24e-01	3.50e+00	ug/L	2.60e+00	**1/80**	4.60e+01	0/80
Zinc	10/10	5.70e+00	3.24e+01	ug/L	1.20e+02	0/10	1.20e+02	0/10
PCB-1242	6/7	1.00e+00	1.00e+00	ug/L	7.40e-05	**6/6**	1.40e-02	**6/6**
PCB-1260	6/7	1.00e+00	1.00e+00	ug/L	9.40e-01	**6/6**	1.40e-02	**6/6**
Technetium-99	5/104	1.00e+00	1.00e+01	pCi/L	2.47e+05	0/5	2.47e+05	0/5
Uranium-233/234	60/63	1.45e-01	1.35e+00	pCi/L	2.02e+01	0/60	2.57e+02	0/60
Uranium-235	3/63	4.69e-02	1.11e-01	pCi/L	2.18e+01	0/3	2.01e+01	0/3
Uranium-238	57/63	1.40e-01	5.91e-01	pCi/L	2.24e+01	0/57	2.18e+01	0/57
Trichloroethene	72/229	2.30e-01	1.00e+00	ug/L	2.20e+02	0/72	2.00e+03	0/72
Chromium, hexavalent	45/124	1.00e-05	2.50e-05	ug/L	1.10e+01	0/45	1.60e+01	0/45
Section D - Post-2006 (inclusive)								
Iron	14/14	8.00e+01	2.00e+03	ug/L	1.00e+03	**5/14**	--	--
Total Uranium	130/140	2.94e-01	2.91e+00	ug/L	2.60e+00	**2/130**	4.60e+01	0/130
Americium-241	1/98	7.37e-02	7.37e-02	pCi/L	4.38e+01	0/1	4.38e+01	0/1
Plutonium-238	1/99	2.26e-01	2.26e-01	pCi/L	1.76e+01	0/1	1.76e+01	0/1
Plutonium-239/240	1/99	2.03e-01	2.03e-01	pCi/L	1.87e+01	0/1	1.87e+01	0/1
Technetium-99	10/141	5.80e+00	6.02e+01	pCi/L	2.47e+05	0/10	2.47e+05	0/10
Uranium-233/234	138/140	2.36e-01	2.59e+00	pCi/L	2.02e+01	0/138	2.57e+02	0/138

Table B.10. Historical Surface Water Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Uranium-235	6/41	4.81e-02	8.10e-02	pCi/L	2.18e+01	0/6	2.01e+01	0/6
Uranium-235/236	3/99	3.90e-02	1.44e-01	pCi/L	2.18e+01	0/3	2.01e+01	0/3
Uranium-238	131/140	9.86e-02	9.66e-01	pCi/L	2.24e+01	0/131	2.18e+01	0/131
2-Butanone	1/93	2.30e+00	2.30e+00	ug/L	2.20e+04	0/1	2.00e+05	0/1
Acetone	38/93	2.20e+00	1.60e+02	ug/L	1.70e+03	0/38	1.50e+04	0/38
Bromodichloromethane	1/93	2.00e+00	2.00e+00	ug/L	3.40e+02	0/1	3.10e+03	0/1
Bromoform	1/93	9.40e-01	9.40e-01	ug/L	2.30e+02	0/1	1.10e+03	0/1
Chloroform	3/93	1.60e-01	2.00e+00	ug/L	1.40e+02	0/3	1.30e+03	0/3
cis-1,2-Dichloroethene	1/93	2.30e-01	2.30e-01	ug/L	9.70e+02	0/1	5.50e+03	0/1
Dibromochloromethane	1/93	2.30e+00	2.30e+00	ug/L	3.20e+02	0/1	2.90e+03	0/1
Methylene chloride	7/93	3.20e-01	3.30e+00	ug/L	1.90e+03	0/7	1.10e+04	0/7
Toluene	3/93	1.70e-01	2.70e-01	ug/L	6.20e+01	0/3	5.60e+02	0/3
Trichloroethene	1/98	2.80e-01	2.80e-01	ug/L	2.20e+02	0/1	2.00e+03	0/1
Section H - Post-2006 (inclusive)								
Iron	14/14	6.50e+01	4.00e+03	ug/L	1.00e+03	**1/14**	--	--
Total Uranium	95/96	7.22e-01	3.54e+00	ug/L	2.60e+00	**12/95**	4.60e+01	0/95
Americium-241	1/54	7.53e-02	7.53e-02	pCi/L	4.38e+01	0/1	4.38e+01	0/1
Uranium-233/234	95/96	3.47e-01	1.53e+00	pCi/L	2.02e+01	0/95	2.57e+02	0/95
Uranium-235	8/28	4.51e-02	8.43e-02	pCi/L	2.18e+01	0/8	2.01e+01	0/8
Uranium-235/236	1/68	5.55e-02	5.55e-02	pCi/L	2.18e+01	0/1	2.01e+01	0/1
Uranium-238	95/96	2.37e-01	1.18e+00	pCi/L	2.24e+01	0/95	2.18e+01	0/95
1,1-Dichloroethane	9/96	1.70e-01	2.80e-01	ug/L	4.10e+02	0/9	3.70e+03	0/9
1,1-Dichloroethene	40/96	1.50e-01	5.42e-01	ug/L	2.10e+02	0/40	1.20e+03	0/40
2-Butanone	1/96	7.60e+00	7.60e+00	ug/L	2.20e+04	0/1	2.00e+05	0/1
Acetone	13/96	2.00e+00	7.30e+00	ug/L	1.70e+03	0/13	1.50e+04	0/13
cis-1,2-Dichloroethene	66/96	1.50e-01	6.90e-01	ug/L	9.70e+02	0/66	5.50e+03	0/66
Methylene chloride	6/96	3.30e-01	1.20e+00	ug/L	1.90e+03	0/6	1.10e+04	0/6
Trichloroethene	91/96	2.40e-01	7.10e+00	ug/L	2.20e+02	0/91	2.00e+03	0/91
Section J - Post-2006 (inclusive)								
Fluoride	1/1	1.80e-04	1.80e-04	ug/L	2.70e+03	0/1	9.80e+03	0/1
Aluminum	1/1	2.50e+02	2.50e+02	ug/L	8.70e+01	**1/1**	7.50e+02	0/1
Barium	1/1	3.00e+01	3.00e+01	ug/L	2.20e+02	0/1	2.00e+03	0/1
Iron	62/62	1.10e+02	5.00e+03	ug/L	1.00e+03	**12/62**	--	--
Manganese	1/1	2.70e+01	2.70e+01	ug/L	1.20e+02	0/1	2.30e+03	0/1
Total Uranium	29/29	4.25e-01	1.55e+00	ug/L	2.60e+00	0/29	4.60e+01	0/29
Zinc	1/1	1.90e+01	1.90e+01	ug/L	1.20e+02	0/1	1.20e+02	0/1
Uranium-233/234	28/28	1.61e-01	7.27e-01	pCi/L	2.02e+01	0/28	2.57e+02	0/28
Uranium-238	28/28	1.40e-01	5.17e-01	pCi/L	2.24e+01	0/28	2.18e+01	0/28
Trichloroethene	10/62	2.00e-01	3.70e-01	ug/L	2.20e+02	0/10	2.00e+03	0/10

Table B.10. Historical Surface Water Ecological Risk Screen for Parcel 4 (Continued)

Notes:
Ecological screening values are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report =DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PCB = polychlorinated biphenyl
SL = screening level

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Section D - Pre-2006										
Aluminum	4/4	2.55e+03	8.00e+03	mg/kg	--	--	--	--	2.50e+04	0/4
Antimony	4/4	1.57e+00	1.07e+01	mg/kg	--	--	2.00e+00	3/4	2.50e+01	0/4
Arsenic	4/4	9.44e+00	5.80e+01	mg/kg	1.90e+01	1/4	9.79e+00	3/4	3.30e+01	1/4
Barium	4/4	3.09e+01	5.30e+01	mg/kg	3.60e+02	0/4	--	--	2.00e+01	4/4
Beryllium	4/4	3.19e-01	1.40e+00	mg/kg	8.00e-01	1/4	--	--	--	--
Cadmium	4/4	2.30e-01	1.68e+00	mg/kg	8.00e-01	2/4	9.90e-01	2/4	4.98e+00	0/4
Calcium	4/4	1.72e+03	4.20e+04	mg/kg	2.70e+04	1/4	--	--	--	--
Chromium	4/4	7.44e+00	4.00e+01	mg/kg	5.30e+01	0/4	4.34e+01	0/4	1.11e+02	0/4
Cobalt	4/4	8.54e+00	3.90e+01	mg/kg	1.20e+01	1/4	5.00e+01	0/4	5.00e+01	0/4
Copper	4/4	6.39e+00	1.70e+01	mg/kg	3.30e+01	0/4	3.16e+01	0/4	1.49e+02	0/4
Cyanide	1/1	1.40e+00	1.40e+00	mg/kg	--	--	1.00e-04	1/1	--	--
Iron	4/4	1.25e+04	7.60e+04	mg/kg	5.10e+04	1/4	--	--	2.00e+04	1/4
Lead	4/4	1.02e+01	3.80e+01	mg/kg	4.70e+01	0/4	3.58e+01	1/4	1.28e+02	0/4
Magnesium	4/4	1.11e+03	1.50e+04	mg/kg	9.90e+03	1/4	--	--	--	--
Manganese	4/4	5.67e+02	1.30e+03	mg/kg	3.00e+03	0/4	--	--	4.60e+02	4/4
Mercury	4/4	2.50e-02	5.00e-02	mg/kg	1.20e-01	0/4	1.80e-01	0/4	1.06e+00	0/4
Nickel	4/4	9.23e+00	2.30e+01	mg/kg	6.10e+01	0/4	2.27e+01	1/4	4.86e+01	0/4
Potassium	4/4	2.31e+02	4.40e+02	mg/kg	1.40e+04	0/4	--	--	--	--
Selenium	4/4	1.40e+00	1.24e+01	mg/kg	2.60e+00	2/4	--	--	1.10e+01	1/4
Silver	4/4	3.65e-01	1.70e+01	mg/kg	4.30e-01	2/4	5.00e-01	2/4	1.00e+00	2/4
Thallium	4/4	1.40e+00	6.12e+00	mg/kg	4.70e+00	2/4	--	--	--	--
Total Uranium	4/4	3.71e+00	4.80e+00	mg/kg	--	--	1.00e+02	0/4	1.00e+03	0/4
Vanadium	4/4	1.65e+01	6.50e+01	mg/kg	4.00e+01	1/4	--	--	1.00e+03	0/4
Zinc	4/4	5.23e+01	1.40e+02	mg/kg	1.70e+02	0/4	1.21e+02	1/4	4.59e+02	0/4
Benz(a)anthracene	1/1	4.40e-01	4.40e-01	mg/kg	--	--	1.08e-01	1/1	1.05e+00	0/1
Benzo(a)pyrene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.50e-01	1/1	1.45e+00	0/1
Benzo(b)fluoranthene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.04e+01	0/1	--	--
Benzo(k)fluoranthene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	2.40e-01	1/1	--	--
Chrysene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.66e-01	1/1	1.29e+00	0/1
Dibenz(a,h)anthracene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	3.30e-02	1/1	--	--
Indeno(1,2,3-cd)pyrene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	2.00e-01	1/1	--	--
Total PAHc	1/1	1.02e+00	1.02e+00	mg/kg	--	--	1.61e+00	0/1	2.28e+01	0/1
2-Methylnaphthalene	1/1	1.50e-02	1.50e-02	mg/kg	--	--	2.02e-02	0/1	2.00e+00	0/1
Acenaphthene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	6.71e-03	1/1	8.89e-02	1/1

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Acenaphthylene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	5.87e-03	1/1	1.28e-01	1/1
Anthracene	1/1	4.40e-01	4.40e-01	mg/kg	--	--	5.72e-02	1/1	8.45e-01	0/1
Benzo(ghi)perylene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.70e-01	1/1	--	--
Fluoranthene	1/1	1.60e-01	1.60e-01	mg/kg	--	--	4.23e-01	0/1	2.23e+00	0/1
Fluorene	1/1	4.40e-01	4.40e-01	mg/kg	--	--	7.74e-02	1/1	5.36e-01	0/1
Naphthalene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.76e-01	1/1	5.61e-01	0/1
Phenanthrene	1/1	1.70e-01	1.70e-01	mg/kg	--	--	2.04e-01	0/1	1.17e+00	0/1
Pyrene	1/1	1.40e-01	1.40e-01	mg/kg	--	--	1.95e-01	0/1	1.52e+00	0/1
Aldrin	1/1	2.60e-03	2.60e-03	mg/kg	--	--	2.00e-03	1/1	2.90e-02	0/1
Dieldrin	1/1	5.20e-03	5.20e-03	mg/kg	--	--	1.90e-03	1/1	1.90e-03	1/1
Heptachlor epoxide	1/1	5.20e-03	5.20e-03	mg/kg	--	--	2.47e-03	1/1	2.15e-03	1/1
PCB-1242	4/4	1.00e-01	1.00e+00	mg/kg	--	--	5.98e-02	4/4	6.76e-01	2/4
PCB-1248	4/4	1.00e-01	1.00e+00	mg/kg	--	--	5.98e-02	4/4	6.76e-01	2/4
PCB-1254	4/4	1.00e-01	1.00e+00	mg/kg	--	--	5.98e-02	4/4	6.76e-01	2/4
PCB-1260	4/4	1.00e-01	1.00e+00	mg/kg	--	--	5.98e-02	4/4	6.76e-01	2/4
Americium-241	3/3	-4.80e-02	7.19e-03	pCi/g	--	--	5.15e+03	0/3	5.15e+03	0/3
Neptunium-237	4/4	-3.26e-02	8.63e-03	pCi/g	--	--	7.63e+03	0/4	7.63e+03	0/4
Plutonium-238	4/4	0.00e+00	4.73e-02	pCi/g	--	--	5.73e+03	0/4	5.73e+03	0/4
Plutonium-239	1/1	0.00e+00	0.00e+00	pCi/g	--	--	5.87e+03	0/1	5.87e+03	0/1
Plutonium-239/240	3/3	-3.25e-03	5.79e-03	pCi/g	--	--	5.87e+03	0/3	5.87e+03	0/3
Technetium-99	4/4	2.71e-01	2.60e+00	pCi/g	--	--	4.23e+03	0/4	4.23e+03	0/4
Uranium-233/234	3/3	1.76e+00	2.42e+00	pCi/g	--	--	5.27e+03	0/3	5.27e+03	0/3
Uranium-234	1/1	1.56e+01	1.56e+01	pCi/g	--	--	5.27e+03	0/1	5.27e+03	0/1
Uranium-235	4/4	6.63e-02	2.00e-01	pCi/g	--	--	3.73e+03	0/4	3.73e+03	0/4
Uranium-238	4/4	1.24e+00	1.60e+00	pCi/g	--	--	2.49e+03	0/4	2.49e+03	0/4
1,2,4-Trichlorobenzene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	5.06e+00	0/1	1.70e+00	0/1
1,2-Dichlorobenzene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	2.94e-01	1/1	8.80e-02	1/1
1,4-Dichlorobenzene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	3.18e-01	1/1	3.50e-02	1/1
2,4-Dinitrotoluene	1/1	4.60e-01	4.60e-01	mg/kg	--	--	1.44e-02	1/1	--	--
2-Chlorophenol	1/1	4.60e-01	4.60e-01	mg/kg	--	--	3.19e-02	1/1	--	--
Bis(2-ethylhexyl)phthalate	1/1	6.70e-02	6.70e-02	mg/kg	--	--	1.82e-01	0/1	2.65e+00	0/1
Dibenzofuran	1/1	4.60e-01	4.60e-01	mg/kg	--	--	4.49e-01	1/1	--	--
1,1,1-Trichloroethane	1/1	6.80e-03	6.80e-03	mg/kg	--	--	2.13e-01	0/1	3.40e-02	0/1
1,1-Dichloroethane	1/1	6.80e-03	6.80e-03	mg/kg	--	--	5.75e-04	1/1	1.31e-01	0/1
1,1-Dichloroethene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.94e-02	0/1	4.10e-02	0/1
Acetone	1/1	1.40e-01	1.40e-01	mg/kg	--	--	9.90e-03	1/1	4.00e-02	1/1
Bromoform	1/1	6.80e-03	6.80e-03	mg/kg	--	--	4.92e-01	0/1	7.30e-02	0/1
Carbon disulfide	1/1	6.80e-03	6.80e-03	mg/kg	--	--	2.39e-02	0/1	3.60e-03	1/1

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Carbon tetrachloride	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.45e+00	0/1	3.40e-02	0/1
Chlorobenzene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	2.91e-01	0/1	5.80e-02	0/1
Chloroform	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.21e-01	0/1	4.50e-02	0/1
cis-1,2-Dichloroethene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	--	--	2.46e-01	0/1
Ethylbenzene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.75e-01	0/1	2.72e-01	0/1
M + P Xylene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	4.33e-01	0/1	1.03e-01	0/1
Methylene chloride	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.59e-01	0/1	1.83e-01	0/1
Styrene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	2.54e-01	0/1	1.16e-01	0/1
Tetrachloroethene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	9.90e-01	0/1	5.00e-02	0/1
Toluene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.22e+00	0/1	1.45e-01	0/1
trans-1,2-Dichloroethene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	6.54e-01	0/1	2.11e-01	0/1
Trichloroethene	1/1	6.80e-03	6.80e-03	mg/kg	--	--	1.12e-01	0/1	1.34e-01	0/1
Section E - Pre-2006										
Aluminum	1/1	4.60e+03	4.60e+03	mg/kg	--	--	--	--	2.50e+04	0/1
Arsenic	1/1	2.00e+01	2.00e+01	mg/kg	1.90e+01	**1/1**	9.79e+00	**1/1**	3.30e+01	0/1
Barium	1/1	3.60e+01	3.60e+01	mg/kg	3.60e+02	0/1	--	--	2.00e+01	**1/1**
Calcium	1/1	1.60e+03	1.60e+03	mg/kg	2.70e+04	0/1	--	--	--	--
Chromium	1/1	1.10e+01	1.10e+01	mg/kg	5.30e+01	0/1	4.34e+01	0/1	1.11e+02	0/1
Cobalt	1/1	1.30e+01	1.30e+01	mg/kg	1.20e+01	**1/1**	5.00e+01	0/1	5.00e+01	0/1
Copper	1/1	1.30e+01	1.30e+01	mg/kg	3.30e+01	0/1	3.16e+01	0/1	1.49e+02	0/1
Iron	1/1	1.60e+04	1.60e+04	mg/kg	5.10e+04	0/1	--	--	2.00e+04	0/1
Lead	1/1	1.60e+01	1.60e+01	mg/kg	4.70e+01	0/1	3.58e+01	0/1	1.28e+02	0/1
Magnesium	1/1	1.20e+03	1.20e+03	mg/kg	9.90e+03	0/1	--	--	--	--
Manganese	1/1	2.90e+02	2.90e+02	mg/kg	3.00e+03	0/1	--	--	4.60e+02	0/1
Mercury	1/1	5.80e-02	5.80e-02	mg/kg	1.20e-01	0/1	1.80e-01	0/1	1.06e+00	0/1
Nickel	1/1	1.60e+01	1.60e+01	mg/kg	6.10e+01	0/1	2.27e+01	0/1	4.86e+01	0/1
Potassium	1/1	6.10e+02	6.10e+02	mg/kg	1.40e+04	0/1	--	--	--	--
Total Uranium	1/1	8.50e+00	8.50e+00	mg/kg	--	--	1.00e+02	0/1	1.00e+03	0/1
Vanadium	1/1	2.00e+01	2.00e+01	mg/kg	4.00e+01	0/1	--	--	1.00e+03	0/1
Zinc	1/1	1.20e+02	1.20e+02	mg/kg	1.70e+02	0/1	1.21e+02	0/1	4.59e+02	0/1
Benzo(b)fluoranthene	1/1	1.50e-01	1.50e-01	mg/kg	--	--	1.04e+01	0/1	--	--
Total PAHc	1/1	1.72e+00	1.72e+00	mg/kg	--	--	1.61e+00	**1/1**	2.28e+01	0/1
Fluoranthene	1/1	3.60e-01	3.60e-01	mg/kg	--	--	4.23e-01	0/1	2.23e+00	0/1
Pyrene	1/1	2.90e-01	2.90e-01	mg/kg	--	--	1.95e-01	**1/1**	1.52e+00	0/1
Section J - Pre-2006										
Aluminum	1/1	6.30e+03	6.30e+03	mg/kg	--	--	--	--	2.50e+04	0/1
Arsenic	1/1	9.20e+00	9.20e+00	mg/kg	1.90e+01	0/1	9.79e+00	0/1	3.30e+01	0/1
Barium	1/1	5.10e+01	5.10e+01	mg/kg	3.60e+02	0/1	--	--	2.00e+01	**1/1**
Cadmium	1/1	8.90e-01	8.90e-01	mg/kg	8.00e-01	**1/1**	9.90e-01	0/1	4.98e+00	0/1

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Calcium	1/1	8.80e+03	8.80e+03	mg/kg	2.70e+04	0/1	--	--	--	--
Chromium	1/1	6.70e+00	6.70e+00	mg/kg	5.30e+01	0/1	4.34e+01	0/1	1.11e+02	0/1
Cobalt	1/1	9.20e+00	9.20e+00	mg/kg	1.20e+01	0/1	5.00e+01	0/1	5.00e+01	0/1
Copper	1/1	1.30e+01	1.30e+01	mg/kg	3.30e+01	0/1	3.16e+01	0/1	1.49e+02	0/1
Iron	1/1	1.80e+04	1.80e+04	mg/kg	5.10e+04	0/1	--	--	2.00e+04	0/1
Lead	1/1	1.20e+01	1.20e+01	mg/kg	4.70e+01	0/1	3.58e+01	0/1	1.28e+02	0/1
Magnesium	1/1	3.20e+03	3.20e+03	mg/kg	9.90e+03	0/1	--	--	--	--
Manganese	1/1	3.10e+02	3.10e+02	mg/kg	3.00e+03	0/1	--	--	4.60e+02	0/1
Nickel	1/1	1.50e+01	1.50e+01	mg/kg	6.10e+01	0/1	2.27e+01	0/1	4.86e+01	0/1
Potassium	1/1	7.90e+02	7.90e+02	mg/kg	1.40e+04	0/1	--	--	--	--
Silver	1/1	4.70e+00	4.70e+00	mg/kg	4.30e-01	**1/1**	5.00e-01	**1/1**	1.00e+00	**1/1**
Total Uranium	1/1	2.50e+00	2.50e+00	mg/kg	--	--	1.00e+02	0/1	1.00e+03	0/1
Vanadium	1/1	2.10e+01	2.10e+01	mg/kg	4.00e+01	0/1	--	--	1.00e+03	0/1
Zinc	1/1	1.50e+02	1.50e+02	mg/kg	1.70e+02	0/1	1.21e+02	**1/1**	4.59e+02	0/1
Total PAHc	1/1	0.00e+00	0.00e+00	mg/kg	--	--	1.61e+00	0/1	2.28e+01	0/1
Technetium-99	1/1	3.00e-01	3.00e-01	pCi/g	--	--	4.23e+03	0/1	4.23e+03	0/1
Bis(2-ethylhexyl)phthalate	1/1	8.90e-02	8.90e-02	mg/kg	--	--	1.82e-01	0/1	2.65e+00	0/1
Section D - Post-2006 (inclusive)										
Aluminum	20/20	2.72e+03	9.36e+03	mg/kg	--	--	--	--	2.50e+04	0/20
Antimony	20/20	6.00e-02	2.60e+00	mg/kg	--	--	2.00e+00	**1/20**	2.50e+01	0/20
Arsenic	20/20	8.41e+00	6.06e+01	mg/kg	1.90e+01	**8/20**	9.79e+00	**19/20**	3.30e+01	**4/20**
Barium	20/20	2.95e+01	1.45e+02	mg/kg	3.60e+02	0/20	--	--	2.00e+01	**20/20**
Beryllium	20/20	3.57e-01	1.70e+00	mg/kg	8.00e-01	**8/20**	--	--	--	--
Cadmium	20/20	5.00e-02	4.50e-01	mg/kg	8.00e-01	0/20	9.90e-01	0/20	4.98e+00	0/20
Calcium	20/20	9.91e+02	1.59e+04	mg/kg	2.70e+04	0/20	--	--	--	--
Chromium	20/20	6.29e+00	3.31e+01	mg/kg	5.30e+01	0/20	4.34e+01	0/20	1.11e+02	0/20
Cobalt	4/4	1.10e+01	1.94e+01	mg/kg	1.20e+01	**3/4**	5.00e+01	0/4	5.00e+01	0/4
Copper	20/20	5.52e+00	2.04e+01	mg/kg	3.30e+01	0/20	3.16e+01	0/20	1.49e+02	0/20
Iron	20/20	1.02e+04	6.73e+04	mg/kg	5.10e+04	**2/20**	--	--	2.00e+04	**12/20**
Lead	20/20	7.24e+00	4.99e+01	mg/kg	4.70e+01	**1/20**	3.58e+01	**2/20**	1.28e+02	0/20
Magnesium	21/21	6.05e+02	8.70e+03	mg/kg	9.90e+03	0/21	--	--	--	--
Manganese	20/20	3.38e+02	2.98e+03	mg/kg	3.00e+03	0/20	--	--	4.60e+02	**18/20**
Mercury	20/20	1.00e-02	5.57e-02	mg/kg	1.20e-01	0/20	1.80e-01	0/20	1.06e+00	0/20
Nickel	20/20	8.21e+00	3.65e+01	mg/kg	6.10e+01	0/20	2.27e+01	**5/20**	4.86e+01	0/20
Potassium	6/6	2.27e+02	4.05e+02	mg/kg	1.40e+04	0/6	--	--	--	--
Selenium	20/20	4.28e-01	2.17e+00	mg/kg	2.60e+00	0/20	--	--	1.10e+01	0/20
Silver	20/20	7.00e-02	8.40e+00	mg/kg	4.30e-01	**8/20**	5.00e-01	**5/20**	1.00e+00	**2/20**
Thallium	20/20	1.47e-01	1.36e+00	mg/kg	4.70e+00	0/20	--	--	--	--

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Total Uranium	20/20	9.81e-01	5.73e+00	mg/kg	--	--	1.00e+02	0/20	1.00e+03	0/20
Vanadium	4/4	1.52e+01	4.31e+01	mg/kg	4.00e+01	**1/4**	--	--	1.00e+03	0/4
Zinc	20/20	4.18e+01	1.27e+02	mg/kg	1.70e+02	0/20	1.21e+02	**1/20**	4.59e+02	0/20
PCB-1242	11/11	7.04e-03	1.90e-02	mg/kg	--	--	5.98e-02	0/11	6.76e-01	0/11
PCB-1248	11/11	7.04e-03	1.90e-02	mg/kg	--	--	5.98e-02	0/11	6.76e-01	0/11
PCB-1254	11/11	1.30e-02	3.30e-02	mg/kg	--	--	5.98e-02	0/11	6.76e-01	0/11
PCB-1260	11/11	1.90e-02	5.70e-02	mg/kg	--	--	5.98e-02	0/11	6.76e-01	0/11
Americium-241	18/18	-7.82e-03	1.21e-02	pCi/g	--	--	5.15e+03	0/18	5.15e+03	0/18
Neptunium-237	18/18	-2.96e-02	3.41e-03	pCi/g	--	--	7.63e+03	0/18	7.63e+03	0/18
Plutonium-238	18/18	-3.69e-03	9.70e-03	pCi/g	--	--	5.73e+03	0/18	5.73e+03	0/18
Plutonium-239/240	18/18	-9.08e-03	1.01e-02	pCi/g	--	--	5.87e+03	0/18	5.87e+03	0/18
Technetium-99	20/20	1.18e-01	1.90e+00	pCi/g	--	--	4.23e+03	0/20	4.23e+03	0/20
Uranium-233/234	18/18	5.35e-01	3.12e+00	pCi/g	--	--	5.27e+03	0/18	5.27e+03	0/18
Uranium-235	7/7	3.89e-02	1.01e-01	pCi/g	--	--	3.73e+03	0/7	3.73e+03	0/7
Uranium-235/236	11/11	2.63e-02	1.70e-01	pCi/g	--	--	3.73e+03	0/11	3.73e+03	0/11
Uranium-238	18/18	3.26e-01	1.90e+00	pCi/g	--	--	2.49e+03	0/18	2.49e+03	0/18
Section E - Post-2006 (inclusive)										
Aluminum	1/1	5.47e+03	5.47e+03	mg/kg	--	--	--	--	2.50e+04	0/1
Antimony	1/1	2.07e+00	2.07e+00	mg/kg	--	--	2.00e+00	**1/1**	2.50e+01	0/1
Arsenic	1/1	1.86e+01	1.86e+01	mg/kg	1.90e+01	0/1	9.79e+00	**1/1**	3.30e+01	0/1
Barium	1/1	6.70e+01	6.70e+01	mg/kg	3.60e+02	0/1	--	--	2.00e+01	**1/1**
Beryllium	1/1	7.82e-01	7.82e-01	mg/kg	8.00e-01	0/1	--	--	--	--
Cadmium	1/1	4.26e-01	4.26e-01	mg/kg	8.00e-01	0/1	9.90e-01	0/1	4.98e+00	0/1
Chromium	1/1	1.49e+01	1.49e+01	mg/kg	5.30e+01	0/1	4.34e+01	0/1	1.11e+02	0/1
Cobalt	1/1	1.61e+01	1.61e+01	mg/kg	1.20e+01	**1/1**	5.00e+01	0/1	5.00e+01	0/1
Copper	1/1	1.47e+01	1.47e+01	mg/kg	3.30e+01	0/1	3.16e+01	0/1	1.49e+02	0/1
Iron	1/1	2.90e+04	2.90e+04	mg/kg	5.10e+04	0/1	--	--	2.00e+04	**1/1**
Lead	1/1	1.84e+01	1.84e+01	mg/kg	4.70e+01	0/1	3.58e+01	0/1	1.28e+02	0/1
Manganese	1/1	7.49e+02	7.49e+02	mg/kg	3.00e+03	0/1	--	--	4.60e+02	**1/1**
Nickel	1/1	2.04e+01	2.04e+01	mg/kg	6.10e+01	0/1	2.27e+01	0/1	4.86e+01	0/1
Selenium	1/1	1.80e+00	1.80e+00	mg/kg	2.60e+00	0/1	--	--	1.10e+01	0/1
Silver	1/1	6.84e-01	6.84e-01	mg/kg	4.30e-01	**1/1**	5.00e-01	**1/1**	1.00e+00	0/1
Thallium	1/1	5.16e-01	5.16e-01	mg/kg	4.70e+00	0/1	--	--	--	--
Total Uranium	1/1	2.96e+00	2.96e+00	mg/kg	--	--	1.00e+02	0/1	1.00e+03	0/1
Vanadium	1/1	3.76e+01	3.76e+01	mg/kg	4.00e+01	0/1	--	--	1.00e+03	0/1
Zinc	1/1	8.45e+01	8.45e+01	mg/kg	1.70e+02	0/1	1.21e+02	0/1	4.59e+02	0/1
Total PAHc	1/1	0.00e+00	0.00e+00	mg/kg	--	--	1.61e+00	0/1	2.28e+01	0/1
PCB-1254	1/1	2.04e-03	2.04e-03	mg/kg	--	--	5.98e-02	0/1	6.76e-01	0/1
PCB-1260	1/1	2.79e-03	2.79e-03	mg/kg	--	--	5.98e-02	0/1	6.76e-01	0/1

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Analyte	Frequency of Detects	Minimum Detection	Maximum Detection	Units	SRV	Frequency of Detects Exceeding SRV	Tier 1 Ecological Screening Value	Frequency of Detects Exceeding Tier 1 Ecological Screening Value	Tier 2 Ecological Screening Value	Frequency of Detects Exceeding Tier 2 Ecological Screening Value
Thorium-230	1/1	9.56e-01	9.56e-01	pCi/g	--	--	1.04e+04	0/1	1.04e+04	0/1
Uranium-233/234	1/1	1.57e+00	1.57e+00	pCi/g	--	--	5.27e+03	0/1	5.27e+03	0/1
Uranium-235/236	1/1	1.01e-01	1.01e-01	pCi/g	--	--	3.73e+03	0/1	3.73e+03	0/1
Uranium-238	1/1	1.05e+00	1.05e+00	pCi/g	--	--	2.49e+03	0/1	2.49e+03	0/1
Section J - Post-2006 (inclusive)										
Aluminum	1/1	5.79e+03	5.79e+03	mg/kg	--	--	--	--	2.50e+04	0/1
Arsenic	1/1	9.30e+00	9.30e+00	mg/kg	1.90e+01	0/1	9.79e+00	0/1	3.30e+01	0/1
Barium	1/1	5.06e+01	5.06e+01	mg/kg	3.60e+02	0/1	--	--	2.00e+01	**1/1**
Beryllium	1/1	3.90e-01	3.90e-01	mg/kg	8.00e-01	0/1	--	--	--	--
Cadmium	1/1	4.61e-01	4.61e-01	mg/kg	8.00e-01	0/1	9.90e-01	0/1	4.98e+00	0/1
Chromium	1/1	1.30e+01	1.30e+01	mg/kg	5.30e+01	0/1	4.34e+01	0/1	1.11e+02	0/1
Cobalt	1/1	9.13e+00	9.13e+00	mg/kg	1.20e+01	0/1	5.00e+01	0/1	5.00e+01	0/1
Copper	1/1	1.30e+01	1.30e+01	mg/kg	3.30e+01	0/1	3.16e+01	0/1	1.49e+02	0/1
Iron	1/1	2.02e+04	2.02e+04	mg/kg	5.10e+04	0/1	--	--	2.00e+04	**1/1**
Lead	1/1	1.43e+01	1.43e+01	mg/kg	4.70e+01	0/1	3.58e+01	0/1	1.28e+02	0/1
Manganese	1/1	2.11e+02	2.11e+02	mg/kg	3.00e+03	0/1	--	--	4.60e+02	0/1
Mercury	1/1	2.70e-02	2.70e-02	mg/kg	1.20e-01	0/1	1.80e-01	0/1	1.06e+00	0/1
Nickel	1/1	1.29e+01	1.29e+01	mg/kg	6.10e+01	0/1	2.27e+01	0/1	4.86e+01	0/1
Silver	1/1	2.67e-01	2.67e-01	mg/kg	4.30e-01	0/1	5.00e-01	0/1	1.00e+00	0/1
Thallium	1/1	2.29e-01	2.29e-01	mg/kg	4.70e+00	0/1	--	--	--	--
Total Uranium	1/1	1.51e+00	1.51e+00	mg/kg	--	--	1.00e+02	0/1	1.00e+03	0/1
Vanadium	1/1	2.47e+01	2.47e+01	mg/kg	4.00e+01	0/1	--	--	1.00e+03	0/1
Zinc	1/1	5.85e+01	5.85e+01	mg/kg	1.70e+02	0/1	1.21e+02	0/1	4.59e+02	0/1
Benz(a)anthracene	1/1	1.20e-02	1.20e-02	mg/kg	--	--	1.08e-01	0/1	1.05e+00	0/1
Benzo(b)fluoranthene	1/1	1.10e-02	1.10e-02	mg/kg	--	--	1.04e+01	0/1	--	--
Total PAHc	1/1	2.34e-02	2.34e-02	mg/kg	--	--	1.61e+00	0/1	2.28e+01	0/1
Fluoranthene	1/1	1.63e-02	1.63e-02	mg/kg	--	--	4.23e-01	0/1	2.23e+00	0/1
Pyrene	1/1	1.93e-02	1.93e-02	mg/kg	--	--	1.95e-01	0/1	1.52e+00	0/1
PCB-1254	1/1	4.92e-03	4.92e-03	mg/kg	--	--	5.98e-02	0/1	6.76e-01	0/1
PCB-1260	1/1	4.40e-03	4.40e-03	mg/kg	--	--	5.98e-02	0/1	6.76e-01	0/1
Thorium-230	1/1	8.57e-01	8.57e-01	pCi/g	--	--	1.04e+04	0/1	1.04e+04	0/1
Uranium-233/234	1/1	3.94e-01	3.94e-01	pCi/g	--	--	5.27e+03	0/1	5.27e+03	0/1
Uranium-238	1/1	3.86e-01	3.86e-01	pCi/g	--	--	2.49e+03	0/1	2.49e+03	0/1
2-Butanone	1/1	4.51e-03	4.51e-03	mg/kg	--	--	4.24e-02	0/1	9.92e-01	0/1
Acetone	1/1	1.94e-02	1.94e-02	mg/kg	--	--	9.90e-03	**1/1**	4.00e-02	0/1
Cyanide	1/1	7.37e-02	7.37e-02	mg/kg	--	--	1.00e-04	**1/1**	--	--

Table B.11. Historical Sediment Ecological Risk Screen for Parcel 4 (Continued)

Notes:
SRVs and ecological screening values are from Appendix E, *Comprehensive Final Screening Levels*, of the DU RFI/CMS Report.
-- = No SL
Exceedances are in bold red text.

DU RFI/CMS Report =DOE 2021b, *Deferred Units Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Report at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0772&D2, U.S. Department of Energy, Piketon, Ohio, August, Changed Pages, December.

DOE = U.S. Department of Energy
PAHC = carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,4-cd)pyrene]
PCB = polychlorinated biphenyl
SRV = sediment reference value

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