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September 16, 2025

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Ms. April Webb
Interim Federal Facility Agreement Manager
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Kentucky Department for Environmental Protection
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Dear Mr. Begley and Ms. Webb:

**TRANSMITTAL OF THE SCOPING DOCUMENT AND WORK PLAN FOR THE
ENVIRONMENTAL MEDIA REMEDIAL INVESTIGATION/FEASIBILITY STUDY AT
THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY
DOE/LX/07-2515&D2**

References:

1. Email from B. Begley to A. Ladd, "EPA Final Comments on the D1 Environmental Media Scoping Document / RIFS WP, PGDP, DOE/LX/07-2515&D1," dated July 18, 2025
2. Letter from B. Begley to A. Ladd, "U.S. Environmental Protection Agency Region 4 acknowledgement of receipt, review, and comments for the Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study, at the Paducah Gaseous Diffusion Plant on April 18, 2025, with document ID DOE/LX/07-2515&D1," dated July 18, 2025
3. Letter from A. Webb to A. Ladd, "KDWM Submittal of Comments to the Scoping Document and Work Plan for the Environmental Media Remedial Investigation / Feasibility Study (DOE/LX/07-2515&D1), Paducah Site, Paducah, McCracken County, Kentucky, KY8-890-008-982," dated July 17, 2025

Please find enclosed the *Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2515&D2. This version of the scoping document and work plan incorporates comments from the Kentucky Department for Environmental Protection (KDEP) received on July 17, 2025, and comments from the U.S. Environmental Protection Agency (EPA) received on July 17 and 18, 2025.

Based on discussions during the August 21, 2025, Federal Facilities Agreement (FFA) managers' meeting, this D2 version of the document addresses technical comments. The resolution of applicable or relevant and appropriate requirement (ARAR)-based comments is being deferred to allow for continued discussions and collaboration among the FFA parties. These additional discussions and collaboration are warranted to support the iterative ARAR process.

Also enclosed are a redline version of the scoping document and work plan that reflects changes made from the April 18, 2025, submission, a certification page, an EPA comment response summary, a KDEP comment response summary, and a comment response summary that shows other changes.

In accordance with Section XX.G and Appendix F of the FFA, EPA and KDEP have a 30-day review period or by October 16, 2025. If the FFA parties have no substantive comments, then the U.S. Department of Energy requests a letter of concurrence.

If you have any questions or require additional information, please contact me at (270) 217-2029.

Sincerely,

APRIL LADD

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April Ladd
Federal Facility Agreement Manager
Portsmouth/Paducah Project Office

Enclosures:

1. Certification Page
2. Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2515&D2—Clean
3. Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2515&D2—Redline
4. Comment Response Summary—KDEP
5. Comment Response Summary—EPA
6. Comment Response Summary—Other Changes

Administrative Record File—ARF ENVMEDIA

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CERTIFICATION

Document Identification: *Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah KY, DOE/LX/07-2515&D2, dated September 2025*

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Four Rivers Nuclear Partnership, LLC

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(Affiliate)

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Myrna E. Redfield, Program Manager/Date Signed
Four Rivers Nuclear Partnership, LLC

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

U.S. Department of Energy

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April Ladd, Paducah Site Lead/Date Signed
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U.S. Department of Energy

DOE/LX/07-2515&D2
Primary Document

**Scoping Document and Work Plan for the Environmental
Media Remedial Investigation/Feasibility Study
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



CLEARED FOR PUBLIC RELEASE

**Scoping Document and Work Plan for the Environmental
Media Remedial Investigation/Feasibility Study
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**

Date Issued—September 2025

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
FOUR RIVERS NUCLEAR PARTNERSHIP, LLC,
managing the
Deactivation and Remediation Project at the
Paducah Gaseous Diffusion Plant
under Contract DE-EM0004895

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PREFACE

This *Scoping Document and Work Plan for the Environmental Media Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2515&D2, was prepared in accordance with requirements under the Comprehensive Environmental Response, Compensation, and Liability Act; the *Federal Facility Agreement for the Paducah Gaseous Diffusion Plant*, DOE/OR/07-1707; and with the remedial strategy described in Appendix G, *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2025*, DOE/LX/07-2508&D2, as amended to the Federal Facility Agreement. The Environmental Media Record of Decision (ROD) is one of three sitewide cleanup decisions underway. This decision, along with the Waste Disposal Alternatives ROD, and the Deactivation and Decommissioning ROD, are interrelated to form a complete and holistic cleanup approach for the Paducah Site.

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ACRONYMS

ACO	Administrative Consent Order
AL	action level
AOC	area of concern
ARAR	applicable or relevant and appropriate requirements
BERA	baseline ecological risk assessment
BHHRA	baseline human health risk assessment
CAMU	corrective action management unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
<i>CFR</i>	<i>Code of Federal Regulations</i>
COC	contaminant of concern
COE	U.S. Army Corps of Engineers
COPC	chemical (or radionuclide) of potential concern
COPEC	chemical of potential ecological concern
CSEM	conceptual site exposure model
CSOU	Comprehensive Site Operable Unit
D&D	deactivation and decommissioning
DNAPL	dense nonaqueous-phase liquid
DOE	U.S. Department of Energy
DQA	data quality assessment
DQO	data quality objective
ED	exposure duration
EF	exposure frequency
ELCR	estimated lifetime cancer risk
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ERH	electrical resistance heating
ESA	Endangered Species Act
EU	exposure unit
FFA	Federal Facility Agreement
<i>FR</i>	<i>Federal Register</i>
FRNP	Four Rivers Nuclear Partnership, LLC
FS	feasibility study
FY	fiscal year
GLE	Global Laser Enrichment
GRA	general response action
HI	hazard index
HQ	hazard quotient
HSS&Q	health, safety, support, and quality
IH	industrial health
IS	industrial safety
IRA	interim remedial action
<i>KAR</i>	<i>Kentucky Administrative Regulations</i>
KDEP	Kentucky Department for Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
LLW	low-level waste
LUC	land use control
MCL	maximum contaminant level
MOA	memorandum of agreement
NAL	no action level

NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NEPCS	Northeast Plume Containment System
NFA	no further action
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NSDD	North-South Diversion Ditch
O	order
OREIS	Oak Ridge Environmental Information System
OU	operable unit
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
PHC	principal hazardous constituents
PI	preliminary investigation
PQL	practical quantitation limit
PTW	principal threat waste
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RDI	Regulatory Decision Integration
RDSI	remedial design support investigation
RGA	Regional Gravel Aquifer
RGO	remedial goal options
RI	remedial investigation
RMD	risk methods document
RME	reasonable maximum exposure
ROD	record of decision
SER	site evaluation report
SERA	screening ecological risk assessment
SHHRA	screening-level human health risk assessment
SI	site investigation
SMDP	scientific management decision point
SMP	site management plan
SVOC	semivolatile organic compound
SWMU	solid waste management unit
T&E	threatened and endangered
TBC	to be considered
TPU	total propagated uncertainty
TSCA	Toxic Substances Control Act of 1976
TVA	Tennessee Valley Authority
UCRS	Upper Continental Recharge System
<i>U.S.C.</i>	<i>United States Code</i>
VI	vapor intrusion
VISL	vapor intrusion screening level
VOC	volatile organic compound
WAC	waste acceptance criteria
WAG	waste area grouping
WDA	waste disposal alternative
WKWMA	West Kentucky Wildlife Management Area
XRF	x-ray fluorescence

EXECUTIVE SUMMARY

The Paducah Gaseous Diffusion Plant (PGDP) is an inactive uranium enrichment facility that is owned by the U.S. Department of Energy (DOE). The Paducah Site generally means the property, programs, and facilities at or near PGDP for which DOE has ultimate responsibility. DOE is conducting environmental remediation activities at the Paducah Site in accordance with the requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). PGDP was placed on the National Priorities List in 1994. DOE, the U.S. Environmental Protection Agency (EPA), and the Kentucky Department for Environmental Protection (KDEP) entered into a Federal Facility Agreement (FFA) in 1998 (EPA 1998). Three CERCLA remedial action decision documents are proposed for submittal, which includes the Environmental Media Record of Decision (ROD), Deactivation and Decommissioning (D&D) ROD, and Waste Disposal Alternatives ROD, all of which are interrelated to form a complete holistic cleanup approach for the Paducah Site.

The scope of the Environmental Media remedial investigation (RI)/feasibility study (FS) is to identify and evaluate final remedial actions for soil and sources above the Regional Gravel Aquifer (RGA), slabs, at- and below-grade portions of facilities (e.g., basements, footings, utilities), surface water (on-site and off-site), lagoons, burial grounds, and confirmed/probable dense nonaqueous-phase liquid (DNAPL) in groundwater beneath the C-400 Complex Operable Unit (OU). Remediation of dissolved-phase plume groundwater and soils underlying the depleted uranium hexafluoride (DUF₆) facilities will be addressed in the Comprehensive Site OU (CSOU) and are not included in the scope of the Environmental Media RI/FS.

Evaluations conducted under the Environmental Media RI/FS will take into account existing memorandums of agreement established by the FFA parties. Interim remedial actions (IRAs) and removal actions conducted under the Surface Water OU, Burial Grounds OU (BGOU), and Soils OU will be incorporated into the Environmental Media decision. Additionally, the Environmental Media decision will be performed concurrent with the ongoing groundwater OU IRAs for the Northeast Plume and Northwest Plume IRAs and Southwest Plume remedial actions. A final CSOU is planned to consider any remaining appropriate actions for dissolved-phase groundwater as described in the site management plan and any remaining contamination after actions selected by the three decision documents are complete (DOE 2024a).

This Environmental Media RI/FS scoping document and work plan describes how the RI and FS will be implemented, summarizes previous site investigations along with data availability, discusses the approach for human health and ecological risk assessments, and provides details on the process that will be used to develop and evaluate remedial alternatives for the Environmental Media decision. In addition, this Environmental Media RI/FS scoping document and work plan includes Appendix A, SWMUs and At- and Below-Grade Portions of Facilities Included in the Environmental Media Decision; Appendix B, Data Summaries and Analytical Data; Appendix C, Preliminary Applicable or Relevant and Appropriate Requirements; Appendix D, Previous Risk Assessment Summaries; and Appendix E, Preliminary Remedial Action Objectives.

The goals of the Environmental Media RI/FS follow.

- Goal 1: Define the nature, extent (vertical and lateral), and magnitude of contamination in soils, at- and below-grade portions of facilities, burial grounds, lagoons, surface water/sediment, and C-400 groundwater DNAPL adequately to support cleanup decisions using existing data.

- Goal 2: Assess existing data to analyze contaminant transport mechanisms between media to assess risks, set remediation levels, and support developing and evaluating alternatives.
- Goal 3: Confirm or update previous conclusions regarding the potential for human health and ecological risk associated with the Environmental Media decision.
- Goal 4: Assess existing data to identify, develop, and evaluate alternatives that will reduce risk to human health and the environment.
- Goal 5: Develop a sufficient database of information using existing data to support the comparison of potential waste characteristics to the waste acceptance criteria developed as part of the waste disposal alternative decision.

The Environmental Media RI/FS and ROD will produce a sitewide decision that remediates contamination to meet remedial action objectives (RAOs). A list of sitewide contaminants of concern (COCs) and remedial goal options (also called preliminary remediation goals) will be produced by the RI. If a COC is identified in one part of the site, it will be included on the COC list regardless of its presence elsewhere on the site. While the nature and extent of contamination will be evaluated on a media-specific basis, the alternatives will be developed on a sitewide basis.

The specific extent of remediation needed to meet RAOs will be determined by predesign characterization during the remedial design phase of work. This timing refines the nature and extent of remediation at the time that the work is to be conducted, thus ensuring each design captures the extent of contamination and any changed conditions since the RI. Sampling conducted during the remedial action will verify that the RAOs have been met.

1. INTRODUCTION

1.1 SCOPE AND OBJECTIVES

The Paducah Gaseous Diffusion Plant (PGDP) was placed on the National Priorities List (NPL) on May 31, 1994. The Paducah Site generally means the property, programs, and facilities at or near PGDP for which the U.S. Department of Energy (DOE) has ultimate responsibility. In accordance with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), DOE entered into a Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) and the Kentucky Department for Environmental Protection (KDEP) on February 13, 1998 (EPA 1998). The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with the Resource Conservation and Recovery Act (RCRA) and CERCLA, including stakeholder involvement. The *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2025*, DOE/LX/07-2508&D2, sets forth enforceable milestones for fiscal year (FY) 2025, FY 2026, and FY 2027, consistent with the memorandums of agreement (MOAs) signed in August 2017 and August 2019 and the FY 2018/FY 2019 site management plan (SMP) (DOE 2019a). A new overall cleanup strategy for the site was discussed among the FFA parties in late FY 2023 and was documented in Appendix G of the FY 2025 SMP, as appended to the FFA. The FY 2025 SMP establishes plans to integrate and accelerate Paducah Site cleanup decisions for environmental media, deactivation and decommissioning (D&D), and waste disposal alternatives (WDAs). The consolidation of decisions into a sitewide focus is consistent with the approach successfully being used at the DOE Portsmouth Site. Development of an Environmental Media remedial investigation (RI)/feasibility study (FS) report that reflects this sitewide focus is required by the FY 2025 SMP.

The Paducah FFA requires the development of a scoping document and a RI/FS work plan prior to implementing an RI/FS. The purpose of the scoping document is to obtain early input and minimize comments on the RI/FS work plan; however, the FFA also states that a scoping document may serve as a portion of the RI/FS work plan. To eliminate duplication of efforts, the Environmental Media RI/FS scoping document and RI/FS work plan are being combined. As an RI/FS work plan, this document describes the plan for implementing the RI (including a baseline risk assessment) and FS as required by the FFA.

1.1.1 Scope and Role of the Environmental Media Decision

The scope of the Environmental Media RI/FS is to identify and evaluate final remedial actions for soil sources above the Regional Gravel Aquifer (RGA), slabs, at- and below-grade portions of facilities (e.g., basements, footings, utilities), surface water (on-site and off-site), lagoons, burial grounds, and confirmed/probable dense nonaqueous-phase liquid (DNAPL) in groundwater beneath the C-400 Complex Operable Unit (OU). The solid waste management units (SWMUs) and at- and below-grade portions of facilities that will be addressed by this RI/FS are listed in Appendix A. “Facility,” as defined by Section 101(9) of CERCLA, means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

Remediation of dissolved-phase plume groundwater and soils underlying the depleted uranium hexafluoride (DUF₆) facilities will be addressed in the Comprehensive Site Operable Unit (CSOU) and are not included in the scope of the Environmental Media RI/FS. If a need to change the scope of the Environmental Media RI/FS is identified (e.g., list of facilities, SWMUs), it will be discussed with the FFA managers and addressed in the SMP.

The goals of the Environmental Media RI/FS follow.

- Goal 1: Define the nature, extent (vertical and lateral), and magnitude of contamination in soils, at- and below-grade portions of facilities, burial grounds, lagoons, surface water/sediment, and C-400 groundwater DNAPL adequately to support cleanup decisions using existing data.
- Goal 2: Assess existing data to analyze contaminant transport mechanisms between media to assess risks, set remediation levels, and support developing and evaluating alternatives.
- Goal 3: Confirm or update previous conclusions regarding the potential for human health and ecological risk associated with the Environmental Media decision.
- Goal 4: Assess existing data to identify, develop, and evaluate alternatives that will reduce risk to human health and the environment.
- Goal 5: Develop a sufficient database of information using existing data to support the comparison of potential waste characteristics to the waste acceptance criteria (WAC) developed as part of the WDA decision.

The Environmental Media RI/FS and ROD will produce a sitewide decision that remediates contamination to meet RAOs, without the time and cost to reduce uncertainty in lesser characterized areas. A list of sitewide COCs and remedial goal options (RGOs) (also called preliminary remediation goals) will be produced by the RI.

The EPA data quality objective (DQO) process has been used to assess the sufficiency of existing data to support the RI/FS and to identify any new data requirements. This information is provided in Section 2.

1.1.2 Relationship to Other Regulatory Decision Documents

To ensure a streamlined approach and more efficient strategy for the Paducah Site cleanup, the remaining site remedy decisions are being consolidated into four comprehensive decisions, with the conceptual contents of each described in this section.

- The Environmental Media RI/FS, proposed plan, and record of decision (ROD) documents will address the scope defined in Section 1.1.1.
- The D&D RI/FS, proposed plan, and ROD will combine all above-grade structures into a single final decision (incorporating some aspects of deactivation under the FFA/CERCLA process, as defined in the ROD).
- The WDA RI/FS addendum, proposed plan, and ROD will make a transportation and disposition decision for waste generated by the D&D and Environmental Media decisions.
- A final CSOU will consider appropriate actions for remaining work at the Paducah Site as defined by the FY 2025 SMP.

The relationships and documents associated with the first three decisions are illustrated in Figure 1. This scoping plan is indicated with “You Are Here” text. Any completed documents are shown with a check mark next to them.

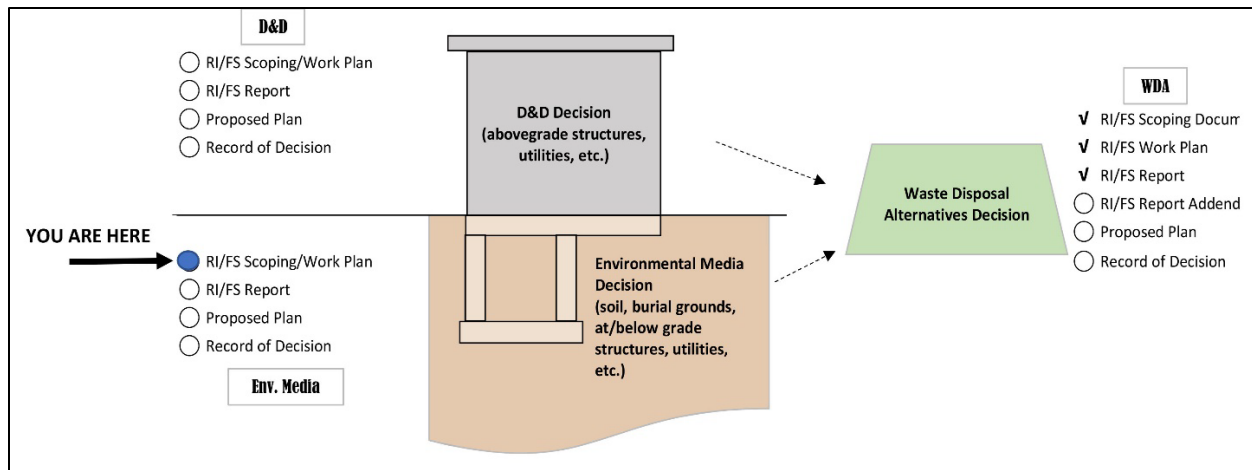


Figure 1. Decision Relationships

The WDA ROD is planned to be finalized first to establish a disposal path for waste generated by the D&D decision and Environmental Media decision. The D&D ROD is planned to be finalized next with the understanding of the disposal pathway. The Environmental Media ROD is planned to be finalized third.

Integration of the WDA, D&D, and Environmental Media RI/FS alternatives and remedy decisions is important to the efficient and holistic remediation of the Paducah Site. The scope of each RI/FS also needs to be discrete and clearly defined for alternative development, applicable or relevant and appropriate requirements (ARARs) identification, and evaluation of alternatives against the CERCLA criteria. Clear scope delineation provides a more accurate evaluation of alternatives in each RI/FS, avoiding the potential for duplicated costs to skew the decision-making process. Conceptual distinction among the scope of the WDA, D&D, and Environmental Media RI/FS alternatives include the following.

- Cost and analysis of transportation and disposal for the waste generated by D&D and Environmental Media alternatives will be included in the WDA RI/FS addendum.
- Construction and operation of a single system to treat contaminated liquids generated sitewide (e.g., storm water, dust suppression water, leachate, groundwater) is conceptually the most cost beneficial, implementable approach for Paducah remediation. To avoid duplication of costs, including wastewater treatment and disposition in the WDA RI/FS scope is the most logical. Wastewater is a waste stream and the WDA ROD is planned to be finalized first. If this approach is used, alternatives developed for D&D and Environmental Media would only include costs to contain, collect, and transfer potentially contaminated liquids to the site system.
- Deactivation prior to demolition will include above-grade and below-grade portions of facilities, including basements. In particular, the aforementioned deactivation will include removal of regulated asbestos, oil, and segregable hazardous waste. Alternatives will assume deactivation is completed prior to above-grade demolition. Environmental Media alternatives will not include deactivation.
- The Environmental Media excavation alternatives will be developed as a continuous evolution of work following the completion of the above-grade demolition alternative under the D&D decision. Alternatives developed for the D&D and Environmental Media RI/FSs will assume at- and below-grade remediation closely follows above-grade remediation and below-grade portions of facilities will not be grouted. The excavation alternative will include management of any accumulated water after

demolition such that prolonged ponding or accumulation of water within below-grade portions of facilities is minimized.

- Environmental Media excavation alternatives will assume that berms constructed to contain precipitation and dust suppression water during above-grade demolition will remain for use during the at/below-grade remediation. During excavation, the berms will be used to prevent storm water run-on from adjacent areas from entering the excavation. Excavated soil must meet moisture content criteria for packaging and disposal. Dewatering to remove infiltration water and rainfall will, therefore, be an ongoing activity during excavation. Costs for construction of these berms will not be duplicated in the Environmental Media alternatives.

Prior to the streamlining of the decisions, source units and areas of contamination at the Paducah Site were combined into OUs for evaluation of remedial alternatives. These OUs include the C-400 Complex OU, the Groundwater OU, the Surface Water OU, the Lagoons OU, the BGOU, the Soils OU, the Soils and Slabs OU, the Facility Decommissioning OU, the DUF₆ Footprint Underlying Soils OU, the CERCLA WDA OU, and the CSOU. Table 1 provides a crosswalk of these OUs, and OU subprojects identified in the FY 2025 SMP, to each newly proposed regulatory decision. The Environmental Media RI/FS is not intended to revisit final remedies already established in these OUs.

Table 1. Operable Units and Decisions Crosswalk

Regulatory Decision ROD	Current OU
WDA	Waste Disposal Alternatives
D&D	Facility Decommissioning OU (above-grade)
	C-400 Complex (above-grade)
	Remaining non-CERCLA Decommissioning OU activities (not currently in an OU)
Environmental Media	Soils (SWMUs) • Soils Remedial
	Soils and Slabs
	Facility Decommissioning OU (at- and below-grade portions of facilities)
	C-400 Complex (at- and below-grade portions of facilities) and confirmed/probable DNAPL in groundwater
	Burial Grounds • SWMUs 2, 3, 4, 5, 6, 7, 30 • SWMUs 9, 10, 145 • Additional burial grounds (SWMUs 472, 520)
	Groundwater • Southwest Plume Sources (above the RGA) • Potential Additional Groundwater Sources (above the RGA)
	Surface Water (on-site and off-site)
	Lagoons • Process Lagoons • Water Treatment System Lagoon
	DUF ₆ Footprint Underlying Soil (and other site components required for DUF ₆ Operations.
	Groundwater • Northeast Plume (interim ROD transition to final remedy) • Northwest Plume (interim ROD transition to final remedy) • Dissolved-Phase Plumes • Water Policy (removal action transition to final remedy)
CSOU	Comprehensive risk review of remaining site conditions

1.2 REGULATORY SETTING

The sections that follow provide a condensed version of the regulatory framework for the Paducah Site. The summary in this section is intended to provide readers with general knowledge of the facility and the regulatory protocol that guides environmental management activities at the Paducah Site. Detailed descriptions can be found in the FY 2025 SMP.

1.2.1 Administrative Order by Consent

EPA and DOE entered into an Administrative Consent Order (ACO) effective November 1988, after the discovery of contamination in residential wells north of PGDP. Kentucky provided regulatory review of the CERCLA ACO documents, but was not a signatory on the agreement. The ACO is a legally binding agreement for the participating parties that initiated the investigation into the nature and extent of the contamination impacting these wells. The contaminants are believed to have originated as process-derived wastes or commonly used materials employed during the operational history of PGDP.

The ACO initiated the investigative activities that were designed to determine the extent and sources of off-site contamination surrounding PGDP. A site investigation (SI) (Phase I and Phase II) was completed in 1992 under the guidelines of the ACO (CH2M Hill 1992). The requirements of the ACO were superseded by the execution of the FFA (EPA 1998).

1.2.2 Environmental Programs

Environmental sampling at the Paducah Site is a multimedia (air, water, soil, sediment, direct radiation, and biota) program of chemical, radiological, ecological, and environmental monitoring that consists of two activities: effluent monitoring and environmental surveillance. As part of the ongoing environmental activities, SWMUs have been identified. Remediation of these sites is continuing pursuant to CERCLA. SWMUs included in the Environmental Media decision are listed along with figures showing locations in Appendix A. SWMUs documented in Appendix A are listed in the FY 2025 SMP and are intended to provide a complete list of SWMUs that will be addressed as part of the Environmental Media ROD; however, the SMP documents additional SWMUs that are listed as no further action (NFA) that may undergo further remediation consistent with the final remedy for Environmental Media. RCRA and CERCLA requirements are coordinated by DOE, EPA, and KDEP through the FFA.

1.2.3 Resource Conservation and Recovery Act

The primary purpose of RCRA is to protect human health and the environment through the proper management of hazardous wastes at operating sites. RCRA requirements for the Paducah Site are contained in Paducah Site Hazardous Waste Management Facility Permit (KY8-890-008-982, initially issued July 1991). This permit originally was issued by both KDEP and EPA. Kentucky was authorized in 1996 for corrective action provisions. The RCRA permit contains the regulatory provisions for treatment, storage, and disposal units, as well as for provisions requiring corrective action for SWMUs.

The Agreed Order issued in 2003 has established site-specific health-based levels of hazardous constituents for determining whether contaminated media and/or debris at the Paducah Site still contains or is no longer contaminated with listed-hazardous waste [trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA)] (KNREPC 2003). The level for TCE is 39.2 parts per million (ppm) and the level for 1,1,1-TCA is 2,080 ppm. The Agreed Order states that media and debris solids that are determined to be below these levels and that are not characteristically hazardous shall be deemed to no longer contain or to no longer be contaminated with listed-hazardous waste (F001, F002, U228). The site-specific health-based level for determining whether contaminated groundwater destined for on-site treatment and discharge through

Kentucky Pollutant Discharge Elimination System (KPDES)-permitted outfalls still contains listed-hazardous waste (TCE and 1,1,1-TCA) is 0.081 ppm TCE. Groundwater that meets the health-based level for TCE shall also be deemed to no longer contain 1,1,1-TCA.

1.2.4 Comprehensive Environmental Response, Compensation, and Liability Act/National Priorities List

PGDP was placed on the National Priorities List (NPL) on May 31, 1994. In accordance with Section 120 of CERCLA, DOE entered into an FFA with EPA and KDEP in 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with RCRA and CERCLA, which includes stakeholder involvement, through the annual update of the SMP (DOE 2024a). The SMP is appended to the FFA, as Appendix G, annually after approval. Section III of the FFA identifies the Purposes of Agreement.

1.2.5 National Environmental Policy Act

The intent of the National Environmental Policy Act (NEPA) is to promote a decision-making process that results in the minimization of adverse impacts to human health and the environment. On June 13, 1994, the United States Secretary of Energy issued a Secretarial Policy on NEPA that addresses the NEPA requirements for actions taken under CERCLA (DOE 1994). Section II.E of the Policy indicates that to facilitate meeting the environmental objectives of CERCLA and respond to concerns of regulators consistent with the procedures of most other federal agencies, DOE will rely on the CERCLA process for the review of actions to be taken under CERCLA, and the CERCLA documentation will address NEPA values. DOE CERCLA documents will incorporate NEPA values, such as analysis of cumulative, off-site, ecological, and socioeconomic impacts, to the extent practicable.

1.2.6 Investigative Overview

Areas of the Paducah Site have undergone previous environmental investigations and remedial actions. The strategy for this scoping document/work plan is to conduct a combined RI/FS for the Paducah Site for the scope described in Section 1.1.1. Data from previous investigations will be used to assess risk and to develop and evaluate alternatives, as well as to develop a sufficient database to support the evaluation of disposal alternatives as part of the WDA decision.

1.2.7 Memorandums of Agreement

Evaluations conducted under the Environmental Media RI/FS will take into account existing MOAs established by DOE, EPA and KDEP. Summary description of MOAs and topics included the MOAs that may be pertinent to development of the Environmental Media RI/FS are provided in this section.

Memorandum of Agreement for Resolution of Informal Dispute Concerning U.S. Environmental Protection Agency Conditional Concurrence on the Remedial Action Work Plan for SWMU 211-A Enhanced In Situ Bioremediation for Volatile Organic Compound Sources to the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2443&D2, denies approval of an Area of Contamination designation based on specified conditions, removes the reference to Kentucky regulatory effluent limits for technetium-99 (Tc-99) set forth in Table II of 902 KAR 100:019 (44) and DOE Order (O) 5400.5, *Derived Concentration Standards*, because wastewaters generated will be managed under the site waste management plan (DOE 2021) (<https://eic.pad.pppo.gov/Search.aspx?accession=INF-RECMGMT-PPPO-02-10016872-21-SWMU 211A SW PLUME-2021-10-04>).

Memorandum of Agreement for Resolution of Formal Disputes on EPA Conditional Concurrence on the Removal Notification for Demolition of the C-400 Cleaning Building in the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2420&D2 and the Engineering Evaluation/Cost Analysis for Demolition of the C-400 Cleaning Building in the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky DOE/LX/07-2425&D2 establishes a commitment that the demolition of the C-400 Cleaning Building superstructure will not be conducted before the RI. Deactivation sampling results of basement slab and substructures will be incorporated into the RI/FS work plan (DOE 2019b) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01831>).

Memorandum of Agreement for Resolution of Formal Dispute Concerning Kentucky Department for Environmental Protection Nonconcurrence and U.S. Environmental Protection Agency Conditions Submitted on the Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision–FY 2018, DOE/LX/07-2418&D2, resolves issues related to project scheduling, OU and geographic area definition, potential additional characterization of SWMUs and areas of concern (AOCs) previously designated as NFA, and future vapor intrusion studies (DOE 2019c) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01644>).

Memorandum of Agreement for Resolution of Formal Dispute Regarding the Non-concurrence by EPA and KDEP on the DOE Milestone Modification Request for Submittal of the Revised Proposed Plan for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-2407&D1) states that the final remedy for the C-400 Complex OU will include the Phase IIb lower RGA source area. Because the Environmental Media decision is incorporating the at- and below-grade sources of contamination at the C-400 Complex OU, the Phase IIb source area will be addressed in the Environmental Media RI/FS (DOE 2017a) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01447>).

Memorandum of Agreement for Resolution of Dispute for the Feasibility Study for Solid Waste Management Units 2, 3, 7, and 30 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE-LX/07-1274&D2, agrees on the wording of alternative descriptions, which includes uncertainties associated with the alternatives, deletes and adds action-specific ARARs; and agrees to defer the establishment of radionuclide effluent limits for discharges of wastewater until the proposed plan and ROD stages of remedy selection (DOE 2017b). The FFA parties also agreed in the MOA to consider the Kentucky Energy and Environment Cabinet Uniform Environmental Covenant Act as a land use control (LUC) for alternatives that did not achieve unlimited use/unrestricted exposure. The MOA also adds language to the FS stating that the burial grounds, upon excavation and characterization for disposal, may include RCRA-hazardous waste, polychlorinated biphenyl (PCB) waste and low-level waste (LLW). Depending on the originating source, the TCE could be a listed-hazardous waste with one or more waste codes (F001, F002, or U228) and/or a characteristic hazardous waste (D040), if generated by the response action. Any soils or wastes with PCB concentrations ≥ 50 ppm would be regulated for disposal as Toxic Substances Control Act of 1976 (TSCA) PCB waste if generated by the response action. Excavated soil and/or debris from the burial grounds could also be RCRA characteristic hazardous waste. The resolution documented that the gold dissolver precipitate disposed of in the C-404 Landfill Low-Level Radioactive Waste Burial Ground (SWMU 3) is a “characteristic” hazardous waste based on toxicity for cadmium (D006), lead (D008), and selenium (D010). It was further agreed for SWMU 3 that given the historical uses of TCE at PGDP, TCE, TCE-contaminated soils, and TCE-contaminated debris (e.g., drums, personal protective equipment) likely would be considered characteristic and/or listed RCRA-hazardous wastes until such time as a “contained-in” and/or a “contaminated with” determination has been made per the Agreed Order (KNREPC 2003) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01377>).

Memorandum of Agreement for Resolution of Formal Dispute for the Remedial Investigation/Feasibility Study Report for CERCLA Waste Disposal Alternatives Evaluation at the Paducah Gaseous Diffusion

Plant, Paducah, Kentucky (DOE/LX/07-0244&D2) deferred the establishment of any radiological effluent limits for discharges of wastewater from the WDA project until the proposed plan and ROD stage of remedy selection. The dispute was entered in response to an EPA condition that effluent limits for radionuclides must be within EPA's generally accepted risk range under CERCLA and such effluent limits must be derived in a manner consistent with the Commonwealth of Kentucky's designated use classifications of the receiving surface water body. EPA's position was that its 2014 guidance required ARARs for radionuclide effluent limits to be based on a maximum dose of 12 millirem (mrem) per year, whereas Nuclear Regulatory Commission (NRC) and Commonwealth of Kentucky limits were based on a dose of 50 mrem/year, and DOE O 458.1, *Radiation Protection of the Public and the Environment*, effluent limits were based on a dose of 100 mrem/year. It was agreed that the D2 WDA RI/FS will not identify or cite the NRC regulation effluent concentrations [10 CFR Part 20, Appendix B; former 902 KAR 100:019 § 44(7)(a)] or effluent limit requirements in DOE O 458.1 at this time (DOE 2017c) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01301>).

Memorandum of Agreement for Resolution of Formal Dispute of the Proposed Plan for the Burial Grounds Operable Unit Source Areas for Solid Waste Management Units 5 and 6 (DOE/LX/07-1275&D2), agrees upon the use of the Kentucky Uniform Environmental Covenant Act and specific LUCs for the preferred alternative (i.e., installation of a Kentucky Subtitle D Cap, LUCs, monitoring) (DOE 2016a) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-01014>).

Memorandum of Agreement for Disposition of C-410 Basement Water at the Paducah Site establishes an agreement to treat waters accumulated in the C-410 basement with ion exchange technology capable of removing Tc-99 and uranium. The ion exchange technology will use standard industry design (off the shelf) to achieve between 93% to 98% reduction in the radionuclides detected in the contaminated water. Agreements for verification sampling prior to discharge are included in the MOA (DOE 2015a) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-00927>).

Memorandum of Agreement for Resolution of Informal Dispute for the D2/R2 Feasibility Study for Solid Waste Management Units 5 and 6 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-0130a&D2/R2) includes agreements to revise the methodology used in the comparative analysis of alternatives and to, revise language related to the cap/cover component of certain alternatives, which includes changes to action-specific ARARs, as well as including a description of contaminant migration from potential seeps (DOE 2012a) (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-00306>).

Resolution Agreement of the Formal Dispute for the D2 Feasibility Study for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0130&D2, provides PTW determinations for SWMUs 2, 3, 4, and 7 (DOE 2012b). The subsequent FS documents for these SWMUs provide final principal threat waste (PTW) determinations based on the dispute resolution. Contaminants that are determined to be PTW in burial grounds are identified in Section 2.2.2 (<https://eic.pad.pppo.gov/Search.aspx?accession=ENV 1.A-00099>).

Memorandum of Agreement for Resolution of Informal Dispute for the Focused Feasibility Study for the Southwest Plume Volatile Organic Compound Sources Oil Landfarm and C-720 Northeast and Southeast Sites) at the Paducah Gaseous Diffusion Plant, Paducah, KY DOE/LX/07-0186&D2 agrees on the inclusion of 902 KAR 100:019 (44), Table II as an ARAR for Tc-99 wastewater discharge, monitoring locations, effluent reporting requirements associated with this specific remedy, and LUCs (DOE 2010a). The MOA also describes possible options for monitoring effluent in future CERCLA projects that involve a discharge of wastewater (<https://eic.pad.pppo.gov/Search.aspx?accession=I-04611-0318>).

Resolution of the Environmental Protection Agency Letter of Non-Concurrence for the Site Investigation Report for the Southwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-2180&D2) and Notice of Informal Dispute dated November 30, 2007, McCracken County, Kentucky, KY8-890-008-982 requires the preparation of a focused FS, proposed plan, and ROD to address the source areas for the Southwest Plume (DOE 2008a). The MOA establishes that the dissolved-phase plume project of the Groundwater OU would address the southwest dissolved-phase plume (in particular contamination in the RGA from the source areas to the leading edge of the plume) and that SWMU 4 would be addressed in the BGOU (<https://eic.pad.pppo.gov/Search.aspx?accession=I-04610-0105>).

1.2.8 Integration with Existing Remedies and Open Commitments

The FY 2025 SMP lists the remediation activities completed to date at the Paducah Site (DOE 2024a). Coordination with ongoing interim remedial actions (IRAs) during the RI/FS will be required. The Environmental Media RI/FS will identify possible final remedies for IRAs and removal actions listed under the Surface Water OU, BGOU, and Soils OU of the FY 2025 SMP, Appendix 1 (DOE 2024a). Final remedies for Groundwater OU SWMUs 91, 11, 533, and 211-B will also be addressed by the Environmental Media decision.

The Environmental Media RI/FS will consider and coordinate alternatives for remediation of confirmed/probable DNAPL in the C-400 Complex footprint with actions being taken concurrently with the Northeast Plume IRA and Northwest Plume IRA. The Northeast Plume IRA and Northwest Plume IRA provide hydraulic containment and treatment of high concentrations of TCE contamination in the respective plume area. Extraction wells are located throughout the plume and in areas of soil contamination for the implementation of these remedies. In accordance with a technical memorandum to file issued in 2024 (September 12, 2024, Northwest Plume, NWP-PT-PD), one or more additional extraction wells are planned to be installed north of the TCE source zone at the C-400 Complex OU to further optimize the hydraulic control of and contaminant mass removal from the northwest TCE and Tc-99 plumes. Effectiveness of contaminant removal in the IRAs will be considered in the Environmental Media FS components associated with the confirmed/probable DNAPL in groundwater. The potential response action and timing discussed in Section 5.4 reflects this consideration.

The C-400 IRA established a phased approach for the interim remedy to reduce the mass of TCE and other volatile organic compounds (VOCs) in the source soils and groundwater in the Upper Continental Recharge System (UCRS) and RGA at the C-400 area by implementation of electrical resistance heating (ERH) in the UCRS and upper RGA (DOE 2005). As documented in the 2023 five-year review, monitoring data indicate that this remedial action has reduced the contaminant mass in the Phase I and Phase II areas. Phase I data showed that ERH, as currently configured, is ineffective in the lower RGA. Because of the inability of ERH to reach target temperatures in the lower RGA, a treatability study was conducted to determine the effectiveness of steam injection in the lower RGA of the Phase IIb area (DOE 2024b). The treatability study concluded that the encountered site conditions are within the expected range, and that steam is technically implementable to heat the target zone to facilitate VOC remediation (DOE 2023). As noted in Section 1.2.7, remediation of the Phase IIb area included in the C-400 ROD will be addressed as part of the Environmental Media decision.

1.3 PROJECT ORGANIZATION AND MANAGEMENT

This section presents the project organization for the Environmental Media RI/FS. The topics addressed in this chapter include project organization, project coordination, project tasks and implementation plan, and project schedule.

1.3.1 Organization

The organization chart shown in Figure 2 outlines the management structure that will be used for implementing the Environmental Media RI/FS. The responsibilities of key personnel are described in the following paragraphs.

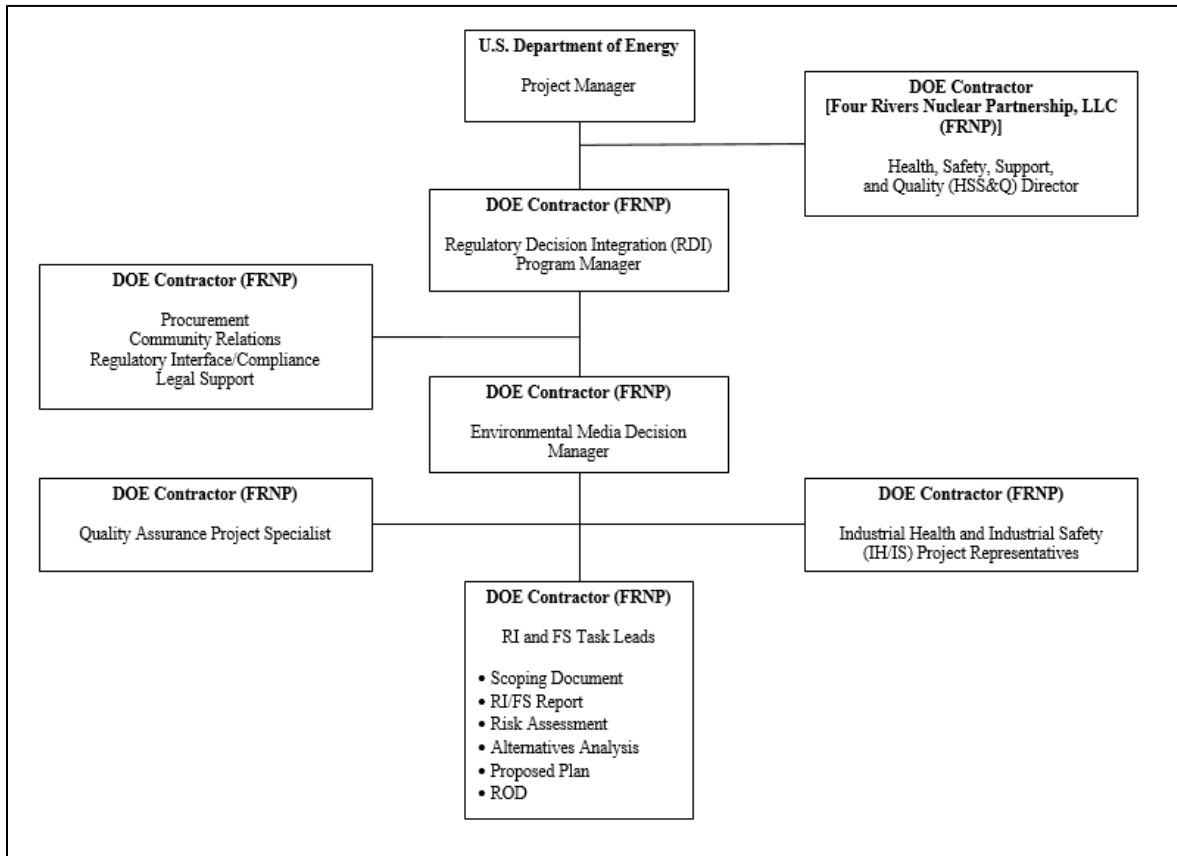


Figure 2. Organization Chart

1.3.1.1 DOE Project Manager

The DOE Project Manager has direct communication with the DOE Contractor Program Manager and is responsible for project oversight, overall compliance for the project, and for submitting various reports to, and interfacing with, EPA and KDEP.

1.3.1.2 Regulatory Decision Integration Program Manager

The DOE Contractor RDI Program Manager will have overall responsibility for technical, financial, and scheduling matters related to the project and will ensure that appropriate resources are available to facilitate execution of the RI/FS in a timely and efficient manner. The RDI program manager will monitor performance throughout the project. This individual is also responsible for the communication of any changes to the DOE Project Manager.

1.3.1.3 Environmental Media Decision Manager

The DOE Contractor Environmental Media Decision Manager will have the overall responsibility for implementation of the RI/FS for the environmental media project. This individual will be responsible for

implementing the activities conducted as part of the RI/FS, which includes monitoring the work plan implementation. The decision manager will coordinate with other FRNP departments (e.g., procurement, regulatory compliance, community relations, legal) in implementation of the project. This manager will also coordinate with the decision managers for the two other decisions to ensure close coordination between the decision processes.

1.3.1.4 Health, Safety, Support, and Quality Director

The Health Safety Security and Quality (HSS&Q) director will have overall HSS&Q program responsibility for the Contractor. The HSS&Q director will provide support and/or resources to the RDI program manager, as necessary. This individual will interface with DOE and the regulators, as appropriate.

1.3.1.5 Industrial Health/Industrial Safety Project Representatives

The Industrial Health (IH)/Industrial Safety (IS) project representative is responsible for establishing standards and providing oversight to safety and health compliance, training, and performance. This individual will advise personnel of potential exposures and consequences, conduct inspections as necessary, assist in hazard analysis, perform IH sampling, provide IH monitoring, and will notify the plant shift superintendent, frontline manager, and site personnel of any event or condition that adversely or may adversely affect DOE, the DOE Contractor, DOE Contractor's subcontractor, the public, or government property; as required in the Worker Safety and Health Program, and DOE Contractor's procedures.

1.3.1.6 Quality Assurance Project Specialist

The Quality Assurance (QA) project specialist will develop, approve, and maintain the quality assurance project plan (QAPP) and associated QA/quality control (QC) requirements for the Environmental Media RI/FS work plan. In addition, the QA project specialist will coordinate implementation of the QAPP, monitor compliance with quality requirements, and ensure the institution of any corrective actions necessary to maintain a high level of quality. This individual will provide the specific support necessary to resolve any quality issues that arise during the project. This individual may conduct audits and surveillances and approve any field changes that may impact project quality.

1.3.1.7 Remedial Investigation Task Lead

The RI task lead will oversee and coordinate day-to-day activities associated with his/her assigned tasks to maintain the RI on schedule. This individual will interact with the decision documents manager on a regular basis and will relay directions to RI team members as necessary. The RI task lead will coordinate activities and exchange information necessary to ensure the RI is completed in accordance with the FFA and this scoping document and work plan.

1.3.1.8 Feasibility Study Task Lead

The FS task lead will oversee and coordinate day-to-day activities associated with his/her assigned tasks to maintain the FS on schedule. This individual will interact with the environmental media decision manager on a regular basis and will relay directions to FS team members as necessary. The FS task lead will coordinate activities and exchange information necessary to ensure the FS is completed in accordance with the FFA and this scoping document and work plan.

1.4 PROJECT TASKS AND IMPLEMENTATION PLAN

The key project tasks to completing the Environmental Media RI/FS follow.

- Initial scoping of the RI/FS project internally and with EPA and KDEP. During this process, existing information was evaluated to develop a common understanding of history, existing nature, and extent of contamination. In turn, the existing knowledge and project DQOs were used to determine that the Environmental Media RI/FS could be completed without collection of additional data.

- Information from existing RI and FS reports, including alternative evaluations, will be incorporated in the Environmental Media RI/FS and updated as needed to align with the sitewide remediation approach. Technical exchange meetings will be conducted among personnel from the FFA parties.
- Routine tasks will also be performed throughout the RI/FS and include the coordination of community relations during the project, regulatory interactions, and implementation of the QA program. Project management, tracking, and reporting will be conducted concurrently with activities.
- Stakeholder-related activities will be conducted in accordance with the *Community Relations Plan under the Federal Facility Agreement at the U.S. Department of Energy Paducah Gaseous Diffusion Plant* and any subsequent updates of the plan (DOE 2024c).
- The Environmental Media RI/FS report will be issued after existing data and information has been processed and CERCLA criteria evaluations are complete.

1.4.1 Project Schedule

Table 2 provides a project schedule for the Environmental Media RI/FS scoping document and work plan, proposed plan, and ROD implementation. The project schedule is consistent with the enforceable milestones contained in Appendix 5 of the approved FY 2025 SMP (DOE 2024a).

Table 2. Project Schedule

SMP Milestones	Planning Schedule (fiscal year)
D1 RI/FS Report	December 11, 2026
D1 Proposed Plan	2nd Quarter 2028
D1 ROD	3rd Quarter 2029

1.5 ENVIRONMENTAL SETTING AND SITE DESCRIPTION

The Paducah Site consists of an inactive uranium enrichment facility and the associated support facilities. The enrichment process required extensive support facilities, and included a steam plant, four major electrical switchyards, four sets of cooling towers, a building for chemical cleaning and decontamination, a water treatment plant, and maintenance and laboratory facilities.

1.5.1 Physical Characteristics

The Paducah Site, consisting of approximately 3,556 acres, is located in western McCracken County, 10 miles west of Paducah, Kentucky, and 3.5 miles south of the Ohio River (Figure 3). Approximately 2,129 acres are utilized for site operations and approximately 1,427 acres are licensed to the Commonwealth of Kentucky as part of the West Kentucky Wildlife Management Area (WKWMA).

Bordering the Paducah Site to the northeast, between the plant and the Ohio River, is a Tennessee Valley Authority (TVA) reservation on which the Shawnee Fossil Steam Plant is located. Global Laser Enrichment (GLE) has acquired land that borders the southeast portion of the site. Other property bordering the east of the site is privately owned.

The topographic features at the Paducah Site include nearly level to gently sloping dissected plains and the flood plain of the Ohio River. The elevations of the stream valleys in the dissected plains are up to 30 ft lower than the adjoining uplands. Local elevations range from 290 ft above mean sea level (amsl) along the Ohio River to 450 ft amsl southwest of the Paducah Site. Generally, the topography in the Paducah Site area slopes toward the Ohio River at an approximate gradient of 27 ft per mile (CH2M Hill 1992).

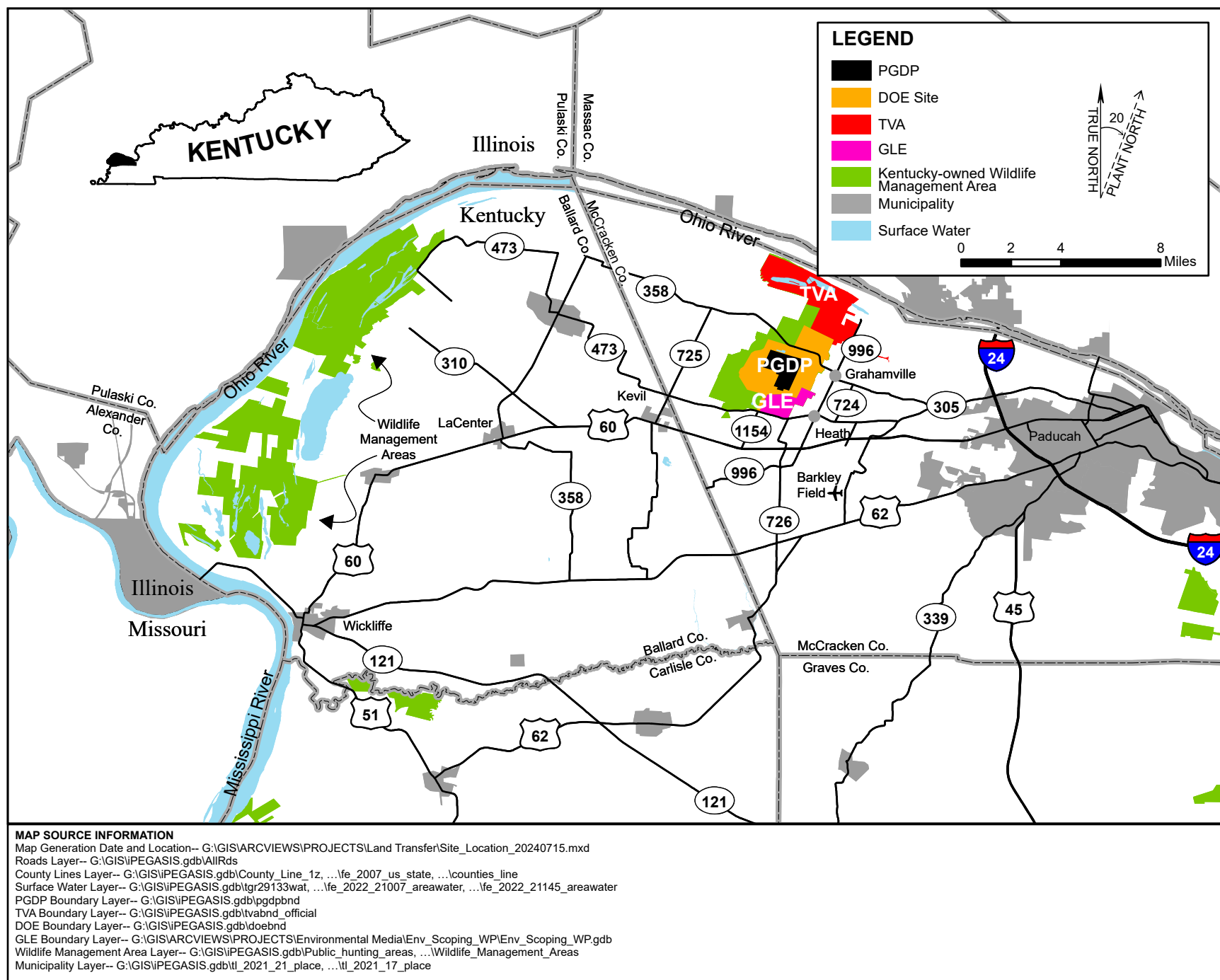


Figure 3. Paducah Site Vicinity Map

Ground surface elevations vary from 360 ft amsl to 390 ft amsl within the 229 boundary area, hereinafter referred to as the fenced security area, and 340 ft amsl to 420 ft amsl within the greater Paducah Site.

The industrialized portion of the Paducah Site is crossed by a number of utilities in the subsurface and contain other at- and below-grade portions of facilities. Construction gravel of varying thickness (~ 0-12 ft under the C-400 Complex structures) was placed as base material under some facility slabs, basements, and pits (DOE 2023). These subsurface gravel beds contain an assortment of drain lines (e.g., waste, sanitary, storm sewer systems) and could provide a pathway for migration of contamination.

Communication utilities (e.g., underground cabling) are present throughout the industrialized portion of the Paducah Site. Like other buried utilities, the cable bedding could provide a pathway for migration of contamination.

A large number of drain lines (e.g., sanitary, storm, acid, discard waste lines) are located in and around the C-400 Complex. All of the drain lines located within the building have been deactivated from their respective line portions located on the exterior of the building (i.e., disconnected from the exterior portions and plugged to secure the lines and prevent release of contaminants). A portion of these drain lines (approximately 10% of the total length) has been inspected with video borescope technology (DOE 2020a). During characterization of the C-400 basement slab and subsurface structures in 2018, a video borescope system was deployed into accessible drains to visually inspect the pipes/drains until refusal was encountered (DOE 2020a). Liquid and sludge samples from the drains were collected, when possible, and analyzed. The results of the analyses indicated that VOCs, Total PCBs, total carcinogenic polycyclic aromatic hydrocarbons (PAHs), anion (fluoride), metals, and radionuclides were present at concentrations exceeding risk-based screening values in the drains. Drain systems that were investigated with the video borescope included portions of the discard waste system and the acid drain system. While there is uncertainty with the inaccessible portions of the drain lines, the contamination in the inaccessible portions of the lines is assumed to be similar to the portions of line that were accessed and sampled (e.g., the contamination levels likely exceed risk-based screening values) and the drain lines are likely sources of contamination.

Storm water flows into storm drain inlets located throughout the industrialized portion of the Paducah Site where it discharges via the storm sewer to various outfalls located around the Paducah Site, then the water flows into either Bayou or Little Bayou Creek. Additional runoff flows into the North-South Diversion Ditch (NSDD), then is pumped to the C-616 Lagoon and released through KPDES Outfall 001 to Bayou Creek.

Water supplies, which includes sanitary water, plant process water, and recirculating water, are present throughout the Paducah Site. The recirculating cooling water no longer is in use at PGDP, but was known to contain hexavalent chromium as a rust inhibitor. The sanitary and plant process water utility systems would not be expected to contain or be the source of any gaseous diffusion process-related contaminants; however, water sourced from the Ohio River is known to contain per- and polyfluoroalkyl substances (PFAS) as these substances are present in the river and treatment standards did not historically exist. The sanitary and plant process water systems are still being utilized across the Paducah Site. Leaks from water supply piping are known to have occurred.

1.5.2 Demography and Land Use

The Paducah Site is surrounded by WKWMA, GLE property, TVA reservation, and sparsely populated agricultural lands. The closest communities to the site are Heath, Grahamville, and Kevil, all of which are located within 3 miles of the Paducah Site property boundary. Metropolis, Illinois, is located 5 miles to the northeast; Paducah, Kentucky, is located approximately 10 miles to the east; and Cape Girardeau, Missouri, is located approximately 40 miles to the northwest.

Historically, the economy of western Kentucky has been based on agriculture, although there has been increased industrial development in recent years. The Paducah Site employs approximately 1,300 people, and the TVA Shawnee Fossil Steam Plant employs approximately 200 people on a regular basis (the TVA employment number can be higher when contract employees are included). Based on population data from the 2020 census, the total population within the counties that lie within a 50-mile radius of the Paducah Site is approximately 523,833; and approximately 48,061 people live within the three counties located in a 10-mile radius of the plant (Massac County, Illinois, and Ballard and McCracken Counties, Kentucky). The estimated population of Paducah, Kentucky, is approximately 27,137. The population of McCracken County is estimated to be approximately 67,875 (DOC 2020).

The area immediately beyond the DOE property boundary is mostly agricultural and open land with some forested areas (Figure 4). The future use scenario considered reasonable for the area inside the currently secured industrial area is that of industrial (Figure 5), even if the land is released from future government control. The Paducah Site includes 1,427 acres licensed to the Kentucky Department of Fish and Wildlife Resources. This area is part of the WKWMA and borders PGDP to the north, west, east, and south. WKWMA is an important recreational resource for western Kentucky and is used by more than 10,000 people each year. The land uses assumed for the area outside of the currently secured industrial area include recreational and potentially industrial.

1.5.3 Site History and Contaminants

PGDP is an inactive uranium enrichment facility owned by DOE. The Paducah Site generally means the property, programs, and facilities at or near PGDP for which DOE has ultimate responsibility. The Paducah Site was established to support the nation's nuclear program. During World War II, the Kentucky Ordnance Works, a trinitrotoluene production facility, was operated from 1942 to 1945 in an area southwest of the plant on what is now a wildlife management area (BJC 2006a). Construction of PGDP began in 1951 and operations initiated in 1952, as one of three uranium enrichment facilities originally constructed in the United States. The two other gaseous diffusion facilities were located in Oak Ridge, Tennessee, and Portsmouth, Ohio. The Paducah Site was constructed by the Atomic Energy Commission in the early 1950s for the purpose of enriching uranium. PGDP was fully operational by 1955, supplying enriched uranium for commercial reactors and defense uses. From 1953 until 1977, most of the uranium hexafluoride (UF₆) used by PGDP was produced from feedstock in the feed plant (C-410 Feed Plant Building), which was designed to process both natural uranium and uranium from reactor tails. The reactor tails included uranium that had been returned for re-enrichment from the plutonium production reactors at the DOE Hanford and Savannah River plants. As a result of nuclear reactions in the plutonium production reactors, the reactor tails contained Tc-99, and are believed to be the sole source of Tc-99 released to the environment at PGDP. Beginning in 1977, PGDP was supplied with UF₆ feedstock from commercial vendors, such as Honeywell in Metropolis, Illinois, and from foreign sources.

Historical activities at the Paducah Site have generated various nonhazardous, hazardous, and radioactive wastes that have been managed, stored, and/or disposed of by different methods. These activities have, in some cases, resulted in the release of contaminants to the environment. The primary contaminants of potential concern (COPCs) at the Paducah Site are metals (primarily arsenic, beryllium, chromium, and uranium), radionuclides (uranium isotopes, thorium isotopes, Tc-99, and transuranic elements such as plutonium and neptunium), TCE (and TCE degradation products), PAHs, and PCBs.

In August 1988, TCE (an organic solvent) and Tc-99 (a beta-emitting radionuclide) were detected in four private wells north of the Paducah Site. DOE placed the potentially affected residences and businesses on alternate water supplies and began an intensive monitoring and investigation program to define the extent and temporal variations of the groundwater contaminant plumes. Since that time, several investigations and response actions have taken place.

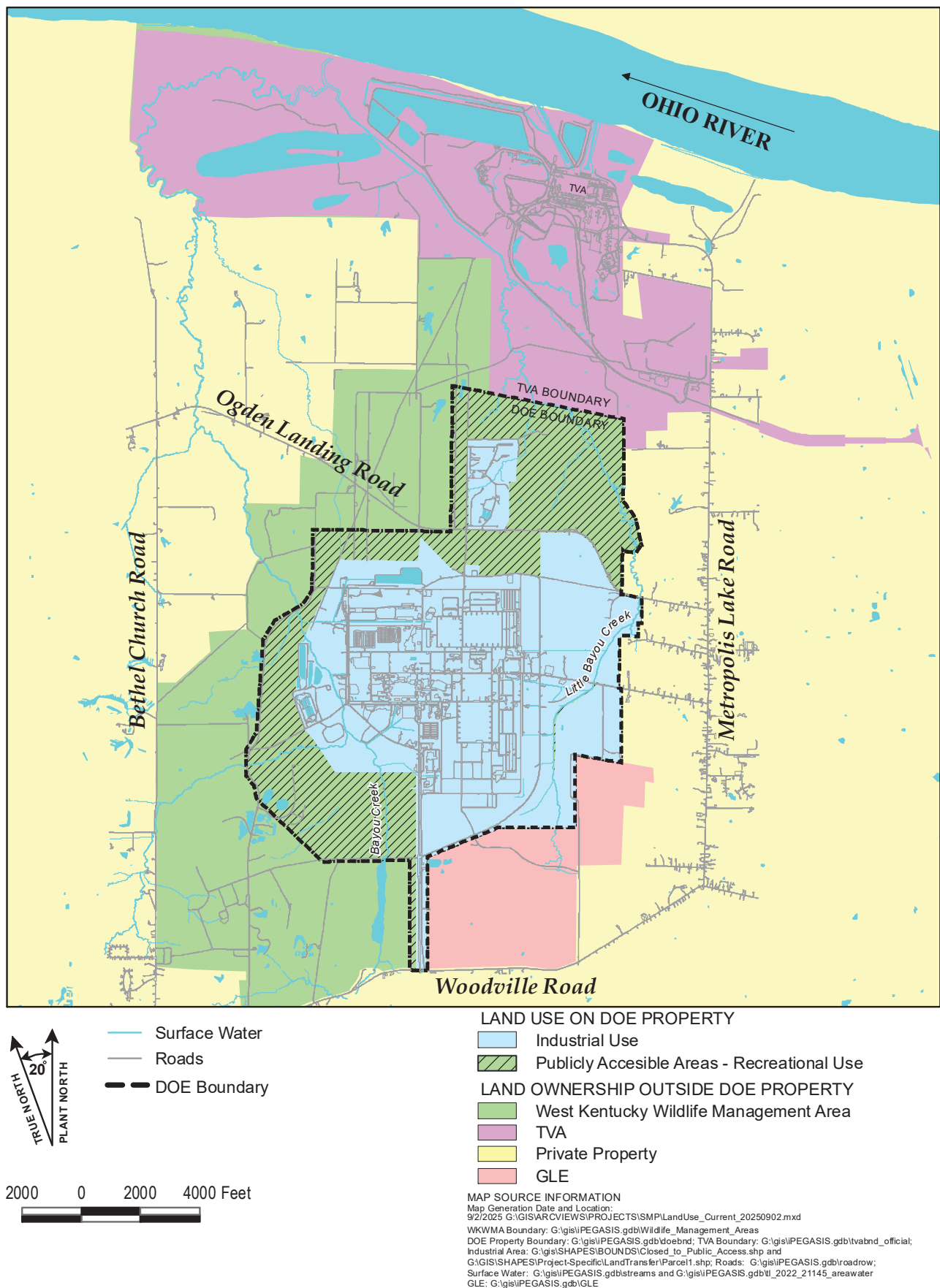
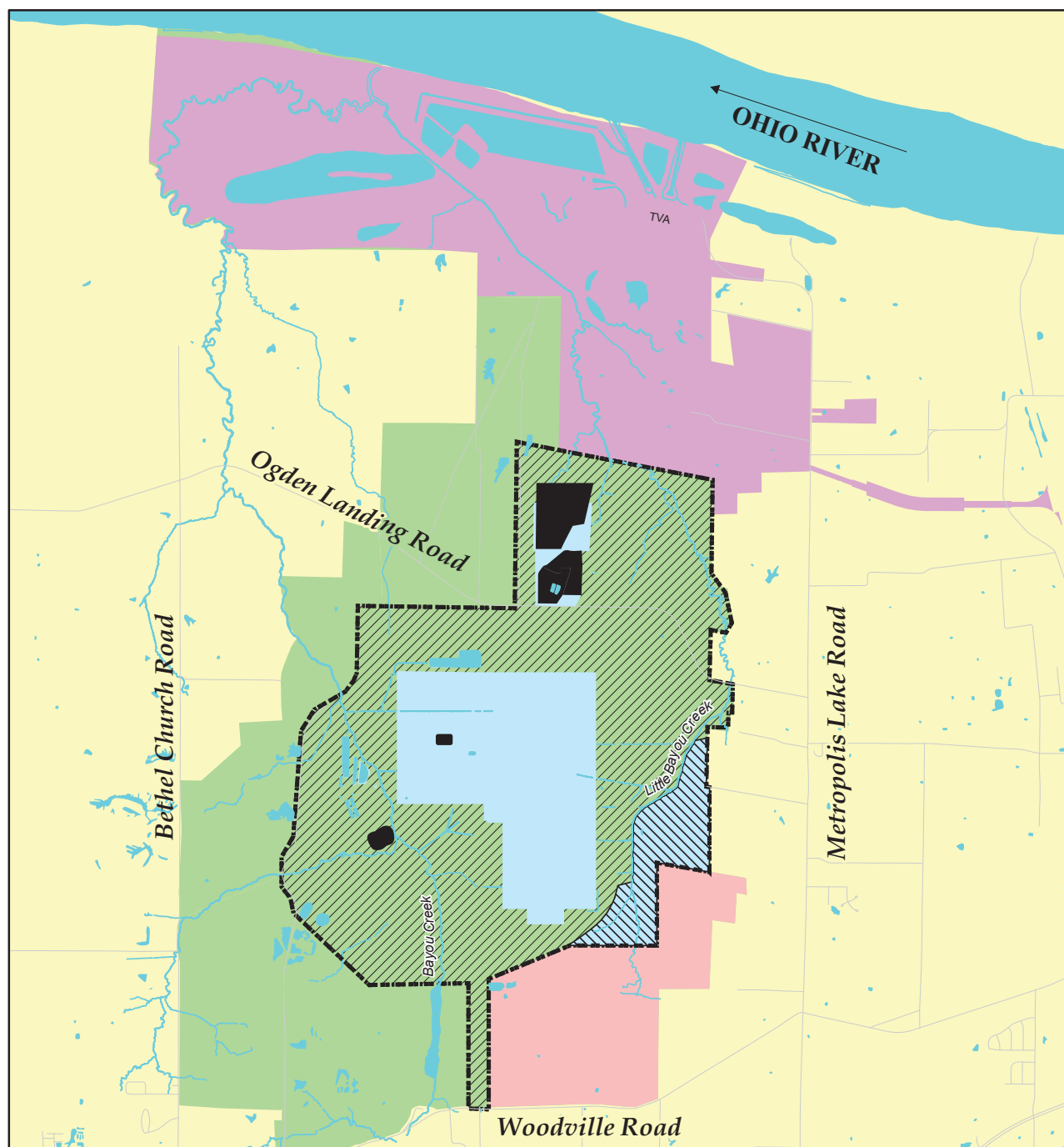


Figure 4. Current Land Use at PGDP



LAND USE ON DOE PROPERTY

- Industrial Use
- Industrial/Recreational Use
- Industrial Use (Pending Land Transfer- Parcel 1)
- Waste Management Area (See Note)

LAND OWNERSHIP OUTSIDE DOE PROPERTY

- West Kentucky Wildlife Management Area
- TVA
- Private Property
- GLE

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Note: These areas include landfills that are active or certified closed and under long-term custodial care (i.e., C-404, C-746 S&T, C-746-U), or that are under an Interim Remedial Action (i.e., C-746-K). As such, these areas are not amenable to unrestricted future industrial use. As new CERCLA decision documents or permits are issued with deed restrictions/LUCs for waste management areas this map will be updated to include those units.

MAP SOURCE INFORMATION
 Map Generation Date and Location: 3/14/2025 G:\GIS\ARCVIEWS\PROJECTS\Environmental Media\Env_Scoping_WP\Env_Scoping_WP.aprx
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Figure 5. Reasonably Anticipated Future Land Use at PGDP

The contaminant, Tc-99, is a man-made radionuclide created as a by-product of the fission of uranium. Initially, Tc-99 was introduced to PGDP in 1953 as a contaminant in feed material during a program in which spent nuclear reactor fuel was fed into the gaseous diffusion processes.

TCE had been used as a cleaning solvent at the uranium enrichment plant since its construction. In the C-400 Cleaning Building, process piping and equipment from the cascade system were cleaned with TCE. In 1986, TCE was found to have been discharged inadvertently from a sump pump in the degreaser area of C-400 to a storm sewer and was found to have leaked into the soil. Other potential sources of TCE releases at the Paducah Site are the TCE degreaser at the C-720 Maintenance and Storage Building and switchyard transformers that were washed with TCE. Reportedly, TCE also was used in the Kellogg Building during PGDP construction. Waste TCE was disposed of in on-site landfills and in a historical landfarming operation. In the Paducah Site cylinder drop tests, TCE was placed into a pit and used as a refrigerant in tests to determine cylinder integrity. The Paducah Site ceased use of TCE in 1993.

PCBs have been found in sediment and fish downstream of the Paducah Site. PCBs were used extensively as insulating, nonflammable, and thermally conductive fluid in electrical capacitors and transformers at the Paducah Site. The large switchyards that service the process buildings included PCB-filled transformers. PCBs also were used as flame-retardants (on the gaskets of diffusion cascades in other sections of the plant), as hydraulic fluid, and in paints on equipment that was subject to high temperatures. PCBs were released to the environment from spill sites throughout the industrial complex that resulted from specific transformer ruptures and as part of general operations throughout the years.

Uranium, thorium, and transuranic elements (i.e., plutonium, neptunium) were detected in off-site sediments near the Paducah Site in 1988 (MMES 1989). Results ranged from approximately 2.5 to over 200 times background. Many of these sediments have been removed (DOE 2011a). Sources of uranium releases were through general plant operations.

From the 1950s through the 1980s, solid wastes were disposed of in various landfills/burial grounds at the Paducah Site. The SWMUs comprising the Burial Grounds OU consist primarily of landfills and below-grade burial cells in which various PGDP wastes have been placed. Wastes contained in these burial grounds include uranium, uranium-contaminated wastes, oils, TCE, Tc-99 contaminated wastes, and other characteristic hazardous wastes.

The release of emerging contaminants, such as PFAS, into the environment is a topic of growing public health and environmental concern. The Paducah Site began investigating the history and on-site use of PFAS compounds in 2017. Historically, PFAS-related operations/activities performed at the Paducah Site have consisted of a fire training facility, fire department use, uranium enrichment processes, metal plating processing, Cold War-era liquid discharges, landfills and burial grounds, a water treatment plant, and a wastewater treatment plant.

The Energy Policy Act of 1992 provided for the lease of the enrichment facilities to a commercial entity that operated the enrichment facilities from 1998 to 2013. In May 2013, the United States Enrichment Corporation announced plans to terminate enrichment operations at PGDP. In 2014, the leased facilities were returned to DOE control, and then a DOE Contractor began managing the uranium enrichment facilities for DOE. These facilities are now undergoing deactivation in preparation for decommissioning (DOE 2024a).

On April 15, 1999, DOE issued the final *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride*, DOE/EIS-0269. In 2002, DOE began to design, build, and operate facilities at Paducah, Kentucky, and Portsmouth, Ohio. The facilities would convert the inventory of DUF₆ to triuranium octoxide (U₃O₈), a more stable form of uranium that is suitable for disposal or reuse, and hydrofluoric acid that will be sold for commercial use. Construction on the DUF₆ plant began in July 2004 and continued through 2008. Physical construction of the facility was completed on December 19, 2008. Following systems testing and thorough readiness

reviews, operational readiness was conducted in 2010. Full operational status was announced in September 2011.

1.5.4 Regional Geologic Setting

The Paducah Site is located in the Jackson Purchase region of western Kentucky, which represents the northern most extent of the Mississippi Embayment portion of the Coastal Plain Province. The stratigraphic sequence in the region consists of Cretaceous [144 to 65 million years ago (mya)], Tertiary (65 to 1.8 mya), and Quaternary (1.8 mya to today) sediments unconformably overlying Paleozoic (543 to 248 mya) bedrock (Paleozoic strata younger than Mississippian are not present at the site).

PGDP is situated near the New Madrid Seismic Zone, which is a seismically active region. Geophysical investigations of the Paducah Site identify the south extension of high-angle, northeast-trending faulting in the bedrock beneath the Paducah Site that likely is associated with the Fluorspar Area Fault Complex of southern Illinois. Inferred age of faulting is consistent with age of faulting in southern Illinois. The Barnes Creek Fault Zone of southern Illinois (approximately 7.5 miles northeast of PGDP), if extended sufficiently southward below the Mississippi Embayment, most likely would pass under or near PGDP (on the east side). Another southern Illinois fault zone that could pass below or near PGDP (possibly on the west side) is the Massac Creek Structure of the Hobbs Creek Fault Zone (approximately 8 miles northeast of PGDP).

1.5.5 Geology of the Paducah Site

The Paducah Site is underlain by a sequence of clay, silt, sand, and gravel layers deposited on limestone bedrock. The sediments above the limestone bedrock are grouped into three major stratigraphic units (loess, Continental Deposits, and McNairy Formation) and three major hydrogeologic units (HUs) (UCRS, RGA, and McNairy flow system) as shown in Figure 6.

Across the Paducah Site, the upper-most stratigraphic unit consists primarily of wind-deposited clayey silt, known as loess, that extends from the surface to a depth of ~20 ft below ground surface (bgs). Fill material, when present, is included in this unit. Beneath the loess, the Upper Continental Deposits, a subunit of the Continental Deposits consisting of discontinuous sand and gravel layers within a sequence of silts and clays, extends to an average depth of 60 ft bgs. The Lower Continental Deposits, also a subunit of the Continental Deposits, is a highly permeable layer of gravelly sand or chert gravel, typically extending from ~60 to 90 ft bgs. Below the Continental Deposits is the McNairy Formation, a sequence of silts, clays, and fine sands that extends from ~90 to 350 ft bgs. These depths represent general conditions; depths vary at specific locations.

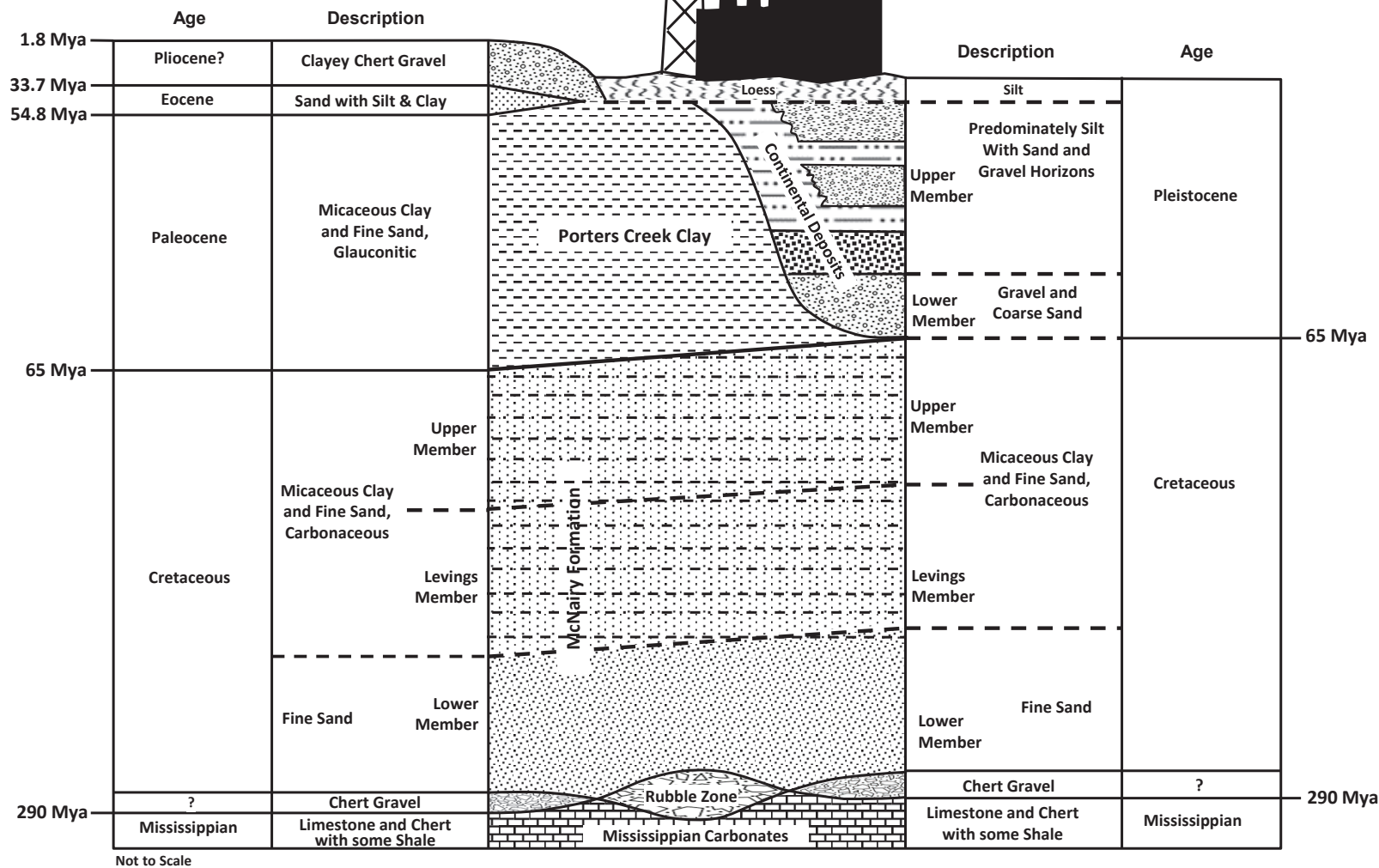
Groundwater flow through the loess and the Upper Continental Deposits is predominately downward into the Lower Continental Deposits. The groundwater flow system in the loess and the Upper Continental Deposits is called the UCRS. Sand and gravel lenses locally present in the top of the Upper Continental Deposits are separated from the underlying RGA by a 12 ft to 18 ft thick silty or sandy clay aquitard, the deepest layer in the UCRS. This aquitard reduces the vertical flow of groundwater from the sand and gravel units of the UCRS to the gravels of the RGA.

The groundwater flow system primarily developed in the Lower Continental Deposits is called the RGA and constitutes the uppermost aquifer beneath the Paducah Site and the adjacent area to the north. The RGA consists of a basal sand member of the Upper Continental Deposits and the thick sand and gravel member of the Lower Continental Deposits. The RGA potentiometric surface slopes to the north beneath the Paducah Site. Groundwater flow in the Lower Continental Deposits is generally northward toward the Ohio River; however, there is variability in the groundwater flow as evidenced by the existence of multiple groundwater plumes.

Below the RGA is the McNairy flow system, which corresponds to the McNairy Formation. The McNairy Formation consists of fine sands, silts, and clays of marine origin. High contrast of hydraulic conductivity between the conductive Lower Continental Deposits and relatively nonconductive

South Hydrogeologic Setting

North Hydrogeologic Setting



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT



Figure 6. Stratigraphy in the Vicinity of the Paducah Site

McNairy Formation limits flow between the Lower Continental Deposits and the McNairy Formation. A middle member of the McNairy Formation, the Levings Member, contains a higher proportion of silt and clay.

1.5.6 Hydrogeology

The significant geologic units relative to shallow groundwater flow at the Paducah Site include the Terrace Gravel and Porters Creek Clay (south portion of the Paducah Site), and the Continental Deposits and McNairy Formation (underlying the industrialized portion of the Paducah Site and adjacent areas to the north). The ancestral Tennessee River channel is filled with thick sand and gravel deposits overlain by a sequence of silts and clays. Southward advance of the ancestral Tennessee River during the Pliocene and Pleistocene Epochs eroded away the Porters Creek Clay beneath and north of the Paducah Site. The presence of the Porters Creek Clay south of the Paducah Site and the absence of the Porters Creek Clay beneath the Paducah Site and to the north define the two distinct hydrogeologic settings.

South of the Paducah Site, significant groundwater flow is restricted to the sediments above the Porters Creek Clay. A shallow water table system is developed in the Pliocene gravels and Eocene sands where they overlie the Porters Creek Clay. Groundwater flow in this shallow water table system discharges as baseflow to Bayou Creek and its tributaries and also can migrate across the buried terrace slope as underflow to the UCRS/RGA flow system.

Beneath the Paducah Site and north, shallow groundwater flows downward through the silts and fine sands (i.e., UCRS) until it encounters the RGA sand and gravel deposit. The depth of the shallow water table within the UCRS varies considerably across the Paducah Site. Once in the RGA, groundwater flow is generally north, toward the Ohio River. Lateral flow in the RGA dominates this hydrologic regime with comparatively little groundwater migrating downward into the underlying McNairy Formation. Lateral groundwater flow in the more permeable pathways of the RGA is approximately 1–3 ft per day.

RGA groundwater is a potential drinking water aquifer (Class II) in accordance with EPA's 1986 groundwater classification guidance (EPA 1986). RGA groundwater is not used as a source of drinking water within the Paducah Site boundary because LUCs are in place that prevent the use of the groundwater through institutional controls (e.g., the current excavation/penetration permit program), deed restrictions, and because alternate sources of water are available. The Water Policy Box has been implemented outside of the Paducah Site boundary to prevent groundwater use and to protect human health and the environment.

1.5.6.1 Hydrogeologic Units

Five hydrogeologic units are commonly used to discuss the shallow groundwater flow system beneath the Paducah Site and the contiguous lands to the north (Figure 7). In descending order, the HUs are as follows.

- HU 1 (UCRS): Loess that covers most of the site.
- HU 2 (UCRS): Discontinuous sand and gravel lenses in a clayey silt matrix.
- HU 3 (UCRS): Relatively impermeable unit that acts as the upper semiconfining-to-confining layer for the RGA. The lithologic composition of HU3 is predominantly silt and fine sand.
- HU 4 (RGA): Sand unit with a silt matrix that forms the top of the RGA, where present.
- HU 5 (RGA): Sand and gravel, primary member of the RGA.

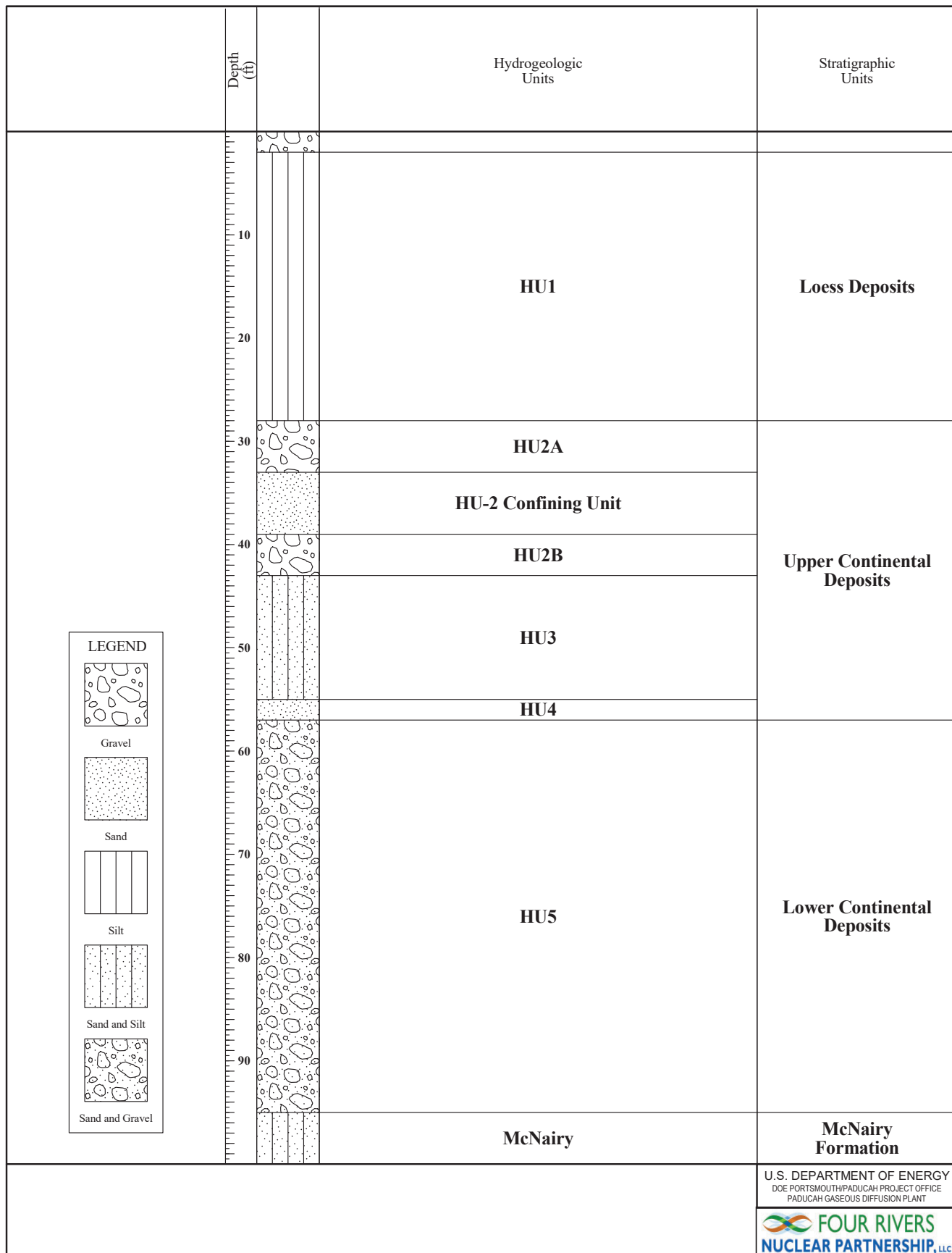


Figure 7. Major Hydrogeologic Units Beneath the Paducah Site

1.5.7 Surface Water Hydrology

The Ohio River is located approximately 3.5 miles north of the Paducah Site. It is the most significant surface water feature in the region, carrying over 25 billion gal/day of water through its banks. Several dams regulate flow in the Ohio River. The Ohio River stage near the Paducah Site is measured upstream at Paducah, Kentucky, and downstream at Olmsted, Illinois, by U.S. Geological Survey gauging stations.

The elevation of the Ohio River near the Paducah Site varied between 295 ft amsl and 335 ft amsl following operation of the Olmsted Dam beginning September 6, 2018. Water levels on the lower Ohio River generally are highest in late winter and early spring and lowest in late spring and early summer. The fenced security area of the Paducah Site is above the historical high water floodplain of the Ohio River and above the local 100-year flood elevation of the Ohio River (333 ft) (CH2M Hill 1991).

The fenced security area is situated on the divide between Little Bayou and Bayou Creeks (Figure 8). Surface flow is east-northeast toward Little Bayou Creek and west-northwest toward Bayou Creek. Bayou Creek is a perennial stream on the western boundary of the plant that flows generally northward, from approximately 2.5 miles south of the plant site to the Ohio River along a 9-mile course. An 11,910-acre drainage basin supplies Bayou Creek. Little Bayou Creek becomes a perennial stream at the east outfalls of the Paducah Site. The Little Bayou Creek drainage originates within the GLE property (Figure 4) and extends northward and joins Bayou Creek near the Ohio River along a 6.5-mile course within a 6,000-acre drainage basin. Based on a KPDES Fact Sheet dated September 13, 2022 (prepared for KPDES Permit 0004049), both creeks are impaired as defined in (401 *KAR* 10:030) Section 1(4) and meet the stream use designations of warmwater aquatic habitat, primary contact recreation, secondary contact recreation, and domestic water supply (401 *KAR* 10:026). Note that, due to insufficient flow, neither stream currently serves as a domestic water supply.

Drainage areas for both creeks are generally rural; however, they receive surface drainage from numerous swales that drain residential, agricultural, and commercial properties, including the Paducah Site, WKWMA, and the TVA Shawnee Fossil Steam Plant. The confluence of the two creeks is approximately 3 miles north of the plant site, just upstream of the location at which the combined flow of the creeks discharges into the Ohio River.

Most of the flow within Bayou and Little Bayou Creeks is from process effluents [i.e., effluents from the Northeast Plume Containment System (NEPCS) (Little Bayou Creek), the C-611 Water Treatment Plant (Bayou Creek), the C-612 Northwest Plume Groundwater System (Bayou Creek), the C-613 Scrap Yard Sedimentation Basin (Bayou Creek), and the C-615 Sewage Treatment Plant (Bayou Creek)] or surface water runoff from PGDP. Contributions from PGDP comprise a larger portion of flow within Little Bayou Creek compared to Bayou Creek. A network of ditches discharges effluent and surface water runoff from PGDP to the creeks. Plant discharges are monitored at the KPDES outfalls prior to discharge into the creeks. KPDES Outfalls 002, 010, 011, 012, and 013 receive water from the eastern-most portion of the plant and discharge to Little Bayou Creek. There is also a CERCLA outfall (C001) located on the eastern side of PGDP that discharges effluent from the NEPCS to Little Bayou Creek slightly downstream from KPDES Outfall 002. Water from the central and western portions of the plant drains to Bayou Creek through KPDES Outfalls 001, 006, 008, 009, 015, 016, and 017. KPDES Outfall 004 is an internal discharge location for the C-615 Sewage Treatment Plant located upstream of KPDES Outfall 008. KPDES Outfall 019 and 020 discharge to the NSDD from the C-746-U Landfill, located north of PGDP. KPDES Outfall 020 monitors the discharge from the landfill leachate treatment system. While KPDES Outfalls 019 and 020 are collocated, the outfalls do not discharge at the same time.

Several major surface water impoundments are located within the plant property and are utilized for various sanitary or process water management needs. The C-616 Lagoons are located near the northwest corner of

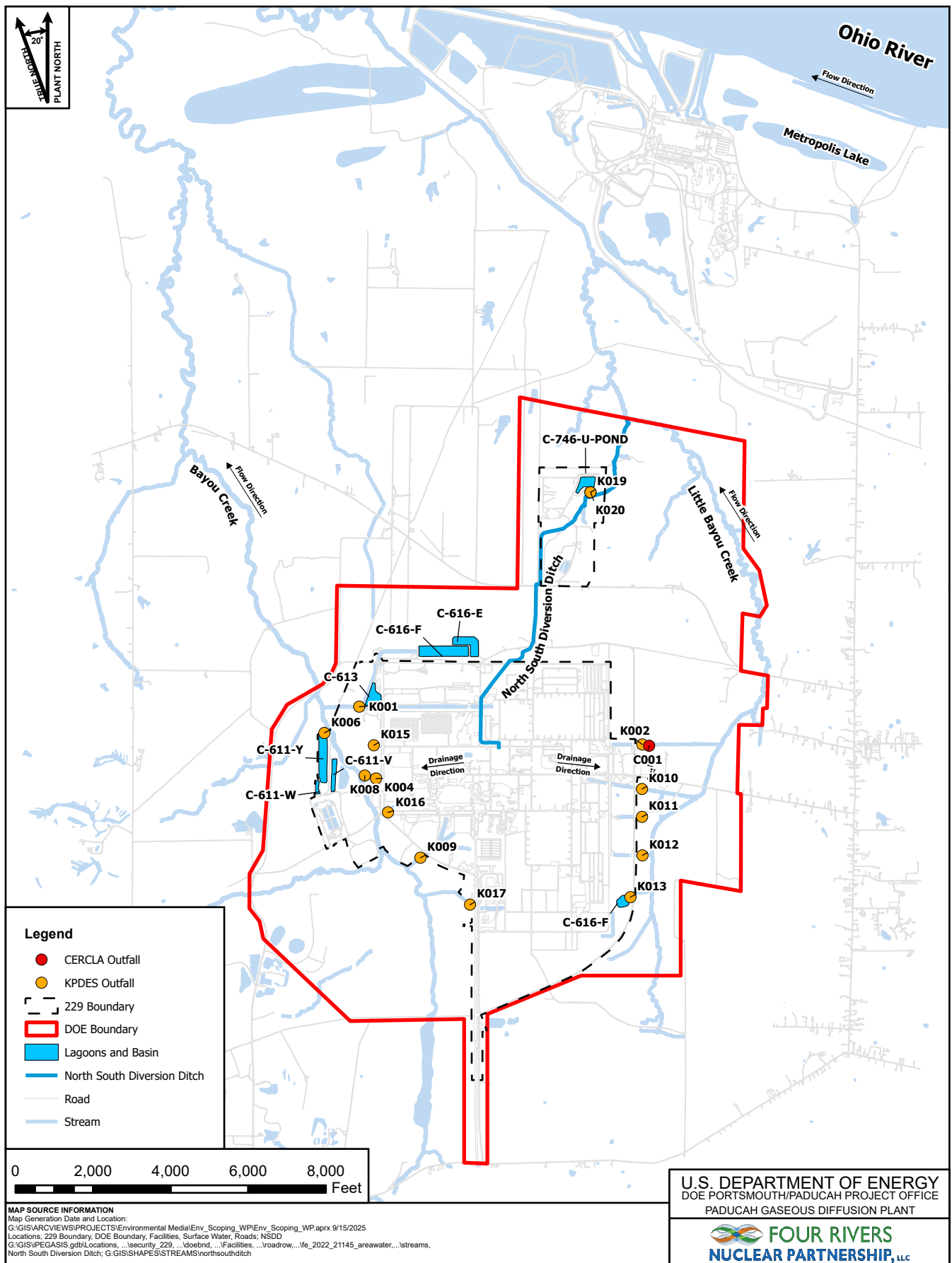


Figure 8. Surface Water Features in the Vicinity of the Paducah Site

the plant. Effluent from the plant's phosphate water processing facility is discharged into the C-616-F Lagoon, where sludge is allowed to settle. These lagoons discharge through KPDES Outfall 001 to Bayou Creek. The C-611 Lagoons are located to the southwest of the main plant complex. These lagoons serve as settling basins for effluent from the C-611 Sanitary Water Processing Plant. Water from the Ohio River is brought into the water plant where it is treated, primarily with water softening agents, and fed to PGDP for multiple uses. These lagoons discharge through KPDES Outfall 006 to Bayou Creek.

In the fall of 2002 and winter of 2003, DOE constructed a sedimentation basin (C-613 Northwest Storm Water Control Facility) near the northwest corner of the plant to support removal and disposition of scrap metal. Effluent from the C-613 basin discharges through KPDES Outfall 001 to Bayou Creek. In March 2004, DOE completed construction of a detention basin in Section 2 of the NSDD (north central area of the plant). This detention basin contains storm-water runoff to the NSDD until it can be transferred to the C-616-F Lagoon for treatment, via the C-616-C Lift Station. Prior to the detention basin's construction, three culverts were plugged (fall 2003) at the north security fence to prevent runoff from exiting the plant via the NSDD; therefore, no effluents from the industrialized areas of PGDP currently flow through Sections 3, 4, and 5 of the NSDD. Additionally, basins have been constructed to control runoff from the Mid-America Conversion Services, LLC, cylinder yards at the southeastern part of PGDP at KPDES Outfall 013 and from the C-746-U Contained Landfill north of PGDP.

Other surface water bodies in the vicinity of the Paducah Site include: Metropolis Lake, located east of the TVA Shawnee Fossil Steam Plant; several small ponds, clay and gravel pits, and settling basins scattered throughout the area; and a marshy area just south of the confluence of Bayou Creek and Little Bayou Creek. The smaller surface water bodies are expected to have only localized effects on the regional groundwater flow pattern.

1.5.8 Ecological Setting

Much of the Paducah Site has been affected by human activity. Vegetation communities on the reservation are indicative of old field succession with grassy fields, field scrub-shrub, and upland mixed hardwoods. The open grassland areas, most of which are managed by WKWMA personnel, are mowed periodically or burned to maintain early successional vegetation, which is dominated by members of the Compositae (flowering plants) family and various grasses. Corn, millet, milo, and soybeans are commonly cultivated for wildlife forage (CH2M Hill 1992). Corn, soybeans, and sunflowers were cultivated for wildlife forage within the WKWMA in 2022.

Field scrub-shrub communities consist of sun-tolerant wooded species such as persimmon, maples, black locust, sumac, and oaks (CH2M Hill 1991). The undergrowth varies depending on the location of the woodlands. Wooded areas near maintained grasslands have an undergrowth dominated by grasses. Other communities have a thick undergrowth of shrubs, including sumac, pokeweed, honeysuckle, blackberry, and grape. Upland mixed hardwood communities feature a variety of upland and transitional species; dominant species include oaks, shagbark and shellbark hickory, and sugarberry (CH2M Hill 1991). The undergrowth varies from limited undergrowth for more mature stands of trees to dense undergrowth similar to that described for a scrub-shrub community.

Wildlife at the Paducah Site include species indigenous to hardwood forests, scrub-shrub, and open grassland communities. Rabbits, mice, opossum, vole, mole, raccoon, and deer frequent some nearby areas, and several groups of coyotes also live in areas around the Paducah Site. Aquatic habitats are used by muskrat and beaver. Results of the SI Phase 1 includes a list of representative species (CH2M Hill 1991). Birds include red-winged blackbirds, quail, sparrows, shrikes, mourning doves, turkeys, cardinals, meadowlarks, hawks, and owls. The Ohio River, which is 3.5 miles north of the Paducah Site, also serves as a major flyway for migratory waterfowl (DOE 1995). The dominant taxa in all surface waters include

several species of sunfish, especially bluegill and green sunfish, as well as bass and catfish. Shallow streams, characteristic of the two main area creeks, are dominated by bluegill, green and longear sunfish, and stonerollers (DOE 2012c) The fish consumption pathway for on-site and off-site recreational users is potentially complete and may be considered in the risk assessment of the Environmental Media RI/FS.

A threatened and endangered (T&E) species investigation identified federal-listed, proposed, or candidate species potentially occurring at or near the Paducah Site (COE 1994). Updated information is obtained regularly from federal and Commonwealth of Kentucky sources. Potential habitat for 18 species of federal concern exists in the study area. Fourteen of these species are listed as endangered under the Endangered Species Act of 1973, one is listed as threatened, and one is listed as a candidate. While potential habitats for endangered species exist on DOE property, none of the federal-listed or candidate species have been found on DOE property at the Paducah Site.

1.5.9 Climatology

The Paducah Site's climate is humid-continental. The term "humid" refers to the surplus of precipitation versus evapotranspiration that normally is experienced throughout the year. According to the National Weather Service for the period from 1991 through 2020, the average monthly precipitation is 4.19 inches, varying from an average of 3.11 inches in August (the monthly average low) to an average of 5.17 inches in April (the monthly average high). The total precipitation for 2023 was 55.83 inches, compared to the normal of 50.32 inches. The "continental" nature of the local climate refers to the dominating influence of the North American landmass. Continental climates typically experience large temperature changes between seasons. The mean annual temperature for the Paducah area for 2023 was 60.7°F. The normal average monthly temperature is 58.8°F, with the coldest month being January with an average temperature of 36.0°F and the warmest month being July with an average temperature of 79.7°F according to the website <https://www.weather.gov/pah/monthlynormals>.

The prevailing wind speed is from the south-southwest at approximately 6 miles per hour. Historically, stronger winds are recorded when the winds are from the southwest.

2. DATA QUALITY OBJECTIVES AND SITE CHARACTERIZATION

This section summarizes the data quality objectives (DQO) that will be used to support the development of the Environmental Media RI/FS and the identification of any new data requirements. Additionally, previous RIs, SIs, risk assessments, and FSs relevant to the environmental media decisions are summarized. The use of historical data along with an evaluation of existing data are also provided.

2.1 DATA QUALITY OBJECTIVES

EPA's DQO process has been used to assess the sufficiency of existing data to support the RI/FS and the identification of any new data requirements. The DQO process is a planning tool, based on the scientific method, that identifies an environmental problem and defines the data collection process needed to support decisions regarding that problem (EPA 2006). The steps outlined in the DQO process have been used in this RI/FS scoping document/work plan to plan for the compilation and use of historical environmental media data at the Paducah Site. The DQO steps formulate a set of criteria that will achieve the desired control of uncertainty, allowing the decision to be made with acceptable confidence. In accordance with EPA DQO guidance, there are seven steps in the DQO process. The first five can be applied to any decision that utilizes qualitative or quantitative data to support decision making, while Steps 6 and 7 are specific to supporting quantitative (statistical) analysis of data. The following seven steps are included in the DQO process.

- Step 1—State the problem
- Step 2—Identify the goal of the study (identify the decision)
- Step 3—Identify information inputs
- Step 4—Define the boundaries of the study
- Step 5—Develop the analytic approach (develop a decision rule)
- Step 6—Specify performance (acceptance) criteria
- Step 7—Develop the plan for obtaining data

Step 1—State the Problem. DOE is evaluating the need for remedial action(s) and remedial alternatives for the environmental media at the Paducah Site. The first step in the DQO process is to identify the problem to be resolved. The overall problem statement developed for this DQO process is as follows:

Hazardous substances historically have been present at Paducah Site SWMUs, AOCs, and burial grounds that may have been released and migrated to surrounding environmental media (soils, surface water, and sediment). These substances, in turn, may have infiltrated into groundwater and been transported through subsurface pathways. The nature and extent of contamination have been defined for many SWMUs and risk assessments have been prepared for prior RI reports.

Does sufficient data exist regarding the nature and distribution of contaminants present in the environmental media to support development of an RI/FS for soil, slabs, at- and below-grade portions of facilities, burial grounds, lagoons, C-400 Complex groundwater sources, and surface water/sediment?

A graphical conceptual site model for contaminant releases has been developed and is demonstrated in Figure 9. The buildings, infrastructure, burial grounds, and historical spills have released contamination to surface and subsurface soils. Overland flow of water can transport contaminated soils to surface water

where it is transported with sediment. Infiltrating water can leach soil contamination to groundwater where it has potential to be transported off-site.

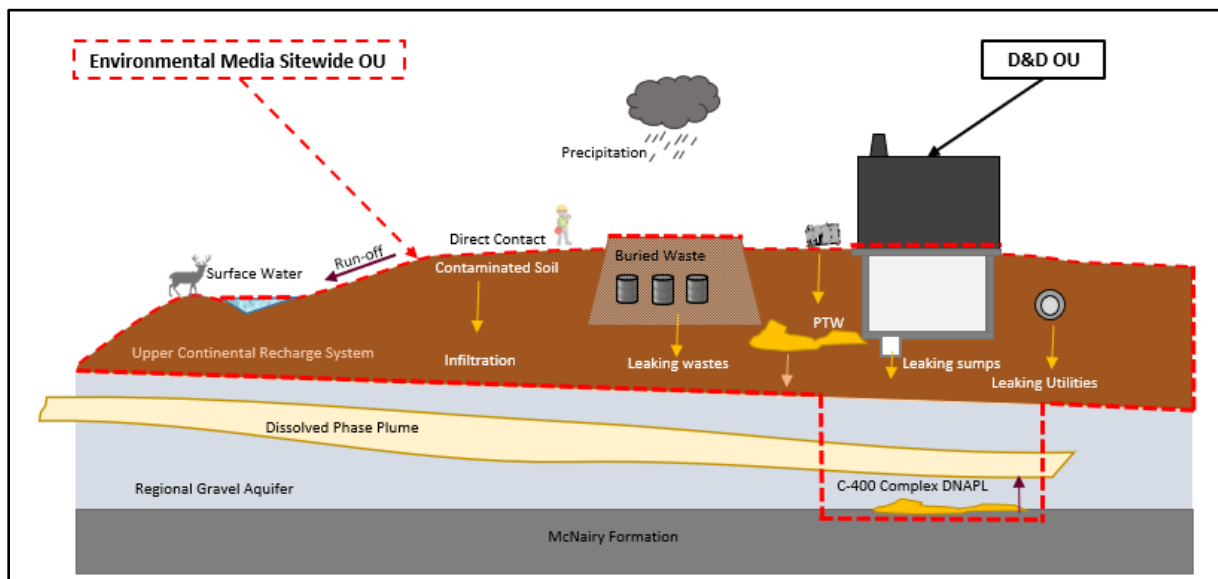


Figure 9. Conceptual Site Model for Contaminant Releases at the Paducah Site

Step 2—Identify the Decisions (The Goal of the Study). The goal of the study is to provide data necessary to evaluate environmental media (soil, slabs, at- and below-grade portions of facilities, burial grounds, etc.) to determine if site risks warrant a remedial action(s). Some of the principal study questions follow.

- 1) Does sufficient data exist to understand the concentration and distribution of contaminants in the soil, slabs, at- and below-grade portions of facilities, burial grounds, lagoons, C-400 Complex groundwater sources, and surface water/sediment?
 - Are the COPCs known?
- 2) Does sufficient data exist to evaluate contaminant risks in soil, slabs, at- and below-grade portions of facilities, burial grounds, lagoons, C-400 Complex groundwater sources, and surface water/sediment?
 - Is existing analytical data of sufficient quality for the known COPCs to determine if there is a threat to human health and the environment?
- 3) Does sufficient data exist to evaluate remedial alternatives for soil, slabs, at- and below-grade portions of facilities, burial grounds, lagoons, C-400 Complex groundwater sources, and surface water/sediment, and to select a remedy (a narrow scope of alternatives will be evaluated with a bias towards removal/excavation)?
- 4) Does enough data exist to support waste disposition off-site or disposition in an on-site waste disposal facility?
 - Are the contaminants of concern (COCs) known?

Step 3—Identify Information Inputs. Previous RIs and SI reports have been developed that provide existing analytical data and risk assessments. Analytical samples historically collected by DOE are

maintained in the Paducah Oak Ridge Environmental Information System (OREIS) including samples with qualified data. Environmental analytical data are also transferred to the Paducah Environmental Geographic Analytical Spatial Information System application which provides a systematic approach to retrieve, display, and download analytical, geotechnical, and hydrological data, maps, and geophysical information for the Paducah Site using a web browser. Data not rejected during prior data assessments, will be considered in the development of the Environmental Media RI/FS report. The following decision rules were considered when determining the usability of historical data based on the data's age. Historical data, dated 1999 or before, will be used qualitatively to inform on general site characteristics (e.g., selection of COPCs and extent of contamination), but will not be used quantitatively for risk evaluations in the forthcoming evaluation and report. Data dated 2000 or after, are utilized for evaluation of quality and representativeness of current conditions and will be used for risk evaluations. The data decision rules and other information to be used for assembling the RI/FS data sets include the following.

- Soil data will be used quantitatively by analyte group for samples as follows:
 - Metals and radionuclides: 2000 to present
 - VOCs: 2012 to present for surface soil (same as the C-400 Complex OU RI approach); 2000 to present for deeper soils
 - Semivolatile organic compounds (SVOCs): 2000 to present
 - PCBs: 2000 to present
- Surface water collected since 2012 and sediment data from samples collected since 2000 will be used to assess current conditions.
- C-400 Complex OU groundwater data collected from 2012 to present will be used to assess current conditions and evaluate soil COPCs contributing to groundwater contamination.
- Older data, particularly soil data prior to years noted above, will be used qualitatively as appropriate (e.g., identify COPCs and determine extent of contamination).

The Paducah risk methods documents (RMD) (DOE 2024d; DOE 2019e) provide risk-based screening levels, and site-specific background concentrations, for applicable Paducah Site COPCs in various environmental media.

Step 4—Define the Boundaries of the Study. The spatial boundaries include all of the DOE-owned Paducah Site. Exceptions to the spatial boundaries include areas where potentially contaminated creeks extend beyond the DOE boundary. The vertical boundaries vary depending on the environmental media and whether contaminant sources exist at depth. The vertical boundary for areas with subsurface infrastructure, which is the limit for soil exposure for the site worker, is typically set at a depth of 16 ft but ranges to 20 ft depth in some areas of the Paducah Site. The vertical boundary for burial grounds ranges but typically ranges from 15-20 ft depth. The Environmental Media RI/FS plans to evaluate contamination (removing, preventing, reducing, or controlling contaminant sources) to the top of the RGA; however, the confirmed/probable TCE DNAPL that lie at depth in the RGA and Upper McNairy Formation beneath the C-400 Complex are within the scope of the Environmental Media RI/FS evaluation.

Temporal boundaries have been established related to the age of the analytical data (see Step 3).

Step 5—Develop the Analytic Approach. Specific action levels (ALs), or risk-based screening levels, are defined in the Paducah RMDs (DOE 2024d; DOE 2019e). Risk-based screening levels are defined for various receptors at different risks.

The historical environmental media data will be evaluated to determine the number and magnitude of the exceedances of background and screening levels, as appropriate, to identify COPCs and the extent, or distribution, of the COPCs. COPCs identified during the initial evaluation/screening will then be forwarded to a risk evaluation to determine the COCs for each medium.

Additional samples may be collected during remedial design to refine extent of excavations, waste volumes, and to determine WAC compliance.

Step 6—Specify Performance (Acceptance) Criteria. The Environmental Media RI/FS will use historical analytical data that has been generated under past RIs and site evaluations and their applicable QAPPs. For each of the previous RI and/or site evaluation projects, and the Paducah Site environmental monitoring program, data collection activities were implemented under a QAPP to ensure data quality. The QAPPs specified the analytical requirements and field QC measures that were instituted to reduce data uncertainty for each project. A data quality assessment (DQA) was performed to evaluate the quality and usability of the data for each project. The historical DQAs will be reviewed for this project to ensure the data quality is sufficient for use in the Environmental Media RI/FS.

The Paducah OREIS database which encompasses the historical data includes data qualifiers where applicable for laboratory results and data validation.

Step 7—Develop the Plan for Obtaining Data. The Environmental Media RI/FS will use existing, or historical, data as described in the steps above for evaluating a narrow scope of remedial alternatives with a bias towards removal, or excavation.¹ No new data are needed to implement the RI/FS and make a remedial decision related to soil, slabs, at- and below-grade portions of facilities, burial grounds, lagoons, C-400 Complex, confirmed/probable DNAPL, surface water, and sediment. Additional data are expected to be collected after the ROD is complete to support remedial design and remedial action activities (e.g., to refine waste volumes, reduce uncertainty regarding the extent of contamination, confirm completion of remediation). Project-specific sampling and analysis plans will be developed in accordance with the FFA at that time.

2.2 PREVIOUS INVESTIGATIONS

Several investigations (e.g., CERCLA RIs and SIs) have been completed at the Paducah Site. Table 3 lists the RI, SI, and risk assessments that have been completed that are relevant to the Environmental Media RI/FS and remedial decision. Table 4 lists prior Paducah Site FSs that have been completed and are relevant to the environmental media decision. The investigations and FSs included in Tables 3 and 4 have been completed under the FFA post-2000 and provide much of the analytical data that will be used quantitatively in the Environmental Media RI/FS (see Sections 2.3 and 2.4). Not all of the investigations and FSs in Tables 3 and 4 have received final approval. Additional data collected at the site, such as that collected through the site's environmental monitoring programs and/or non-FFA investigations, will be used to supplement the data set where applicable. A summary of each of these projects follows the tables.

¹ Any new data collected between now and June 30, 2025, at the site will be used as appropriate and if it meets project DQOs.

Table 3. Investigations and Risk Assessments Relevant to the Environmental Media RI/FS

Document Title	Date
Soils	
<i>Site Evaluation Report for Soil Pile I at Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0108&D1 (DOE 2008b)</i>	2008
<i>Site Evaluation Report for Addendum 1-B Soil Piles at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0225&D2/R2 (DOE 2010b)</i>	2010
<i>Site Evaluation Report for Addendum 2 Soil Piles at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0188&D2/R1 (DOE 2010c)</i>	2010
<i>Site Evaluation Report for Rubble Areas at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0227&D2/R1 (DOE 2010d)</i>	2010
<i>Soils Operable Unit Remedial Investigation Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0358&D2/R1 (DOE 2013a)</i>	2013
<i>Addendum to the Soils Operable Unit Remedial Investigation Report for Solid Waste Management Unit 27 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0358&D2/R1/A1 (DOE 2015b)</i>	2015
<i>Soils Operable Unit Remedial Investigation 2 Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2306&D1 (DOE 2015c)</i>	2015
<i>Addendum to the Soils Operable Unit Remedial Investigation 2 Report for Solid Waste Management Unit 229 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2306&D2/A1 (DOE 2016b)</i>	2016
<i>Site Investigation Report for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2180&D2/R1 (DOE 2007a) (While this SI report is related to the Groundwater OU, the investigation included contaminant sources within the soils above the RGA.)</i>	2007
Burial Grounds	
<i>Site Investigation Report for the C-746-S&T Landfills at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-2212&D2 (DOE 2006)</i>	2006
<i>Remedial Investigation Report for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-0030&D2/R1 (DOE 2010e)</i>	2010
<i>Site Evaluation Report for Solid Waste Management Unit 13 Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1259&D1 (DOE 2011b)</i>	2011
<i>Addendum to the Remedial Investigation Report for the Burial Grounds Operable Unit Solid Waste Management Unit 4 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0030&D2/R1/A1/R2 (DOE 2017d)</i>	2017
Surface Water/Sediment	
<i>Estimates of Risk Posed to Human Health by Contamination Found in Sections 3, 4, and 5 of the NSDD at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, BJC/PAD-507 (BJC 2003a)</i>	2003
<i>Estimates of Risk Posed to Human Health by Contamination Found in Sediment and Soil in Outfalls 001, 008, 010, 011, and 015 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, BJC/PAD-519 (BJC 2003b)</i>	2003
<i>Surface Water Operable Unit (On-Site) Investigation and Baseline Risk Assessment Report at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, DOE/LX/07-0001&D2/R1 (DOE 2008c)</i>	2008
C-400 Complex	
<i>Remedial Investigation Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2474&D2 (DOE 2023)</i>	2023
Vapor Intrusion	
<i>Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report, DOE/LX/07-2471&D2 (DOE 2022)</i>	2022

Table 4. Past Feasibility Studies Relevant to the Environmental Media RI/FS

Document Title	Date
Burial Grounds	
<i>Feasibility Study for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0130&D2 (DOE 2010f)</i>	2010
<i>Feasibility Study for Solid Waste Management Units 5 and 6 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0130a&D2/R3 (DOE 2013b)</i>	2013
<i>Feasibility Study for Solid Waste Management Units 2, 3, 7, and 30 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1274&D2/R1 (DOE 2017e)</i>	2017
<i>Feasibility Study for Solid Waste Management Unit 4 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2408&D2/R1 (DOE 2018)</i>	2018
Groundwater	
<i>Feasibility Study for the Groundwater Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/OR/07-1857&D2 (DOE 2001)</i>	2001

2.2.1 Soils Operable Unit Projects

In November 2006, Kentucky and DOE identified several soil piles outside of the PGDP industrialized area, with some of them showing elevated radioactivity. Several soil piles located near creeks and ditches are believed to have been created by dredging to keep the creek/ditch clear for PGDP discharges (DOE 2013a). Following this discovery, DOE undertook a phased approach to identify and restrict access to the contaminated soil piles. The phased approach was developed to systematically identify soil piles; determine if access restrictions are required; post and install barriers where elevated radioactivity was identified (i.e., exceeds twice area background); develop a path forward for the characterization of these areas; and plan for future actions.

The *Site Evaluation Report for Soil Pile I at Paducah Gaseous Diffusion Plant, Paducah, Kentucky* summarized the results of the field investigation and sampling associated with Soil Pile I located along Little Bayou Creek (DOE 2008b). Initial field reconnaissance, field radioactivity measurements, and limited sampling at Soil Pile I, consisting of approximately seven acres, were completed in December 2006. The investigation was successful in identifying localized areas of contamination in the study area and sufficient data was acquired to inform decision makers concerning the levels and composition of the contaminants in Soil Pile I. Soil Pile I has been designated as SWMU 561, as shown in Appendix A, Figure A.1.

The cumulative human health systemic toxicity and excess lifetime cancer risks (ELCRs) at Soil Pile I exceeded the acceptable risk standards as defined by the KDEP and EPA. The results of the screening level risk assessment indicated that metals were the most important contributors to risk and hazard indices (HIs). When considered without metals, most of the cumulative risks and hazards are acceptable.

The *Site Evaluation Report for Addendum 1-B Soil Piles at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* presented the results of the comprehensive sampling effort completed for Addendum 1-B Soil Piles along Little Bayou Creek and the NSDD (DOE 2010b). The Addendum 1-B Soil Piles are grouped together and comprise SWMUs 541, 562, 563, 564, and 567. The locations of these SWMUs are shown in Appendix A, Figure A.1.

In December 2006, initial field reconnaissance, field radioactivity measurements, and limited sampling at Addendum 1-B soil piles were completed. The results indicated radioactivity exceeding background. Addendum 1-B soil piles included 40 discrete piles covering an approximate area of 2.3 acres with 34 of the soil piles found along Little Bayou Creek east of PGDP and six along the NSDD. The soil piles varied

in size and shape, ranging from approximately 1–10 ft in height. Also included in the investigation was AOC 492, also known as soil pile AR, and soil pile O within AOC 541 and one additional pile recently identified as K013. The field investigation was completed between October and December 2008 with additional biased sampling conducted at six of the soil piles in March 2010.

The results of the background screening for the Addendum 1-B soil piles indicated that several metals and uranium isotopes were detected above background. PCBs were also detected in some of the soil piles.

The Site Evaluation Report for Addendum 2 Soil Piles at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky) presented the results of the comprehensive sampling effort completed for Addendum 2 Soil Piles located along Bayou Creek (DOE 2010c).

In December 2006, soil sampling was completed at Addendum 2 soil piles located off DOE property. The sampling effort indicated results below ALs and at or near background levels for radionuclides, metals, and PCBs. Addendum 2 soil piles, distributed across approximately 88 acres, represented over one-half of the total number of soil piles identified in a February 2007 notification letter (DOE 2007b). The 54 piles that comprised the Addendum 2 soil piles are located along Bayou Creek west of PGDP and varied in size and shape, ranging from approximately 3–450 ft in length and from 2–8 ft in height. The Addendum 2 piles were not designated as a SWMU or AOC because the constituent concentrations in soil are at or near background levels or do not exceed no action levels (NALs), and no documentation exists to indicate the presence of wastes.

Generally, metals results were statistically the same as background based on comparison to generic statewide ambient background values. PAHs were detected at low levels in two samples but were considered outliers and not indicative of contamination. Cesium-137 and plutonium-239/240 were detected at or near background and were considered the result of fallout. Cesium-137 was detected in several piles; however, most are located upstream/upwind of PGDP. As a result, these two radionuclides were not considered site-related contaminants for the Addendum 2 soil piles. The results of the background screening for metals indicated concentrations used to quantify risks and hazards were at or near background levels for all 54 Addendum 2 Soil Piles. No PCBs were detected.

The Site Evaluation Report for Rubble Areas at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky presented the results of the comprehensive surveying effort completed for identified concrete rubble area within the vicinity of PGDP and the Ballard County Wildlife Management Area (DOE 2010d). Initial field reconnaissance, field radioactivity measurements, and limited surveying at the rubble areas were completed in December 2006. Results of these efforts showed no radioactivity exceeding twice background with the exception of rubble area KY-19 located on DOE property west of the industrial area. There were 29 newly identified areas noted in a February 2007 notification letter that were addressed in this site evaluation report (SER) (DOE 2007b). The field investigation was conducted between February and March 2009.

Results obtained from the 29 investigated rubble areas indicate that much of the rubble was being used for an intended purpose such as erosion control or pond bank stabilization. The source of the rubble piles is generally unknown, but assumed to have come from PGDP (DOE 2013a). There was no visual evidence of where the material originated or of contamination, and no radiological readings above twice background with the exception of KY-19, which is used for bank stabilization and noted to have fixed radiological contamination. KY-19 includes an area of approximately 80 ft by 20 ft and includes one concrete slab and a 6 ft long, 1-inch metal pipe with fixed radiological contamination. It should be noted that soil samples were collected from beneath rubble areas that were agreed to be removed as a maintenance action (areas KY-18, KY-23, AE, BH, and BX) and the results indicate constituents at or near background levels.

The *Soils Operable Unit Remedial Investigation Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was developed to present the results of a field investigation conducted in 2010 and to document the nature and extent of contamination, contaminant fate and transport, and risk characterization using data collected both by the 2010 field effort and by historical investigations (DOE 2013a). The original scope of the Soils OU consisted of 86 SWMUs/AOCs. The Soils OU RI report presented results of the RI for 50 of the 86 identified soils SWMUs and AOCs. The following are the major contaminant distribution conclusions for the 50 investigated SWMUs.

- The baseline human health risk assessment (BHHRA) completed as part of the Soils OU RI indicated that the cumulative ELCR benchmark of 1×10^{-6} is exceeded at 49 SWMUs/AOCs; therefore, an FS is deemed appropriate to address impacted media at each of these SWMUs/AOCs.
- Five priority COCs based on a chemical-specific ELCR $> 1 \times 10^{-4}$ or chemical-specific hazard quotient (HQ) > 1 were identified based on results at one or more SWMUs/AOCs. Four of these contaminants—PCBs, PAHs, uranium-235, and uranium-238—are associated with the highest total ELCRs at several of the SWMUs/AOCs. The fifth priority COC is uranium, based on a chemical-specific HI > 1 .

The remaining soil SWMUs/AOCs that were in the original scope, but not investigated and reported in the 2013 RI report, were either moved to the Soils and Slabs OU or subsequently investigated in a separate Soils OU RI. As a result of the Soils OU RI, one SWMU, SWMU 99, was divided into two SWMUs: 99A and 99B. SWMU 99A, the cylinder yard portion, was moved to the Soils and Slabs OU, while SWMU 99B, the septic system/leach field portion, remains in the Soils OU RI report.

In addition, a revised SWMU Assessment Report was submitted for SWMU 12, C-747-A UF₄ Drum Yard, documenting that the SWMU was the aboveground scrap metal that has been removed; therefore, SWMU 12 no longer exists and has been moved to a no further action status. The soils underneath the former SWMU 12 site are SWMU 7, which is part of the Burial Grounds OU and will be addressed accordingly.

The *Addendum to the Soils Operable Unit Remedial Investigation Report for SWMU 27 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* documented the results of the investigation to determine if the C-722 Acid Neutralization Tank contained any material (DOE 2015b). The interior of the tank was examined using a video device and was found to contain both liquid and sludge. Both of the media were sampled and the liquid contained low detected concentrations of metals, radionuclides, and VOCs; while the sludge contained detected results of metals, radionuclides, PCBs, VOCs, and SVOCs.

The *Soils Operable Unit Remedial Investigation 2 Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was developed to present results of the field investigation that was conducted in 2014 for soil SWMUs/AOCs requiring additional characterization (DOE 2015c). Collectively, analysis of the Soils OU RI 2 SWMUs/AOCs indicated the presence of inorganic compounds, organic compounds, and radionuclides above screening levels. The prevalent contaminants in the investigated SWMUs/AOCs are metals (including uranium), PCBs, PAHs, and radionuclides (including uranium radioisotopes).

During the Soils OU RI conducted in 2010 as part of the original scope for the RI, grid-based sampling was conducted at SWMU 229, OS-18, and it was determined that additional characterization was needed to delineate the extent of contamination. During the course of the Soils OU RI 2 fieldwork, SWMU 229 consistently contained standing water and radiological surveys could not be adequately performed in areas of standing water; therefore, the planned activities (i.e., radiological walkover survey and a judgmental grab sample) for this unit could not be completed. After discussion among the FFA parties on December 2, 2014, it was concluded that activities for SWMU 229 would need to be conducted at a later time when the unit was free of standing water and would be reported in an addendum to the Soils OU RI 2 report once field

activities were completed. The *Addendum to the Soils Operable Unit Remedial Investigation 2 Report for Solid Waste Management Unit 229 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, was developed to present results of the field investigation that was conducted in 2010 and 2015 for SWMU 229 (DOE 2016b). Data collected during the 2010 investigation (Soils OU RI) and the 2015 investigation (Soils OU RI 2) were combined to form the data set used to evaluate SWMU 229. The addendum to the Soils OU RI 2 report documented the nature and extent of contamination and risk characterization and described how the additional investigation filled the data gaps to support future remedial decision making.

2.2.2 Burial Ground Operable Unit Projects

The *Site Investigation Report for the C-746-S&T Landfills at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* summarizes the results from fieldwork (primarily groundwater sampling) conducted in the area of the C-746-S&T Landfills (DOE 2006). This investigation concluded that groundwater contamination by VOCs, principally TCE observed in landfill groundwater monitoring wells, is derived from the vicinity of the C-746-S&T Landfills and SWMU 145. It appears likely that SWMU 145 (the Residential/Inert Landfill Borrow Area, which is sometimes referred to as the P-Landfill) is the source of the groundwater TCE contamination. Investigation results also established that Tc-99 observed in the RGA is migrating to the vicinity of the C-746-S&T Landfills from an upgradient source.

The *Remedial Investigation Report for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* assessed contamination associated with eight SWMUs that include the PGDP landfills and burial grounds (DOE 2010e); seven of the SWMUs (SWMUs 2, 3, 4, 5, 6, 7, and 30) are located within the secured industrial area, with one SWMU (SWMU 145) located within a controlled access area north of the main PGDP area. Two other SWMUs in the BGOU, C-746-S (SWMU 9) and C-746-T (SWMU 10) Landfills, are closed landfills that were not included in the 2010 RI report.

Following are the major findings in the Burial Grounds OU RI report.

- Environmental media, specifically subsurface soil and groundwater, have been impacted by releases of contaminants at all of the Burial Grounds OU SWMUs investigated by the RI.
- TCE trends in the RGA indicate that TCE DNAPL likely is present at SWMU 4 and in the vicinity of the shared border between SWMUs 7 and 30. Concentrations of TCE at SWMU 4 suggest this potential TCE DNAPL may be present both in the waste cells and underlying soils of the UCRS. TCE trends at SWMUs 7 and 30 indicate that this potential TCE DNAPL source is likely confined to the UCRS soils.
- The BHHRA indicated that ELCRs greater than the upper end of EPA's acceptable risk range (i.e., 1×10^{-4}) and HIs > 1 existed at all SWMUs; therefore, an FS was recommended for impacted media at each SWMU. The metals arsenic, beryllium, and uranium; organic compounds total PAHs and total PCBs; and the radionuclides uranium-235 and uranium-238 were common contaminants that provided the dominant risks from exposure to surface and subsurface soil. The major contaminants driving groundwater risks (for an on-site point of exposure) were arsenic, Aroclor 1260, 1,1-dichloroethene (1,1-DCE), TCE, Tc-99, and vinyl chloride.
- Migration of contaminants through groundwater from all SWMUs, with the exception of SWMU 6, to various locations including the SWMU boundary, the plant boundary, the DOE property boundary, and a location near the Ohio River also posed greater than *de minimis* risks to a hypothetical residential groundwater user. Arsenic, TCE, 1,1-DCE, Tc-99, and vinyl chloride were identified as the primary risk drivers for groundwater beyond the SWMU boundary.

- A screening ecological risk assessment (SERA) retained a number of chemicals of potential ecological concern (COPECs), primarily metals, at each of the sites.

The *Feasibility Study for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was prepared to evaluate remedial alternatives in support of remedy selection under CERCLA following completion of the Burial Grounds OU RI (DOE 2010f). A primary objective of the FS was to identify remedial technologies and process options that potentially meet remedial action objective (RAOs) and then combine them into a range of remedial alternatives for the Burial Grounds OU SWMUs. As a result of review of the overall Burial Grounds OU FS and subsequent discussion, and agreement, by the FFA parties, the scope of the FS was subdivided into focused groupings with separate FS reports to be prepared for (1) SWMUs 2, 3, 7, and 30; (2) SWMU 4; and (3) SWMUs 5 and 6.

The *Geophysical Surveys, Records Research, and Aerial Photo Review to Identify Possible Burial Areas, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, presented the results of the geophysical surveys that were completed between November 16, 2009, and March 4, 2010, at five areas identified by Paducah Remediation Services, LLC, and four accessible areas identified by the Commonwealth of Kentucky (PRS 2010). The geophysical surveys were performed to determine whether any unknown underground “anomalies” (concentrations of scrap metal, buried drums, disposal cells, utility lines, etc.) were present within the surveyed areas. A total of 59 anomalies suggesting subsurface metal that could not be associated with known site features were detected. Of the 59 identified anomalies, 56 were characterized as small anomalies—a geophysical signature typically 10 ft in diameter or less with the actual material presumably even smaller. Three of the identified anomalies were characterized as large anomalies—a geophysical signature typically 20 ft in diameter or more. In summary, the geophysical surveys did not identify any areas that are likely to be areas of purposeful waste disposal or burial. Geophysical surveys were conducted in January/February 2009 at SWMUs 472 and 520 that revealed potential buried material in the area. Results of these geophysical surveys are shown in their respective SWMU Assessment Reports (DOE 2010g; DOE2010h).

The *Site Evaluation Report for Solid Waste Management Unit 13 Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* presented the results of the 2010 sampling and analysis effort completed for SWMU 13, C-746-P Clean Scrap Yard, located in the northwest quadrant of the secured industrial area of PGDP (DOE 2011b). Sampling and analysis were undertaken to determine whether SWMU 13 had previously been used as a burial area and, if so, the nature of any contaminant releases from buried material. Based on the data acquired by the 2010 field sampling program, this SER concluded that there is no evidence of systematic burial of material based on visual observations as well as results of sample analysis.

The *Feasibility Study for Solid Waste Management Units 5 and 6 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, was prepared to evaluate remedial alternatives specifically for SWMUs 5 and 6 (DOE 2013b). Based on waste descriptions and data collected during the RI, no PTW materials were identified for these SWMUs. There are potential threats at SWMUs 5 and 6 from the buried waste, and there is uncertainty associated with the surface soil at SWMU 5 due to the limited sampling data. Alternatives were evaluated to address potential threats. Because no waste-related COCs above remedial goals were considered amenable to treatment, no alternative was included that included treatment (a treatment alternative is usually prescribed by the EPA guidance). The following alternatives were included in the SWMUs 5 and 6 FS for detailed analysis: (1) no action; (2) cover with a Kentucky Subtitle D cap, long-term monitoring, and LUCs; and (3) excavation and disposal of waste materials and affected soils.

The *Feasibility Study for Solid Waste Management Units 2, 3, 7, and 30 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was prepared to evaluate remedial

alternatives to address risks associated with SWMUs 2, 3, 7, and 30 (DOE 2017e). New information gathered subsequent to approval of the Burial Grounds OU RI report was used for refinement of COCs for soils data, identification of target COCs, and PTW determinations. The following PTW was identified at SWMU 2 (DOE 2012b):

- Approximately 270 tons of uranium (e.g., shavings and sawdust packed in oil) disposed of in burial pits in SWMU 2;
- Buried drums of uranium-contaminated TCE and any high soil concentrations of TCE present under and adjacent to the drums;
- Buried drums (thirty-five 30 gal drums documented) of uranyl fluoride solution and high soil concentrations of uranyl fluoride solution present under and adjacent to the drums;
- High concentrations of TCE and *cis*-1,2-dichloroethene (*cis*-1,2-DCE) in soil on the eastern side of SWMU 2; and
- There is also potential that up to 59,000 gal of oil that was co-disposed with uranium at SWMU 2 contains PCBs at concentrations > 500 mg/kg. Under EPA guidance, PCB concentrations > 500 mg/kg are considered PTW under certain exposure scenarios. Absent additional characterization of the buried waste, it is uncertain whether PCBs are present at SWMU 2 at levels > 500 mg/kg. Notwithstanding the uncertainty, the 59,000 gal of oil could contain PCBs in excess of 500 mg/kg and has been identified as PTW.

Uranium-contaminated waste (approximately 3,200 tons) at SWMU 3 has been identified as PTW. (It is inconclusive whether some of the uranium may be pyrophoric) (DOE 2017e). TCE (including degradation products) present in UCRS at SWMU 7 as DNAPL and/or high concentration TCE residual soil contamination has been identified as PTW (DOE 2017e). No PTW was identified at SWMU 30 (DOE 2017e). All other waste at SWMUs 2, 3, 7, and 30 are considered low-level threat waste.

Remedial alternatives were developed to reduce the potential for exposure to surface soil, subsurface soil, and buried wastes, using LUCs, surface controls, containment, treatment, and/or removal response actions. Alternatives developed to address buried waste were generally considered effective at addressing contaminated soils. The FS addressed COCs with the potential for impacts to groundwater by developing and evaluating alternatives that included processes to contain, treat, or remove COCs. The SWMU-specific alternatives were analyzed in detail and compared based on the CERCLA evaluation criteria. The general alternatives for these burial grounds included: (1) no action; (2) limited action (LUCs and monitoring); (3) containment, surface controls, LUCs, and monitoring; (4) *in situ* source treatment, containment, surface controls, LUCs, and monitoring; (5) excavation and disposal, treatment, LUCs, and monitoring; and (6) targeted excavation and disposal, containment, surface controls, treatment, LUCs, and monitoring.

In January 2011, EPA, KDEP, and DOE convened a meeting to discuss SWMU 4 data gaps and uncertainties that remained after completion of the Burial Grounds OU RI report (DOE 2010e). DQOs were developed and incorporated into a sampling plan to address those gaps. Major findings in the *Addendum to the Remedial Investigation Report for the Burial Grounds Operable Unit Solid Waste Management Unit 4 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE 2017d) included the following.

- The investigation provided data, particularly related to nature and extent of contamination at SWMU 4, that were sufficient and adequate for proceeding with a FS and subsequent CERCLA documents.

- The report concluded that environmental media, specifically subsurface soil and groundwater, have been impacted by releases of contaminants from waste. Contamination resulting from the buried waste is found concentrated in the UCRS soils and groundwater immediately within and under the burial cells, with a lesser amount of contamination dispersed laterally from the cells. In addition, activities at SWMU 4 have resulted in contamination of surface soil.
- TCE trends in the UCRS and RGA groundwater indicated that TCE DNAPL is present at SWMU 4 in the subsurface soils of the UCRS. While TCE contamination is found in Burial Cells 1, 4, and 5, the contaminant levels within the upper 20 ft in the burial cells at SWMU 4 do not indicate the presence of a DNAPL source within the burial cells. In addition, the elevated TCE concentrations in the RGA beneath SWMU 4 are likely the result of a TCE DNAPL source in the UCRS, rather than a DNAPL source within the RGA.
- The risk screening update indicated that ELCRs $> 1 \times 10^{-6}$ and/or HIs > 1 exist for the industrial worker and excavation worker scenarios for surface and subsurface soils, respectively, with arsenic, total PAHs, total PCBs, cesium-137, neptunium-237, thorium-230, uranium-234, uranium-235, and uranium-238 presenting the dominant risks from exposure to surface and subsurface soil. The major contaminants presenting groundwater risks in the RGA included arsenic, cobalt, iron, manganese, vanadium, 1,1,2-trichloroethane (1,1,2-TCA), chloroform, *cis*-1,2-DCE, TCE, and vinyl chloride. Ecological risk screening included several COPECs; COPECs whose maximum concentration was > 10 times their ecological screening value included PCBs, PAHs, and metals (aluminum, cadmium, chromium, iron, manganese, mercury, and uranium).

The *Feasibility Study for Solid Waste Management Unit 4 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was prepared to develop and evaluate remedial alternatives to address risks associated with SWMU 4 (DOE 2018). Based upon limited disposal records, SWMU 4 contains industrial wastes, some of which are LLW. Industrial wastes in burial grounds at PGDP are known to contain waste that could be contaminated with PCBs or to be RCRA-hazardous wastes. TCE DNAPL and high concentrations of TCE in soils are considered PTW (DOE 2012b). SWMU 4 is a significant contributor of dissolved-phase contamination to the Southwest Plume.

The extent of the TCE PTW is thought to be limited to two areas of subsurface soil located beneath Cell 4. Further, the RI Addendum Report stated that no uranium source materials such as those described in historical records for SWMU 2 (i.e., uranium shavings and sawdust, drums of uranyl fluoride solution) and SWMU 3 (i.e., bulk uranium, possible pyrophoric uranium) were observed during the supplemental investigation at SWMU 4. The collected data for SWMU 4 do not indicate the presence of high concentrations or significant quantities of uranium or potential uranium source material.

The alternatives developed for the SWMU 4 FS included: (1) no action; (2) limited action; (3) containment, groundwater monitoring, and LUCs; (4) targeted excavation, containment, *in situ* treatment, groundwater monitoring, and LUCs; (5) full excavation, *in situ* treatment, groundwater monitoring, and LUCs; and (6) containment, *in situ* treatment, groundwater monitoring, and LUCs.

2.2.3 Surface Water Operable Unit Projects

The Surface Water OU refers to source units that primarily contain surface water contamination or sources such as soil and sediment that potentially contribute to surface water contamination. These units include the NSDD, internal plant outfall ditches, impoundment ponds, Bayou Creek, and Little Bayou Creek.

For the NSDD, a screening-level human health risk assessment (SHHRA) was completed to support discussions with the regulatory agencies in 2003 and is documented in *Estimates of Risk Posed to Human*

Health by Contamination Found in Sections 3, 4, and 5 of the NSDD at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (BJC 2003a). Another SHHRA was also completed for the outfalls in support of discussions with the regulatory agencies and is documented in *Estimates of Risk Posed to Human Health by Contamination Found in Sediment and Soil in Outfalls 001, 008, 010, 011, and 015 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (BJC 2003b).

For the NSDD SHHRA, the hazards and cancer risks were derived for the NSDD outside the security area (SWMU 58) for Sections 3, 4, and 5 of the NSDD individually. Exposures were calculated using upper end default parameters for future industrial workers and future recreational users, and separately for current receptors using site-specific parameters considered more representative based on actual worker activities and recreational use patterns at that time. Specifically, the exposure frequency (EF) for the current industrial worker was reduced from the default of 250 days per year to a site-specific value of 14 days per year to reflect the limited exposure workers had to the ditches. The EF for the current recreational user was reduced from the default of 140 days per year (assuming 5 hours per site visit) to a site-specific value of 10 days per year (assuming 4 hours per site visit) based on information from WKWMA. The hazard for both the default industrial worker and default recreational user scenarios is of concern for SWMU 58 and for the three NSDD sections (i.e., cumulative hazard is > 1); however, the hazard for the site-specific industrial worker and site-specific recreational user scenarios was not of concern for these areas (i.e., cumulative hazard is < 1). For SWMU 58, the COCs, in order of importance, for the two default scenarios are manganese, vanadium, iron, uranium, thallium, mercury, and arsenic. Results for the three NSDD sections are similar.

The ELCR for both the default industrial worker and default recreational user is of concern from SWMU 58 and NSDD Section 3, but not for NSDD Sections 4 and 5 (i.e., the ELCR is $> 1 \times 10^{-4}$); however, as with hazard, the site-specific industrial worker and the site-specific recreational user risks are lower and within or below EPA's generally acceptable risk range for site-related exposure (i.e., 1×10^{-6} to 1×10^{-4}). For SWMU 58, the COCs, in order of importance, for the two default scenarios are total PCBs, thorium-230, cesium-137, arsenic, neptunium-237, uranium-235, and uranium-238.

Taken in absence of uncertainties and site-specific conditions, the hazards and cancer risks indicated that use of the area containing NSDD Sections 3, 4, and 5 may need to be controlled to reduce risks to below the benchmarks used at PGDP to determine AOCs; however, as shown by the results for the site-specific scenarios, controls currently in place that limit exposure reduce both the cumulative hazards and cancer risks to levels within EPA's generally acceptable risk range for site-related exposures.

The hazards and cancer risks derived for each outfall evaluated in the second SHHRA for the plant outfalls follow.

- KPDES Outfall 001 (SWMU 69)—The default recreational user scenario with a cumulative hazard estimate of 1.14 is the only scenario of concern. The only COC for this scenario is beryllium, which contributes 96% of the cumulative hazard. The hazard and cancer risk estimates for the site-specific exposure scenarios fall below levels of concern (i.e., defined in the assessment as a cumulative hazard level of 1 and an ELCR of 1×10^{-4}) and are within or below EPA's acceptable risk range for site-related exposures (i.e., 1×10^{-6} to 1×10^{-4}).
- KPDES Outfall 008 (SWMU 63)—Both the default industrial worker and the default recreational user scenarios, with cumulative hazard estimates of 4.27 and 10.00, respectively, are scenarios of concern. The COCs for these scenarios are manganese, iron, vanadium, antimony, mercury, and beryllium. The hazard and cancer risk estimates for the site-specific exposure scenarios fall below levels of concern and are within or below EPA's acceptable risk range for site-related exposures.
- KPDES Outfall 010 (SWMU 66)—Both the default industrial worker and the default recreational user scenarios, with cumulative hazard estimates of 2.51 and 5.89, respectively, are scenarios of concern. The COCs for these scenarios are vanadium, iron, antimony, beryllium, and arsenic. The hazard and

cancer risk estimates for the site-specific exposure scenarios fall below levels of concern and are within or below EPA's acceptable risk range for site-related exposures.

- KPDES Outfall 011 (SWMU 67)—Both the default industrial worker and the default recreational user scenarios are scenarios of concern. Unlike KPDES Outfalls 001, 008, and 010, for KPDES Outfall 011 these scenarios are scenarios of concern for both hazard and cancer risk. Cumulative hazard estimates are 4.32 and 10.04, respectively. Cumulative cancer risk estimates are 5.24×10^{-4} and 7.93×10^{-4} , respectively. For cumulative hazard, the COCs are uranium, vanadium, beryllium, arsenic, and TCE. For cumulative cancer risk, the COCs are total PAHs, total PCBs, uranium-238, arsenic, TCE, and uranium-235. Results for COCs for the default recreational user scenario are similar. The hazard and cancer risk estimates for the site-specific exposure scenarios fall below levels of concern and are within or below EPA's acceptable risk range for site-related exposures.
- KPDES Outfall 015 (SWMU 68)—Both the default industrial worker and the default recreational user scenarios are scenarios of concern for both hazard and cancer risk. Cumulative hazard estimates are 1.06 and 2.48, respectively. Cumulative cancer risk estimates are 6.14×10^{-4} and 2.98×10^{-4} , respectively. For cumulative hazard, the COCs for both scenarios are beryllium and antimony. For cumulative cancer risk, the COCs are cesium-137, uranium-238, total PCBs, and plutonium-239. Results for COCs for the default recreational user scenario are similar. The hazard and cancer risk estimates for the site-specific exposure scenarios fall below levels of concern and are within or below EPA's acceptable risk range for site-related exposures.

The COPCs identified from the risk analyses are similar to those identified in other assessments of ditches at PGDP. Important COPCs over all outfalls are antimony, beryllium, total PAHs, total PCBs, and the uranium isotopes. Other notable COPCs over all outfalls are iron, manganese, and cesium-137. Taken in absence of uncertainties and site-specific conditions, the hazards and cancer risks indicated that use of the area containing outfalls may need to be controlled to reduce risks to below the benchmarks used at the Paducah Site to determine AOCs.

The Surface Water Operable Unit (On-Site) Investigation and Baseline Risk Assessment Report at the Paducah Gaseous Diffusion Plant Paducah, Kentucky was focused on potential initial response actions for on-site portions of the Surface Water OU having the greatest likelihood for contaminant discharges to creeks surrounding PGDP (DOE 2008c). This SI supported evaluations regarding a phased approach by providing information concerning the identification of hot spots in internal plant ditches and outfalls; the NSDD (Sections 3, 4, and 5); and the storm sewer system that may be contributing to off-site migration and risks to human health and the environment posed by the contamination migrating from these hot spots. The SI report used data to develop source terms to support transport modeling, and in the BRA to develop exposure point concentrations (EPCs) for each exposure unit (EU). In addition, the SI provided information useful for determining the need for hot spot removal and an evaluation of whether additional sediment control measures were needed, as well as determining actions for potential legacy releases associated with the storm sewer system.

The estimated cancer risk for the industrial worker exceeded the upper end of the EPA's acceptable risk range for some internal ditch EUs, and the estimated hazard for the recreational user exceeded the EPA hazard limit (HI = 1) for some NSDD EUs. Contaminants driving risks were total PCBs and total PAHs for the industrial worker and antimony and uranium for the recreational user. Risks and hazards for the industrial worker, recreational user, and excavation worker exceeded either the upper end of EPA's acceptable risk range and/or the EPA hazard limit at multiple EUs. Contaminants driving risks were total PCBs, total PAHs, antimony, iron, uranium, and thorium-230. A SERA indicated that further evaluation of the potential for risk was required based on extensive exceedance of no further ALs at multiple locations and the lack of no further ALs for many constituents.

2.2.4 C-400 Complex OU

In August 2017, a Memorandum of Agreement on the C-400 Complex was signed by DOE, EPA, and KDEP which established the C-400 Complex OU and the requirement to conduct a RI/FS to support remedy selection for a final remedial action (DOE 2017f). The C-400 Complex OU (C-400 Cleaning Building and area bounded by adjacent streets) is a primary source of off-site TCE and Tc-99 groundwater contamination at the Paducah Site.

The *Remedial Investigation Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* was developed to present the results of the field investigation, document the nature and extent of contamination, determine contaminant fate and transport, characterize risk, and support a future remedial decision for the C-400 Complex OU under CERCLA (DOE 2023). Source zones composed of confirmed/probable TCE DNAPL and high concentration TCE contamination at the C-400 Complex were defined using multiple lines of evidence.² The presence of a source zone, composed of TCE DNAPL and high concentration TCE contamination, was identified in the southern portion of the C-400 Complex in the UCRS, RGA, and Upper McNairy Formation. Previous interim actions have remediated portions of this source area. The UCRS portion of the source is mostly located beneath the southeastern corner of the building, but a couple of smaller zones in the UCRS were also identified. TCE was found in UCRS, RGA, and McNairy Formation groundwater with a maximum detection in groundwater of 645,000 µg/L. The maximum detection of TCE in soils in this area was 6,940,000 µg/kg in the Upper McNairy Formation at a depth of 94–95 ft (bgs). Another, smaller source zone, composed of TCE DNAPL and high concentration TCE contamination, is located near the southwestern portion of the C-400 Complex. The maximum TCE in soil in this area was 144,000 µg/kg at a depth of 5.5–6.5 ft bgs. This source zone was particularly shallow, occurring at depths of < 20 ft bgs. This source zone is located above the Phase I Southwest Treatment Area that was previously treated with ERH at depths below 20 ft bgs. The C-400 Complex identified these sources (e.g., TCE DNAPL and high concentrations of TCE contamination) as PTW at C-400.

A likely source of Tc-99 contamination was also identified beneath the C-400 Cleaning Building. In this area, Tc-99 is present from depths of 20–55 ft bgs, with a maximum activity of 1,020 pCi/g within that depth interval. The highest result of Tc-99 in soil in this area was 1,390 pCi/g in a sample collected from 3–4 ft bgs.

Risk was characterized for surface soil (0–1 ft bgs) and surface and subsurface soil (0–16 ft bgs) with uranium-238 identified as the primary risk driver with thorium-230, uranium metal, and uranium 235/236 also identified as priority COCs in surface soil in certain areas. For surface and subsurface soils combined, uranium metal is identified as the primary risk driver across the C-400 Complex with thorium-230 identified as a priority COC the west-central part of the C-400 Complex and TCE identified as a priority COC in the southern part of the C-400 Complex. There were several COCs identified as priority COCs in groundwater, particularly in the RGA with the primary risk drivers in RGA groundwater being chromium, Tc-99, *cis*-1,2-dichloroethene, 1,1,2-trichloroethane, and TCE.

2.2.5 Groundwater Operable Unit Projects

There are also contaminant sources in the soil above the RGA that contribute to groundwater contamination that have been investigated as part of the Groundwater OU. PTW in the soil at these sources that have not

² Confirmed/probable TCE source zones are defined as areas with TCE concentrations exceeding, 33,000 µg/L in groundwater, TCE concentrations exceeding 100,000 µg/kg in soil, membrane interface probe photoionization detector responses > 700,000 µV, and dye-enhanced laser-induced fluorescence responses > 5% relative emittance (DOE 2024a).

been addressed by prior remedial actions will be evaluated as part of the Environmental Media RI/FS. The *Site Investigation Report for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, was developed to address the uncertainties with potential source areas to the Southwest Plume (DOE 2007a). The potential source areas investigated in the SI report included the C-747-C Oil Landfarm (SWMU 1), the areas near the northeast and southeast (SWMUs 211-A and 211-B) areas of the C-720 Maintenance and Storage Building, and part of the storm sewer between the south side of the C-400 Cleaning Building and KPDES Outfall 008 (SWMU 102).

The remedy in the Southwest Plume ROD for SWMU 1 has been completed with long-term monitoring and LUCs in place (DOE 2012d). The remaining scope of the Southwest Plume ROD related to SWMU 211-A and SWMU 211-B was subject to a remedial design support investigation (RDSI). During the RDSI for SWMU 211-A and SWMU 211-B, it was determined there was potential for a DNAPL source in the RGA associated with SWMU 211-B that was directly adjacent to and potentially underneath the C-720 Maintenance and Storage Building. The remedy for SWMU 211-B will be reevaluated as part of the Environmental Media RI/FS. In accordance with the signed MOA for the C-400 Complex dated August 8, 2017, the remedy for SWMU 211-A was completed (DOE 2017a).

2.2.6 Plant-Wide Vapor Intrusion Study

The *Plant Industrial Area Vapor Intrusion Preliminary Risk Assessment Report* (DOE 2022) presented the results of the vapor intrusion (VI) study performed in accordance with a VI Work Plan (DOE 2020b). The VI Work Plan was developed in response to a March 2019 Memorandum of Agreement (DOE 2019d).

Chloroform was commonly detected and it was detected in all four media (i.e., subslab vapor, indoor air, crawlspace air, outdoor air). TCE was detected in seven out of 10 preliminary investigation (PI) buildings where both subslab vapor and indoor air samples were collected. 1,1,1-trichloroethane was detected in three subslab samples within two PI buildings; *trans*-1,2-DCE was detected in four indoor air samples within two PI buildings; and VC was detected in two crawlspace air samples within two PI buildings. *cis*-1,2-DCE was not detected in any sample. Mercury was detected at 12 out of 53 locations where screening was conducted.

Based on multiple lines of evidence, the interpretation of VI investigation results, and in consideration of the decision rules, the VI pathway is incomplete within the PI buildings; therefore, there is no unacceptable risk to workers from the VI pathway under current conditions for all PI buildings and by-proxy buildings—because there is no unacceptable risk to workers, worker exposure to VI is under control. No indoor air exceedances from this sampling event are attributable to subsurface environmental sources from site-related contamination. TCE exceeded its vapor intrusion screening level (VISL) in subslab vapor in two PI buildings—C-310 and C-720; however, it did not exceed the VISL for indoor air in any PI building. In all other PI buildings, no subsurface source of PI analytes was identified. The VI report recommended no further evaluation at this time for the remaining 20 PI buildings or for the 38 by-proxy buildings represented by the selected PI buildings.

2.3 USE OF HISTORICAL DATA

The Environmental Media RI/FS will be conducted using a sitewide approach in which multiple SWMUs and release sites are combined for evaluation across the Paducah Site. The goal of this approach is to focus the investigation phase by evaluating conditions on a sitewide scale. Detailed evaluation of individual sites/SWMUs identified as contributors of contamination to the overall site may be subsequently performed if applicable. The benefits of this approach include the following:

- Provides consistent decision-making, or consistent RGOs, across the site and across media and increased focus on development of integrated remedial actions;
- Better addresses risk evaluation and identifying the areas with the greatest risk;
- Provides a larger perspective of the extent of contamination across the site, especially for the major COCs; and
- Produces a decision that will remediate contamination to agreed levels of protectiveness sitewide, without time and cost to reduce uncertainty in lesser characterized areas.

Inherent in this sitewide approach is the reliance on historical data to form the basis of the RI/FS. The sources of the data to be used have been collected during previous RIs and SIs as detailed in Section 2.2. Data collected through environmental monitoring programs are also incorporated where available and applicable. For the Environmental Media RI, a significant historical dataset exists and the likelihood of important data gaps for the remedial decision is minimized by adherence to the DQO process during the planning phase, and by subsequent data collection during remedial design where needed.

Analytical data collected by DOE that are in the Paducah OREIS database, including samples with qualified data, those not rejected during data assessment and validation, and those meeting established data criteria/rules, will be used to develop the RI/FS. The established decision rules have been used in the data quality analysis for determining the usability of historical data. As described in Section 2.1, historical data, collected in 1999 or before, will only be used qualitatively to aid in identification of COPCs and to determine extent of contamination. Data dated 2000 or after, will be used after evaluation for quality and representativeness of current conditions (e.g., representativeness of surface water samples collected since 2012 will be evaluated as part of the data usability assessment completed for the risk assessment). DOE issued the final revision of a report for the background soils project, which is titled *Background Levels of Selected Radionuclides and Metals in Soils and Geologic Media at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1586&D2 (DOE 1997). The FFA parties have agreed to the use of background levels documented in this report. The background values are presented in Appendix A of the Paducah RMD (DOE 2024d).

The data decision rules, and other information, to be used for assembling the RI/FS data sets included the following:

- Soil data were used quantitatively by analyte group for samples as follows in order to focus on current conditions:
 - Metals, radionuclides, SVOCs, and PCBs: 2000 to present; and
 - VOCs: 2012 to present for surface soil; 2000 to present for deeper soils (unless coded as not representative).
- Surface water data from samples collected since 2012 and sediment data, from samples collected since 2000 will be used to assess current conditions.
- C-400 Complex groundwater data for samples collected from 2012 to present will be used to assess current conditions and evaluate soil COPCs contributing to groundwater contamination.
- Historical data that have been qualified as rejected by data validation or by data assessment are not included in the historical dataset.

- Historical data that contain units inconsistent with the sampled media or with the analysis are not included in the historical dataset (e.g., a soil sample with analytical units reported in mg/L or a radiological result with units reported in mg/kg).
- Historical data for radionuclide results with no minimum detectable activity and/or total propagated uncertainty (TPU) recorded are included in the historical dataset on a case-by-case basis.
- Historical data for nonradionuclide results with no reported result and no detection limit recorded are not included in the historical dataset [note that in the Paducah OREIS database, the practical quantitation limit (PQL) is typically recorded as the detection limit].
- Historical data for radionuclide results with a null or zero recorded as a counting error are included in the historical dataset on a case-by-case basis.
- Data assessment codes previously placed on the data are noted and will be applied as appropriate.
- Data in which results are equal to the detection limit (or PQL as recorded in the Paducah OREIS database), but not qualified as nondetect, will be evaluated on a case-by-case basis.
- A result will be considered as a nondetect if it is qualified by the reporting laboratory and includes a “U” qualifier or a “<” qualifier.
- A result will be considered as a nondetect if it has a “U” validation code and/or a “U” data assessment code, including “UJ” and “U-RAD” data assessment codes.
- A radiological result may be considered as a nondetect if the reported TPU is greater than the reported result.
- Negative radiological results will be considered nondetects.
- Data generated from sampling by the Kentucky Division of Waste Management agreement in principle will not be used quantitatively (i.e., for risk assessment), but may be used as appropriate for determining the nature and extent of contamination.
- Not representative of current conditions, as coded in the Paducah OREIS database. A data field is included in the Paducah OREIS that can be used to help flag data that is not representative of the current characteristics of an area. Soil and sediment samples in the Paducah OREIS have been flagged as “REM” or “RA” if they were collected in a location that has been removed (e.g., excavated) or remediated since sampling. These samples were collected *in situ* prior to removal, and are no longer representative of current conditions.
- Indicator chemicals are not included in the historical data set [i.e., alpha activity, beta activity, uranium-235 (wt. %), mass of uranium-235 (µg/g), moisture].
- X-ray fluorescence (XRF) data that was collected and evaluated for quality as part of the Soils OU is included as part of the historical data set (DOE 2013a). Its use for determining nature and extent and for quantitative risk assessment will vary for each chemical based on the recommendations provided in the Soils OU RI report, Appendix B Data Quality Assessment. XRF results for copper, iron, lead, nickel, uranium, and zinc will be used quantitatively for evaluation in the RI/FS. XRF data for antimony, barium, cadmium, and vanadium will not be included in the data set. XRF data for arsenic,

chromium, manganese, mercury, molybdenum, selenium, and silver will be retained in the data set but only used qualitatively.

- Data will be examined to ensure that the sampling methods and analytical methods used in the laboratory are consistent with EPA-approved methods for nonradionuclides. Data for nonradionuclides not from EPA-approved methods will not be used quantitatively in the risk assessment, but may be used qualitatively. Methods for radionuclides will be evaluated to ensure that data quality requirements were achieved. Only results from unfiltered samples have been used quantitatively in previous BHHRA performed at the Paducah Site. Note: Filtered groundwater data may be used in the uncertainty section of the assessment when discussing data sources and their effects on risk estimates.

Any exceptions to these rules will be documented in the data quality analysis as part of the Environmental Media RI/FS Report.

2.4 EXISTING DATA SUMMARY

Data were downloaded from the Paducah OREIS database in August 2024.²³ Non-representative data were removed from the data set (data collected from remediated areas, data flagged as rejected by validation, etc.) Data representative of current conditions were binned for several statistical comparison scenarios. Those data summaries are presented in this section. Data summaries are provided for metals, pesticides/polychlorinated biphenyls, SVOC, VOCs, radionuclides, per- and polyfluoralkyl substances, herbicides, pesticides, and dioxins and furans. Data summaries include minimum (min) and maximum (max) for detected results and frequencies of detection. In accordance with the *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, Volume 1 Human Health* (Human Health RMD) concentrations of total PAHs, total PCBs, and total dioxins and furans have been derived (DOE 2024d).⁴ Individual carcinogenic PAHs, PCB Aroclors, and dioxins and furans are not presented in the summaries, but are included in the dataset. For soil and sediment samples sitewide and concrete/brick⁵ samples from C-400 and C-410, maximum detections are compared to the following screening values located in Appendix A of the RMD:

- Provisional background, where available;
- Industrial worker (surface soil and concrete/brick), excavation worker (subsurface soil), and child recreation (sediment) NALs;
- Industrial worker (surface soil and concrete/brick), excavation worker (subsurface soil), and child recreation (sediment) ALs; and
- Dilution attenuation factor of 1 and 20 (surface soil, subsurface soil, deep soil, and concrete/brick) and dilution attenuation factor of 1 (McNairy Formation soil) soil screening levels (SSLs) for protection of groundwater.

For this screening, surface soil is defined as 0–1 ft bgs, subsurface soil is defined as 1–16 ft bgs, and deep soil is defined as 16 ft bgs to top of the RGA. Also in the surface data group are samples, intended to

³ Any new data collected between now and June 30, 2025, at the site will be used as appropriate and if it meets project DQOs.

⁴ The method for deriving total carcinogenic PAHs, total PCBs, and total dioxins and furans is discussed in Section 3.3.3.2 of the RMD (DOE 2024d).

⁵ Screening criteria are not normally used for concrete/brick for a comparison to background or risk; however, soil/sediment screening criteria are used to evaluate data from concrete/brick. While these screening criteria are for exposure scenarios not applicable to concrete/brick, completing the evaluation using the soil/sediment screening values allows for the identification of contaminants that exceed screening values by the greatest amount.

represent surface soil that, during collection, extended to depths slightly deeper than 1 ft bgs because they were collected beneath asphalt or concrete.

Tables 5 through 9 provide data summaries for soil samples collected on- and off-site, C-400 and C-410 concrete/brick samples, and sediment samples collected from 2000 to present (VOC analyses associated with surface soil are from 2012 to present). Additionally, Tables 5 through 9 provide a list COPCs in soils, concrete/brick, and sediment (i.e., analytes exceeding screening values specified in the RMD).

Tables 10 through 14 provide data summaries and a list of COPCs for groundwater (UCRS, RGA, and McNairy) for the C-400 Complex OU collected from monitoring wells and for surface water on-site and off-site from 2012 to present where at least one screening level was exceeded.

For groundwater and surface water samples, detections are compared to the following screening values located in Appendix A of the RMD:

- Provisional background, where available,
- Child resident NALs (groundwater),
- Child resident ALs (groundwater),
- Child recreation NALs (surface water),
- Child recreation ALs (surface water), and
- Maximum contaminant levels (MCLs).

Appendix B contains complete data summaries for environmental media including nondetect analytes along with an existing analytical data set.

The soil database for this RI/FS includes data from 4,720 sample locations within and adjacent to the Paducah Site collected between 2000 and 2021. The entire soil dataset consists of approximately 446,227 records. Surface soil data (0–1 ft bgs) are available from 3,711 locations, subsurface data (1–16 ft bgs) are available from 3,042 locations, deeper soil data (> 16 ft bgs to the top of the RGA) are available from 427 locations, and McNairy Formation soil data are available from 63 locations. Soil collected from the RGA to the top of the McNairy Formation are provided for qualitative use. The historical soil data comes from multiple reports that documented individual studies or projects. The information associated with the sample measurement results vary widely among the reports but data quality assessments for each report documents the data quality and usability. Most of the soil sampling locations (3,518 of the 4,720 locations) were sampled as part of the Soils OU RIs (DOE 2013a; DOE 2015c, DOE 2016b) or soil pile site evaluations (DOE 2008b; DOE 2010b; DOE 2010c). Soil locations are shown in Figure 10.

Data for slabs are available in the form of concrete and brick samples collected from C-400 and C-410. The database for this RI/FS includes a total of 14,137 records from a total of 128 locations. Concrete locations are shown in Figure 10.

Groundwater data for the C-400 Complex OU are available from previous CERCLA projects (e.g., C-400 Complex OU RI report). The groundwater database for this RI/FS includes data collected from 68 monitoring locations within and/or adjacent to the C-400 Complex OU between 2012 and 2024 (Figure 11). The entire C-400 Complex groundwater dataset consists of over 57,991. Of the groundwater sampling locations, four were within the UCRS, 63 were within the RGA, and 1 within the McNairy Formation. Groundwater sampling locations are shown in Figure 11.

The surface water database for this RI/FS consists of 56,995 records. The data have been collected from 139 locations between 2012 to present. Most of the surface water data has been collected to support compliance and environmental monitoring/surveillance programs. Surface water locations are shown on Figure 12.

Table 5. Surface (0–1 ft bgs) Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	6.84E+02	2.81E+04	625/625	X	1.30E+04	-	1.00E+05	--	1.00E+05	X	3.00E+03	-	5.99E+04	4.3 - 200
METAL	Antimony	mg/kg	8.40E-02	2.45E+01	345/610	X	2.10E-01	-	9.34E+01	--	2.80E+03	X	3.52E-02	X	7.04E-01	0.026 - 21.9
METAL	Arsenic	mg/kg	1.28E+00	8.59E+01	595/654	X	1.20E+01	X	1.60E+00	--	1.60E+02	X	1.51E-03	X	3.02E-02	0.17 - 20
METAL	Arsenic XRF	mg/kg	3.00E+00	1.60E+02	638/1781	X	1.20E+01	X	1.60E+00	--	1.60E+02	X	1.51E-03	X	3.02E-02	1 - 11
METAL	Barium	mg/kg	6.19E+00	4.53E+02	654/654	X	2.00E+02	-	4.04E+04	--	1.00E+05	X	1.55E+01	X	3.11E+02	0.087 - 12.9
METAL	Beryllium	mg/kg	9.81E-02	2.45E+00	472/643	X	6.70E-01	-	4.50E+02	--	1.35E+04	X	1.95E+00	-	3.89E+01	0.02 - 3.5
METAL	Boron	mg/kg	9.98E-01	9.68E+00	130/143	N/A	N/A	-	4.65E+04	--	1.00E+05	X	1.28E+00	-	2.56E+01	2.91 - 14.8
METAL	Cadmium	mg/kg	2.10E-02	1.60E+01	451/643	X	2.10E-01	X	6.11E+00	--	1.83E+02	X	1.38E-02	X	2.77E-01	0.02 - 2.49
METAL	Chromium	mg/kg	4.33E+00	1.14E+03	653/654	X	1.60E+01	X	1.23E+01	--	1.23E+03	X	6.72E-04	X	1.34E-02	0.21 - 6.5
METAL	Chromium XRF	mg/kg	2.80E+01	3.35E+03	804/2780	X	1.60E+01	X	1.23E+01	X	1.23E+03	X	6.72E-04	X	1.34E-02	5 - 85
METAL	Cobalt	mg/kg	4.18E-01	1.04E+02	585/586	X	1.40E+01	X	6.87E+01	--	2.06E+03	X	2.71E-02	X	5.43E-01	0.06 - 4.97
METAL	Copper	mg/kg	1.41E+00	4.36E+03	608/614	X	1.90E+01	-	9.34E+03	--	1.00E+05	X	2.81E+00	X	5.62E+01	0.07 - 24.3
METAL	Copper XRF	mg/kg	6.00E+00	6.12E+03	634/1627	X	1.90E+01	-	9.34E+03	--	1.00E+05	X	2.81E+00	X	5.62E+01	4 - 35
METAL	Iron	mg/kg	1.57E+03	1.71E+05	635/635	X	2.80E+04	X	1.00E+05	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 248
METAL	Iron XRF	mg/kg	1.57E+03	1.42E+05	1781/1781	X	2.80E+04	X	1.00E+05	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 100
METAL	Lead	mg/kg	9.07E-01	8.27E+02	602/654	X	3.60E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	0.043 - 200
METAL	Lead XRF	mg/kg	6.08E+00	1.99E+03	2133/2780	X	3.60E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	2 - 13
METAL	Manganese	mg/kg	3.79E+01	4.47E+04	634/634	X	1.50E+03	X	4.72E+03	--	1.00E+05	X	2.83E+00	X	5.65E+01	0.17 - 115
METAL	Manganese XRF	mg/kg	5.13E+01	3.09E+03	1772/1781	X	1.50E+03	-	4.72E+03	--	1.00E+05	X	2.83E+00	X	5.65E+01	3 - 85
METAL	Mercury	mg/kg	6.54E-03	1.00E+01	537/654	X	2.00E-01	-	7.01E+01	--	2.10E+03	X	2.95E-02	X	5.91E-01	0.00431 - 0.446
METAL	Mercury XRF	mg/kg	6.62E+00	4.37E+01	44/1781	X	2.00E-01	-	7.01E+01	--	2.10E+03	X	2.95E-02	X	5.91E-01	2 - 40
METAL	Molybdenum	mg/kg	2.10E-01	2.36E+01	422/564	N/A	N/A	-	1.17E+03	--	3.51E+04	X	2.02E-01	X	4.03E+00	0.06 - 5
METAL	Molybdenum XRF	mg/kg	5.60E+00	7.80E+01	59/1627	N/A	N/A	-	1.17E+03	--	3.51E+04	X	2.02E-01	X	4.03E+00	3 - 15
METAL	Nickel	mg/kg	4.10E+00	2.41E+03	628/654	X	2.10E+01	-	2.99E+03	--	8.98E+04	X	2.56E+00	X	5.12E+01	0.1 - 12.8
METAL	Nickel XRF	mg/kg	9.00E+00	3.79E+03	727/1781	X	2.10E+01	X	2.99E+03	--	8.98E+04	X	2.56E+00	X	5.12E+01	4 - 65
METAL	Selenium	mg/kg	1.00E-01	5.00E+00	379/651	X	8.00E-01	-	1.17E+03	--	3.51E+04	X	5.19E-02	X	1.04E+00	0.087 - 20
METAL	Selenium XRF	mg/kg	3.46E+00	2.67E+01	18/1781	X	8.00E-01	-	1.17E+03	--	3.51E+04	X	5.19E-02	X	1.04E+00	1 - 20
METAL	Silver	mg/kg	1.50E-02	9.97E+00	325/635	X	2.30E+00	-	1.17E+03	--	3.51E+04	X	7.99E-02	X	1.60E+00	0.0087 - 5.82
METAL	Silver XRF	mg/kg	8.06E+00	5.90E+01	115/1781	X	2.30E+00	-	1.17E+03	--	3.51E+04	X	7.99E-02	X	1.60E+00	6 - 50
METAL	Thallium	mg/kg	6.00E-02	2.36E+00	302/614	X	2.10E-01	X	2.34E+00	--	7.02E+01	X	1.42E-03	X	2.84E-02	0.017 - 200
METAL	Total Uranium ^a	mg/kg	1.50E+00	1.94E+01	10/10	X	4.90E+00	-	4.66E+01	--	1.40E+03	X	1.80E-01	X	3.60E+00	0.013 - 0.77
METAL	Uranium ^a	mg/kg	3.78E-01	6.41E+03	554/632	X	4.90E+00	X	4.66E+01	X	1.40E+03	X	1.80E-01	X	3.60E+00	0.0082 - 948
METAL	Uranium XRF ^a	mg/kg	5.80E+00	1.08E+04	843/2810	X	4.90E+00	X	4.66E+01	X	1.40E+03	X	1.80E-01	X	3.60E+00	6 - 53
METAL	Vanadium	mg/kg	3.44E+00	8.69E+01	654/654	X	3.80E+01	-	1.15E+03	--	3.45E+04	X	8.64E+00	-	1.73E+02	0.082 - 19.7
METAL	Zinc	mg/kg	8.54E+00	1.83E+03	582/605	X	6.50E+01	-	7.01E+04	--	1.00E+05	X	3.73E+01	X	7.46E+02	1.7 - 200
METAL	Zinc XRF	mg/kg	1.40E+01	3.17E+03	1626/1627	X	6.50E+01	-	7.01E+04	--	1.00E+05	X	3.73E+01	X	7.46E+02	1 - 25
ANION	Fluoride	mg/kg	4.80E-01	5.24E+01	114/114	N/A	N/A	-	9.33E+03	--	1.00E+05	X	1.20E+01	-	2.40E+02	1 - 1.26
DI/FURA	Total Dioxins and Furans ^b	mg/kg	2.81E-06	2.64E-05	28/28	N/A	N/A	X	1.57E-05	--	1.57E-03	X	5.91E-08	X	1.18E-06	0 - 0
PPCB	Total PCBs ^c	mg/kg	1.19E-03	2.22E+02	202/719	N/A	N/A	X	2.93E-01	X	2.93E+01	X	6.82E-03	X	1.36E-01	0.00336 - 12.4
PPCB	Total PCBs -HACH	mg/kg	1.00E+00	5.00E+01	232/3130	N/A	N/A	X	2.93E-01	X	2.93E+01	X	6.82E-03	X	1.36E-01	5 - 5
RADS	Americium-241	pCi/g	4.80E-03	3.93E+01	55/713	N/A	N/A	X	3.99E-01	--	3.99E+01	X	1.29E-01	X	2.57E+00	0.0067 - 1.38
RADS	Cesium-137	pCi/g	2.50E-02	8.65E+00	432/711	X	4.90E-01	X	3.44E-01	--	3.44E+01	X	4.79E-01	-	9.58E+00	0.00834 - 0.69
RADS	Neptunium-237	pCi/g	5.10E-03	4.13E+02	122/710	X	1.00E-01	X	4.09E-01	X	4.09E+01	X	5.50E-03	X	1.10E-01	0.00461 - 4
RADS	Plutonium-238	pCi/g	1.03E-02	3.51E+00	68/694	X	7.30E-02	X	9.63E-02	--	9.63E+00	X	8.58E-03	X	1.72E-01	0.0032 - 6
RADS	Plutonium-239/240	pCi/g	6.10E-03	2.39E+02	201/717	X	2.50E-02	X	3.44E-01	X	3.44E+01	X	3.32E-02	X	6.64E-01	0.0027 - 3.5
RADS	Technetium-99	pCi/g	4.10E-01	1.61E+03	282/714	X	2.50E+00	-	1.95E+03	--	1.95E+05	X	7.60E-03	X	1.52E-01	0.127 - 4.42
RADS	Thorium-228	pCi/g	6.50E-02	3.36E+00	501/509	X	1.60E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 3.9
RADS	Thorium-230	pCi/g	1.00E-01	1.06E+04	679/714	X	1.50E+00	X	9.69E-02	X	9.69E+00	X	5.31E-02	X	1.06E+00	0.003 - 3.9
RADS	Thorium-232	pCi/g	6.90E-02	1.59E+00	506/509	N/A	N/A	X	7.52E-02	--	7.52E+00	X	1.16E-01	-	2.32E+00	0.004 - 2.9
RADS	Uranium-233/234	pCi/g	5.37E-01	2.90E+03	136/144	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.11 - 16.6
RADS	Uranium-234	pCi/g	1.09E-01	1.61E+03	488/569	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.004 - 24.8
RADS	Uranium-235	pCi/g	1.24E-02	1.03E+02	93/116	X	6.00E-02	X	3.49E-01	X	3.49E+01	X	4.78E-03	X	9.57E-02	0.00836 - 1.67

Table 5. Surface (0–1 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
RADS	Uranium-235/236	pCi/g	1.30E-02	1.77E+02	211/321	X	6.00E-02	X	3.49E-01	X	3.49E+01	X	4.78E-03	X	9.57E-02	0.005 - 14.1
RADS	Uranium-238	pCi/g	8.90E-02	3.00E+03	664/713	X	1.20E+00	X	9.53E-02	X	9.53E+00	X	1.06E-03	X	2.12E-02	0.004 - 50.8
SVOA	Acenaphthene	mg/kg	1.58E-02	2.70E+00	45/600	N/A	N/A	-	1.38E+03	--	4.14E+04	X	5.49E-01	-	1.10E+01	0.00774 - 1.45
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.06E-02	1.50E+01	46/403	N/A	N/A	-	5.80E+01	--	5.80E+03	X	1.33E+00	-	2.66E+01	0.0332 - 2.1
SVOA	Carbazole	mg/kg	1.30E-02	1.40E+00	24/202	N/A	N/A	-	9.19E+02	--	2.76E+04	X	5.45E-01	-	1.09E+01	0.0332 - 1.45
SVOA	Fluoranthene	mg/kg	5.83E-03	2.40E+01	198/597	N/A	N/A	-	9.19E+02	--	2.76E+04	X	8.91E+00	-	1.78E+02	0.00774 - 1.9
SVOA	Fluorene	mg/kg	1.44E-02	2.20E+00	37/571	N/A	N/A	-	9.19E+02	--	2.76E+04	X	5.45E-01	-	1.09E+01	0.00774 - 1.45
SVOA	Naphthalene	mg/kg	1.43E-02	1.80E+00	14/600	N/A	N/A	-	4.06E+00	--	4.06E+02	X	3.85E-04	X	7.70E-03	0.00774 - 1.45
SVOA	Phenanthrene	mg/kg	3.75E-03	1.90E+01	156/599	N/A	N/A	-	6.89E+02	--	2.07E+04	X	1.32E+00	-	2.63E+01	0.00774 - 1.45
SVOA	Pyrene	mg/kg	4.58E-03	1.40E+01	190/600	N/A	N/A	-	6.89E+02	--	2.07E+04	X	1.32E+00	-	2.63E+01	0.00774 - 1.45
SVOA	Total PAHs ^d	mg/kg	1.00E-05	9.87E+00	267/858	N/A	N/A	X	6.43E-01	--	6.43E+01	X	2.94E-02	X	5.89E-01	0.2 - 0.2
VOA	1,1,2-Trichloroethane	mg/kg	2.41E-03	2.41E-03	1/145	N/A	N/A	-	6.32E-01	--	1.90E+01	X	1.35E-05	X	2.69E-04	0.000808 - 0.362
VOA	1,2-Dimethylbenzene	mg/kg	3.15E-04	2.21E-02	15/158	N/A	N/A	-	2.81E+02	--	8.43E+03	X	1.91E-02	-	3.81E-01	0.000808 - 0.362
VOA	Benzene	mg/kg	3.47E-04	4.02E-03	13/158	N/A	N/A	-	5.31E+00	--	5.31E+02	X	2.33E-04	-	4.66E-03	0.000808 - 0.362
VOA	Chloroform	mg/kg	3.36E-04	2.43E-03	34/158	N/A	N/A	-	1.39E+00	--	1.39E+02	X	6.12E-05	X	1.22E-03	0.000808 - 0.362
VOA	Ethylbenzene	mg/kg	3.49E-04	2.32E-02	17/158	N/A	N/A	-	2.66E+01	--	2.66E+03	X	1.68E-03	-	3.36E-02	0.000808 - 0.362
VOA	Tetrachloroethene	mg/kg	3.63E-04	8.35E-02	5/158	N/A	N/A	-	4.00E+01	--	1.20E+03	X	1.84E-03	X	3.69E-02	0.000808 - 0.362
VOA	Toluene	mg/kg	3.41E-04	3.92E+00	53/129	N/A	N/A	-	6.25E+03	--	1.00E+05	X	7.62E-02	X	1.52E+00	0.000808 - 0.362
VOA	Total Xylene	mg/kg	1.14E-03	8.50E-02	15/158	N/A	N/A	-	2.50E+02	--	7.50E+03	X	1.91E-02	-	3.82E-01	0.00242 - 1.09
VOA	Trichloroethene	mg/kg	3.67E-04	2.36E+01	48/174	N/A	N/A	X	1.90E+00	--	5.70E+01	X	1.01E-04	X	2.02E-03	0.000808 - 0.362
VOA	Vinyl chloride	mg/kg	7.22E-04	2.21E-01	3/174	N/A	N/A	-	2.06E+00	--	2.06E+02	X	6.47E-06	X	1.29E-04	0.000808 - 0.362
VOA	cis -1,2-Dichloroethene	mg/kg	3.50E-04	1.85E+00	26/174	N/A	N/A	-	4.00E+01	--	1.20E+03	X	1.06E-03	X	2.12E-02	0.000808 - 0.362
VOA	trans -1,2-Dichloroethene	mg/kg	5.33E-04	2.71E-02	6/161	N/A	N/A	-	3.04E+01	--	9.12E+02	X	2.12E-03	-	4.24E-02	0.000808 - 0.362
X	Max Concentration Exceeds Background Level															
X	Max Concentration Exceeds No Action Limit															
X	Max Concentration Exceeds Action Limit															
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening															

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024.

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024

Table 6. Subsurface (1–16 ft bgs) Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	2.90E+03	5.28E+04	992/992	X	1.20E+04	X	3.26E+04	-	1.00E+05	X	3.00E+03	-	5.99E+04	4 - 1130
METAL	Antimony	mg/kg	8.00E-02	1.81E+01	355/917	X	2.10E-01	X	1.32E+01	-	3.96E+02	X	3.52E-02	X	7.04E-01	0.024 - 22.7
METAL	Arsenic	mg/kg	8.88E-01	5.46E+01	823/1070	X	7.90E+00	X	3.74E+00	-	3.60E+02	X	1.51E-03	X	3.02E-02	0.16 - 20
METAL	Arsenic XRF	mg/kg	2.00E+00	1.11E+02	773/2193	X	7.90E+00	X	3.74E+00	-	3.60E+02	X	1.51E-03	X	3.02E-02	3 - 11
METAL	Barium	mg/kg	9.50E+00	2.96E+03	1053/1053	X	1.70E+02	-	6.47E+03	-	1.00E+05	X	1.55E+01	X	3.11E+02	0.084 - 124
METAL	Beryllium	mg/kg	1.20E-01	4.48E+00	630/995	X	6.90E-01	-	6.55E+01	-	1.97E+03	X	1.95E+00	-	3.89E+01	0.042 - 3.1
METAL	Boron	mg/kg	8.98E-01	8.07E+00	143/177	N/A	N/A	-	6.57E+03	-	1.00E+05	X	1.28E+00	-	2.56E+01	2.91 - 17.5
METAL	Cadmium	mg/kg	1.30E-02	1.56E+01	515/995	X	2.10E-01	X	2.54E+00	-	7.62E+01	X	1.38E-02	X	2.77E-01	0.025 - 2.5
METAL	Chromium	mg/kg	3.31E+00	3.93E+02	1070/1070	X	4.30E+01	X	9.14E+00	-	9.14E+02	X	6.72E-04	X	1.34E-02	0.582 - 11.7
METAL	Chromium XRF	mg/kg	2.90E+01	2.96E+03	984/2760	X	4.30E+01	X	9.14E+00	X	9.14E+02	X	6.72E-04	X	1.34E-02	12 - 85
METAL	Cobalt	mg/kg	2.10E+00	1.90E+02	742/766	X	1.30E+01	X	9.84E+00	-	2.95E+02	X	2.71E-02	X	5.43E-01	0.08 - 4.99
METAL	Copper	mg/kg	2.43E+00	1.61E+02	909/917	X	2.50E+01	-	1.32E+03	-	3.96E+04	X	2.81E+00	X	5.62E+01	0.388 - 24.2
METAL	Copper XRF	mg/kg	5.00E+00	8.07E+02	551/2193	X	2.50E+01	-	1.32E+03	-	3.96E+04	X	2.81E+00	X	5.62E+01	4 - 35
METAL	Iron	mg/kg	2.57E+03	1.12E+05	962/962	X	2.80E+04	X	2.30E+04	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 2270
METAL	Iron XRF	mg/kg	2.39E+03	8.07E+04	2193/2193	X	2.80E+04	X	2.30E+04	-	1.00E+05	X	3.52E+01	X	7.04E+02	12 - 100
METAL	Lead	mg/kg	2.80E+00	9.44E+02	819/1070	X	2.30E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	0.04 - 200
METAL	Lead XRF	mg/kg	6.00E+00	1.80E+03	2207/2860	X	2.30E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	3 - 13
METAL	Manganese	mg/kg	1.95E+01	3.11E+04	962/962	X	8.20E+02	X	7.74E+02	X	2.32E+04	X	2.83E+00	X	5.65E+01	0.16 - 285
METAL	Manganese XRF	mg/kg	5.30E+01	4.15E+03	2155/2193	X	8.20E+02	X	7.74E+02	-	2.32E+04	X	2.83E+00	X	5.65E+01	18 - 85
METAL	Mercury	mg/kg	7.10E-03	7.09E+00	616/1058	X	1.30E-01	-	9.86E+00	-	2.96E+02	X	2.95E-02	X	5.91E-01	0.01 - 0.521
METAL	Mercury XRF	mg/kg	6.41E+00	1.40E+01	58/2193	X	1.30E-01	X	9.86E+00	-	2.96E+02	X	2.95E-02	X	5.91E-01	6 - 40
METAL	Molybdenum	mg/kg	1.37E-01	2.01E+01	475/747	N/A	N/A	-	1.64E+02	-	4.92E+03	X	2.02E-01	X	4.03E+00	0.08 - 4.99
METAL	Molybdenum XRF	mg/kg	7.00E+00	9.49E+01	50/2193	N/A	N/A	-	1.64E+02	-	4.92E+03	X	2.02E-01	X	4.03E+00	3 - 15
METAL	Nickel	mg/kg	3.00E+00	3.23E+03	987/1060	X	2.20E+01	X	6.21E+02	-	1.86E+04	X	2.56E+00	X	5.12E+01	0.388 - 116
METAL	Nickel XRF	mg/kg	1.00E+01	1.29E+03	685/2193	X	2.20E+01	X	6.21E+02	-	1.86E+04	X	2.56E+00	X	5.12E+01	4 - 65
METAL	Selenium	mg/kg	6.00E-02	9.80E+00	450/1070	X	7.00E-01	-	1.64E+02	-	4.92E+03	X	5.19E-02	X	1.04E+00	0.08 - 20
METAL	Selenium XRF	mg/kg	3.06E+00	3.07E+01	13/2193	X	7.00E-01	-	1.64E+02	-	4.92E+03	X	5.19E-02	X	1.04E+00	3 - 20
METAL	Silver	mg/kg	1.10E-02	2.22E+01	341/978	X	2.70E+00	-	1.64E+02	-	4.92E+03	X	7.99E-02	X	1.60E+00	0.008 - 6.34
METAL	Silver XRF	mg/kg	8.26E+00	1.46E+02	127/2193	X	2.70E+00	-	1.64E+02	-	4.92E+03	X	7.99E-02	X	1.60E+00	10 - 50
METAL	Thallium	mg/kg	7.40E-02	2.40E+00	343/917	X	3.40E-01	X	3.29E-01	-	9.87E+00	X	1.42E-03	X	2.84E-02	0.016 - 200
METAL	Total Uranium ^a	mg/kg	2.05E+00	8.21E+00	7/7	X	4.60E+00	X	6.58E+00	-	1.97E+02	X	1.80E-01	X	3.60E+00	0.02 - 0.07
METAL	Uranium ^a	mg/kg	4.73E-01	1.11E+04	676/963	X	4.60E+00	X	6.58E+00	X	1.97E+02	X	1.80E-01	X	3.60E+00	0.0084 - 1000
METAL	Uranium XRF ^a	mg/kg	5.13E+00	8.52E+03	522/2760	X	4.60E+00	X	6.58E+00	X	1.97E+02	X	1.80E-01	X	3.60E+00	10 - 53
METAL	Vanadium	mg/kg	2.80E+00	1.08E+02	1049/1056	X	3.70E+01	-	1.65E+02	-	4.95E+03	X	8.64E+00	-	1.73E+02	0.08 - 23.4
METAL	Zinc	mg/kg	8.22E+00	3.36E+02	779/883	X	6.00E+01	-	9.86E+03	-	1.00E+05	X	3.73E+01	-	7.46E+02	1.7 - 200
METAL	Zinc XRF	mg/kg	1.05E+01	1.04E+03	2187/2193	X	6.00E+01	-	9.86E+03	-	1.00E+05	X	3.73E+01	X	7.46E+02	1 - 25
ANION	Fluoride	mg/kg	8.80E-01	4.04E+01	177/177	N/A	N/A	-	1.32E+03	-	3.96E+04	X	1.20E+01	-	2.40E+02	1.03 - 2.36
DI/FURA	Total Dioxins and Furans ^b	mg/kg	2.42E-06	5.39E-05	40/40	N/A	N/A	X	1.89E-05	-	5.67E-04	X	5.91E-08	X	1.18E-06	0 - 0
PPCB	Total PCBs ^c	mg/kg	1.53E-03	1.40E+02	182/1128	N/A	N/A	X	1.12E+00	X	1.12E+02	X	6.82E-03	X	1.36E-01	0.00339 - 67
PPCB	Total PCBs -HACH	mg/kg	5.00E+00	5.00E+01	43/2448	N/A	N/A	X	1.12E+00	-	1.12E+02	X	6.82E-03	X	1.36E-01	5 - 5
RADS	Americium-241	pCi/g	9.30E-03	1.06E+01	19/1000	N/A	N/A	X	1.69E+00	-	1.69E+02	X	1.29E-01	X	2.57E+00	0.0042 - 1.21
RADS	Cesium-137	pCi/g	2.43E-02	4.60E+01	202/994	X	2.80E-01	X	2.26E+00	-	2.26E+02	X	4.79E-01	X	9.58E+00	0.000000662 - 0.2572
RADS	Neptunium-237	pCi/g	1.18E-02	1.00E+02	84/992	N/A	N/A	X	1.83E+00	-	1.83E+02	X	5.50E-03	X	1.10E-01	0.0083 - 1.97
RADS	Plutonium-238	pCi/g	8.72E-03	8.27E-01	42/882	N/A	N/A	X	3.90E-01	-	3.90E+01	X	8.58E-03	X	1.72E-01	0.0053 - 1.14
RADS	Plutonium-239/240	pCi/g	3.80E-03	7.11E+01	115/1000	N/A	N/A	X	1.44E+00	-	1.44E+02	X	3.32E-02	X	6.64E-01	0.0033 - 1.14
RADS	Potassium-40	pCi/g	2.93E+00	5.22E+01	108/109	X	1.60E+01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0426 - 2.166
RADS	Radium-226	pCi/g	3.79E-01	2.21E+00	68/169	X	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.073 - 1.389
RADS	Technetium-99	pCi/g	4.10E-01	1.39E+03	252/1010	X	2.80E+00	-	1.66E+03	-	1.66E+05	X	7.60E-03	X	1.52E-01	0.33 - 8.85
RADS	Thorium-230	pCi/g	1.06E-01	7.27E+02	898/994	X	1.40E+00	X	4.02E-01	X	4.02E+01	X	5.31E-02	X	1.06E+00	0.005 - 1.42
RADS	Thorium-232	pCi/g	1.19E-01	2.28E+00	639/640	N/A	N/A	X	4.29E-01	-	4.29E+01	X	1.16E-01	-	2.32E+00	0.004 - 0.371
RADS	Uranium-233/234	pCi/g	5.72E-01	2.05E+02	137/171	X	1.20E+00	X	3.98E-01	X	3.98E+01	X	1.09E-03	X	2.17E-02	0.055 - 1.5
RADS	Uranium-234	pCi/g	1.06E-01	4.17E+03	522/831	X	1.20E+00	X	3.98E-01	X	3.98E+01	X	1.09E-03	X	2.17E-02	0.007 - 3.89

Table 6. Subsurface (1–16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
RADS	Uranium-235	pCi/g	1.57E-02	2.60E+02	162/256	X	6.00E-02	X	1.56E+00	X	1.56E+02	X	4.78E-03	X	9.57E-02	0.00824 - 2.86
RADS	Uranium-235/236	pCi/g	2.00E-02	1.45E+01	152/304	X	6.00E-02	X	1.56E+00	-	1.56E+02	X	4.78E-03	X	9.57E-02	0.005 - 1.36
RADS	Uranium-238	pCi/g	9.45E-02	6.21E+03	777/1000	X	1.20E+00	X	3.91E-01	X	3.91E+01	X	1.06E-03	X	2.12E-02	0.004 - 4.61
SVOA	Acenaphthene	mg/kg	1.13E-02	1.80E+00	28/831	N/A	N/A	-	1.01E+03	-	3.03E+04	X	5.49E-01	-	1.10E+01	0.0341 - 1.6
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.23E-02	5.10E+00	43/584	N/A	N/A	-	1.90E+02	-	1.14E+04	X	1.33E+00	-	2.66E+01	0.0341 - 3.92
SVOA	Carbazole	mg/kg	1.39E-02	2.00E+00	19/317	N/A	N/A	-	6.73E+02	-	2.02E+04	X	5.45E-01	-	1.09E+01	0.0341 - 1.6
SVOA	Fluoranthene	mg/kg	1.02E-02	1.20E+01	114/806	N/A	N/A	-	6.73E+02	-	2.02E+04	X	8.91E+00	-	1.78E+02	0.0341 - 1.6
SVOA	Fluorene	mg/kg	1.16E-02	1.50E+00	24/763	N/A	N/A	-	6.73E+02	-	2.02E+04	X	5.45E-01	-	1.09E+01	0.0341 - 0.753
SVOA	Naphthalene	mg/kg	1.33E-02	9.90E+00	20/831	N/A	N/A	-	1.67E+01	-	1.67E+03	X	1.35E-04	X	7.70E-03	0.0341 - 1.6
SVOA	Phenanthrene	mg/kg	1.31E-02	1.80E+01	80/831	N/A	N/A	-	5.05E+02	-	1.52E+04	X	1.32E+00	-	2.63E+01	0.0341 - 1.6
SVOA	Pyrene	mg/kg	1.16E-02	9.90E+00	105/831	N/A	N/A	-	5.05E+02	-	1.52E+04	X	1.32E+00	-	2.63E+01	0.0341 - 1.6
SVOA	Total PAHs ^d	mg/kg	3.00E-05	5.04E+00	187/1063	N/A	N/A	X	2.35E+00	-	1.51E+02	X	2.94E-02	X	5.89E-01	0.2 - 0.2
VOA	1,1,2-Trichloroethane	mg/kg	5.26E-03	1.49E-01	5/529	N/A	N/A	-	8.49E-01	-	2.55E+01	X	1.35E-05	X	2.69E-04	0.000842 - 2.24
VOA	1,1-Dichloroethane	mg/kg	6.81E-04	3.78E-01	4/529	N/A	N/A	-	9.52E+01	-	9.52E+03	X	7.82E-04	X	1.56E-02	0.000842 - 2.24
VOA	1,1-Dichloroethene	mg/kg	3.78E-04	1.66E+00	23/860	N/A	N/A	-	1.26E+02	-	3.78E+03	X	1.02E-02	X	2.04E-01	0.000842 - 2.24
VOA	1,2-Dichloroethane	mg/kg	4.96E-04	1.63E-02	4/528	N/A	N/A	-	1.13E+01	-	5.19E+02	X	4.84E-05	X	9.69E-04	0.000842 - 2.24
VOA	1,2-Dimethylbenzene	mg/kg	4.90E-04	9.30E+00	15/603	N/A	N/A	-	3.61E+02	-	1.08E+04	X	1.91E-02	X	3.81E-01	0.000842 - 2.24
VOA	Benzene	mg/kg	3.59E-04	2.12E-01	12/603	N/A	N/A	-	2.59E+01	-	1.28E+03	X	2.33E-04	X	4.66E-03	0.000842 - 2.24
VOA	Chloroform	mg/kg	3.61E-04	6.93E-03	17/578	N/A	N/A	-	8.90E+00	-	8.90E+02	X	6.12E-05	X	1.22E-03	0.000842 - 2.24
VOA	Ethylbenzene	mg/kg	3.59E-04	3.02E+00	14/603	N/A	N/A	-	1.30E+02	-	1.30E+04	X	1.68E-03	X	3.36E-02	0.000842 - 2.24
VOA	Tetrachloroethene	mg/kg	4.77E-04	6.20E-03	10/602	N/A	N/A	-	4.34E+01	-	1.30E+03	X	1.84E-03	-	3.69E-02	0.000842 - 2.24
VOA	Toluene	mg/kg	3.20E-04	2.30E+00	91/603	N/A	N/A	-	2.18E+03	-	6.54E+04	X	7.62E-02	X	1.52E+00	0.000842 - 2.24
VOA	Total Xylene	mg/kg	8.97E-04	2.59E+01	15/310	N/A	N/A	-	3.23E+02	-	9.69E+03	X	1.91E-02	X	3.82E-01	0.00253 - 6.73
VOA	Trichloroethene	mg/kg	3.95E-04	1.44E+02	253/865	N/A	N/A	X	2.26E+00	X	6.78E+01	X	1.01E-04	X	2.02E-03	0.000842 - 5
VOA	Vinyl chloride	mg/kg	5.90E-04	4.79E-01	34/835	N/A	N/A	-	4.72E+00	-	4.72E+02	X	6.47E-06	X	1.29E-04	0.000842 - 29
VOA	cis -1,2-Dichloroethene	mg/kg	4.21E-04	9.11E+00	159/822	N/A	N/A	-	3.12E+01	-	9.35E+02	X	1.06E-03	X	2.12E-02	0.000842 - 2.24
VOA	trans -1,2-Dichloroethene	mg/kg	4.96E-04	4.62E-02	24/773	N/A	N/A	-	3.89E+01	-	1.17E+03	X	2.12E-03	X	4.24E-02	0.000842 - 2.24

X	Max Concentration Exceeds Background Level
X	Max Concentration Exceeds No Action Limit
X	Max Concentration Exceeds Action Limit
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024.

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024.

Table 7. Deep (16 ft bgs–Top of RGA) Soil Data Summary

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		GW Protection		DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Antimony	mg/kg	3.44E-01	2.02E+01	99/651	X	2.10E-01	X	7.04E-01	1 - 22.7
METAL	Arsenic	mg/kg	3.53E-01	5.88E+01	602/870	X	7.90E+00	X	3.02E-02	0.17 - 200
METAL	Barium	mg/kg	4.72E+00	2.30E+03	852/852	X	1.70E+02	X	3.11E+02	0.084 - 19
METAL	Cadmium	mg/kg	2.08E-02	2.47E+00	110/721	X	2.10E-01	X	2.77E-01	0.025 - 2.46
METAL	Chromium	mg/kg	2.38E+00	1.11E+02	860/870	X	4.30E+01	X	1.34E-02	0.565 - 3.62
METAL	Cobalt	mg/kg	3.33E-01	1.72E+02	515/610	X	1.30E+01	X	5.43E-01	0.188 - 10
METAL	Copper	mg/kg	7.20E-01	1.22E+02	606/651	X	2.50E+01	X	5.62E+01	0.376 - 12.3
METAL	Iron	mg/kg	1.05E+03	1.46E+05	847/847	X	2.80E+04	X	7.04E+02	0.0084 - 2220
METAL	Manganese	mg/kg	3.58E+00	1.28E+04	846/847	X	8.20E+02	X	5.65E+01	0.17 - 119
METAL	Nickel	mg/kg	9.99E-01	9.83E+01	605/870	X	2.20E+01	X	5.12E+01	0.376 - 5
METAL	Selenium	mg/kg	1.60E-01	8.32E+00	389/870	X	7.00E-01	X	1.04E+00	0.084 - 200
METAL	Silver	mg/kg	2.80E-03	9.44E+00	126/698	X	2.70E+00	X	1.60E+00	0.0084 - 22.5
METAL	Thallium	mg/kg	1.51E-01	1.77E+00	66/651	X	3.40E-01	X	2.84E-02	0.376 - 20
METAL	Uranium*	mg/kg	1.25E-01	7.91E+02	528/833	X	4.60E+00	X	3.60E+00	0.0084 - 1000
METAL	Vanadium	mg/kg	1.97E+00	1.85E+02	851/865	X	3.70E+01	X	1.73E+02	0.084 - 23.7
RADS	Neptunium-237	pCi/g	1.01E-01	4.78E+00	17/871	N/A	N/A	X	1.10E-01	0.0238 - 1.24
RADS	Plutonium-239/240	pCi/g	2.65E-02	1.20E+00	7/867	N/A	N/A	X	6.64E-01	0.0117 - 1.1
RADS	Technetium-99	pCi/g	7.80E-01	1.02E+03	77/896	X	2.80E+00	X	1.52E-01	0.653 - 8.9
RADS	Thorium-230	pCi/g	1.12E-01	8.51E+02	528/810	X	1.40E+00	X	1.06E+00	0.0133 - 2.18
RADS	Uranium-233/234	pCi/g	3.18E-01	2.24E+01	245/440	X	1.20E+00	X	2.17E-02	0.25 - 1.34
RADS	Uranium-234	pCi/g	1.19E-01	1.01E+02	144/427	X	1.20E+00	X	2.17E-02	0.00771 - 2.35
RADS	Uranium-235	pCi/g	1.72E-02	6.91E+00	146/238	X	6.00E-02	X	9.57E-02	0.00697 - 0.545
RADS	Uranium-235/236	pCi/g	1.33E-01	1.30E+00	13/440	X	6.00E-02	X	9.57E-02	0.131 - 1.33
RADS	Uranium-238	pCi/g	1.25E-01	2.49E+02	537/867	X	1.20E+00	X	2.12E-02	0.00777 - 2.34
SVOA	Naphthalene	mg/kg	1.19E-02	2.50E-02	3/734	N/A	N/A	X	7.70E-03	0.0341 - 0.768
VOA	1,1,2-Trichloroethane	mg/kg	4.31E-04	7.30E-03	27/882	N/A	N/A	X	2.69E-04	0.000818 - 5
VOA	1,1-Dichloroethene	mg/kg	3.36E-04	4.40E+00	263/1868	N/A	N/A	X	2.04E-01	0.000763 - 5
VOA	1,2-Dichloroethane	mg/kg	2.90E-03	4.40E-02	3/882	N/A	N/A	X	9.69E-04	0.000818 - 5
VOA	Benzene	mg/kg	2.87E-04	8.30E-03	11/1008	N/A	N/A	X	4.66E-03	0.000818 - 5
VOA	Carbon tetrachloride	mg/kg	4.09E-04	5.10E+00	18/1008	N/A	N/A	X	3.54E-03	0.000818 - 5
VOA	Chloroform	mg/kg	3.08E-04	4.00E+00	131/1008	N/A	N/A	X	1.22E-03	0.000818 - 5
VOA	Tetrachloroethene	mg/kg	3.65E-04	7.00E-01	37/1008	N/A	N/A	X	3.69E-02	0.000818 - 5
VOA	Trichloroethene	mg/kg	3.38E-04	7.50E+02	1175/1886	N/A	N/A	X	2.02E-03	0.000763 - 41
VOA	Vinyl chloride	mg/kg	3.90E-04	2.80E+00	85/1868	N/A	N/A	X	1.29E-04	0.000763 - 24
VOA	cis-1,2-Dichloroethene	mg/kg	3.41E-04	1.42E+01	573/1841	N/A	N/A	X	2.12E-02	0.000763 - 4.1

X Max Concentration Exceeds Background Level

X Max Concentration Exceeds Dilution Attenuation Factor 20 GW Screening

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available;FOD = frequency of detection; FOE = frequency of exceedance;

*Screened against uranium (Soluble Salts).

Table 8. McNairy Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
METAL	Aluminum	mg/kg	4.27E+02	2.05E+04	189/189	X	3.00E+03	10.1 - 133
METAL	Antimony	mg/kg	4.15E-01	9.42E+00	28/189	X	3.52E-02	2.09 - 30.5
METAL	Arsenic	mg/kg	4.27E-01	2.20E+02	187/189	X	1.51E-03	1.01 - 1.55
METAL	Barium	mg/kg	2.12E+00	1.26E+03	189/189	X	1.55E+01	0.808 - 10.3
METAL	Beryllium	mg/kg	2.91E-02	3.34E+00	189/189	X	1.95E+00	0.101 - 0.155
METAL	Boron	mg/kg	8.75E-01	7.29E+01	168/189	X	1.28E+00	3.03 - 35.1
METAL	Cadmium	mg/kg	2.62E-02	1.12E+00	113/189	X	1.38E-02	0.202 - 0.31
METAL	Chromium	mg/kg	1.09E+00	1.07E+02	189/189	X	6.72E-04	0.606 - 0.93
METAL	Cobalt	mg/kg	1.47E-01	8.71E+01	189/189	X	2.71E-02	0.202 - 0.31
METAL	Copper	mg/kg	1.74E-01	2.94E+01	187/189	X	2.81E+00	0.404 - 0.62
METAL	Iron	mg/kg	6.65E+02	2.96E+05	189/189	X	3.52E+01	21 - 2910
METAL	Lead	mg/kg	8.83E-01	9.66E+01	189/189	X	1.35E+01	0.404 - 0.62
METAL	Manganese	mg/kg	1.01E+00	6.71E+03	189/189	X	2.83E+00	1.01 - 133
METAL	Mercury	mg/kg	8.45E-03	2.99E-01	67/189	X	2.95E-02	0.0221 - 0.0384
METAL	Molybdenum	mg/kg	9.94E-02	5.47E+00	132/189	X	2.02E-01	0.202 - 0.31
METAL	Nickel	mg/kg	3.00E-01	5.32E+01	189/189	X	2.56E+00	0.404 - 0.62
METAL	Selenium	mg/kg	3.80E-01	1.11E+01	167/189	X	5.19E-02	1.01 - 1.55
METAL	Silver	mg/kg	1.28E-01	5.05E+00	25/189	X	7.99E-02	0.52 - 12
METAL	Thallium	mg/kg	1.69E-01	3.54E+00	10/189	X	1.42E-03	0.404 - 0.62
METAL	Uranium ^a	mg/kg	5.19E-02	4.39E+00	189/189	X	1.80E-01	0.0404 - 0.062
METAL	Vanadium	mg/kg	1.73E+00	2.63E+02	189/189	X	8.64E+00	4.04 - 6.2
METAL	Zinc	mg/kg	2.45E+00	3.24E+02	189/189	X	3.73E+01	4.04 - 28.7
ANION	Fluoride	mg/kg	4.65E-01	3.00E+02	181/189	X	1.20E+01	1.08 - 13.6
PPCB	Total PCBs ^b	mg/kg	2.78E-03	9.03E-03	3/201	X	6.82E-03	0.00361 - 0.1
RADS	Americium-241	pCi/g	7.89E-01	7.89E-01	1/189	X	1.29E-01	0.151 - 1.09
RADS	Thorium-230	pCi/g	2.16E-01	3.89E+00	129/189	X	5.31E-02	0.216 - 1.63
RADS	Thorium-232	pCi/g	4.35E-01	4.35E-01	1/1	X	1.16E-01	0.264 - 0.264
RADS	Uranium-233/234	pCi/g	3.88E-01	2.94E+00	86/189	X	1.09E-03	0.271 - 1.33
RADS	Uranium-235/236	pCi/g	1.54E-01	4.91E-01	6/189	X	4.78E-03	0.116 - 1.12
RADS	Uranium-238	pCi/g	3.01E-01	2.80E+00	128/189	X	1.06E-03	0.114 - 1.33
SVOA	Pentachlorophenol	mg/kg	3.13E-01	3.13E-01	1/201	X	5.71E-05	0.365 - 2.25
VOA	1,1,2-Trichloroethane	mg/kg	4.11E-04	1.56E-02	41/228	X	1.35E-05	0.000932 - 0.21
VOA	1,2-Dichloroethane	mg/kg	7.47E-04	7.47E-04	1/229	X	4.84E-05	0.000956 - 1.2
VOA	Bromodichloromethane	mg/kg	4.47E-04	2.74E-03	5/228	X	3.65E-05	0.000956 - 0.21
VOA	Carbon tetrachloride	mg/kg	4.54E-04	5.35E-02	14/229	X	1.77E-04	0.000932 - 1.2
VOA	Chloroform	mg/kg	4.01E-04	8.44E-03	39/229	X	6.12E-05	0.000956 - 1.2
VOA	Tetrachloroethene	mg/kg	3.25E-04	1.16E-02	49/228	X	1.84E-03	0.000956 - 25.9

Table 8. McNairy Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
VOA	Trichloroethene	mg/kg	4.06E-04	6.94E+03	133/256	X	1.01E-04	0.00103 - 240
VOA	cis -1,2-Dichloroethene	mg/kg	5.44E-04	3.08E-02	51/255	X	1.06E-03	0.000956 - 1.2

X Max Concentration Exceeds Dilution Attenuation Factor 1 GW Screening

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g. if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

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Table 9. C-400 and C-410 Concrete/Brick Data Summary																
Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Antimony	mg/kg	3.22E-01	1.30E+01	62/88	X	2.10E-01	-	9.34E+01	-	2.80E+03	X	3.52E-02	X	7.04E-01	0.909 - 19.4
METAL	Barium	mg/kg	9.10E+00	3.87E+02	95/95	X	2.00E+02	-	4.04E+04	-	1.00E+05	X	1.55E+01	X	3.11E+02	0.365 - 25
METAL	Boron	mg/kg	3.07E+00	1.40E+02	87/88	N/A	N/A	-	4.65E+04	-	1.00E+05	X	1.28E+00	X	2.56E+01	2.74 - 30.1
METAL	Cadmium	mg/kg	5.33E-02	2.24E+00	92/95	X	2.10E-01	-	6.11E+00	-	1.83E+02	X	1.38E-02	X	2.77E-01	0.182 - 2.5
METAL	Chromium	mg/kg	3.32E+00	1.94E+02	95/95	X	1.60E+01	X	1.23E+01	-	1.23E+03	X	6.72E-04	X	1.34E-02	0.547 - 5
METAL	Cobalt	mg/kg	1.82E+00	1.37E+02	88/88	X	1.40E+01	X	6.87E+01	-	2.06E+03	X	2.71E-02	X	5.43E-01	0.182 - 0.207
METAL	Copper	mg/kg	2.04E+00	4.09E+02	88/88	X	1.90E+01	-	9.34E+03	-	1.00E+05	X	2.81E+00	X	5.62E+01	0.182 - 2.07
METAL	Iron	mg/kg	1.37E+03	3.43E+04	88/88	X	2.80E+04	-	1.00E+05	-	1.00E+05	X	3.52E+01	X	7.04E+02	18.3 - 204
METAL	Lead	mg/kg	1.77E+00	5.09E+02	91/95	X	3.60E+01	-	8.00E+02	-	8.00E+02	X	1.35E+01	X	2.70E+02	0.365 - 19.7
METAL	Mercury	mg/kg	3.88E-03	3.30E+00	38/95	X	2.00E-01	-	7.01E+01	-	2.10E+03	X	2.95E-02	X	5.91E-01	0.0103 - 0.31
METAL	Molybdenum	mg/kg	1.61E-01	8.33E+00	88/88	N/A	N/A	-	1.17E+03	-	3.51E+04	X	2.02E-01	X	4.03E+00	0.182 - 0.98
METAL	Nickel	mg/kg	6.37E+00	3.32E+02	88/88	X	2.10E+01	-	2.99E+03	-	8.98E+04	X	2.56E+00	X	5.12E+01	0.365 - 3.85
METAL	Selenium	mg/kg	3.44E-01	5.44E+00	46/95	X	8.00E-01	-	1.17E+03	-	3.51E+04	X	5.19E-02	X	1.04E+00	0.912 - 19.7
METAL	Uranium ^a	mg/kg	9.46E-01	1.28E+03	88/88	X	4.90E+00	X	4.66E+01	-	1.40E+03	X	1.80E-01	X	3.60E+00	0.0365 - 0.37
METAL	Zinc	mg/kg	5.07E+00	7.17E+02	88/88	X	6.50E+01	-	7.01E+04	-	1.00E+05	X	3.73E+01	-	7.46E+02	1.82 - 20.5
ANION	Fluoride	mg/kg	3.59E-01	9.19E+01	78/88	N/A	N/A	-	9.33E+03	-	1.00E+05	X	1.20E+01	-	2.40E+02	0.87 - 4.98
PPCB	Total PCBs ^b	mg/kg	7.16E-03	1.90E+01	94/102	N/A	N/A	X	2.93E-01	-	2.93E+01	X	6.82E-03	X	1.36E-01	0.00331 - 3.42
RADS	Americium-241	pCi/g	6.43E-01	1.96E+01	9/94	N/A	N/A	X	3.99E-01	-	3.99E+01	X	1.29E-01	X	2.57E+00	0.148 - 1.5
RADS	Cesium-137	pCi/g	3.60E-02	1.89E+01	29/94	X	4.90E-01	X	3.44E-01	-	3.44E+01	X	4.79E-01	X	9.58E+00	0.0228 - 0.116
RADS	Neptunium-237	pCi/g	5.10E-01	1.13E+02	18/94	X	1.00E-01	X	4.09E-01	X	4.09E+01	X	5.50E-03	X	1.10E-01	0.32 - 1.11
RADS	Plutonium-238	pCi/g	1.22E+00	1.22E+00	1/94	X	7.30E-02	X	9.63E-02	-	9.63E+00	X	8.58E-03	X	1.72E-01	0.203 - 1.27
RADS	Plutonium-239/240	pCi/g	3.05E-01	9.86E+01	17/94	X	2.50E-02	X	3.44E-01	X	3.44E+01	X	3.32E-02	X	6.64E-01	0.232 - 1.25
RADS	Radium-226	pCi/g	5.69E-01	3.11E+00	3/6	X	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35 - 1.47
RADS	Strontium-90	pCi/g	3.97E-01	1.24E+01	3/6	X	4.70E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.128 - 1.83
RADS	Technetium-99	pCi/g	3.41E+00	5.77E+03	84/94	X	2.50E+00	X	1.95E+03	-	1.95E+05	X	7.60E-03	X	1.52E-01	1.74 - 5.77
RADS	Thorium-230	pCi/g	5.37E-01	1.21E+02	61/94	X	1.50E+00	X	9.69E-02	X	9.69E+00	X	5.31E-02	X	1.06E+00	0.232 - 3.94
RADS	Uranium-233/234	pCi/g	6.20E-01	3.31E+02	85/94	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.444 - 5.14
RADS	Uranium-235/236	pCi/g	2.18E-01	1.94E+01	53/94	X	6.00E-02	X	3.49E-01	-	3.49E+01	X	4.78E-03	X	9.57E-02	0.184 - 3.7
RADS	Uranium-238	pCi/g	6.50E-01	3.71E+02	90/94	X	1.20E+00	X	9.53E-02	X	9.53E+00	X	1.06E-03	X	2.12E-02	0.179 - 3.85
SVOA	Acenaphthene	mg/kg	1.23E-02	7.36E-01	4/86	N/A	N/A	-	1.38E+03	-	4.14E+04	X	5.49E-01	-	1.10E+01	0.0329 - 1.37
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.55E-02	3.64E+00	43/64	N/A	N/A	-	5.80E+01	-	5.80E+03	X	1.33E+00	-	2.66E+01	0.0329 - 1.37
SVOA	Carbazole	mg/kg	1.02E-02	2.50E+00	11/86	N/A	N/A	-	9.19E+02	-	2.76E+04	X	5.45E-01	-	1.09E+01	0.0329 - 1.37
SVOA	Fluoranthene	mg/kg	1.37E-02	2.52E+01	35/86	N/A	N/A	-	9.19E+02	-	2.76E+04	X	8.91E+00	-	1.78E+02	0.0329 - 1.37
SVOA	Naphthalene	mg/kg	1.14E-02	3.08E+00	16/86	N/A	N/A	-	4.06E+00	-	4.06E+02	X	3.85E-04	X	7.70E-03	0.0329 - 1.37
SVOA	Pentachlorophenol	mg/kg	3.32E-01	3.56E-01	2/64	N/A	N/A	-	8.77E-01	-	8.77E+01	X	5.71E-05	X	1.14E-03	0.33 - 13.7
SVOA	Phenanthrene	mg/kg	1.09E-02	4.06E+01	41/86	N/A	N/A	-	6.89E+02	-	2.07E+04	X	1.32E+00	X	2.63E+01	0.0329 - 1.37
SVOA	Pyrene	mg/kg	1.38E-02	1.85E+01	29/86	N/A	N/A	-	6.89E+02	-	2.07E+04	X	1.32E+00	-	2.63E+01	0.0329 - 1.37
SVOA	Total PAHs ^c	mg/kg	1.19E-05	8.57E+00	21/87	N/A	N/A	X	6.43E-01	-	6.43E+01	X	2.94E-02	X	5.89E-01	0 - 0
VOA	1,2-Dimethylbenzene	mg/kg	3.72E-04	1.85E+00	54/86	N/A	N/A	-	2.81E+02	-	8.43E+03	X	1.91E-02	X	3.81E-01	0.000947 - 0.102
VOA	Benzene	mg/kg	3.63E-04	2.06E-03	4/86	N/A	N/A	-	5.31E+00	-	5.31E+02	X	2.33E-04	-	4.66E-03	0.000947 - 0.102
VOA	Chloroform	mg/kg	3.52E-04	1.92E-03	30/86	N/A	N/A	-	1.39E+00	-	1.39E+02	X	6.12E-05	X	1.22E-03	0.000947 - 0.102
VOA	Ethylbenzene	mg/kg	3.22E-04	9.79E-02	38/86	N/A	N/A	-	2.66E+01	-	2.66E+03	X	1.68E-03	X	3.36E-02	0.000947 - 0.102
VOA	Toluene	mg/kg	1.00E-03	9.60E-01	84/86	N/A	N/A	-	6.25E+03	-	1.00E+05	X	7.62E-02	-	1.52E+00	0.000947 - 0.102

Table 9. C-400 and C-410 Concrete/Brick Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background	Industrial Worker		Industrial Worker		GW Protection					DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	Total Xylene	mg/kg	1.22E-03	5.00E+00	54/86	N/A	N/A	-	2.50E+02	-	7.50E+03	X	1.91E-02	X	3.82E-01	0.00284 - 0.307
VOA	Trichloroethene	mg/kg	3.47E-04	5.73E-01	50/86	N/A	N/A	-	1.90E+00	-	5.70E+01	X	1.01E-04	X	2.02E-03	0.000947 - 0.102
X	Max Concentration Exceeds Background Level															
X	Max Concentration Exceeds No Action Limit															
X	Max Concentration Exceeds Action Limit															
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening															

Notes:
Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).
Field replicates, or separate samples are counted independently.
-- = No calculation completed, analyte not detected
N/A - No screening value available
^a Screened against Uranium (Soluble Salts).
^b Total PCBs calculated by laboratory and by using method specified in RMD 2024.
^c Total PAHs calculated using TEF values in RMD 2024

Table 10. Sediment Data Summary

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	4.55E+02	1.55E+04	634/635	X	1.30E+04	-	1.95E+04	-	1.00E+05	X	3.00E+03	-	5.99E+04	10.9 - 178
METAL	Arsenic	mg/kg	8.71E-01	3.23E+01	161/617	X	1.20E+01	X	8.09E-01	-	8.09E+01	X	1.51E-03	X	3.02E-02	0.84 - 46.9
METAL	Beryllium	mg/kg	3.10E-01	2.42E+00	105/636	X	6.70E-01	-	3.91E+01	-	1.17E+03	X	1.95E+00	-	3.89E+01	0.27 - 0.5
METAL	Cadmium	mg/kg	1.33E+00	1.93E+01	25/617	X	2.10E-01	X	1.33E+00	-	3.98E+01	X	1.38E-02	X	2.77E-01	1.09 - 2
METAL	Chromium	mg/kg	2.50E+00	2.84E+02	616/617	X	1.60E+01	X	7.47E-01	X	7.47E+01	X	6.72E-04	X	1.34E-02	1.36 - 13.6
METAL	Cobalt	mg/kg	2.10E+00	4.39E+01	544/631	X	1.40E+01	X	5.86E+00	-	1.76E+02	X	2.71E-02	X	5.43E-01	1.36 - 4.49
METAL	Copper	mg/kg	2.24E+00	2.34E+02	553/617	X	1.90E+01	-	7.82E+02	-	2.35E+04	X	2.81E+00	X	5.62E+01	1.36 - 5
METAL	Iron	mg/kg	1.56E+03	1.82E+05	606/606	X	2.80E+04	X	1.37E+04	X	1.00E+05	X	3.52E+01	X	7.04E+02	10 - 188
METAL	Lead	mg/kg	1.89E+01	2.69E+02	57/617	X	3.60E+01	X	2.00E+02	X	2.00E+02	X	1.35E+01	-	2.70E+02	10.9 - 20
METAL	Manganese	mg/kg	1.69E+01	2.88E+03	631/631	X	1.50E+03	X	4.67E+02	-	1.40E+04	X	2.83E+00	X	5.65E+01	1.36 - 10
METAL	Mercury	mg/kg	1.10E-02	1.70E+00	65/636	X	2.00E-01	-	5.87E+00	-	1.76E+02	X	2.95E-02	X	5.91E-01	0.01 - 0.2
METAL	Molybdenum	mg/kg	5.21E+00	2.64E+01	54/321	N/A	N/A	-	9.78E+01	-	2.93E+03	X	2.02E-01	X	4.03E+00	2.1 - 5
METAL	Nickel	mg/kg	2.84E+00	1.82E+02	404/636	X	2.10E+01	-	3.90E+02	-	1.17E+04	X	2.56E+00	X	5.12E+01	2.72 - 5
METAL	Selenium	mg/kg	2.03E+01	2.79E+01	2/597	X	8.00E-01	-	9.78E+01	-	2.93E+03	X	5.19E-02	X	1.04E+00	1 - 20
METAL	Silver	mg/kg	2.41E+00	7.31E+00	9/623	X	2.30E+00	-	9.78E+01	-	2.93E+03	X	7.99E-02	X	1.60E+00	1.32 - 4
METAL	Sodium	mg/kg	6.99E+01	4.14E+02	194/612	X	3.20E+02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	54.3 - 990
METAL	Uranium ^a	mg/kg	1.00E-01	3.26E+02	431/602	X	4.90E+00	X	3.91E+00	X	1.17E+02	X	1.80E-01	X	3.60E+00	0.84 - 200
METAL	Vanadium	mg/kg	3.06E+00	5.95E+01	616/616	X	3.80E+01	-	9.85E+01	-	2.95E+03	X	8.64E+00	-	1.73E+02	1.36 - 2.5
METAL	Zinc	mg/kg	1.24E+01	1.43E+03	498/619	X	6.50E+01	-	5.87E+03	-	1.00E+05	X	3.73E+01	X	7.46E+02	10 - 20
DI/FURA	Total Dioxins and Furans ^b	mg/kg	1.87E-06	3.29E-05	8/8	N/A	N/A	X	7.22E-06	-	3.03E-04	X	5.91E-08	X	1.18E-06	0 - 0
METAL-D	Chromium, Dissolved	mg/kg	6.26E+00	7.79E+01	19/19	X	1.60E+01	X	7.47E-01	X	7.47E+01	X	6.72E-04	X	1.34E-02	2.5 - 2.5
METAL-D	Copper, Dissolved	mg/kg	3.32E+00	3.16E+01	13/19	X	1.90E+01	-	7.82E+02	-	2.35E+04	X	2.81E+00	-	5.62E+01	2.5 - 2.5
METAL-D	Selenium, Dissolved	mg/kg	1.08E+00	1.08E+00	1/19	X	8.00E-01	-	9.78E+01	-	2.93E+03	X	5.19E-02	X	1.04E+00	1 - 1
METAL-D	Uranium, Dissolved	mg/kg	5.41E+00	8.07E+01	6/19	X	4.90E+00	X	3.91E+00	-	1.17E+02	X	1.80E-01	X	3.60E+00	100 - 100
METAL-D	Vanadium, Dissolved	mg/kg	6.42E+00	3.96E+01	19/19	X	3.80E+01	-	9.85E+01	-	2.95E+03	X	8.64E+00	-	1.73E+02	2.5 - 2.5
METAL-D	Zinc, Dissolved	mg/kg	1.17E+01	1.02E+02	18/19	X	6.50E+01	-	5.87E+03	-	1.00E+05	X	3.73E+01	-	7.46E+02	10 - 10
PPCB	Dieldrin	mg/kg	1.90E-02	2.50E-02	2/84	N/A	N/A	-	2.90E-02	-	2.90E+00	X	7.08E-05	X	1.42E-03	0.0022 - 0.16
PPCB	Total PCBs ^c	mg/kg	1.42E-03	2.28E+01	882/3242	N/A	N/A	X	1.79E-01	X	1.79E+01	X	6.82E-03	X	1.36E-01	0.0006 - 12.4
RADS	Americium-241	pCi/g	1.25E-02	2.97E+00	96/684	N/A	N/A	X	2.52E-01	-	2.52E+01	X	1.29E-01	X	2.57E+00	0.0081 - 0.944
RADS	Cesium-137	pCi/g	6.70E-03	1.12E+01	427/705	X	4.90E-01	X	2.36E-01	-	2.36E+01	X	4.79E-01	X	9.58E+00	0.0061 - 0.17
RADS	Neptunium-237	pCi/g	6.78E-03	2.90E+00	180/670	N/A	N/A	X	2.60E-01	-	2.60E+01	X	5.50E-03	X	1.10E-01	0.0063 - 1.53
RADS	Plutonium-238	pCi/g	5.36E-02	2.53E-01	8/391	N/A	N/A	X	6.13E-02	-	6.13E+00	X	8.58E-03	X	1.72E-01	0.02 - 0.98
RADS	Plutonium-239/240	pCi/g	7.19E-03	1.37E+01	308/682	N/A	N/A	X	2.21E-01	-	2.21E+01	X	3.32E-02	X	6.64E-01	0.00325 - 1.15
RADS	Technetium-99	pCi/g	1.33E-01	2.53E+02	427/676	X	2.50E+00	-	3.49E+03	-	3.49E+05	X	7.60E-03	X	1.52E-01	0.11 - 45.7
RADS	Thorium-230	pCi/g	3.47E-03	1.39E+02	672/705	X	1.50E+00	X	6.19E-02	X	6.19E+00	X	5.31E-02	X	1.06E+00	0.000571 - 0.899
RADS	Thorium-232	pCi/g	5.89E-02	1.58E+00	350/357	N/A	N/A	X	4.99E-02	-	4.99E+00	X	1.16E-01	-	2.32E+00	0.0157 - 0.469
RADS	Uranium-234	pCi/g	4.41E-02	4.21E+01	521/550	X	1.20E+00	X	6.17E-02	X	6.17E+00	X	1.09E-03	X	2.17E-02	0.01 - 1.25
RADS	Uranium-235	pCi/g	1.21E-02	9.09E-01	37/101	X	6.00E-02	X	2.25E-01	-	2.25E+01	X	4.78E-03	X	9.57E-02	0.00793 - 0.993
RADS	Uranium-238	pCi/g	6.72E-02	2.87E+01	534/550	X	1.20E+00	X	6.07E-02	X	6.07E+00	X	1.06E-03	X	2.12E-02	0.0077 - 1.35
SVOA	Acenaphthene	mg/kg	1.20E-02	9.40E+00	15/412	N/A	N/A	-	4.61E+02	-	1.38E+04	X	5.49E-01	-	1.10E+01	0.42 - 0.56
SVOA	Acenaphthylene	mg/kg	1.50E+00	1.50E+00	1/412	N/A	N/A	-	4.61E+02	-	1.38E+04	X	5.49E-01	-	1.10E+01	0.42 - 0.56
SVOA	Anthracene	mg/kg	1.30E-02	3.00E+01	26/412	N/A	N/A	-	2.31E+03	-	6.92E+04	X	5.81E+00	-	1.16E+02	0.42 - 0.56
SVOA	Fluoranthene	mg/kg	1.10E-02	2.00E+02	110/412	N/A	N/A	-	3.08E+02	-	9.23E+03	X	8.91E+00	X	1.78E+02	0.06 - 0.56
SVOA	Fluorene	mg/kg	1.10E-02	7.60E+00	11/412	N/A	N/A	-	3.08E+02	-	9.23E+03	X	5.45E-01	-	1.09E+01	0.42 - 0.56
SVOA	Naphthalene	mg/kg	1.40E-02	2.70E+00	9/412	N/A	N/A	-	2.99E+00	-	2.99E+02	X	3.85E-04	X	7.70E-03	0.42 - 0.56
SVOA	Phenanthrene	mg/kg	9.00E-03	1.30E+02	90/412	N/A	N/A	-	2.31E+02	-	6.92E+03	X	1.32E+00	X	2.63E+01	0.06 - 0.56
SVOA	Pyrene	mg/kg	8.00E-03	4.60E+01	103/412	N/A	N/A	-	2.31E+02	-	6.92E+03	X	1.32E+00	X	2.63E+01	0.06 - 0.56
SVOA	Total PAHs ^d	mg/kg	5.20E-04	1.84E+02	101/412	N/A	N/A	X	1.09E-01	X	1.09E+01	X	2.94E-02	X	5.89E-01	0 - 0
VOA	Naphthalene	mg/kg	2.00E-02	1.40E-01	5/19	N/A	N/A	N/A	N/A	N/A	N/A	X	3.85E-04	N/A	N/A	0.031 - 0.065

Table 10. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	Phenanthrene	mg/kg	9.00E-03	2.20E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	X	1.32E+00	N/A	N/A	0.031 - 0.065
VOA	Pyrene	mg/kg	1.40E-02	1.90E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	X	1.32E+00	N/A	N/A	0.031 - 0.065
X	Max Concentration Exceeds Background Level															
X	Max Concentration Exceeds No Action Limit															
X	Max Concentration Exceeds Action Limit															
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening															

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024

Table 11. C-400 Complex OU UCRS Groundwater Data Summary

Type	Analysis	Unit	Detected Results		FOD	Child Resident	Child Resident			MCL		DL Range
			Min	Max		Max Concentration Exceeds NAL	Max Concentration Exceeds AL		AL	Max Concentration Exceeds MCL	MCL	
METAL	Antimony	mg/L	1.03E-03	1.07E-03	2/13	X	7.79E-04	-	2.34E-02	-	6.00E-03	0.003 - 0.003
METAL	Arsenic	mg/L	2.00E-03	2.73E-03	6/13	X	5.17E-05	-	5.17E-03	-	1.00E-02	0.005 - 0.005
METAL	Cadmium	mg/L	4.08E-04	4.08E-04	1/13	X	1.84E-04	-	5.52E-03	-	5.00E-03	0.001 - 0.001
METAL	Chromium	mg/L	3.23E-03	1.14E-02	7/13	X	3.50E-05	X	3.50E-03	-	N/A	0.01 - 0.01
METAL	Cobalt	mg/L	3.80E-04	3.50E-03	13/13	X	6.01E-04	-	1.80E-02	-	N/A	0.001 - 0.001
METAL	Manganese	mg/L	1.09E-02	5.14E-01	13/13	X	4.34E-02	-	1.30E+00	-	N/A	0.005 - 0.005
METAL	Uranium*	mg/L	1.23E-04	1.26E-03	12/13	X	3.99E-04	-	1.20E-02	-	3.00E-02	0.0002 - 0.0002
ANION	Fluoride	mg/L	6.17E-02	2.29E-01	13/13	X	7.99E-02	-	2.40E+00	-	4.00E+00	0.1 - 0.1
RADS	Technetium-99	pCi/L	1.96E+01	5.77E+01	8/13	X	1.90E+01	-	1.90E+03	-	9.00E+02	2.92 - 4.17
SVOA	Naphthalene	mg/L	3.30E-04	3.30E-04	1/13	X	1.17E-04	-	1.17E-02	-	N/A	0.000952 - 0.00116
VOA	1,1,2-Trichloroethane	mg/L	2.16E-03	2.16E-03	1/13	X	4.15E-05	X	1.25E-03	-	5.00E-03	0.001 - 50
VOA	1,1-Dichloroethene	mg/L	1.70E-02	1.70E-02	1/13	-	2.85E-02	-	8.55E-01	X	7.00E-03	0.001 - 50
VOA	1,2-Dichloroethane	mg/L	3.90E-04	3.90E-04	1/13	X	1.71E-04	-	1.71E-02	-	5.00E-03	0.001 - 50
VOA	Benzene	mg/L	8.50E-04	8.50E-04	1/13	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 50
VOA	Carbon tetrachloride	mg/L	5.60E-04	5.60E-04	1/13	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 50
VOA	Chloroform	mg/L	6.90E-04	6.90E-04	1/13	X	2.21E-04	-	2.21E-02	-	8.00E-02	0.001 - 50
VOA	Trichloroethene	mg/L	1.86E-03	6.45E+02	13/13	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.001 - 50
VOA	Vinyl chloride	mg/L	2.71E-02	2.71E-02	1/13	X	1.88E-05	X	1.88E-03	X	2.00E-03	0.001 - 50
VOA	cis-1,2-Dichloroethene	mg/L	5.70E-02	7.37E+00	4/13	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.001 - 50
X	Max Concentration Exceeds No Action Limit											
X	Max Concentration Exceeds Action Limit											
X	Max Concentration Exceeds MCL											

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available

*Screened against Uranium (Soluble Salts).

Table 12. C-400 Complex OU RGA Groundwater Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
METAL	Aluminum	mg/L	1.94E-02	4.17E+00	125/244	X	1.64E+00	X	2.00E+00	-	6.00E+01	N/A	N/A	0.05 - 0.2
METAL	Arsenic	mg/L	1.47E-03	8.97E-03	84/244	X	5.00E-03	X	5.17E-05	X	5.17E-03	-	1.00E-02	0.001 - 0.005
METAL	Barium	mg/L	3.68E-02	9.11E-01	244/244	X	2.02E-01	X	3.77E-01	-	1.13E+01	-	2.00E+00	0.002 - 0.005
METAL	Chromium	mg/L	3.10E-03	2.72E+00	148/244	X	1.34E-01	X	3.50E-05	X	3.50E-03	N/A	N/A	0.01 - 0.1
METAL	Iron	mg/L	3.34E-02	2.76E+01	224/244	X	3.72E+00	X	1.40E+00	-	4.20E+01	N/A	N/A	0.1 - 1
METAL	Manganese	mg/L	1.19E-03	7.29E+00	238/244	X	8.20E-02	X	4.34E-02	X	1.30E+00	N/A	N/A	0.005 - 0.1
METAL	Molybdenum	mg/L	2.06E-04	6.04E-02	160/244	X	5.00E-02	X	9.98E-03	-	2.99E-01	N/A	N/A	0.0005 - 0.001
METAL	Uranium ^a	mg/L	6.90E-05	3.12E-02	101/289	X	2.00E-03	X	3.99E-04	X	1.20E-02	X	3.00E-02	0.0002 - 0.005
ANION	Fluoride	mg/L	3.45E-02	2.49E+00	243/244	X	2.45E-01	X	7.99E-02	X	2.40E+00	-	4.00E+00	0.1 - 4
ANION	Nitrate as Nitrogen	mg/L	5.02E-02	8.35E+01	57/62	X	1.35E+01	N/A	N/A	N/A	N/A	X	1.00E+01	0.1 - 5
PFAS	Perfluorohexanesulfonate (PFHxS)	mg/L	8.50E-07	4.03E-04	32/35	N/A	N/A	X	3.94E-05	-	1.18E-03	X	1.00E-05	0.00000155 - 0.0000366
PFAS	Perfluorononanoic acid (PFNA)	mg/L	9.99E-07	1.63E-05	34/35	N/A	N/A	X	5.89E-06	-	1.77E-04	X	1.00E-05	0.00000169 - 0.00002
PFAS	Perfluorooctanesulfonate (PFOS)	mg/L	2.39E-06	3.68E-04	35/35	N/A	N/A	X	4.01E-06	X	1.20E-04	X	4.00E-06	0.00000157 - 0.0000186
PFAS	Perfluorooctanoic acid (PFOA)	mg/L	1.08E-06	5.97E-05	35/35	N/A	N/A	X	6.01E-06	-	1.80E-04	X	4.00E-06	0.00000169 - 0.00002
PPCB	Total PCBs ^b	mg/L	6.08E-05	4.73E-04	5/288	N/A	N/A	X	4.36E-05	-	4.36E-03	-	5.00E-04	0.0000938 - 0.000538
RADS	Neptunium-237	pCi/L	9.23E-01	3.85E+00	8/240	X	2.10E-01	X	7.83E-02	-	7.83E+00	-	1.50E+01	0.253 - 1.42
RADS	Technetium-99	pCi/L	3.12E+00	4.46E+04	1166/1419	X	1.08E+01	X	1.90E+01	X	1.90E+03	X	9.00E+02	2 - 81
RADS	Thorium-230	pCi/L	6.58E-01	6.58E-01	1/240	X	5.40E-01	X	1.66E-02	-	1.66E+00	-	1.50E+01	0.315 - 1.44
RADS	Uranium-233/234	pCi/L	4.29E-01	8.10E+01	5/240	X	7.00E-01	X	1.62E-02	X	1.62E+00	X	1.02E+01	0.222 - 1.42
RADS	Uranium-235/236	pCi/L	3.88E-01	4.68E+00	2/240	X	3.00E-01	X	7.14E-02	-	7.14E+00	X	4.66E-01	0.127 - 1.26
RADS	Uranium-238	pCi/L	2.09E-01	8.51E+01	22/240	X	7.00E-01	X	1.58E-02	X	1.58E+00	X	9.99E+00	0.102 - 1.22
SVOA	Bis(2-ethylhexyl)phthalate	mg/L	3.08E-04	7.01E-02	40/240	N/A	N/A	X	5.56E-03	-	5.56E-01	X	6.00E-03	0.000909 - 0.00129
SVOA	Pentachlorophenol	mg/L	6.10E-03	6.41E-03	2/240	N/A	N/A	X	4.13E-05	X	4.13E-03	X	1.00E-03	0.00909 - 0.0129
SVOA	Total PAHs ^c	mg/L	4.54E-06	1.55E-03	8/288	N/A	N/A	X	2.51E-05	-	2.51E-03	X	2.00E-04	0 - 0
VOA	1,1,2-Trichloroethane	mg/L	3.40E-04	9.70E-03	80/283	N/A	N/A	X	4.15E-05	X	1.25E-03	X	5.00E-03	0.001 - 2
VOA	1,1-Dichloroethane	mg/L	3.30E-04	3.02E-03	20/283	N/A	N/A	X	2.75E-03	-	2.75E-01	N/A	N/A	0.001 - 2
VOA	1,1-Dichloroethene	mg/L	3.90E-04	1.72E-01	276/1419	N/A	N/A	X	2.85E-02	-	8.55E-01	X	7.00E-03	0.001 - 20
VOA	1,2-Dichloroethane	mg/L	3.50E-04	1.46E-03	7/283	N/A	N/A	X	1.71E-04	-	1.71E-02	-	5.00E-03	0.001 - 2
VOA	Benzene	mg/L	4.70E-04	6.90E-04	5/287	N/A	N/A	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 2
VOA	Bromodichloromethane	mg/L	4.30E-04	1.79E-03	11/283	N/A	N/A	X	1.34E-04	-	1.34E-02	-	8.00E-02	0.001 - 2
VOA	Carbon tetrachloride	mg/L	4.30E-04	8.80E-02	56/287	N/A	N/A	X	4.55E-04	X	4.55E-02	X	5.00E-03	0.001 - 2
VOA	Chloroform	mg/L	3.40E-04	8.28E-03	104/283	N/A	N/A	X	2.21E-04	-	2.21E-02	-	8.00E-02	0.001 - 2
VOA	Tetrachloroethene	mg/L	3.40E-04	8.60E-02	100/287	N/A	N/A	X	4.06E-03	-	1.22E-01	X	5.00E-03	0.001 - 2
VOA	Trichloroethene	mg/L	3.60E-04	1.40E+03	1418/1421	N/A	N/A	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.001 - 20
VOA	Vinyl chloride	mg/L	3.50E-04	5.43E-02	29/1337	N/A	N/A	X	1.88E-05	X	1.88E-03	X	2.00E-03	0.001 - 20
VOA	cis-1,2-Dichloroethene	mg/L	3.80E-04	7.50E+01	1091/1337	N/A	N/A	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.001 - 10
VOA	trans-1,2-Dichloroethene	mg/L	3.10E-04	2.15E-02	152/1337	N/A	N/A	X	6.78E-03	-	2.03E-01	-	1.00E-01	0.001 - 10
WETCHEM	Silica	mg/L	1.81E+01	2.20E+01	4/4	X	2.11E+01	N/A	N/A	N/A	N/A	N/A	N/A	0.213 - 3
X	Max Concentration Exceeds Background Level													
X	Max Concentration Exceeds No Action Limit													
X	Max Concentration Exceeds Action Limit													
X	Max Concentration Exceeds MCL													

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g. if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

^c Total PAHs calculated using TEF values in RMD 2024.

Table 13. C-400 Complex OU McNairy Groundwater Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	McNairy (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
RADS	Uranium-238	pCi/L	6.92E-01	6.92E-01	1/4	X	3.00E-01	X	1.58E-02	-	1.58E+00	-	9.99E+00	0.354 - 0.555
VOA	1,1,2-Trichloroethane	mg/L	5.10E-04	5.10E-04	1/4	N/A	N/A	X	4.15E-05	-	1.25E-03	-	5.00E-03	0.001 - 0.05
VOA	Trichloroethene	mg/L	4.40E+00	6.80E+00	4/4	N/A	N/A	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.05 - 0.1
VOA	cis-1,2-Dichloroethene	mg/L	6.95E-02	2.76E-01	4/4	N/A	N/A	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.05 - 0.05
X	Max Concentration Exceeds Background Level													
X	Max Concentration Exceeds No Action Limit													
X	Max Concentration Exceeds Action Limit													
X	Max Concentration Exceeds MCL													

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available

Table 14. Surface Water Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
METAL	Arsenic	mg/L	1.06E-03	5.00E-03	64/315	X	1.80E-03	-	1.80E-01	0.001 - 0.05
METAL	Cadmium	mg/L	1.10E-04	4.50E-03	3/288	X	2.10E-03	-	6.30E-02	0.001 - 0.025
METAL	Chromium	mg/L	2.03E-03	2.30E-02	10/230	X	1.90E-04	X	1.90E-02	0.01 - 0.05
METAL	Chromium, hexavalent	mg/L	5.01E-03	1.47E-02	2/4	X	1.90E-04	-	1.90E-02	0.01 - 0.01
METAL	Iron	mg/L	1.33E-02	1.20E+02	566/583	X	3.20E+01	-	9.60E+02	0.001 - 2
METAL	Lead	mg/L	5.00E-04	3.00E-02	56/288	X	1.50E-02	-	3.00E-02	0.0013 - 0.05
METAL	Manganese	mg/L	1.17E-02	2.90E+00	118/118	X	4.40E-01	-	1.32E+01	0.005 - 0.075
METAL	Mercury	mg/L	7.75E-07	1.36E-02	61/215	X	7.51E-03	-	2.25E-01	0.0000005 - 0.0025
METAL	Nickel	mg/L	5.10E-04	5.00E+00	232/261	X	7.32E-01	-	2.20E+01	0.002 - 0.2
METAL	Thallium	mg/L	4.85E-04	1.38E-03	15/175	X	4.57E-04	-	1.37E-02	0.002 - 0.002
METAL	Uranium ^a	mg/L	6.80E-05	1.87E+02	2207/2262	X	9.14E-03	X	2.74E-01	0.0002 - 5
METAL-D	Arsenic, Dissolved	mg/L	2.01E-03	2.82E-03	17/45	X	1.80E-03	-	1.80E-01	0.005 - 0.005
METAL-D	Uranium, Dissolved	mg/L	8.50E-05	5.74E+01	56/56	X	1.07E+00	-	1.07E+02	0.0002 - 1
PFAS	Perfluorooctanesulfonate (PFOS)	mg/L	1.03E-06	9.98E-05	14/16	X	9.75E-05	-	2.92E-03	0.00000159 - 0.00000928
PCPB	Total PCBs ^b	mg/L	3.20E-05	9.33E-03	88/2474	X	7.45E-03	-	7.45E-01	0.000084 - 0.0018
RADS	Thorium-230	pCi/L	1.46E+00	4.57E+00	6/709	X	1.12E+00	-	1.12E+02	0.172 - 5.49
RADS	Uranium-233/234	pCi/L	7.34E+00	1.76E+01	3/15	X	1.10E+00	-	1.10E+02	0.683 - 3.91
RADS	Uranium-234	pCi/L	4.14E-01	2.51E+03	387/1206	X	1.10E+00	X	1.10E+02	0.0596 - 77.1
RADS	Uranium-235	pCi/L	5.13E-02	3.55E+02	163/1206	X	4.84E+00	-	4.84E+02	0.0378 - 30.2
RADS	Uranium-238	pCi/L	4.25E-01	2.24E+04	621/1221	X	1.07E+00	X	1.07E+02	0.0483 - 37
RADS-D	Uranium-234	pCi/L	5.18E+01	5.18E+01	1/1	X	1.10E+00	-	1.10E+02	6.03 - 6.03
RADS-D	Uranium-235	pCi/L	6.02E+00	6.02E+00	1/1	X	4.84E+00	-	4.84E+02	0.899 - 0.899
RADS-D	Uranium-238	pCi/L	3.51E+02	3.51E+02	1/1	X	1.07E+00	X	1.07E+02	5.37 - 5.37
VOA	Trichloroethene	mg/L	3.00E-04	1.12E-01	457/2986	X	1.17E-02	-	3.50E-01	0.001 - 0.01
X	Max Concentration Exceeds No Action Limit									
X	Max Concentration Exceeds Action Limit									

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

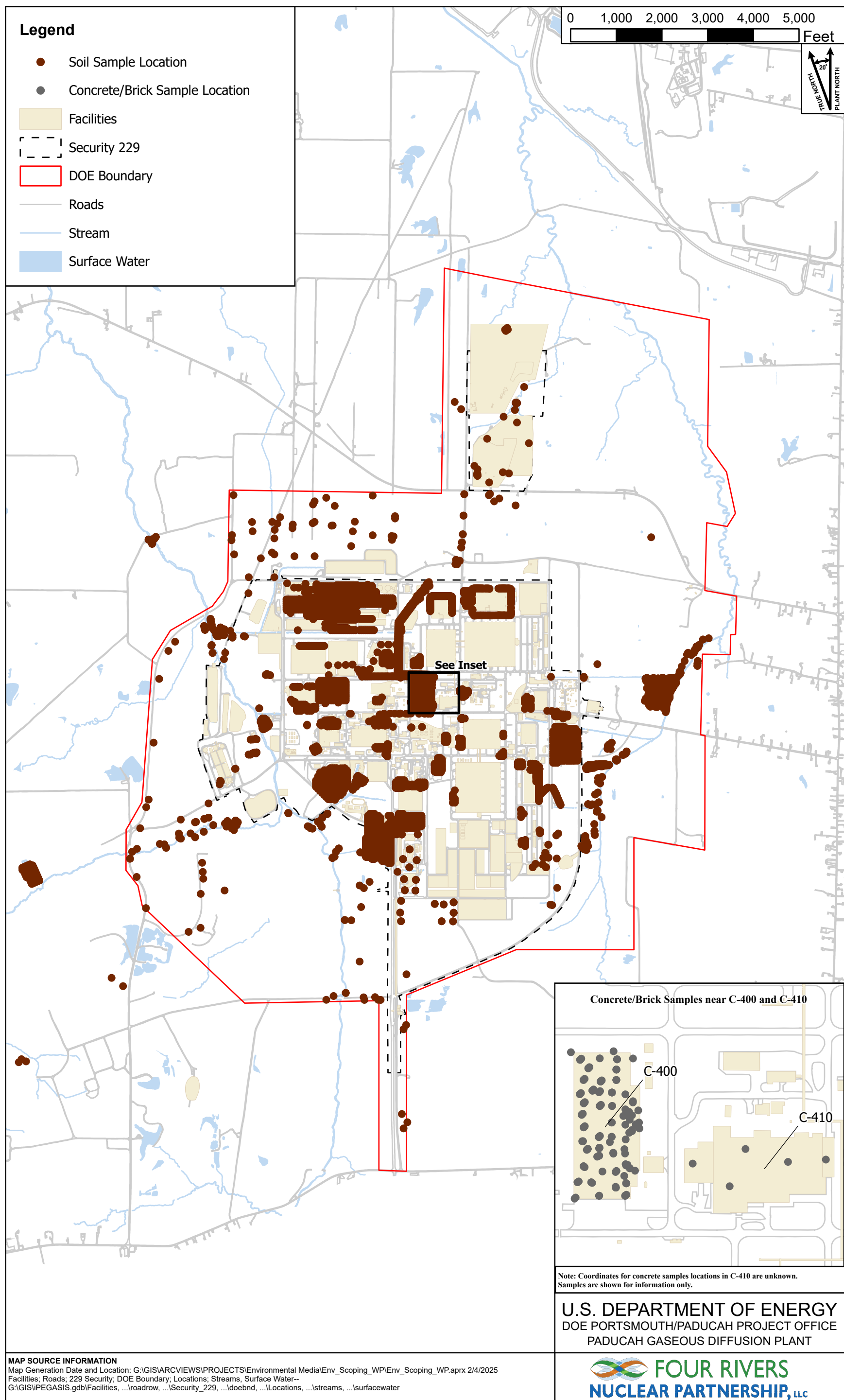


Figure 10. Soil and Concrete/Brick Sample Locations (2000 – Present)

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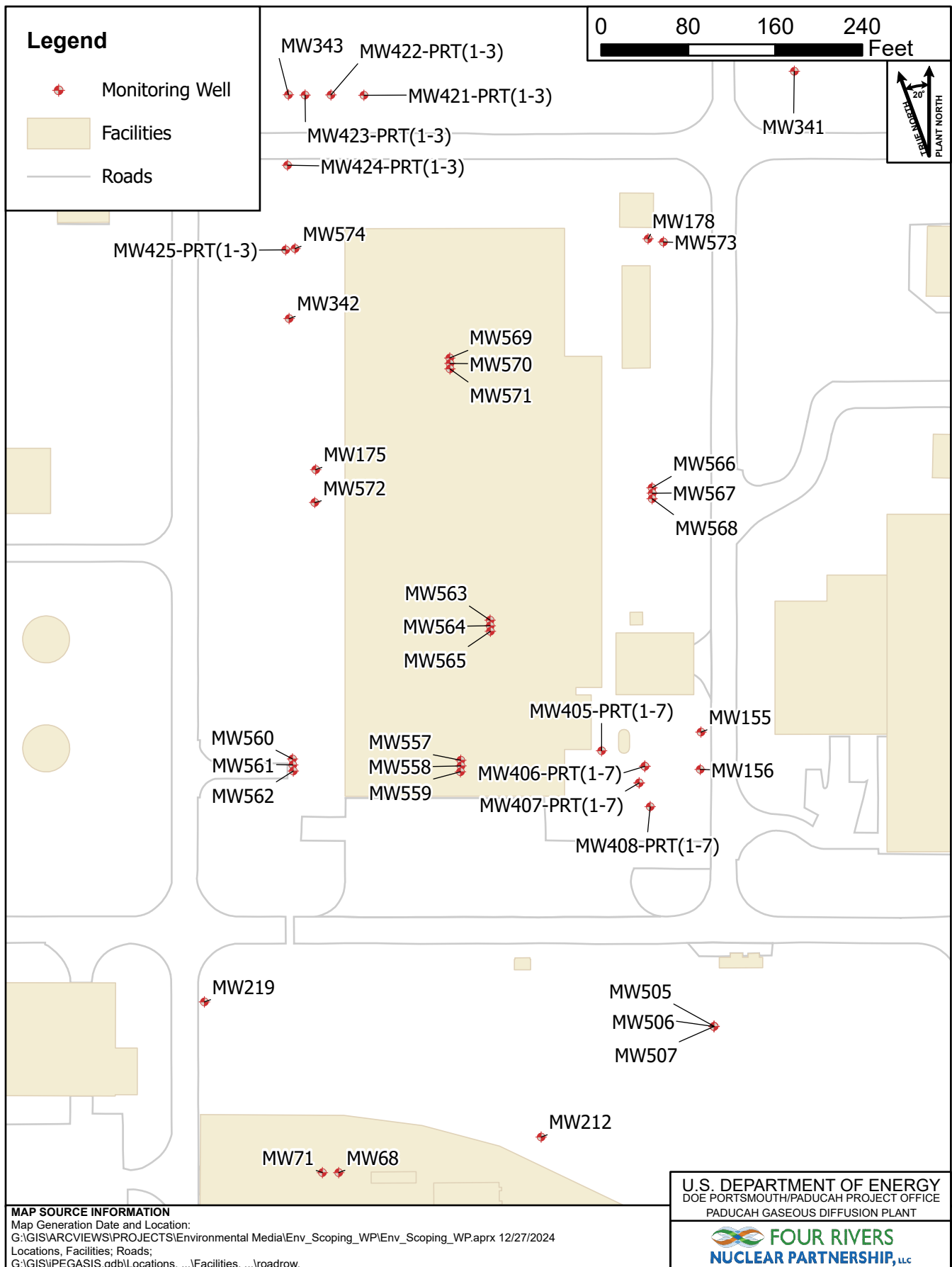


Figure 11. C-400 Monitoring Well Locations (2012 – Present)

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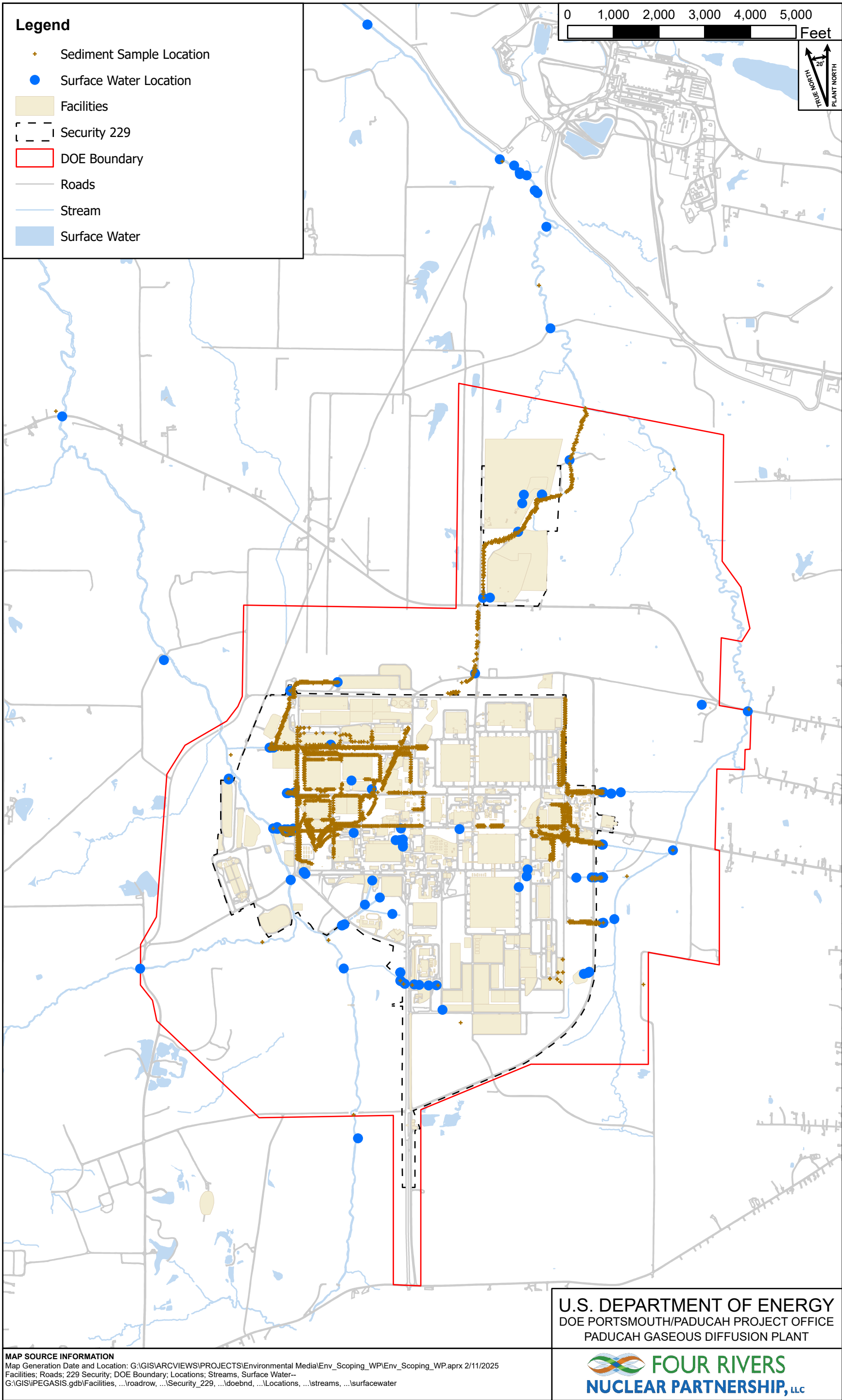


Figure 12. Surface Water (2012 – Present) and Sediment (2000 – Present) Locations

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Similar to surface water, most of the sediment data has been collected to support environmental monitoring and surveillance programs. The sediment database for this RI/FS includes data from 2,584 sample locations within or adjacent to the Paducah Site collected between 2000 and 2024. There are 77,977 data records available for sediment. Sediment locations are shown on Figure 12.

2.5 UNCERTAINTY

As stated in Section 1.1.1, the Environmental Media RI/FS and ROD will produce a sitewide decision that remediates contamination to meet RAOs, without the time and cost to reduce uncertainty in lesser characterized areas. Previous interim actions have focused on removal or mitigation of contaminants that posed an imminent and substantial danger to human health or the environment. Information from these investigations and activities provides a high degree of confidence that COPCs at the Paducah Site have been identified and that a sitewide list of COCs can be established. If a COC is identified in one part of the site, it will be included on the COC list regardless of its presence elsewhere on the site.

Uncertainty does exist regarding the spatial area (including depth) and concentration of contamination in lesser characterized areas of the Paducah Site. This uncertainty is present because data has not been collected to confirm the absence of contamination outside identified SWMUs and AOCs. Additionally, while the on-site drainage ditches and outfalls have many sediment and surface water samples, off-site portions of Bayou Creek and Little Bayou Creek are undercharacterized in terms of spatial representativeness. In this case, the on-site data will be evaluated as a potential source to the creeks and will be used to characterize potential conditions in areas of the creeks that have not yet been sampled.

While the nature and extent of contamination will be evaluated on a media-specific basis, the alternatives will be developed on a sitewide basis. The preliminary remedial alternatives provided in Section 5.4 are also designed to address uncertainty. If the remedy is selected as excavation of contaminated soil, then this decision applies to soil contaminated by PGDP operations whether or not an area was known during the RI/FS to be contaminated.

The specific extent of remediation needed to meet RAOs will be determined by predesign characterization during the remedial design phase of work. This timing refines the nature and extent of remediation at the time that the work is to be conducted, thus ensuring each design captures the extent of contamination and any changed conditions since the RI. This timing also allows characterization to address disposal facility WAC. Surface water sediments would be characterized and remediated after upgradient areas have been remediated to prevent possible recontamination.

Sampling conducted during the remedial action will verify that the RAOs have been met. Predesign and remedial action sampling plans will be submitted to the FFA parties for approval.

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3. INITIAL EVALUATION

This section provides a discussion of the conceptual site exposure model for the Paducah Site and presents potential sources of contamination, their release and transport mechanisms and human and ecological receptors as well as their associated exposure pathways. Additionally, preliminary chemical and location specific ARARS, previous and existing risk assessments, and preliminary COPCs are discussed.

3.1 CONCEPTUAL SITE EXPOSURE MODEL

This section presents the generalized conceptual understanding of the potential for human and ecological exposure to constituents at the various SWMUs/AOCs and waste area groupings (WAGs) contributing to multiple environmental media (e.g., soils, surface water, groundwater, slabs, lagoons) and burial grounds at PGDP. The Conceptual Site Exposure Model (CSEM) for the Environmental Media decision is described in this section and depicted on Figure 13 for human receptors and Figure 14 for ecological receptors.

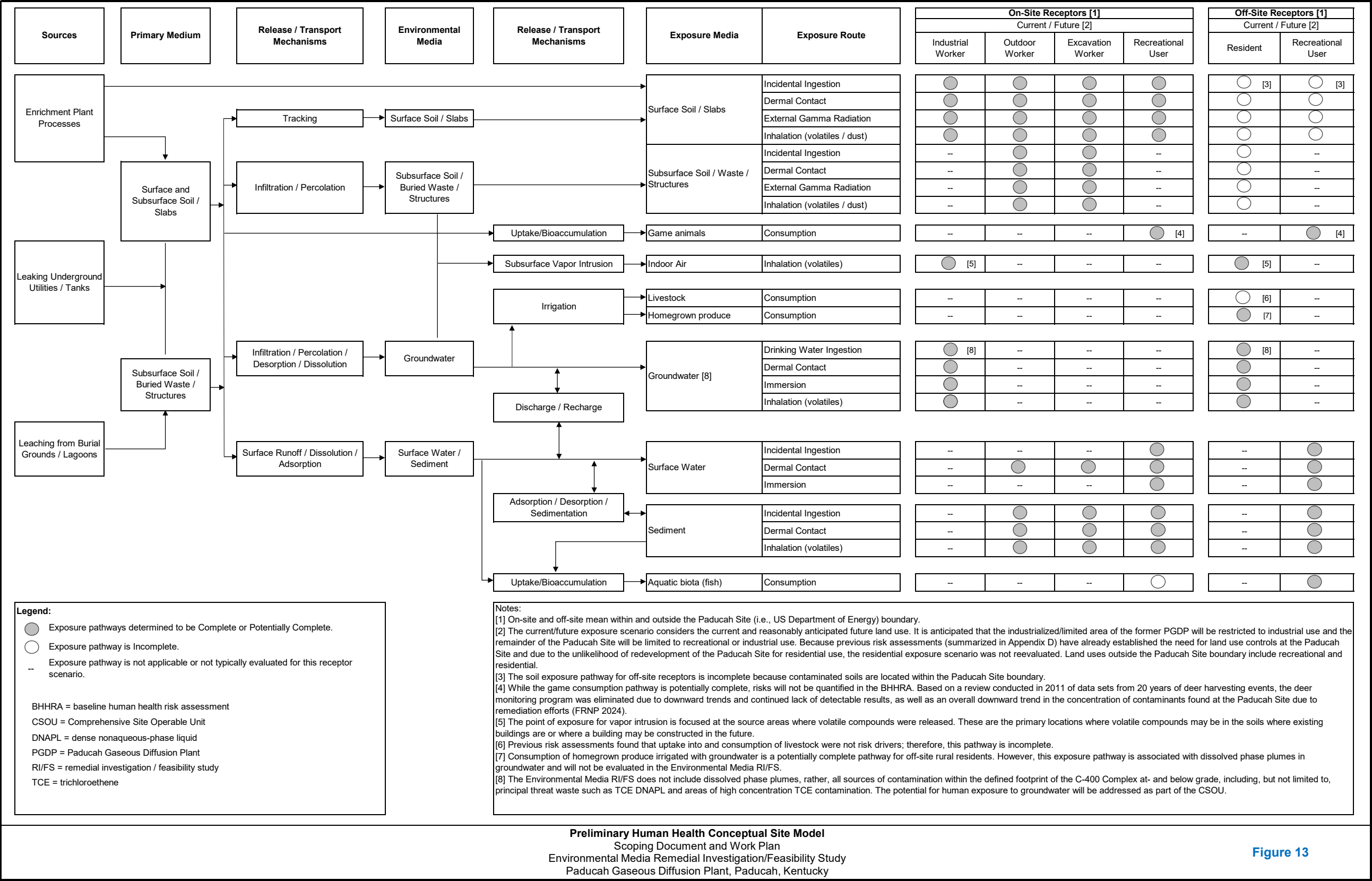
The CSEM is informed by the environmental setting, the current and reasonably anticipated future land use, sources of chemical and radiological contamination originating from past operations at the Paducah Site, chemical mobility and migration pathways, potential exposure media, and potential human and ecological receptors at and in the vicinity of the Paducah Site. The CSEM is intended to be a comprehensive summary of the potential for exposure; however, not all exposure scenarios will be quantitatively evaluated in the risk assessment.

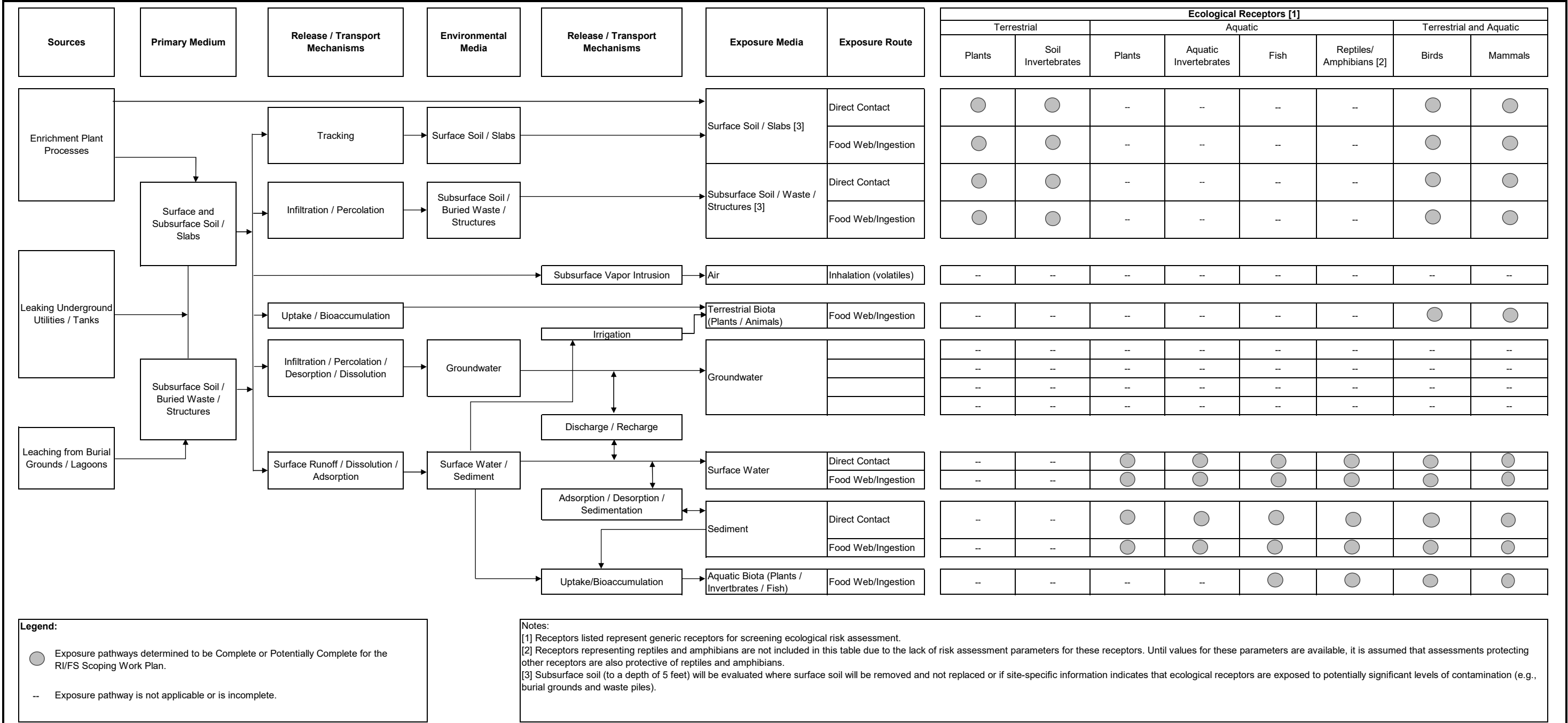
3.1.1 Potential Sources and Release and Transport Mechanisms

Sources of contamination include those from enrichment plant processes, leaking underground utilities and tanks, and leaching from burial grounds. Potential contaminated source areas associated with enrichment plant processes include a TCE off-loading pump station, spills, overfill from sumps, and releases from tanks or underground piping. Other underground utilities such as sumps, drains, pits and tanks and underground lines not directly associated with the enrichment plant processes (e.g., gasoline, diesel, or waste oil) are also potential sources. Lastly, waste disposal in burial pits are sources of contamination. Specific descriptions of individual sources have been described in Section 2 and previous documents for C-400 Complex OU, Burial Grounds OU, Soils OU, and in the Plant Industrial Area VI Preliminary Risk Assessment Report (DOE 2022).

Releases (e.g., spills, leaks) from these sources include impacts directly to soils and slabs at- and below grade or adjacent to them. Release and transport mechanisms include people tracking surface soil or slab dust from the source to other locations. Infiltration and percolation of precipitation is a release/transport mechanism that results in leaching of contaminants causing vertical migration to subsurface soil. Infiltration/percolation of precipitation and desorption/dissolution in pore water is a release/transport mechanism resulting in vertical migration to groundwater and lateral migration with groundwater flow. The depth to the water table in the UCRS varies from approximately 5 ft to over 40 ft across the Paducah Site. The water table tends to be closest to the surface on the west side of the site and north toward the Ohio River. Groundwater can communicate with surface water through discharge and recharge. Surface water runoff with dissolution to water and adsorption to suspended particles is a release/transport mechanism that can result in transport from soil to surface water and sediment in adjacent drainage ways. Adsorption/desorption and sedimentation in drainage ways may result in contaminant transport between surface water and sediment. Vapors from volatile constituents can migrate from contaminated waste, soil, or shallow groundwater through the subsurface to indoor air of current or future buildings. Lastly, bioaccumulative constituents can be transferred into plant and animal tissue. These release and transport

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Preliminary Ecological Conceptual Site Exposure Model
 Scoping Document and Work Plan
 Environmental Media Remedial Investigation/Feasibility Study

Figure 14

Figure 14. Preliminary Ecological Conceptual Site Exposure Model

mechanisms can be chemical-specific based on physical/chemical properties (e.g., solubility, density, viscosity, distribution coefficients) and influenced by site-specific conditions in the environmental media (e.g., pH, temperature, cation exchange capacity, organic carbon content, dissolved oxygen, permeability, porosity, particle size distribution).

3.1.2 Potential Exposure Media

The potential human and ecological exposure media of primary concern for the Environmental Media RI/FS include:

- Surface soil (defined as 0–1 ft bgs),
- Subsurface soil (defined as 1–20 ft bgs), and
- Surface water and sediment.

It is assumed that based on a qualitative evaluation, a response action will be required for at- and below-grade portions of facilities (e.g., slabs, utilities), former process and wastewater treatment lagoons, and buried waste; therefore, these media will not be quantitatively evaluated in the risk assessment. Preliminary remedial alternatives are described in Section 5.4.

Secondary exposure media may include livestock and homegrown produce where irrigation with contaminated groundwater may occur, terrestrial biota (game animals) where uptake/bioaccumulation from surface soil may occur, and aquatic biota (fish) where groundwater discharges to surface water and subsequent uptake/bioaccumulation from surface water and sediment may occur.

3.1.3 Human Receptors and Exposure Pathways

The current/future exposure scenario referenced below and on Figure 13 considers the current and reasonably anticipated future land use and the surface water use designations for Bayou Creek and Little Bayou Creek, which are provided in Section 1.5.7. It is anticipated that the industrialized/limited area of the former PGDP will be restricted to industrial use and the remainder of the Paducah Site will be limited to recreational or industrial use. Because previous risk assessments (summarized in Appendix D) have already established the need for LUCs at the Paducah Site, and due to the unlikelihood of redevelopment of the Paducah Site for residential use, the residential exposure scenario was not reevaluated. Land uses outside the Paducah Site boundary (i.e., off-site) include recreational and residential.

Based on the current and reasonably anticipated future land use, and *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, Volume 1 Human Health* (DOE 2024d), the following potential human receptors are consistent with Figure 13.

- Current/Future On-Site Receptors
 - Industrial Worker (both the secured industrial area and outside the secured industrial area)
 - Excavation Worker (both the secured industrial area and outside the secured industrial area)
 - Outdoor Worker (both the secured industrial area and outside the secured industrial area)
 - Recreational User (outside the secured industrial area)
- Current/Future Off-Site Receptors
 - Recreational User
 - Rural Resident

The following routes of exposure are considered potentially complete for soil, slabs, waste, sediment, and surface water:

- Incidental ingestion of contaminated media (i.e., soil, slabs, waste, sediment);
- Dermal contact with contaminated media (i.e., soil, slabs, waste, sediment);
- Inhalation of particulates emitted from contaminated soil or slabs (dust is not typically released from wetted sediment);
- Inhalation of volatile constituents emitted from contaminated media (i.e., soil, slabs, waste, sediment);
- Inhalation of volatile constituents that may migrate from the subsurface to indoor air of overlying buildings (i.e., indoor air VI);
- External exposure to ionizing radiation emitted from contaminated soil, slabs, or waste;
- Incidental ingestion of surface water while swimming in creeks or natural or man-made ponds;
- Dermal contact with surface water while swimming or wading in creeks or natural or man-made ponds;
- External exposure to ionizing radiation emitted by constituents in surface water while swimming or wading in creeks or natural or man-made ponds (due to shielding provided by overlying water, this route is not evaluated for sediment);
- Consumption of game (e.g., deer) harvested by recreational users utilizing the WKWMA; and
- Consumption of fish that may have accumulated contaminants from surface water and/or sediment.

The following routes of exposure are considered potentially complete for groundwater and may be evaluated as part of the CSOU.

- Ingestion of groundwater as a drinking water source;
- Inhalation of volatile constituents emitted from groundwater during household use (including showering);
- Inhalation of volatile constituents that may migrate from shallow groundwater to indoor air of overlying buildings (i.e., indoor air VI);
- Dermal contact with groundwater while showering; and
- External exposure to ionizing radiation emitted by constituents in groundwater while showering.

Current and future recreational use of on-site and off-site wildlife management areas is reasonably anticipated, and consumption of game (e.g., deer, rabbits, quail) is a potentially complete exposure pathway; however, human health risks associated with this pathway will not be quantified in the risk assessment. The 2025 Environmental Monitoring Plan indicates that wildlife monitoring historically was conducted near the Paducah Site (FRNP 2024). Based on a review conducted in 2011 of data sets from 20 years of deer harvesting events, the deer monitoring program was eliminated due to downward trends and continued lack of detectable results, as well as an overall downward trend in the concentration of contaminants found at

the Paducah Site due to remediation efforts (FRNP 2024). The BHHRA will acknowledge there is uncertainty associated with this pathway, but based on the review of deer tissue data conducted by DOE in 2011, the potential for recreational user risks to be underestimated due to exclusion of the game consumption pathway is low. Livestock (i.e., beef, dairy, pork, poultry) consumption was identified in previous risk assessments as a potentially complete exposure pathway for off-site rural residents; however, previous evaluations found that uptake into and consumption of livestock were not risk drivers. Consumption of homegrown produce irrigated with groundwater is a potentially complete pathway for off-site rural residents; however, this exposure pathway is associated with dissolved-phase plumes in groundwater and will not be evaluated in the Environmental Media RI/FS.

The fish consumption pathway for off-site recreational users is potentially complete and may be considered in the risk assessment of the Environmental Media RI/FS. The fish consumption pathway for on-site recreational users is incomplete because the drainage ditches and portions of the creeks near the Paducah Site are unlikely to support populations of edible fish.

The individual receptors exposed to the various media and the appropriate routes of exposure have varied over time in the previous risk assessments. Based on the findings of previous risk assessments and scope of the Environmental Media decision, not all exposure pathways described by the comprehensive CSEM will be quantitatively evaluated in the risk assessment. Section 4.1 describes the BHHRA approach and methodology that will be used for the Environmental Media RI/FS.

3.1.4 Ecological Receptors and Exposure Pathways

Ecological receptors and exposure pathways are considered in a manner consistent with the current *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, Volume 2 Ecological* (Ecological RMD) (DOE 2019e).

The preliminary ecological CSEM is shown on Figure 14. The sources, release and transport mechanisms and environmental media are as discussed previously and as shown on Figure 13 for human receptors. There are minor differences in exposure media and routes of exposure for ecological receptors. For example, VI to indoor air does not apply and ecological receptors consume plants and animals in their diet rather than crops and game. Exposure routes of dermal absorption following contact with media and inhalation of volatile constituents or dust generated from contaminated media, while possible for ecological receptors, is not included in the CSEM because the state of the science does not allow for this type of quantitative evaluation for ecological receptors.

As shown on Figure 14, there are two primary exposure routes of interest for potential ecological receptor groups at the Paducah Site:

- Direct contact (i.e., assimilation/uptake) for plants, soil-dwelling invertebrates, sediment-dwelling invertebrates, and aquatic biota; and
- Ingestion by birds and mammals.

Steps 1 and 2 of the ecological risk assessment (ERA) process at the Paducah Site constitute a SERA. The purpose of the SERA is to evaluate whether existing data justify a decision that site contaminants do not pose a risk to ecological receptors, or whether additional evaluation is necessary. Steps 1 and 2 of the ERA process include development of a preliminary CSEM. The exposure pathways and endpoints for the site specify which ecological effects data are required. For the Paducah Site SERAs/ERAs, the screening-level effects data are screening-level benchmarks, which are concentrations of substances in abiotic media that are associated with little to no adverse ecological effect; therefore, the generic ecological receptors are

shown in the preliminary CSEM (Figure 14). At the end of Steps 1 and 2, there may be incomplete information about what animal and plant species actually or potentially occur at the site, including T&E species.

The screening benchmarks used in Steps 1 and 2 are generally protective of a range of ecological receptors (e.g., soil benchmarks are typically the lowest available for plants, soil invertebrates, birds, mammals). These screening benchmarks are also used as NFA levels. If groundwater potentially discharges to surface water, groundwater concentrations are compared to surface water screening benchmarks; however, as dissolved-phase groundwater is not included in the Environmental Media RI/FS, this pathway will not be considered. There are not any screening benchmarks/NFA levels protective of ecological receptors for constituents in air.

For areas of the Paducah Site where a baseline ecological risk assessment (BERA) or Steps 3 through 8 of the ERA process are completed, the Ecological Risk Assessment Working Group has selected the following model wildlife receptor feeding guilds: arboreal insectivorous mammal, insectivorous bird, ground-dwelling insectivorous/vermivorous mammal, piscivorous mammal, piscivorous bird, granivorous mammal, granivorous bird, predatory mammal, predatory bird, and carnivorous fish. If a BERA is required, preliminary risks will be calculated for representative wildlife receptors in these feeding guilds only for those wildlife receptor groups that occur or potentially occur at a given site. Examples of representative wildlife receptors in these feeding guilds that can be used to calculate preliminary risks include the following:

- Arboreal insectivorous mammal (Little Brown Bat)
- Ground-dwelling insectivorous/vermivorous mammal (Shrew)
- Insectivorous/vermivorous bird (Woodcock)
- Insectivorous/vermivorous bird (American robin)
- Insectivorous/vermivorous bird (Marsh wren)
- Piscivorous mammal (Mink)
- Piscivorous bird (Belted kingfisher)
- Carnivorous bird (Green Heron)
- Omnivorous bird (Mallard duck)
- Granivorous mammal (Meadow vole)
- Granivorous bird (Northern Bobwhite quail)
- Predatory mammal (Long-tailed weasel)
- Predatory bird (Screech owl)
- Carnivorous fish (Smallmouth bass)

Receptors listed may not occur at Paducah Site areas. When necessary, receptors from this group that are representative of the habitats present at a particular site should be evaluated for that site. For example, carnivorous fish, piscivorous birds and mammals, marsh wren, and mallard duck would be evaluated only where aquatic habitat exists. Other species may also be selected for these feeding guilds, depending on the area being evaluated.

3.2 PRELIMINARY ARARS

3.2.1 Chemical-Specific ARARS

“Chemical-specific requirements set health or risk-based concentration limits or discharge limitations in various environmental media for specific hazardous substances, pollutants, or contaminants,” (55 *FR* 8741,

March 8, 1990). These requirements generally set protective cleanup levels for the chemicals of concern in the designated media (e.g., groundwater) or otherwise indicate a safe level of discharge that may be incorporated when considering a specific remedial activity. The FFA parties have previously agreed in an MOA (summarized in Section 1.2.7) to defer the establishment of radionuclide effluent limits for discharges of wastewater until the proposed plan and ROD stage of remedy selection during development of the D2 RI/FS for CERCLA WDAs; however, effort will be made to resolve these ARARs as part of the RI/FS (DOE 2017c).

3.2.2 Location-Specific ARARs

Location-specific ARARs generally are restrictions placed upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations.

The preliminary location-specific ARARs for the Environmental Media alternative are included in Appendix C.

3.2.2.1 Wetlands

Potential wetland areas have been identified at the Paducah Site. If the remedial actions undertaken involve the destruction of wetlands, or otherwise has a negative impact on wetlands, the requirements of 10 *CFR* Part 1022 would be an ARAR. Activities will be designed to avoid or minimize impacts to wetlands identified at the Paducah Site. The requirements in 10 *CFR* Part 1022 instruct DOE to avoid, to the extent possible, adverse impacts associated with the destruction of wetlands and the occupancy and modification of wetlands. In the event that wetlands would be impacted, mitigation activities would be incorporated into remedial designs where such impact occurs. Measures that mitigate the adverse effects of actions in a wetland may include, but are not limited to, minimum grading requirements, runoff controls, design and construction constraints, and protection of ecologically sensitive areas; however, any necessary compensatory mitigation activities would be consistent with ARARs and identified at a later date. The U.S. Army Corps of Engineers (COE) would be consulted. If any action involves the discharge of dredge or fill material into waters of the United States, 40 *CFR* § 230.10 would be an ARAR.

3.2.2.2 Floodplains and streams

Floodplain protection as described in 10 *CFR* Part 1022 requires that floodplain values be protected to the extent possible. If remedial actions are undertaken that would impact a designated floodplain, the substantive requirements found in 10 *CFR* Part 1022 would be considered ARARs.

3.2.2.3 Fish and wildlife

The Fish and Wildlife Coordination Act [(16 *U.S.C.* §§ 661-666(e))] requires federal agencies to consider the effects of water-related projects on wildlife resources with a view to the conservation of wildlife resources by preventing loss of and damage to such resources. This would include federal agency action that impounds, modifies, diverts, or controls a stream or other body of water except where the maximum surface area of an impoundment is < 10 acres or for land management activities by federal agencies with respect to federal lands under their jurisdiction.

3.2.2.4 Threatened or endangered species

Animal species and their critical habitats identified under the Endangered Species Act (ESA) (16 *U.S.C.* § 1531 *et seq.*) have been identified in the vicinity of PGDP. The ESA provides for the protection from extinction of T&E species. Pursuant to the ESA, federal agency actions that jeopardize the existence

of a listed species or results in the destruction or adverse modification of critical habitat must be avoided or reasonable and prudent mitigation measures taken. Only the substantive provisions of the ESA apply to on-site actions.

An ecological resource investigation inside the PGDP security fence did not detect any T&E species or their preferred habitat (CDM Federal 1994). U.S. Fish and Wildlife Service has not designated critical habitat for any species within the DOE property. Outside the PGDP fence on the Paducah Site, potential habitat for federally listed T&E species were reviewed, and Indiana bat habitat was evaluated during the COE environmental investigation (COE 1994). The COE study determined that total potential bat habitat consisted of 20% of the 2,456 acre study area. These requirements are potential ARARs in the event T&E species or their habitats are found at remedial action sites.

While Kentucky has separate statutes governing endangered animals and plants, no state list has been promulgated. The Office of Kentucky Nature Preserves has published “Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky” and a Biological Assessment Tool (OKNP 2019). Kentucky regulation at 401 *KAR* 30:031 § 3 prohibits waste sites or facilities from taking federally listed endangered or threatened species or adversely impacting their critical habitat.

In addition, Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs federal agencies to further the purposes of the Migratory Bird Treaty Act (16 U.S.C. § 703-711) by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources (i.e., birds and their habitat) when conducting agency actions.

3.2.2.5 Protection of historic property and archeological resources

Federal agencies must take into account the effect of an undertaking that may impact any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register (54 U.S.C. § 306108). Further, federal agencies must initiate measures to assure that where, as a result of federal action, a historic property is to be altered or demolished, timely steps are taken to make or have made appropriate records (54 U.S.C. § 306103). If the historical resources are located on the selected site, the regulations may be applicable to the on-site alternative.

The Archaeological and Historic Preservation Act of 1974 (incorporated in 54 U.S.C. § 312501 through 312508 in 2014) provides for the preservation of historical and archaeological data that might be irreparably lost or destroyed as a result of alterations of terrain caused by the federal construction of a dam or other alteration caused by federal construction projects. The presence of archaeological or historic resources on the selected site may make these regulations applicable.

The Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. § 3001 *et seq.*) governs Native American remains and objects found on federal lands. Upon inadvertent discovery, all activity in the area must cease and a reasonable effort made to protect the items discovered before resuming such activity [25 U.S.C. 3002(d)]. The substantive provisions of the NAGPRA may be considered ARAR for the inadvertent discovery of Native American remains and objects.

The DOE Paducah Site Office entered into a programmatic agreement with the state historic preservation officer of the Kentucky Heritage Council and the Advisory Council on Historic Preservation in January 2004 that required DOE to complete a cultural resources management plan and survey in accordance with federal and state standards. DOE developed the *Cultural Resources Management Plan for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* (BJC/PAD-691/R1) and documented a cultural resources survey of PGDP in the *Cultural Resources Survey for the Paducah Gaseous Diffusion Plant*,

Paducah, Kentucky, (BJC/PAD-688/R1), in 2006 (BJC 2006a; BJC 2006b). The Kentucky Heritage Council approved the cultural resources management plan in June 2006.

3.3 PRELIMINARY/EXISTING RISK ASSESSMENT SUMMARY

As stated in Section 2.2, several risk assessments pertinent to the Environmental Media RI/FS have been completed during investigation and remediation of the various OUs/SWMUs/AOCs/WAGs at the Paducah Site. This section summarizes the existing risk assessments to provide a comprehensive understanding of the exposure scenarios previously evaluated and the baseline risks calculated to date.

Tabular summaries are presented in Appendix D and organized as follows:

- Table D-1—Soils OU,
- Table D-2—Burial Grounds OU,
- Table D-3—C-400 Complex OU,
- Table D-4—Groundwater OU,
- Table D-5—Surface Water OU,
- Table D-6—Plant Industrial Area Vapor Intrusion, and
- Table D-7—Waste Area Groupings 1 and 7.

The summary tables contain the following general information: site identification number (i.e., SWMU/AOC) and site description information, the media of interest evaluated, receptors included and summary of risk estimates, COCs [i.e., resulting in a cumulative ELCR of 1×10^{-6} or greater and/or a cumulative hazard index (HI) of 0.1 or greater], priority COCs (i.e., resulting in a cumulative ELCR of 1×10^{-4} or greater and/or a cumulative HI of 1 or more), pathways of concern, results of screening for protection of groundwater (Soils OU), soil cover description, and priority COPECs (i.e., resulting in an HQ > 10) for ERA.

3.4 PRELIMINARY CONTAMINANTS OF CONCERN

Based on past operations at the Paducah Site, chemical and radioactive contamination and associated risks have been identified as unacceptable for various receptors. COCs for each medium are discussed in this section.

Based on the previous investigations at the Soils OU SWMUs/AOCs, there are four priority COCs for the future industrial worker scenario (on-site) or the teen recreational user (off-site) which included PCBs, PAHs, uranium-235, and uranium-238. The results of the risk assessment for several of the soil pile indicated that metals (e.g., chromium, uranium) are also important contributors to risk and hazard.

COPECs for the Soils OU SWMUs/AOCs were similar to the COCs for human health, with most of the risks derived from PCBs and uranium.

The Burial Grounds OU RI BHHRA identified the following as priority COCs in soil at each of the Burial Ground OU SWMUs:

- SWMU 2—none;
- SWMU 3—none;

- SWMU 4—barium, beryllium, cadmium, chromium, iron, nickel, uranium, vanadium, total dioxins/furans, PCBs, and uranium isotopes;
- SWMU 5—aluminum, arsenic, beryllium, chromium, nickel, PAHs, and PCBs;
- SWMU 6—beryllium, chromium, nickel, and PAHs;
- SWMU 7—aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, manganese, nickel, uranium, vanadium, PAHs, PCBs, plutonium-239, and uranium isotopes; and
- SWMU 30—aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, manganese, mercury, nickel, uranium, vanadium, PAHs, PCBs, and uranium isotopes.

The Burial Grounds OU RI BHHRA also identified the following as priority COCs in groundwater (modeled from soil) at each of the Burial Ground OU SWMUs.

- SWMU 2—arsenic, Aroclor 1248, manganese, uranium, *cis*-1,2-DCE, and TCE.
- SWMU 3—arsenic, manganese, uranium, and Tc-99.
- SWMU 4—arsenic, manganese, *cis*-1,2-DCE, TCE, vinyl chloride, and Tc-99.
- SWMU 5—arsenic, uranium, manganese, and naphthalene.
- SWMU 6—none.
- SWMU 7—arsenic, 1,1-DCE, *cis*-1,2-DCE, Aroclor 1254, TCE, and vinyl chloride.
- SWMU 30—arsenic.
- SWMU 145—antimony, arsenic, manganese, Aroclor 1260, and Tc-99.

A SERA retained a number of COPECs, primarily metals, at each of the Burial Ground OU SWMUs.

In addition to the Burial Grounds COCs listed above, PTW was identified at SWMU 2 (uranium, TCE, uranyl fluoride), SWMU 3 (uranium-contaminated waste), SWMU 4 (TCE), and SWMU 7 (TCE) (see Section 2.2.2 for more discussion of PTW identified at the Burial Ground OU SWMUs).

The Surface Water OU (On-Site) investigation noted that the contaminants driving risks were PCBs, PAHs, antimony, iron, uranium, and thorium-230. An SERA indicated that further evaluation of the potential for risk was required based on extensive exceedance of NFA levels at multiple locations.

Also for surface water, two SHHRAs (one for the NSDD and the other for plant outfalls) were prepared in 2003. The COCs driving risk for the NSDD included arsenic, iron, manganese, mercury, vanadium, thallium, uranium, PCBs, cesium-137, neptunium-237, thorium-230, and uranium isotopes. The priority COCs over all outfalls included antimony, beryllium, PAHs, PCBs, and uranium isotopes. Other notable COCs over all outfalls were iron, manganese, and cesium-137.

The Groundwater OU BHHRA identified several priority COCs in UCRS groundwater including metals (arsenic, antimony, beryllium, cadmium, chromium, iron, lead, manganese; nickel, and vanadium), TCE and TCE degradation products, benzene, chloroform, ethylbenzene, and radon-222. For the RGA, the priority COCs identified across all use scenarios included metals (antimony, arsenic, beryllium, cadmium, chromium, iron, lead, manganese, molybdenum, and vanadium), TCE and TCE degradation products, acrylonitrile, carbon tetrachloride, Aroclor 1254, tetrachloroethene, radium-226, and radon-222.

During the C-400 Complex OU RI, uranium metal was identified as the primary risk driver across the C-400 Complex for surface and subsurface soils combined with thorium-230 identified as a priority COC for the west-central part of the area and TCE identified as a priority COC in the southern part of the

C-400 Complex. There were several COCs identified as priority COCs in groundwater, particularly in the RGA, with the primary risk drivers in groundwater being chromium, Tc-99, *cis*-DCE, 1,1,2-TCA, and TCE. During the C-400 Complex OU RI, multiple source zones composed of TCE DNAPL and high concentration TCE contamination in soils were identified as PTW. In addition, a likely source of Tc-99 contamination was also identified in soil beneath the C-400 Cleaning Building. Tc-99 concentrations exist in groundwater throughout the Northwest and Southwest Plumes and in limited portions of the Northeast Plume on-site at PGDP, but do not result in excessive risk to the off-site groundwater user. The highest activity concentrations, greater than EPA's 1976 and 1991 derived MCL activity-based concentrations of 900 picocuries per liter (pCi/L) and 3,790 pCi/L, respectively, are found in the Northwest Plume, but within the Limited Area, downgradient of the Tc-99 source area at the C-400 Cleaning Building.

The following are the COCs that have been most commonly identified across the Environmental Media Scoping and Work Plan:

- Metals (primarily arsenic, beryllium, chromium, and uranium);
- Uranium isotopes;
- TCE (and TCE degradation products);
- Tc-99;
- PAHs; and
- PCBs.

As described further in Section 4.2, an ERA will be conducted for on-site habitats to update these previous results. The ERA will entail a SERA, which are the first two steps of EPA's eight-step ERA process under CERCLA. It is not anticipated that subsequent steps of the ERA process (BERA) will be required to meet the objectives of the Environmental Media RI/FS; however, BERA may be considered in the future during CSOU, when dissolved-phase plumes and discharges to surface water can be better assessed.

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4. RISK ASSESSMENT APPROACH

Most, if not all, areas at the Paducah Site have had RI/FSs conducted, and in some cases, decision documents completed. The RI/FSs completed have included a BHHRA and either an SERA or BERA; therefore, the objective of the risk assessment for the Environmental Media RI/FS will be to confirm or update previous conclusions regarding the potential for human health and ecological risk. The risk assessment will employ a streamlined approach that leverages the existing reports and focuses on determining whether the use of any new or updated information, in terms of the potentially exposed receptors, exposure pathways, exposure parameters, media concentrations and exposure areas, screening values, and toxicity values, would change the conclusions made previously.

The risk assessment methodology will follow EPA, KDEP, and site-specific guidance, including the most current versions of the Human Health RMD (DOE 2024d) and the Ecological RMD (DOE 2019e).

The following sections describe in more detail the approach for focusing this assessment. Because this streamlined risk assessment is intended to provide updated information to the existing reports, some of the methods and presentations described in both volumes of the RMD were modified based on the objectives of the current evaluation.

4.1 APPROACH TO HUMAN HEALTH RISK ASSESSMENT

Consistent with the Human Health RMD and regulatory guidance (EPA 1989, KDEP 2002) the BHHRA will include the major headings, as follows: “Results of Previous Studies,” “Identification of Chemicals/Radionuclides of Potential Concern,” “Exposure Assessment,” “Toxicity Assessment,” “Risk Characterization,” “Uncertainty in the Risk Assessment,” “Conclusions and Summary,” and “Remedial Goal Options Development.” The following sections describe how each major component (i.e., Identification of COPCs, Exposure Assessment, Toxicity Assessment, Risk Characterization, and Remedial Goal Option Development) will be completed.

4.1.1 Identification of Chemicals of Potential Concern

The Environmental Media RI/FS will utilize the existing comprehensive data set which has been presented in previous reports and is described in Section 2.4; therefore, the following procedures to evaluate data identified in the Human Health RMD have already been completed:

- Evaluation of sample design and locations.
- Evaluation of sampling and analytical methods.
- Evaluation of sample quantitation limits.
- Evaluation of data qualifiers and codes.
- Elimination of analytes not detected.
- Elimination of essential nutrients as COPCs.

As discussed previously in Section 2.4, only data representative of current conditions will be used. Non-representative data (e.g., data collected from remediated areas, data deemed to be too dated or otherwise not representative) were removed from the data set downloaded from the Paducah OREIS database in August 2024. The data representative of current conditions will be evaluated for inclusion in EUs to facilitate risk management decision making. The configuration and size of each EU will consider the future anticipated land uses and expected activity patterns of future receptor populations and may not conform to the 0.5-acre EU size indicated for the PGDP industrialized area in the Human Health RMD.

For identification of COPCs, the maximum detected concentrations will be compared to direct contact NALs, EPA VISLs, and to provisional background values for naturally-occurring inorganics and radionuclides. For exposure inside the industrialized areas at the Paducah Site, use of industrial worker risk-based screening values is appropriate. For exposure outside the industrialized area, both within the Paducah Site and off-site, more conservative (i.e., health-protective) residential screening values will be used to consider more sensitive receptors (e.g., recreational user adolescents and children). A tabular summary of COPCs by exposure medium will be generated, and any differences in the list of COPCs from the previous risk assessments will be noted.

Analytes that are not detected in any sample within a medium, but that have detection limits exceeding risk-based screening levels will be retained as COPCs. Data from these analytes will be evaluated if they should be used quantitatively in the risk assessment. The risk characterization will include a qualitative discussion of the potential presence of these analytes at levels of concern based on PGDP historical or process information.

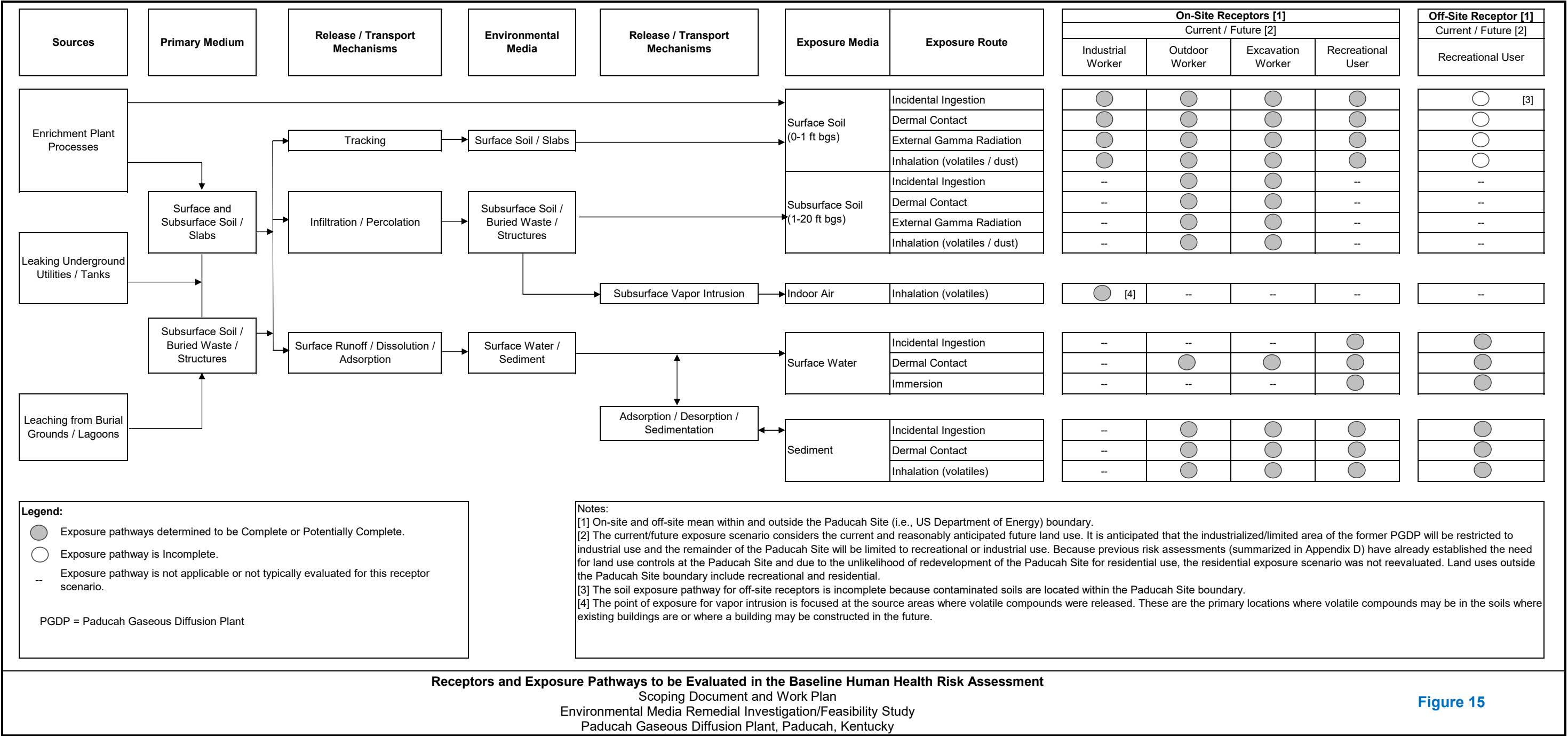
4.1.2 Exposure Assessment

The objective of the exposure assessment is to estimate the type and magnitude of human exposure to the COPCs. The exposure assessment results in quantitative estimates of human exposure, in the form of daily intakes, dermally-absorbed doses, and exposure concentrations. These exposure estimates are then combined with constituent-specific toxicity information to estimate cancer risks and noncancer hazards in the risk characterization.

The streamlined approach for the Environmental Media RI/FS will be to evaluate and document changes in risk assessment assumptions (e.g., exposed receptors, pathways or routes of exposure, exposure parameters) used in the previous risk assessments as compared to current defaults in the Human Health RMD and informed by the human health CSEM (Figure 13). Section 3.1 presented a comprehensive human health CSEM that identified potential human receptor populations, potential exposure media, and potentially complete exposure pathways based on the current and reasonably anticipated future land use. Generally, the most likely receptors within the 1,450-acre industrial/limited area and on the Paducah Site (i.e., on-site) are workers. These include industrial workers who may work both indoors and outdoors, but are assumed to have less frequent and less intensive contact with soil than other receptors; outdoor workers who work primarily outdoors and are assumed to be involved with buildings, grounds, and/or utilities maintenance; and excavation workers who perform construction work or similar site redevelopment activities. Outside of the industrial/limited area, recreational users may access the nearly 2,000 acres licensed to the Commonwealth of Kentucky as part of the WKWMA; therefore, the focus of the BHHRA will be to confirm or update quantitative estimates of cumulative cancer risk and noncancer systemic toxicity for these likely receptors and in these exposure areas.

Figure 15 highlights the receptors and exposure pathways that will be evaluated in the BHHRA, and is summarized as follows:

- Within the secured industrial area, the industrial worker (surface soil 0 to 1 ft bgs), outdoor worker (surface and subsurface soil 0 to up to 20 ft bgs), and the excavation worker (surface and subsurface soil 0 to up to 20 ft bgs) exposure to soil via incidental ingestion, dermal contact, inhalation of particulates and volatile constituents, and external exposure to ionizing radiation will be quantified. In addition, subsurface vapor intrusion and subsequent inhalation of indoor air by industrial workers will be evaluated. Depending on the assumed exposure points represented by the available data, surface water (via dermal contact) and sediment exposures (via incidental ingestion, dermal contact, and inhalation of volatile constituents) will be evaluated for outdoor workers and excavation workers.



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- Outside the secured industrial area but within the Paducah Site boundary, recreational users (surface soil 0 to 1 ft bgs), outdoor workers (surface and subsurface soil 0 to up to 20 ft bgs) and excavation workers (surface and subsurface soil 0 to up to 20 ft bgs) exposure to soil via incidental ingestion, dermal contact, inhalation of particulates and volatile constituents, and external exposure to ionizing radiation will be quantified. Depending on the assumed exposure points represented by the available data, surface water and sediment exposures will also be evaluated.

To quantify exposure, EPCs representative of average contaminant concentrations to which receptors may be exposed over a long time and receptor-specific exposure parameter values are required. EPCs will be calculated for each COPC in surface soil (0 to 1 ft bgs) and combined surface and subsurface soil (0 to up to 20 ft bgs). Additionally, due to the potential for underestimating average concentrations using data from 20 vertical ft of soils, EPCs will also be calculated using a subset of more shallow soils (e.g., 0 to 5 ft bgs). Finally, depending on the data distribution by depth, risks may be generated using maximum concentrations of COPCs and presented in the discussion of uncertainties. The parameters used to calculate exposures estimates will be reasonable maximum exposure (RME) values. Use of RME parameter values simulates the highest exposure that might reasonably be expected to occur, one that is well above the average case but within the range of possibility, and results in upper-bound cancer risks and noncancer hazards. Evaluation of the RME scenario serves as the determination regarding remedial action.

4.1.3 Toxicity Assessment

The toxicity assessment will evaluate and document changes in toxicity values from the previous risk assessments as compared to current values. Current toxicity information for all COPCs will be based on the standard hierarchy of sources as defined in the Human Health RMD including:

- Tier 1 sources: Integrated Risk Information System (EPA 2024a)
- Tier 2 sources: EPA Provisional Peer Reviewed Toxicity Values (EPA 2024b)
- Tier 3 sources:
 - Health Effects Assessment Summary Tables (EPA 1997; EPA 2001)
 - Other sources identified in EPA Office of Solid Waste and Emergency Response Directive 9285.7-53, *Human Health Toxicity Values in Superfund Risk Assessments*
 - Agency for Toxic Substances and Disease Registry toxicological profiles

Consistent with the Human Health RMD, only chronic toxicity values will be used, with the exception of excavation workers for which the exposure duration (ED) is assumed to be five years and subchronic toxicity values may be used in lieu of chronic values, where they are available.

The EPA Preliminary Remediation Goals for Radionuclides online calculator (accessed online at: October 1, 2024) will be the source for slope factors used to characterize carcinogenicity for radionuclides.

The approach for evaluating toxicity from exposure to lead differs from other chemicals. EPA has not developed standard estimates representing a dose-response assessment for lead, because a clear threshold for some of the more sensitive effects in humans from exposure to lead has not been identified (ATSDR 2020). Rather, exposure to lead is evaluated in terms of the increase in blood lead concentration following exposure. If lead is identified as a COPC, then the EPA's Adult Lead Methodology (EPA 2003), Adult Lead Model (version date 06/14/2017), and EPA's Integrated Exposure Uptake Biokinetic Model for

Lead in Children (IEUBK model, version 2, EPA 2021) will be used to evaluate adult worker and recreational user child exposures, respectively. The EPA lead models will be used to predict blood lead concentrations in comparison to regulatory thresholds.

The Human Health RMD specifies the use of Chromium (VI) screening values for Total Chromium results unless it is determined on a project-specific basis that Chromium (VI) is not present. The Environmental Media RI/FS will evaluate the chromium detected in environmental media using Chromium (VI) screening and toxicity values as a conservative (i.e., health-protective) approach. The Environmental Media risk assessment will provide further discussion in the uncertainty evaluation, as appropriate. Subsequent analyses related to chromium speciation may be warranted during a remedial design investigation depending on the media and location (e.g., areas related to the recirculating cooling water system).

4.1.4 Risk Characterization

Because the BHHRA for the Environmental Media RI/FS will serve to update previous risk assessments, and consistent with the methodology used for the risk assessment for C-400 Complex OU (DOE 2023), human health cancer risk and noncancer systemic toxicity will be calculated using a ratio-based approach of COPC EPCs to the appropriate NALs. Both cancer risk (chemical and radionuclides) and noncancer hazard (chemical only) will be calculated for each receptor scenario identified on Figure 15.

Cancer Risk. The numerical estimate of the potential for cancer effects posed by a single COPC will be derived as the ratio of the EPC for a COPC and the appropriate NAL multiplied by the target cancer risk used to derive the NAL (i.e., 1×10^{-6}). This ratio will generate an ELCR and is calculated as shown in the following equation:

$$ELCR_{COPC} = \frac{EPC_{COPCi}}{\text{Carcinogenic } NAL_{COPCi}} \times 1 \times 10^{-6}$$

Where:

ELCR is the excess lifetime cancer risk for the COPC, dimensionless

EPC is the exposure point concentration for a COPC, mg/kg for chemical COPCs and pCi/g for radionuclide COPCs

Carcinogenic NAL is the carcinogenic no action level for the receptor being characterized, mg/kg for chemical COPCs and pCi/g for radionuclide COPCs

Because the NAL was based on a target risk of 1×10^{-6} , the ratio of the EPC to the NAL was adjusted by multiplying the ratio by 1×10^{-6} . When performing this calculation, the proper NAL will be used for each receptor-media pair.

The chemical and radionuclide specific ELCRs relevant to an individual receptor are summed to develop a total ELCR. The total ELCR is used to estimate the potential for an individual to develop cancer if all contaminants reaching the receptor have additive effects. This is calculated as shown in the following equation:

$$ELCR_{Total} = ELCR_{COPC1} + ELCR_{COPC2} + ELCR_{COPC3} \dots ELCR_{COPCn}$$

Noncancer Hazard. The numerical estimate of the potential for adverse, noncancer health effects posed by a single chemical is derived as the ratio of the EPC for a COPC and the appropriate NAL. This ratio also is referred to as a HQ and is calculated as shown in the following equation:

$$HQ = \frac{EPC_{COPCi}}{\text{Noncarcinogenic } NAL_{COPCi}} \times 0.1$$

Where:

HQ is the hazard quotient, dimensionless

EPC is the exposure point concentration for a COPC, mg/kg for chemical COPCs and pCi/g for radionuclide COPCs

Noncarcinogenic NAL is the noncarcinogenic NAL for the receptor being characterized, mg/kg for chemical COPCs and pCi/g for radionuclide COPCs

Because the NAL was based on a target HQ of 0.1, the ratio of the EPC to the NAL was adjusted by multiplying the ratio by 0.1. When performing this calculation, the proper NAL will be used for each receptor-media pair.

The sum of the HQs for individual COPCs is termed the HI, and will be calculated for each receptor and pathway, as follows:

$$HI = HQ_{COPC1} + HQ_{COPC2} + HQ_{COPC3} \dots HQ_{COPCn}$$

The Human Health RMD also recommends summing all the pathway HIs relevant to an individual receptor to develop a total HI. The total HI is not an estimate of the systemic toxicity posed by all contaminants that may reach the receptor, but can be used to estimate if a toxic effect may result if all contaminants reaching the receptor have additive effects over all pathways. Where the total HI exceeds 1, target organ HIs will be calculated by summing only the HQs for COPCs with the same target organ or target organ system.

The recalculated ELCRs and HIs will be used to determine whether there are any differences in the COCs or priority COCs from the previous risk assessments. COCs are identified as those COPCs with a chemical hazard (HQ_i) or risk (ELCR_i) over all pathways within a use scenario of concern where exceedance of either benchmark, HQ = 0.1 and ELCR = 1×10⁻⁶, occurs. Chemicals of potential concern within a use scenario of concern exceeding either of these benchmarks will be deemed COCs for the use scenario of concern. Priority COCs are identified as those COCs contributing most to cumulative HI and ELCR over all pathways within a use scenario of concern where exceedance of either benchmark, HQ = 1 and ELCR = 1×10⁻⁴. COCs exceeding either of these benchmarks will be deemed priority COCs for the use scenario of concern.

4.1.5 Remedial Goal Options Development

RGOs will be calculated for each COC (defined as COPCs with HQ > 0.1 or ELCR > 1×10⁻⁶) identified for each medium and use scenario of concern (i.e., industrial or recreational) based on the updated BHHRA. Consistent with the Human Health RMD and EPA guidance (EPA 2018), multiple RGOs will be calculated for each COC. The RGOs are calculated by rearranging the exposure equations used in the risk assessment so that they solve for a concentration or activity level in a medium that results in a specific “target risk” or “target hazard.” Target risks that will be used to derive RGOs at PGDP are 1 × 10⁻⁴, 1 × 10⁻⁵, and 1 × 10⁻⁶. Target hazards that will be used to derive RGOs are 3, 1, and 0.1. The potential for cumulative noncancer

health effects from exposure to multiple constituents with the same target organ or target organ system will be accounted for in the RGO calculations (e.g., by dividing the noncancer RGO by the number of COCs with the same target organ or target organ system).

As stated in Section 4.1.2, the most likely receptors within the secured industrial area are workers. The most likely receptors on the Paducah Site (i.e., on-site), but outside the secured industrial area, are currently recreational users that may access the WKWMA, and in the future may also include workers. The BHHRA will evaluate risks and hazards for these likely receptors and in these exposure areas. Separate human health RGOs will be calculated for industrial workers, outdoor workers, excavation workers, and recreational users. Site-specific parameter values (e.g., for recreational users) may be used to calculate site-specific RGOs. As described in Section 4.3, subchronic rather than chronic toxicity values will be used, where available, to calculate RGOs for the excavation worker, for whom the ED is assumed to be five years. The lowest of applicable RGOs will be identified for potential use as a preliminary remediation goal in either the industrialized area (lowest of RGOs for workers) or outside the industrialized area (lowest of RGOs for workers and recreational users).

4.2 APPROACH TO ECOLOGICAL RISK ASSESSMENT

Consistent with the Ecological RMD, a scoping meeting will be conducted with ecological risk assessors from EPA and KDEP to come to agreement on aspects of ecological evaluation that are site-specific and to focus resources and efforts in the appropriate direction. The consensus of the Ecological Risk Assessment Working Group is that PGDP sites that have any amount of vegetation are potential nesting or feeding habitats for ecological receptors and, thus, require at least a SERA; however, some sites may not require a SERA because no habitat and no exposure pathways for ecological receptors exist. Sites considered for exclusion should have all of the following characteristics (DOE 2019e):

- All areas of soil contamination shallower than 5 ft are covered with concrete, pavement, or a building.
- Routes for off-site migration of soil also are incomplete due to the presence of concrete, pavement, or a building.
- Features and structures preventing the existence of complete pathways are reasonably expected to remain in place.

Much of the industrial/limited area is covered with concrete, pavement, or buildings, or otherwise has facilities that restrict the function of any limited habitat and/or completely prevent exposure of ecological receptors. Additionally, much of these areas will be excavated, removed, or otherwise disturbed during remediation, and the final placement of soil and the future redevelopment plan is unknown. There is considerable uncertainty associated with assumptions of the potential for risk with exceedances of ecological screening values, particularly where limited functional habitat does not support populations of ecological receptors. Therefore, while the COPECs identified in previous risk assessments for within the industrial/limited area will be summarized, rescreening will not be conducted as part of the Environmental Media RI/FS.

The data representative of current conditions will be evaluated for inclusion in appropriately sized EUs based on the CSEM and future anticipated land uses for the areas outside the industrial/limited area and will be re-evaluated in a SERA. The purpose of the SERA is to evaluate whether existing data justify a decision that site contaminants do not pose a risk to ecological receptors, or whether additional evaluation is necessary. Steps 1 and 2 of the EPA ERA process constitute a SERA and contain the following elements:

- Site visit (if needed),
- Screening-level problem formulation (preliminary CSEM),
- Screening-level effects evaluation (toxicity threshold benchmarks),
- Screening-level exposure estimate (site maximum concentration data), and
- Screening-level risk calculation (site concentration data screens).

Steps 1 and 2 utilize screening benchmarks, which are concentrations of substances in abiotic media that are associated with little to no adverse ecological effect, and therefore, are generally protective of a range of ecological receptors (e.g., soil benchmarks are typically the lowest available for plants, soil invertebrates, birds, mammals). These screening benchmarks are also used as NFA levels. There are not any screening benchmarks/NFA levels protective of ecological receptors for constituents in air. If groundwater potentially discharges to surface water, groundwater concentrations are compared to surface water screening benchmarks; however, as dissolved-phase groundwater is not included in the Environmental Media RI/FS, this pathway will not be considered.

As discussed previously for the BHHRA, only data representative of current conditions will be used. For PGDP SERAs/ERAs, surface soil is defined as no deeper than 0–1 ft bgs. Use of samples collected in the 0–6-inch bgs depth is preferred over the 0 to 1 ft depth when those results are available. Subsurface soils to a depth of 5 ft bgs should be screened if surface soil at a site likely will be removed and not replaced or if site-specific information indicates that ecological receptors are exposed to potentially significant levels of contamination (e.g., burial grounds, waste piles).

For areas outside the secured industrial area, the maximum detected concentrations will be compared to current ecological benchmarks and to background values for naturally-occurring inorganics and radionuclides. A tabular summary of COPECs by exposure medium will be generated, and any differences in the list of COPECs from the previous risk assessments will be noted.

Steps 1 and 2 conclude with the first scientific management decision point (SMDP), where risk managers will decide whether to continue evaluating ecological risk. It is expected that the ERA for areas within the industrialized/limited area of PGDP will conclude at Step 2 with a summary of COPECs from previous assessments since industrial land use exists and is anticipated to continue. For areas outside the industrial/limited area, risk managers may decide that sites do not require additional evaluation, even though one or more chemicals or radionuclides exceed screening benchmarks and are identified as COPECs, if exposure pathways are not complete or actions will be taken to eliminate the exposure pathway.

For areas outside the industrial/limited area where the conclusion of the SMDP is that ERA will continue to Step 3 (ERA Problem Formulation), this step serves to provide sufficient information to support a further risk management decision concerning the need for additional evaluation of ecological risk in a Baseline ERA. Important inputs to this decision are the identification of COPECs that warrant further evaluation, an understanding of the effects of COPECs on ecological receptors, identification of complete exposure pathways by which COPECs are brought into contact with ecological receptors, and identification of assessment endpoints.

Step 3 will include some or all of the following to refine the list of COPECs:

- Compare site and background concentrations;
- Calculate refined screening HQs based on mean concentrations compared to refined screening values;
- Evaluate frequency and distribution of concentrations exceeding benchmarks and/or referenced site values;

- Calculate preliminary HQs for selected PGDP wildlife receptors for all COPECs for which the screening HQ was > 1 as well as for all bioaccumulative COPECs (regardless of their screening HQ);
- Evaluate site-specific exposure data and assumptions [e.g., area use factor (AUF), ingestion rates, diet]; and
- Consider alternative toxicity data and benchmarks for receptors exposed by direct contact.

The outputs of the Step 3 (ERA problem formulation) are the final list of COPECs, assessment endpoints, and questions and hypotheses potentially requiring further evaluation in the baseline ERA. In support of the second SMDP, the risk assessors provide their conclusions and recommendations based on professional judgment.

Based on previous ERAs for PGDP, it is anticipated that further BERA will not be warranted for Environmental Media RI/FS; however, further BERA may be considered in the future during CSOU, when dissolved-phase plumes and discharge to surface water can be better assessed.

5. LIKELY RESPONSE SCENARIOS AND APPLICABILITY OF STREAMLINED RESPONSES

The purpose of the FS and the overall remedy selection process is to identify remedial actions that, at a minimum, eliminate, reduce, or control risks to human health and the environment and also meet ARARs. In order to complete a determination of the data needs for the FS, potential alternatives are identified in this document. Then, an assessment of what data may be needed to support an evaluation of those alternatives can be made. Typically, the needs of the cost estimate drive the data needs as the alternatives need to be defined sufficiently to be able develop a cost estimate at a +50/-30% level. This section presents preliminary RAOs based on future land use, presents an approach for setting remediation levels, discusses the likely range of remedial alternatives, and confirms that no new data are needed to fully evaluate these alternatives.

5.1 PRELIMINARY REMEDIAL ACTION OBJECTIVES

According to EPA RI/FS guidance, RAOs consist of medium-specific goals for protecting human health and the environment (EPA 1988). RAOs provide a general description of what a CERCLA cleanup is designed to accomplish. The FS will evaluate taking actions as necessary to protect human health and the environment from contaminants and will address releases or potential releases from these areas that may impact RGA groundwater, other media, or adjacent drainage ways. The future land use was considered during RAO development. Current and anticipated future land uses for the Paducah Site and surrounding areas are described in Section 1.5 and depicted on Figures 4 and 5, respectively.

The following preliminary RAOs (goals) were developed for the Environmental Media decision and will be appropriately refined during the FS development. Meetings will be held with the FFA parties to facilitate this refinement. The RAOs previously developed for the media included in the scope of the Environmental Media RI/FS were considered during development of the preliminary RAOs; a summary of the previous RAOs is provided in Appendix E.

In developing the preliminary RAOs for this RI/FS, consideration was given to the fact that the Paducah Site is best suited for industrial use in the future and that natural ecological habitats would be prevalent only outside of the industrialized area and, therefore, would be impacted only through the release of contamination to the surface water, soil, or, groundwater. To be protective of human health and the environment, any selected alternative addressing the media included in this remedial decision must meet the following RAOs. These preliminary RAOs will be appropriately refined during the FS development.

- **Soil, Slabs, At- and Below-grade Portions of Facilities, and Lagoons**

- Treat or remove PTW wherever practicable, consistent with 40 *CFR* § 300.430(a)(1)(iii)(A).
- Contribute to the protection of groundwater, sediment, and surface water, and minimize off-site contamination by eliminating, reducing, or controlling sources of contamination.
- Prevent unacceptable human or ecological exposure to soils, slabs, at- and below-grade portions of facilities, and lagoons.

- **Burial Grounds**

- Treat or remove PTW wherever practicable, consistent with 40 *CFR* § 300.430(a)(1)(iii)(A).

- Contribute to the protection of groundwater by eliminating, reducing, or controlling sources of groundwater contamination.
- Prevent exposure to waste and contaminated soils that present an unacceptable risk from direct contact.
- **Surface Water/Sediment**
 - Prevent unacceptable human or ecological receptor exposure to contaminated surface water or sediments.
 - Reduce surface water contamination to meet ARARs.
- **C-400 Complex Confirmed/Probable PTW in Groundwater**
 - Treat or remove PTW wherever practicable, consistent with 40 *CFR* § 300.430(a)(1)(iii)(A).
 - Contribute to the protection of groundwater, sediment, and surface water, and minimize off-site contamination by eliminating, reducing, or controlling sources of contamination.

5.2 PRELIMINARY REMEDIATION LEVELS

The FS will include the basis for the preliminary remediation levels that will be used as part of alternative development. A remediation level defines the concentration (or other method of identification) of a contaminant in a medium at which a particular cleanup action component (e.g., soil removal versus containment) will be used. Remediation levels will be presented in the FS and codified in the ROD.

The following will be considered when developing the preliminary remediation levels:

- Chemical-specific preliminary remediation goals based on ARARs;
- Chemical-specific risk-based preliminary remediation goals based for the receptors and pathways of concern; and
- Provisional background and laboratory detection levels.

The cleanup level can be applied as either a "not-to-exceed" value or as an "area average." Using the remediation level as a not-to-exceed value implies that soil removal or treatment will proceed until the analysis of soil samples indicates that all soil with contaminant concentrations exceeding the cleanup level has been removed or treated. Alternatively, the area average approach involves removing or treating the areas with the highest contaminant concentrations until the average or upper confidence level concentration (i.e., post-remediation) is at or below the cleanup level (EPA 2004).

Establishment of preliminary remediation goals will be determined through review and approval of the final (D2) FS by EPA and KDEP. The parties recognize that preliminary remediation goals that eventually become cleanup levels may be modified as necessary through the remedy selection process, but are determined as part of the DOE and EPA issuance of a final ROD. Determinations on how cleanup levels will be measured (e.g., for contaminated soil) will be specified in an FFA primary document approved by EPA and KDEP.

5.3 STREAMLINED RESPONSE ACTION DOCUMENTATION

A streamlined approach to the Environmental Media FS is proposed which would bypass the preliminary technology screening step of the FS process. This approach is based on the fact that this type of screening has been completed numerous times, at the Paducah Site and at the two other DOE gaseous diffusion plants for similar COCs and site characteristics as those being evaluated. Traditionally, an FS includes an initial comprehensive process to select the general response actions (GRAs), remedial technologies, and/or process options most applicable based on the COCs and site characteristics identified at the site.

A list of FSs pertinent to the Environmental Media decision that have been completed and approved under the Paducah FFA is provided in Table 4 in Section 2.2. An FS for the C-400 Complex OU was submitted to KDEP and EPA for review but was not finalized. Additionally, FSs for all environmental media have been completed and approved by the state of Tennessee and EPA Region IV at East Tennessee Technology Park in Oak Ridge.

As a result of earlier efforts, the following GRAs (and associated technologies) have been identified for use in developing alternatives in the Environmental Media FS:

- LUCs (institutional controls) will be used to ensure appropriate land use assumptions remain valid.
- Removal and disposal of contamination in designed landfills will be used for the soils, slabs, lagoons, at- and below-grade portions of facilities, sediments, and burial grounds. This will include the use of excavation and various treatment options, as needed, on deeper contamination or to meet disposal requirements.
- Containment using various capping options will also be considered for burial grounds.
- *In situ* biological treatment, *in situ* physical/chemical treatment, *in situ* thermal treatment, and/or groundwater extraction with *ex situ* treatment will be included for confirmed/probable PTW and plume sources above the RGA (below the practical extent of excavation).
- Installation of a barrier wall will also be considered, if needed, to address C-400 Complex OU confirmed/probable DNAPL in groundwater and promote hydraulic.
- Transportation and disposal of generated waste will be addressed by the WDA decision.

Secondary response actions such as water treatment will also be developed in the alternatives, as needed.

5.4 REMEDIAL ALTERNATIVES DEVELOPMENT

A sitewide approach will be utilized for development of the remedial alternatives, rather than assessing technologies by the original OUs or SWMUs; however, information provided in previous Paducah Site FSs related to the OUs scoped under the Environmental Media decision may be referenced as appropriate during alternative development (e.g., assumed excavation area, depth) (DOE 2013b, 2017e, 2018). The alternatives described in this section are designed to address the uncertainties noted in Section 2.5. The sitewide approach to remedy development, with a bias toward removal of contamination, will produce a decision that remediates contamination to agreed levels of protectiveness sitewide, without the time and cost to reduce uncertainty in lesser characterized areas.

To develop the preliminary alternatives under the sitewide approach, identification of potential responses for each of the media was conducted. For soils, slabs, at- and below-grade portions of facilities, and lagoons, only no action and removal/disposal are considered. Because of the desire to limit DOE's long-term responsibilities at the Paducah Site, closing these contamination areas in place is not considered reasonable and would not support the future land use assumptions. Removal of soil and at- or below-grade portions of facilities, as well as lagoons, is a well-established process used at both of the other DOE gaseous diffusion plants. Various process options such as treatment with depths beyond practical excavation (to protect underlying groundwater) or treatment to meet disposal facility WAC may be needed for the removal alternative. Those details will be developed during the FS. It is anticipated that a methodical approach to removal of environmental media and utilities will be coordinated with the timing of D&D activities to avoid filling the basements or recontamination of remediated areas.

For surface water and sediment, only no action and sediment removal are considered. Again, containment of sediment contamination in place does not support the future land use assumptions. Other actions across the Paducah Site are assumed to bring the surface water contamination levels in line with RAOs assuming unacceptably contaminated sediment is removed so other surface water actions are not needed. Remedial goals for sediment COCs will be applied sitewide during the FS. The specific extent of sediment excavation to meet the remedial goals will be determined by predesign sampling post-ROD. Sediment removal in off-site surface water bodies would occur after upstream sources of contamination have been remediated.

Due to the challenges and uncertainties associated with removing burial grounds, the FS will evaluate both containment and excavation/disposal alternatives for these units. While not finalized, it is assumed that the burial grounds will be placed into groups, based on characteristics such as location, level of contamination, presence of PTW (see PTW listing in Section 2.2.2), excavation challenges, and impact on future land use in the area. The eventual alternatives will progressively excavate more of the burial grounds, starting with those that provide the greatest risk reduction, while the remaining burial grounds associated with the alternative will be contained in place. Treatment of subsurface contamination that cannot be removed during excavation to meet remediation levels will also be included. The containment and excavation/disposal alternatives developed in previous burial ground FS reports will be updated and included in the Environmental Media FS based on current information and this strategy. Partial or targeted excavation alternatives for burial grounds will not be carried forward into this FS.

The draft FS for the C-400 Complex OU included a detailed analysis of alternatives, including alternatives that contained barrier wall, bioremediation, thermal treatment, pump-and-treat, and *in situ* chemical oxidation. An evaluation is underway to determine which alternative(s) should be included in the Environmental Media RI/FS as a representative technology used for cost estimating to address the confirmed/probable DNAPL source zones at the C-400 Complex.

It is anticipated that the implementation of DNAPL remediation for the confirmed/probable sources at the C-400 Complex and sources in the UCRS would occur after the removal/disposal actions associated with remediation of the soils, slabs, at- and below-grade portions of facilities, and lagoons have occurred. Under consideration is implementation of the DNAPL remedy as a series of contingent actions depending on the results of earlier work and the ongoing IRAs at the Paducah Site.

The potential media-based responses in this section will be consolidated into sitewide alternatives that encompass elements of the Environmental RI/FS scope. The following are examples.

- Alternative 1—no action for soil, slabs, at- and below-grade portions of facilities, lagoons, surface water, sediment, burial grounds, or C-400 confirmed/probable DNAPL.

- Alternative 2—removal/disposal of soils, slabs, at- and below-grade portions of facilities, lagoons, contaminated sediments, and burial grounds south of Ogden Landing Road; treatment of soils that cannot be removed during excavation, containment of the S-, T-, and P-landfills; and treatment/containment of the C-400 confirmed/probable DNAPL.
- Alternative 3—removal/disposal of soils, slabs, at- and below-grade portions of facilities, lagoons, contaminated sediments, and burial grounds south of Ogden Landing Road; treatment of soils that cannot be removed during excavation, containment burial grounds that do not contain PTW, containment of the S-, T-, and P-landfills; and treatment/containment of the C-400 confirmed/probable DNAPL.

Meetings will be conducted with the FFA parties during the FS to obtain alignment on the alternatives development.

5.5 FS DATA NEEDS

As stated previously, data are often used in FSs to help develop details of the alternatives, one of which is cost estimating. Estimating excavation activities is driven by volume and waste disposal costs. The approved RI reports for the Soils OU provide sufficient data on the nature and extent of contamination in soil that can be used to develop and evaluate excavation alternatives for soil. Knowledge of the size of lagoons, slabs, and at- and below-grade portions of facilities can be used to develop and evaluate a removal alternative for these items.

The excavation or containment of burial grounds is a significant cost component of the alternatives and most of the burial ground volumes and efforts associated with disposal have already been estimated in approved FSs. Knowledge of the size of burial grounds that have not been the subject of an RI or FS can be used to develop and evaluate a removal alternative for these items. For SWMU 145 [Residential/Inert Landfill Borrow Area (P-Landfill)], EPA raised concern during development of the RI Report (DOE 2010e) that potential data gaps regarding extent of contamination in surface soil may minimize the area over which the final remedy is conducted. Additional data can be collected during remedial design to better define the extent of SWMU 145 in areas along the old NSDD and a potential TCE source area. Conservative, health-protective assumptions and potentially a range of estimates will be included in the FS to address the uncertainty. Containment of SWMU 145 is likely to be the only viable FS alternative due to the cost of removing because SWMU 145 is located beneath SWMU 9 (C-746-S Residential Landfill) and SWMU 10 (Note: conservative assumptions regarding a containment alternative are not likely to alter the evaluation).

There are uncertainties associated with the soil volumes (including at- and below-grade portions of facilities and waste) requiring excavation; however, there is sufficient data to provide an initial estimate and potentially a range of estimates in the FS. The actual excavation extent and subsurface treatment, if required, will be developed during the design of the remedy as described in Section 2.5. Conducting sampling at the remedial design stage allows the most recent conditions to be assessed instead of designing the remedy based on 5–10 year old data. The impacts to disposal assumptions based on contamination levels is best assessed once the WAC for the on-site disposal landfill have been set. The WAC will also assist in determining what treatment may be needed prior to disposal.

Collecting more surface water and sediment data at this time will not assist the FS. The conditions in the creeks/ditches will change notably due to the time required for the full remediation of the Paducah Site to take place. In the meantime, the available information can be used to provide a rough estimate of what sediment removal to assume in the FS.

An FS using data collected during the RI for the C-400 Complex OU was also prepared, although not finalized. Information needed to incorporate relevant aspects of a preferred alternative into the sitewide alternatives that will be developed in this Environmental Media FS are included in that FS.

No additional data are needed to conduct the Environmental Media FS. Waste disposal costs are part of the WDA RI/FS; existing Paducah Site data combined with information from Portsmouth and Oak Ridge remediation provide enough information to assume a disposal outlet for the waste generated by this remediation effort. No new data are needed to support that aspect of the WDA RI/FS.

5.6 TREATABILITY STUDY WORK

At this time, there is no need to perform a treatability study based on an evaluation of potential remedial alternatives. Sufficient lessons learned and information are available from previous treatment studies conducted at the Paducah Site and other DOE sites that have implemented remedial actions for environmental media and buried wastes. The detailed analysis of alternatives can be performed and the preferred alternative can be selected without completion of a treatability study. If a treatability study is required, it is anticipated that it will be completed as part of the remedial design process.

5.7 PRELIMINARY ACTION-SPECIFIC ARARS

Performance, design, or other action-specific requirements set controls or restrictions on particular kinds of activities related to the management of hazardous waste (55 *FR* 8741, March 8, 1990). Selection of a particular remedial action would invoke appropriate action-specific ARARs that may specify particular performance standards or technologies.

The preliminary ARARs presented in this section address the management of generated wastes including appropriate characterization of wastes generated, installation and/or abandonment of groundwater wells, groundwater monitoring, standards for the closure of waste units (SWMUs), air emissions including the control of fugitive emissions, the control of surface water, and waste transportation. While underground storage tanks may be removed under the Environmental Media decision, these tanks have been previously remediated to a “no further action” regulatory status.

Because the evaluation of alternative(s) to include in the Environmental Media RI/FS for remediation of the confirmed/probable DNAPL source zones at the C-400 Complex is not yet complete, preliminary ARARs for these alternatives are not included in this document. ARARs for this scope will be identified when the evaluation is complete. Assuming some waste would require treatment prior to disposal, ARARs are identified for treatment to meet applicable RCRA land disposal restrictions, TSCA requirements, and Kentucky regulations governing radioactive wastes. Packaging requirements for moving waste from the individual remediation site to the selected disposal facility are identified as ARARs because these activities and their corresponding regulatory requirements would be met by the individual waste generators. Actual transportation and disposal are included in the scope of the WDA RI/FS.

The preliminary action-specific ARARs are included in Appendix C. It should be noted that the preliminary ARARs provided in this document are subject to change during development of the RI/FS as alternatives are developed in detail. A specific list of ARARs is not typically included in a scoping document or RI/FS work plan and this list may not be complete. Nonetheless, DOE is providing a preliminary list of ARARs to facilitate discussion with regulators and refinement of ARARs during development of the RI/FS. Approval of this scoping document/work plan by EPA and KDEP does not create a binding commitment to these ARARs because ARARs are not finalized until the ROD is signed. DOE requests that comments

received on the ARARs contained in this scoping document/work plan be resolved during development of the RI/FS as the detailed development and evaluation of sitewide remediation alternatives for Environmental Media, D&D, and waste disposition proceed.

5.7.1 General Construction/Operation Activities

General site preparation activities, such as excavation and construction of support buildings, would trigger general requirements for storm-water runoff and air emission control measures. ARARs for these common activities are discussed here.

Storm-Water Runoff. Storm-water discharges from activities involving construction operations that result in the disturbance of land equal to or greater than one acre require implementation of good site planning and best management practices.

Air Emissions. Emissions into the air include those of a fugitive nature as well as point source emissions from stacks, vents, or other point source release into the air. Fugitive emission of airborne particulate concentrations may result from construction and operations activities. Fugitive emissions are regulated by Kentucky through administrative rules at 401 KAR 63:010. An operator must take reasonable precautions to prevent particulate matter from becoming airborne. These requirements would be applicable.

40 *CFR* Part 61, Subpart H addresses atmospheric radionuclide emissions from DOE facilities and applies to airborne emissions during construction and operation activities. National Emission Standards for Hazardous Air Pollutants limits ambient air radionuclide emissions from DOE facilities to levels that would prevent any individual from receiving an effective dose equivalent (EDE) of 10 mrem/year or more (40 *CFR* § 61.92). Nonpoint-source fugitive radionuclide emissions are estimated by plant monitoring stations. Point source emissions will be estimated as required and may involve the installation of stack monitoring devices should emission estimates be > 0.1 mrem/year.

DOE has determined that the National Emission Standards for Hazardous Air Pollutants for site remediation is applicable to Paducah Site operations if there is an exceedance of the 1 Mg/year threshold (40 *CFR* Part 63; Subpart GGGGG). All facilities that include process vents or stacks will be evaluated under this regulation to ensure emission control requirements are properly addressed. Once applicability is verified in accordance with 40 *CFR* § 63.7881, the appropriate substantive sections of the rule will be added to the ARARs table developed during the RI/FS process.

Treatment of Wastewater. Due to the nature of wastes to be excavated and managed for disposal, storm-water, groundwater infiltration, dust control comprise the primary sources of surface water requiring control including the potential for the application of treatment prior to discharge to receiving waters. Wastewater that is identifiable as RCRA-hazardous and/or PCB-regulated is anticipated to require treatment prior to disposal. If collected wastewater is treated on-site, any on-site wastewater treatment units that are part of a wastewater treatment facility subject to regulation under Clean Water Act § 402 or 307(b) (i.e., KPDES-permitted) are exempt from the requirements of RCRA Subtitle C standards for all tank systems, conveyance systems (whether piped or trucked), and ancillary equipment [40 *CFR* § 264.1(g)(6); 40 *CFR* § 260.10; 40 *CFR* § 270.1(c)(2); 53 *FR* 34079, September 2, 1988]. ARARs for an existing KPDES-permitted outfall or a new outfall established as part of this CERCLA action are included in Appendix C, Table C.2.

The FFA parties have disputed the ARARs and/or to be considered (TBC) associated with effluent standards for Atomic Energy Act source, special nuclear, and byproduct materials in wastewater. At this time, the resolution of the dispute defers establishment of radionuclide effluent standard ARARs until the proposed plan and ROD stage of remedy selection (DOE 2017c). Appendix C contains the DOE Order as a TBC with

the understanding that EPA does not agree with this position. The Order is included not to create a dispute but to facilitate discussion and resolution of the issue before the proposed plan stage.

As described in Section 1.1.2, DOE is evaluating development of a centralized wastewater treatment system to treat contaminated liquids generated by Paducah Site remediation. Only one remedy should evaluate this approach as part of its alternatives and finalize the associated ARARs. Preliminary ARARs regarding treatment and discharge of wastewater will be adjusted in the Environmental Media RI/FS report according to the final scope of the alternatives and discussion by the FFA parties. The preliminary ARARs in Appendix C may not all be required.

5.7.2 Operation of Staging Areas for Soil/Sediment/Waste Materials

Staging of soil/sediment and excavated waste materials may occur. The soil or sediment waste would be placed in a stockpile. Depending on the duration of the management of staging areas or the planned operation of a staging area controls would be provided to address storm-water runoff and fugitive dust emissions. If the soil/sediment is characterized as containing hazardous waste or as TSCA-regulated, the piles will be managed in accordance with 40 *CFR* § 264.554 and 40 *CFR* § 761.65, which are included in Table C-1.

5.7.3 Waste Management

Primary wastes (e.g., contaminated soils, debris) and secondary wastes generated during remedial activities will be characterized to determine whether it should be classified as RCRA-hazardous wastes (or containing or contaminated with RCRA-hazardous waste), TSCA waste, low-level radioactive waste(s), and/or mixed waste(s). Depending on the results of the characterization, each waste stream will be managed in accordance with RCRA, TSCA, or DOE Order and/or Manual requirements. Wastes managed on-site must comply with the substantive requirements of the aforementioned ARARs and the WAC of the disposal facility.

In many cases, debris generated from excavation (e.g., at- and below-grade portions of facilities, utilities, burial grounds) may result in heterogeneous waste streams. Characterization activities will focus on determining the overall average properties of the waste streams, using both representative sampling and process/generator knowledge in accordance with ARARs and approaches described in EPA preamble discussions contained in 57 *FR* 958 (January 9, 1992) (Preamble to the Proposed Rule—Treatment Standards for Contaminated Debris). Any RCRA-hazardous debris must be treated to meet disposal facility WAC, which could include land disposal restrictions treatment standards for hazardous debris set in accordance with 40 *CFR* § 268.45, *Treatment standards for hazardous debris*, or alternate treatment standards if the debris is being disposed of in a corrective action management unit (CAMU).

A combination of regulatory methods are being evaluated to provide for efficient and cost-effective management of generated waste, such as application of an Area of Contamination, CAMUs, staging piles, and temporary units. RCRA wastes may be managed in accordance with EPA's Area of Contamination policy, where appropriate, when consolidating wastes and/or contaminated soils within a delineated Area of Contamination.

Management of Waste in an Area of Contamination. The area of contamination concept was discussed in detail in the preamble to the National Contingency Plan (55 *FR* 8758-8760, March 8, 1990). In this discussion, EPA clarified that certain discrete areas of generally dispersed contamination (called "areas of contamination") could be equated to a RCRA landfill and that movement of hazardous wastes within those areas would not be considered land disposal and would not trigger the RCRA land disposal restrictions.

While the CAMU concept contained in the final CAMU rule originally promulgated in 1993 was historically an outgrowth of the area of contamination concept, it has a separate statutory and regulatory basis; therefore, EPA has stated that the CAMU rule supplements rather than supersedes the area of contamination concept (EPA 1995). The area of contamination concept was not altered when the final CAMU rules were promulgated and it does not depend on the existence of the CAMU rule.

Development and review of past CERCLA documents at PGDP have included discussion among the FFA parties regarding the appropriate use of the area of contamination policy. This included the definition of contiguous contamination and the waste eligible for management in the area of contamination. Application of the area of contamination policy will continue to be discussed during development of the RI/FS.

Management of Wastes in a CAMU. In 1993, EPA promulgated rules establishing special units under RCRA, called CAMUs, to facilitate cleanup actions by allowing the acceptance of remediation waste [(58 *FR* 8658, Vol. 58, No. 29, February 16, 1993), hereafter referred to as the “CAMU Rule”]. EPA recognized that remediation of existing contamination problems are inherently different from management of “as-generated” industrial waste and that applying “as-generated” regulatory requirements to remediation wastes does not always result in implementation of the best remedies. EPA stated its preliminary analysis indicates that better remedies, in terms of increased environmental benefits, are more likely under a regulatory framework tailored to remediation wastes. EPA further stated that Subtitle C requirements, when applied to remediation waste, can act as disincentive to more protective remedies, and can limit the flexibility of a regulatory decision maker in choosing the most practicable remedy at a specific site.

CAMU ARARs are included in Appendix C for two reasons. If the disposal location for waste is designated as a CAMU, then the requirements for determining CAMU-eligibility, principal hazardous constituents (PHCs), and meeting CAMU-related treatment standards are pertinent to alternative evaluation. CAMU ARARs are also included for purposes of treatment and storage CAMU designation. Treatment and storage CAMUs are similar to areas of contamination in that movement of hazardous wastes within those areas would not be considered land disposal and would not trigger the RCRA land disposal restrictions. The CAMU regulations expanded the flexibility available for management of remediation wastes beyond that offered by the area of contamination approach. Under the CAMU regulations, certain activities, which would normally be considered placement, are allowed when carried out in an agency-approved CAMU, which includes remediation waste (may be removed from a CAMU and replaced before or after treatment) in the same or a different CAMU; remediation waste may be consolidated into a CAMU before or after treatment; and, remediation waste may be moved (again, before or after treatment) between two or more CAMUs at the same facility. During development of the RI/FS, the benefit of designating treatment and storage CAMU(s) or area(s) of contamination will be evaluated and discussed with EPA and KDEP accordingly.

“CAMU-eligible waste” is defined in 40 *CFR* § 264.552 (a)(1) and generally includes all solid and hazardous waste and all media (including groundwater, surface water, soil, and sediment) and debris that are managed for implementing cleanup, but excludes some intact containers or certain types of non-land-based units. A key concept of the CAMU Rule is the identification and treatment of PHCs. CAMU-eligible wastes determined to contain PHCs, which otherwise would have been subject to the treatment standards of Part 268, must be treated to achieve minimum national treatment standards or site-specific treatment standards as specified in 40 *CFR* § 264.552(e)(4)(iv) and (e)(4)(v), if the waste will be disposed of in a CAMU.

PHCs are defined as those constituents that “pose a risk to human health or the environment that is substantially higher than the cleanup levels or goals at the site” as established in a site-specific decision document (e.g., ROD) [40 *CFR* § 264.552(e)(4)(i)].

The Environmental Media remedy would be responsible for characterization, identification, and treatment of the PHCs it generates, provided that the selected remedy involves treatment, storage, or disposal in a CAMU. The PHCs, minimum treatment standards, and treatment technologies would be identified by the Environmental Media ROD.

Designation of PHCs and treatment standards for CAMU-eligible wastes generated by the Media OU remedial action will be determined by EPA through approval of the ROD (or possibly a post-ROD FFA primary document approved by EPA, such as a remedial action work plan).

5.8 END STATE PLANNING

Figure 5 illustrates a reasonably foreseeable land use for the Paducah Site. An industrial future land use is anticipated for the currently industrialized portion of the site. The portion of the DOE property currently functioning as part of the WKWMA is identified as having an industrial or recreational future land use. The FY 2025 SMP states that several factors were considered in establishing the land use assumptions under this cleanup strategy, including current and past land use, stakeholder input, and interest expressed by outside entities for the industrial use of areas on and adjacent to the Paducah Site.

As part of the Environmental Media RI/FS, a conceptual sitewide grading plan will be developed to provide effective drainage and achieve a safe and ARAR-compliant end-state for the DOE site. This grading plan will assume the waste disposition decision includes a new on-site waste disposal facility and D&D removes site facilities. The conceptual sitewide grading plan will have the goal of minimizing backfill to the extent practicable and will include the consideration of soil that may be removed to support other remedies (i.e., soil borrow areas). At the completion of excavation, the site is expected to be graded to drain; however, if permanent surface water collection and detention are necessary to meet ARARs, the water would originate in areas that have been certified to meet final remediation levels. Alternatives developed for remediation of environmental media (e.g., soils, slabs, at- and below-grade portions of facilities, lagoons; burial grounds) will include an estimate for grading the remediated area based on the preliminary sitewide grading plan. Alternatives will not include regrading and/or backfill to the original grade unless specified in the preliminary sitewide grading plan.

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APPENDIX A

SWMUS AND AT- AND BELOW-GRADE PORTIONS OF FACILITIES INCLUDED IN THE ENVIRONMENTAL MEDIA DECISION

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Table A.1. SWMUs to be Addressed Under Environmental Media

PRIOR OPERABLE UNIT	SWMU NO.	DESCRIPTION
C-400 Complex OU	11	C-400 TCE Leak Site
	40	C-403 Neutralization Tank slab and underlying soils
	47	C-400 Technetium Storage Tank Area
	98	C-400 Basement Sump
	203	C-400 Discard Waste System slab and underlying soils
	480	C-402 Lime House building slab and underlying soils
	533	TCE Spill Site from TCE Unloading Operations at C-400
SWOU	58	North-South Diversion Ditch (NSDD) (Outside) (includes KPDES 003)
	60	C-375-E2 Effluent Ditch (KPDES 002)
	61	C-375-E5 Effluent Ditch (KPDES 013)
	62	C-375-S6 SW Ditch (KPDES 009)
	63	C-375-W7 Oil Skimmer Ditch (KPDES 008 and KPDES 004)
	65	Bayou Creek
	66	C-375-E3 Effluent Ditch (KPDES 010)
	67	C-375-E4 Effluent Ditch (C-340 Ditch) (KPDES 011)
	68	C-375-W8 Effluent Ditch (KPDES 015)
	69	C-375-W9 Effluent Ditch (KPDES 001)
	92	Fill Area for Dirt from the C-420 PCB Spill Site
	93	Concrete Disposal Area East of Plant Security Area
	97	C-601 Diesel Spill
	102 B	Plant Storm Sewer associated with C-333-A, C-337-A, C-340, C-535, and C-537
	168	KPDES Outfall Ditch 012
	526	Internal Plant Drainage Ditches (includes KPDES 016)
	105	Concrete Rubble Pile (3)
	106	Concrete Rubble Pile (4)
	107	Concrete Rubble Pile (5)
	108	Concrete Rubble Pile (6)
	109	Concrete Rubble Pile (7)
	113	Concrete Rubble Pile (11)
	129	Concrete Rubble Pile (27)
	175	Concrete Rubble Pile (28)
	185	C-611-4 Horseshoe Lagoon (includes KPDES 014)
	199	Big Bayou Creek Monitoring Station
	205	Eastern Portion of Yellow Water Line
	549	Dirt/Concrete Rubble Pile near Outfall 008
	550	Concrete Culvert Sections Located on the West Bank of the Ditch Leading to Outfall 001
	Others	Outfalls 017, 018, 019/020, and 526 and associated ditches

Table A.1. SWMUs to be Addressed Under Environmental Media (Continued)

PRIOR OPERABLE UNIT	SWMU NO.	DESCRIPTION
Lagoons OU	17	C-616-E Sludge Lagoon
	18	C-616-F Full-Flow Lagoon
	171	C-617-B Lagoon (formerly identified as C-617-A in the 10/12/1992 SAR)
	21	C-611-W Sludge Lagoon
	22	C-611-Y Overflow Lagoon (includes KPDES 006)
	23	C-611-V Lagoon (includes KPDES 005)
BGOU	2	C-749 Uranium Burial Ground
	3	C-404 Low-Level Radioactive Waste Burial Ground
	4	C-747 Contaminated Burial Ground
	5	C-746-F Classified Burial Ground
	6	C-747-B Burial Area
	7	C-747-A Burial Ground
	9	C-746-S Residential Landfill
	10	C-746-T Inert Landfill
	30	C-747-A Burn Area
	145	Residential/Inert Landfill Borrow Area (P-Landfill)
	472	C-746-B Pad
	520	Scrap Material West of C-746-A
Soils OU	1	C-747-C Oil Land Farm
	13	C-746-P Clean Scrap Yard
	14	C-746-E Contaminated Scrap Yard
	15	C-746-C Scrap Yard ⁴
	19	C-410-B HF Neutralization Lagoon
	26	C-400 to C-404 Underground Transfer Line
	56	C-540-A PCB Waste Staging Area
	57	C-541-A PCB Waste Staging Area
	76	C-632-B Sulfuric Acid Storage Tank
	77	C-634-B Sulfuric Acid Storage Tank
	80	C-540-A PCB Spill Site
	81	C-541-A PCB Spill Site
	99 B	C-745 Kellogg Bldg. Site—Septic Tank/Leach Field
	138	C-100 Southside Berm
	153	C-331 PCB Soil Contamination (West)
	156	C-310 PCB Soil Contamination (West Side)
	158	Chilled-Water System Leak Site
	160	C-745 Cylinder Yard Spoils (PCB Soils)
	163	C-304 Bldg./HVAC Piping System (Soil Backfill)
	165	C-616-L Pipeline & Vault Soil Contamination
	169	C-410-E HF Vent Surge Protection Tank
	170	C-729 Acetylene Bldg. Drain Pits
	180	Outdoor Firing Range (WKWMA)
	181	Outdoor Firing Range (PGDP)
	194	McGraw Construction Facilities (South Side Leach Field Area)
	195	Curlee Road Contaminated Soil Mounds
	196	C-746-A Septic System
	200	Soil Contamination South of TSCA Waste Storage Facility
	204	Dykes Road Historical Staging Area
	211 A	C-720 TCE Spill Site Northeast
	212	C-745-A Radiological Contamination Area
	213	OS-02

Table A.1. SWMUs to be Addressed Under Environmental Media (Continued)

PRIOR OPERABLE UNIT	SWMU NO.	DESCRIPTION
	214	OS-03
Soils OU (Continued)	215	OS-04
	216	OS-05
	217	OS-06
	219	OS-08
	221	OS-10
	222	OS-11
	224	OS-13
	225 A	OS-14
	225 B	Contaminated Soil Area near C-533-1 DMSA OS-14
	227	OS-16
	228	OS-17
	229	OS-18
	486	Rubble Pile WKWMA (approximately 116 ft off roadside)
	487	Rubble Pile WKWMA (approximately 483 ft off roadside)
	488	PCB Contamination Area by the C-410 Trailer Complex
	489	Septic Tank North of C-710 Laboratory
	492	Contaminated Soil Area Near Outfall 010
	493	Concrete Rubble Piles Near Outfall 001
	517	Rubble and Debris Erosion Control Fill Area
	518	Field South of C-746-P1 Clean Scrap Yard
	520	Scrap Material West of C-746-A
	531	Aluminum Slag Reacting Area (C-746-H4) near the C-746-A Facility
	541	Contaminated Soil Area South of Outfall 011
	561	Soil Pile I
	562	Soil Piles C, D, E, F, G, H, J, K, and P in subunit 1 north of Soil Pile I on the west bank of Little Bayou Creek
	563	Soil Piles 20, CC, and BW in subunit 4 north of outfall 012 west of Little Bayou Creek
	564	Soil Pile AT in subunit 5 that consists of three soil areas on the east side of the NSDD north of the P-, S-, and T-Landfills
	565	Rubble Area KY-19 (along Bayou Creek north of C-611 Water Treatment Plant)
	567	Soil Pile K013 near Outfall 013, West of Little Bayou Creek
Soils and Slabs OU	16	C-746-D Classified Scrap Yard
	20	C-410-E HF Emergency Holding Pond slab and underlying soils
	27	C-722 Acid Neutralization Tank
	28	C-712 Laboratory Equalization Tank slab and underlying soils
	31	C-720 Compressor Pit Water Storage Tank slab and underlying soils
	32	C-728 Clean Waste Oil Tanks slab and underlying soils
	33	C-728 Motor Cleaning Facility slab and underlying soils
	38	C-615 Sewage Treatment Plant slab and underlying soils
	41	C-410-C Neutralization Tank slab and underlying soils
	42	C-616 Chromate Reduction Facility slab and underlying soils
	55	C-405 Incinerator building slab and underlying soils
	70	C-333-A Vaporizer slab and underlying soils
	71	C-337-A Vaporizer slab and underlying soils
	74	C-340 PCB Transformer Spill Site
	75	C-633 PCB Spill Site
	77	C-634-B-Sulfuric Acid Storage Tank slab and underlying soils
	78	C-420 PCB Spill Site

Table A.1. SWMUs to be Addressed Under Environmental Media (Continued)

PRIOR OPERABLE UNIT	SWMU NO.	DESCRIPTION
Soils and Slabs OU (Continued)	79	C-611 PCB Spill Site
	82	C-531 Switchyard slab and underlying soils
	83	C-533 Switchyard slab and underlying soils
	84	C-535 Switchyard slab and underlying soils
	85	C-537 Switchyard slab and underlying soils
	86	C-631 Pumphouse and Cooling Tower Slabs and Associated Soils
	87	C-633 Pumphouse and Cooling Tower Slabs and Associated Soils
	88	C-635 Pumphouse and Cooling Tower Slabs and Associated Soils
	89	C-637 Pumphouse and Cooling Tower slab and underlying soils
	99 A	C-745 Kellogg Bldg. Site–Cylinder Yard
	135	C-333 PCB Soil Contamination (North Side)
	137	C-746-A Inactive PCB Transformer Sump Area
	154	C-331 PCB Soil Contamination (Southeast)
	155	C-333 PCB Soil Contamination (West)
	159	C-746-H3 Storage Pad slab and underlying soils
	161	C-743-T-01 Trailer Site (Soil Backfill)
	162	C-617-A Sanitary Water Line (Soil Backfill)
	166	C-100 Trailer Complex Soil Contamination (East Side)
	167	C-720 White Room Sump slab and underlying soils
	172	C-726 Sandblasting Facility slab and underlying soils
	176	C-331 RCW Leak Northwest Side
	177	C-331 RCW Leak East Side
	178	C-724-A Paint Spray Booth slab and underlying soils
	179	Plant Sanitary Sewer System
	192	C-710 Acid Interceptor Pit slab and underlying soils
	198	C-410-D Area Soil Contamination slab and underlying soils
	209	C-720 Compressor Shop Pit Sump slab and underlying soils
	211 B	C-720 TCE Spill Site Southeast
	218	OS-07 slab and underlying soils
	220	OS-09 slab and underlying soils
	223	OS-12 slab and underlying soils
	226	OS-15
	463	C-746-A East End Smelter slab and underlying soils
	464	C-746-A West End Smelter building slab and underlying soils
	469	C-745-J Yard
	470	C-746-V Yard
	474	West of Vortec Site
	477	C-340 Metals Plant building slab and underlying soils
	478	C-410/420 Feed Plant building slab and underlying soils
	482	C-415 Feed Plant Storage Building slab and underlying soils
	483	Nitrogen Generating Facilities slab and underlying soils
	498	C-410/420 Sump at Column D & E-1&2 slab and underlying soils
	499	C-410/420 Sump at Column H-9&10 slab and underlying soils
	500	C-410/420 Sump at Column U-10&11 slab and underlying soils
	501	C-410/420 UF ₆ Scale Pit Sumps A&B slab and underlying soils
	502	C-410/420 Sump at Column U-9 slab and underlying soils
	503	C-410/420 Sump at Column G-1 slab and underlying soils
	504	C-410/420 Sump at Column L-10 slab and underlying soils
	505	C-410/420 Sump at Column A-3N slab and underlying soils
	506	C-410/420 Sump at Column Wa-9 slab and underlying soils

Table A.1. SWMUs to be Addressed Under Environmental Media (Continued)

PRIOR OPERABLE UNIT	SWMU NO.	DESCRIPTION
Soils and Slabs OU (Continued)	507	C-410/420 Condensate Tank Pit slab and underlying soils
	508	C-410/420 Settling Basin slab and underlying soils
	509	C-410/420 Drain pit slab and underlying soils
	510	C-410/420 Sump at Column P&Q-2 slab and underlying soils
	511	C-410/420 Sump at Column Q&R-2 slab and underlying soils
	512	C-410/420 Sump at Column R-2 slab and underlying soils
	513	C-411 Cell Maintenance Room Sump slab and underlying soils
	522	C-340 Work Pit at Ground Floor Level (B-7—B-9) slab and underlying soils
	523	C-340 Metals Plant Pit at Ground Floor (F-6 to F-11) slab and underlying soils
	524	C-340 Pickling System Sump (B-10 to B-11) slab and underlying soils
	529	C-340 Powder Plant Sump at Ground Floor Level slab and underlying soils
	571	C-602 Coal Storage Yard
	572	C-360 Toll Transfer and Sampling Building Slab and Underlying Soils
	573	C-750 Garage Slab and Underlying Soils and Associated Outside Areas
	574	C-709-A Acid Neutralization Vault
	575	C-721 Gas Manifold Storage Slab and Underlying Soils Area
GWOU	211 B	C-720 TCE Spill Site Southeast
CSOU	8	C-746-K Inactive Sanitary Landfill
	59	NSDD (Inside)
	100	Fire Training Area
No Further Action SWMUs Requiring Action Under CERCLA¹		
Description		RCRA NFA Approval By
SWMU 46 (C-409 Hazardous Waste Pilot Plant)		EPA HSWA Class 1 Permit Mod 3/17/1993—Regulated by RCRA Permit; KDWM (Mod #13) 9/26/1997

¹ Additional SWMUs listed as no further action in the FY 2025 Site Management Plan may undergo further remediation consistent with the final remedy for Environmental Media.

Table A.2. Facilities and/or Manmade Structures At or Below Grade

FACILITY NUMBER	FACILITY DESCRIPTION
C-100	Administration Building
C-100-B	Parking Area
C-101	Cafeteria
C-102	Hospital
C-200	Guard and Fire Headquarters
C-201	Emergency Equipment Storage Bldg.
C-202	Guard Training Building
C-203	Emergency Vehicle Shelter
C-204	Disintegrator Building
C-205	Respirator Issue Facility
C-206*	Pumper Drafting Pit (14,800 gal)
C-207	Fire Training Facility
C-207-T01	Equipment Storage Carport
C-212	Former Office Building
C-212-A	Former Office Building
C-215-M	Security IMAC Portal (Ca09040)
C-216-M	Security IMAC Portal (Ca09042)
C-217	Former Post 43
C-218*	Firing Range
C-224	Main Guard Post 15 Building
C-225	Post 48 Building
C-225-A	Post 48, Parking Lot
C-226	Guard Shack (Post 91)
C-228	Guard Tower (Post 93)
C-300	Central Control Building
C-301	Low-Level Waste Storage
C-302	Operations Division Data Center
C-303	Supervisory Control and Data Acquisition Systems Building
C-304	Office Building
C-310	Purge and Product Building
C-310-331-A	Bridge (Enclosed)
C-310-331-B	Tie Line
C-310-A	Product Withdrawal Building
C-310-C	Waste Scale
C-315	Surge and Waste Building
C-315-331	Tie Line
C-320	Communication Building
C-331	Process Building
C-331-333-A	Bridge (Enclosed)
C-331-333-B	Tie Line (East)
C-331-333-C	Tie Line (West)
C-331-335	Tie Line
C-331-410	Tie Line (Abandoned Remnant)
C-331-A	Contractor Staging Area, (West)
C-331-B	Contractor Staging Area, (East)
C-331-C	Gravel Parking/Staging Area
C-333	Process Building
C-333-A	Feed Vaporization Facility
C-333-D*	Former Schulman Pipe Fabrication Shop
C-333-TB	Vending
C-335	Process Building
C-335-337-A	Bridge (Enclosed)
C-335-337-B	Tie Line (North)
C-335-337-C	Tie Line (South)

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-337	Process Building
C-337-A	Feed Vaporization Facility
C-340-A*	Powder Building/D&D
C-340-B*	Metals Building/D&D
C-340-C*	Slag Building D&D
C-340-D	Magnesium Storage Building/D&D
C-340-E	Emergency Power for Criticality Alarm/D&D
C-342	Former Ammonia (NH3) Dissociator And Storage Facility
C-342-A	Former Ammonia (NH3) Dissociator Addition
C-342-B	Dissociator Tank Shelter
C-350	Drying Agent Storage Building
C-360*	Toll Transfer and Sampling Building
C-360-A	Toll Transfer and Sampling Building Annex
C-370-E	Historical Water Quality Monitoring Sampling Station
C-400	Cleaning Building
C-400A	Emergency Power for Critical Alarms
C-400-C*	Nickel Stripper Evaporation Tank
C-400-L	Storm Water Lift Station
C-402*	Lime House
C-403*	Neutralizing Pit
C-404*	Low-Level Radioactive Waste Burial Ground
C-404-A	Sump
C-405*	Incinerator building slab and underlying soils
C-406	Former TCE Storage Tank (removed)
C-408	Former 50-Ton Truck Scale
C-409	Stabilization Building
C-410*	Feed Plant
C-410-A	Hydrogen Holder
C-410-B*	HF Neutralization Lagoon
C-410-C*	Hydrofluoric Acid Neutralization
C-410-D	Fluorine Storage Building
C-410-E*	Acid Neutralization Pond (Inactive - Filled In)
C-410-F	Hydrofluoric Acid Storage Building
C-410-G	Hydrofluoric Acid Storage Building
C-410-H	Hydrofluoric Acid Storage Building
C-410-I	Ash Receiver Shelter
C-410-J	Hydrofluoric Acid Storage Building
C-410-K	Fluorine Facility
C-411*	Cell Maintenance Building
C-411-A	Staging Area
C-412-A	Above Ground Storm Shelter
C-412-B	Above Ground Storm Shelter
C-412-C	Above Ground Storm Shelter
C-412-D	Above Ground Storm Shelter
C-412-T02**	Office Trailer
C-415*	Feed Plant Storage Building
C-416	Equipment Cleaning Pad/Staging Area
C-417	Equipment Cleaning Pad/Staging Area
C-420*	Greensalt Plant
C-531-1*	Switch House
C-531-2*	Switchyard
C-531-3A*	Fire Valve House No. 1
C-531-3B*	Fire Valve House No. 2
C-532*	Relay House

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-533-1*	Switch House
C-533-2*	Switchyard
C-533-3A*	Fire Valve House No. 1
C-533-3B*	Fire Valve House No. 2
C-533-3C*	Fire Valve House No. 3
C-533-3D*	Fire Valve House No. 4
C-535-1*	Switch House
C-535-2*	Switchyard
C-535-3A*	Fire Valve House No. 1
C-535-3B*	Fire Valve House No. 2
C-535-4*	Test Shop
C-536*	Relay House
C-537-1*	Switch House
C-537-2*	Switchyard
C-537-3A*	Fire Valve House No. 1
C-537-3B*	Fire Valve House No. 2
C-537-3C*	Fire Valve House No. 3
C-537-3D*	Fire Valve House No. 4
C-537-4*	Test Shop
C-540-A*	Oil Pump House
C-540-B	Oil Storage Tank (Northwest)
C-540-C	Oil Storage Tank (Southwest)
C-540-D	Oil Storage Tank (Northeast)
C-540-E	Oil Storage Tank (Southeast)
C-541-A*	Oil Pump House
C-541-B	Oil Storage Tank (Northwest)
C-541-C	Oil Storage Tank (Southwest)
C-541-D	Oil Storage Tank (Northeast)
C-541-E	Oil Storage Tank (Southeast)
C-600	Steam Plant
C-601	Nitrogen Generator Building Addition
C-601-A	Steam Plant Fuel Storage Tank (Center)
C-601-B	Steam Plant Fuel Storage Tank (South)
C-601-C	Steam Plant Fuel Oil Pump House
C-601-D	Steam Plant Fuel Oil Storage Tank (North)
C-602*	Coal Storage Yard
C-603-A*	Nitrogen Manifold Building
C-603-B*	Nitrogen Storage Tank (3,000 gal)
C-603-C*	Nitrogen Receiver (North)
C-603-D*	Nitrogen Receiver (South)
C-603-E	Nitrogen Storage Tank (East)
C-603-F	Nitrogen Storage Tank (Center)
C-603-G	Nitrogen Storage Tank (West)
C-603-H*	Nitrogen Generator-Control
C-603-I*	Nitrogen Generator-Tower Area
C-604	Utilities Maintenance Building
C-605	Substation Building
C-606	Coal Crusher Building
C-607	Emergency Air Compressor Generator Building
C-611-A	Building and Shop Storage
C-611-A1	Activated Carbon Storage Building
C-611-B	Head House
C-611-B1	Polymer Feed System Enclosure
C-611-C	Flocculator Basin

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-611-D	Settling Basin (Northeast)
C-611-E	Settling Basin (Northwest)
C-611-F	Settling Basin (Southeast)
C-611-F1	Secondary Coagulation Basin
C-611-F2	Chemical Feed Building for C-611-F1
C-611-F3	Activated Carbon Feed Facility
C-611-G	Settling Basin (Southwest)
C-611-H	Filter Building and Pump Station
C-611-I	Clear Well
C-611-K	Lagoon No. 4
C-611-O	Sanitary Water Storage Tank
C-611-P	Pump House
C-611-Q	36" Raw Water Line Booster Station (Storage Facility)
C-611-R	High Pressure Fire Water Tank
C-611-S	Storage and Chlorine Facility
C-611-T	Booster Pump Station (Plant Water)
C-611-U	Softening Facility (West)
C-611-U-SBV	Sludge Blowdown Vault
C-611-V*	Sludge Lagoon
C-611-V1	Sludge Lagoon
C-611-W*	Sludge Lagoon
C-611-X	Softening Facility (East)
C-611-Y*	Recycle Lagoon
C-611-Z	Flocculator Basin
C-612-A (PAD)	Storage Pad
C-612-B1	Above Ground Storm Shelter
C-613	Scrap Yard Sedimentation Basin
C-613-A	Sedimentation Basin Process Trailer
C-613-B	Soil Borrow Stockpile
C-615-A*	Primary Settling Tank /Catch Basin
C-615-B*	Final Settling Tank /Catch Basin
C-615-C*	Sewage Plant Monitoring Building
C-615-C1*	Sodium Hypochlorite Conversion Chemical Storage Building
C-615-D*	Digester
C-615-E*	Trickling Filter
C-615-F*	Dry Bed for Trickling Filter
C-615-G	Sewage Lift Station
C-615-H	Sewage Lift Station
C-615-H1	Sewage Lift Station
C-615-H12	Sewage Lift Station
C-615-H2	Sewage Lift Station
C-615-H3	Sewage Lift Station
C-615-H5	Sewage Lift Station
C-615-H6	Sewage Lift Station
C-615-H7	Chromate Lift Station (Abandoned)
C-615-H8	Sewage Lift Station
C-615-J	Chromate Lift station
C-615-K	Chromate Lift station
C-615-L	Oil Control Monitoring Station
C-615-M	Oil Control Structure
C-615-N	Oil Containment Lagoon
C-615-O	Oil Control Building
C-616-A*	Chemical Feed Building
C-616-B*	Clarifier (East)

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-616-C	Lift Station
C-616-D*	Sludge Vault and Valve Pit
C-616-E*	Sludge Lagoon
C-616-F*	Full Flow Lagoon
C-616-G	Tank Farm
C-616-H*	East-West Ditch Lift Station
C-616-H1*	Ferrous Sulfate Storage Tank (East)
C-616-H2*	Ferrous Sulfate Storage Tank (West)
C-616-J*	Reduction Tank (East)
C-616-K*	Service Building
C-616-L	Effluent Control Vault
C-616-M*	Clarifier (West)
C-616-N*	Reduction Tank (West)
C-616-P*	Sludge Vault and Valve Pit
C-616-Q	Flyash Settling Lagoon
C-616-Sump	Sump
C-617-A*	Effluent Control Station
C-617-B*	Effluent Control Lagoon
C-617-C*	Wetland and Pond for Outfall 013
C-620	Air Compressor Room
C-631-1*	Pump House
C-631-2*	Cooling Tower
C-631-3*	Pump House (Firewater)
C-631-4*	Blending Pump House
C-631-5*	Blending Cooling Tower (West)
C-631-6*	Blending Cooling Tower (East)
C-632-B*	Sulfuric Acid Storage Tank
C-633-1*	Pump House
C-633-2A*	Cooling Tower (South)
C-633-2B*	Cooling Tower (North)
C-633-3*	Blending Pump House
C-633-4*	Blending Cooling Tower (North)
C-633-5*	Blending Cooling Tower (South)
C-633-6*	Sand Filter Building
C-634-B*	Sulfuric Acid Storage Tank
C-635-1*	Pump House and Piping
C-635-2*	Cooling Tower
C-635-3*	Blending Pump House
C-635-4*	Blending Cooling Tower (North)
C-635-5*	Blending Cooling Tower (South)
C-635-6	Recirculating Heat Utilization Pump House
C-637-1*	Pump House
C-637-2A*	Cooling Tower (South)
C-637-2B*	Cooling Tower (North)
C-637-3*	Blending Pump House
C-637-4*	Blending Cooling Tower (North)
C-637-5*	Blending Cooling Tower (South)
C-637-6*	Sand Filter Building
C-709	Plant Laboratory Annex
C-709-A	Acid Neutralization Vault
C-710	Technical Services Building
C-710-A	Gas Cylinder Storage Building
C-711	Storage/Gas Manifold
C-712	Acid Neutralization Pit

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-720	Maintenance and Storage Building
C-720-A	Compressor Shop
C-720-B	Machine Shop Addition
C-720-C	Converter Shop Addition
C-720-C1	Paint Shop
C-720-D	Transformer Building
C-720-E	Change House Addition
C-720-G	Warehouse
C-720-H	Warehouse
C-720-J	Air Lock
C-720-K	Instrument Shop Addition
C-720-N1	Railroad Classification Yard
C-721*	Gas Manifold Storage
C-722	Acid Neutralization Pit
C-724-A	Carpenter Shop Annex
C-724-B	Carpenter Shop
C-724-C	Paint Shop
C-724-D	Lumber Storage Building
C-725	Janitorial Storage
C-726*	Sandblast Building
C-727	90-Day Mixed Waste Accum. Facility
C-728*	Motor Cleaning Facility
C-729	Acetylene Building
C-730	Maintenance Service Building
C-730-A1	Above Ground Storm Shelter
C-730-C	Gravel Parking Area (East)
C-730-D	Gravel Parking Area (West)
C-731	Railroad Repair Equipment Storage Building
C-732	Maintenance Materials Storage
C-733*	Waste Oil and Chemical Storage Facility
C-740	Material Yard
C-740-A	Semi-trailer Unloading Facility
C-740-B	Oil Drum Storage Shelter
C-741	Mobile Equipment Building
C-742	Cylinder Storage Building
C-742-B	Drying Agent Cylinder Storage
C-743	Office Building
C-743-B1	Above Ground Storm Shelter
C-743-C1*	Above Ground Storm Shelter
C-743-T13**	Office Trailer
C-743-T14**	Instrument Shop Trailer
C-743-T15**	Office Trailer
C-743-T16**	Office Trailer
C-744	Material Handling Building
C-745-A	Cylinder Storage Yard
C-745-A1	Fluorine Storage Yard
C-745-A-SW	Cylinder Storage Yard
C-745-B	Cylinder Storage Yard
C-745-B1	Cylinder Storage Yard Office
C-745-C	Equipment Storage Pad
C-745-E*	Cylinder Storage Yard
C-745-H	Cylinder Storage Yard
C-745-J*	Radioactive Material Storage Area
C-745-X	Equipment Storage Yard

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-745-Y	Equipment Storage Yard
C-745-Z	Equipment Storage Pad
C-745-Z1	Equipment Storage Pad
C-746-A	North Warehouse
C-746-A-H3	Slab (adjacent to 746-A slab)
C-746-A-V	Slab (adjacent to 746-A slab)
C-746-B	Staging Area
C-746-B1	Staging Area
C-746-C*	Clean Scrap Yard (North)
C-746-C1	Clean Scrap Yard (South)
C-746-D*	Classified Scrap Yard
C-746-E*	Contaminated Scrap Yard (North)
C-746-E1*	Contaminated Scrap Yard (South)
C-746-F*	Classified Burial Ground
C-746-G	Electrical Equipment Storage
C-746-H1	PEM Storage Slab
C-746-H2	PEM Storage Slab
C-746-H3*	PEM Storage Slab
C-746-H4	Nickel Ingot Storage Pad
C-746-K*	Inactive Sanitary Landfill
C-746-M*	PCB Waste Storage Area
C-746-N	Pad North Of C-746-A
C-746-P*	Scrap Metal Yard (East)
C-746-P1*	Scrap Metal Yard (West)
C-746-Q*	Hazardous and LLW Storage Facility
C-746-Q1	High Assay Waste Storage Building
C-746-S*	Residential Landfill
C-746-S1*	Landfill Service Building
C-746-T*	Inert Landfill
C-746-U1*	Landfill Office Building
C-746-U2*	Landfill Equipment Building
C-746-U3*	Landfill Leachate Facility
C-746-U13A*	Above Ground Storm Shelter
C-746-U-POND*	Landfill Holding Pond
C-746-V*	Waste Staging Pad
C-747*	Contaminated Burial Ground
C-747-A*	Burial Area
C-747-A-T04*	Scale House Shed
C-747-B	Burial Area
C-747-C*	Oil Landfarm Area
C-747-D*	H3 Pad Clamshell (North)
C-747-E*	H3 Pad Clamshell (South)
C-748-A	KOW Disposal Area (SWMU 95)
C-748-B*	Burial Ground
C-749*	Uranium Burial Ground
C-750*	Garage Building
C-751	Fuel Facility
C-751-E*	Fuel Facility
C-751-W*	Fuel Facility
C-752	Waste Holding Pad
C-752-A*	Waste Storage Facility
C-752-B	Refueling Station
C-752-C	Decontamination Facility
C-753-A	TSCA Waste Storage Facility

Table A.2. Facilities and/or Manmade Structures At or Below Grade (Continued)

FACILITY NUMBER	FACILITY DESCRIPTION
C-754	Low-Level Waste Storage
C-754-A	Waste Management Staging Area
C-755-A	Maintenance Shop
C-755-A1	Storage Shed
C-755-B	Change House Building
C-755-C	Storage Facility
C-755-D	Electrical Storage (Guard Shack)
C-755-E1	Above Ground Storm Shelter
C-755-F1	Above Ground Storm Shelter
C-755-G1	Above Ground Storm Shelter
C-755-H1	Storm Shelter
C-755-M	Wooden Storage Shed
C-755-M1	Wooden Storage Shed
C-755-M2	Wooden Storage Shed
C-755-M3	Wooden Storage Shed
C-755-M4	Wooden Storage Shed
C-755-P	Gravel Parking Lot
C-755-P1	Wooden Storage Shed
C-755-P2	Wooden Storage Shed
C-755-T	Wooden Storage Shed
C-755-W	Small Maintenance Shop
C-755-X	Storage Shed
C-757	Solid and Low-Level Waste Process Facility
C-759	Staging Area
C-759-A	Carport - Formerly ISOCS
C-760	Waste Disposition Storage Area
C-760-A	NSDD Surge Basin
C-761	Waste Disposition Staging
C-762	Gravel Laydown Area With Metal Shed
C-764-A	Parking Area
C-764-B	Sanitary Water Vault
C-764-C1	Sanitary Water Vault
C-764-D1	Above Ground Storm Shelter
C-764-D2	Above Ground Storm Shelter
C-770	Staging Area - Former Vortec Demonstration Plant
C-800	Motorcycle Parking Shelter
C-801	Ohio Ave. Bus Shelter
C-810	Parking Area (C-100)
C-811	Parking Area (C-720)

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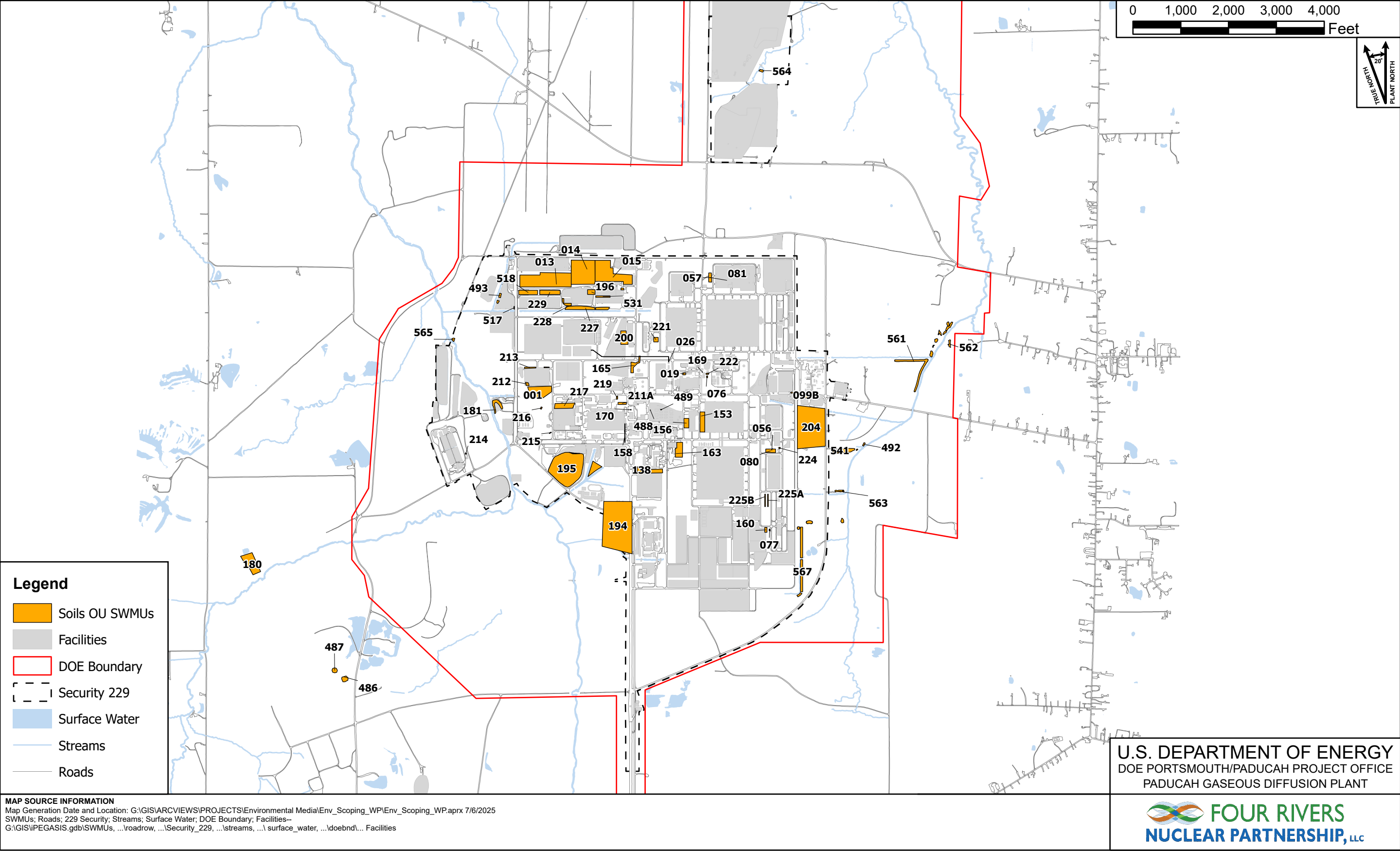


Figure A.1. Soils OU SWMUs to be Addressed Under Environmental Media

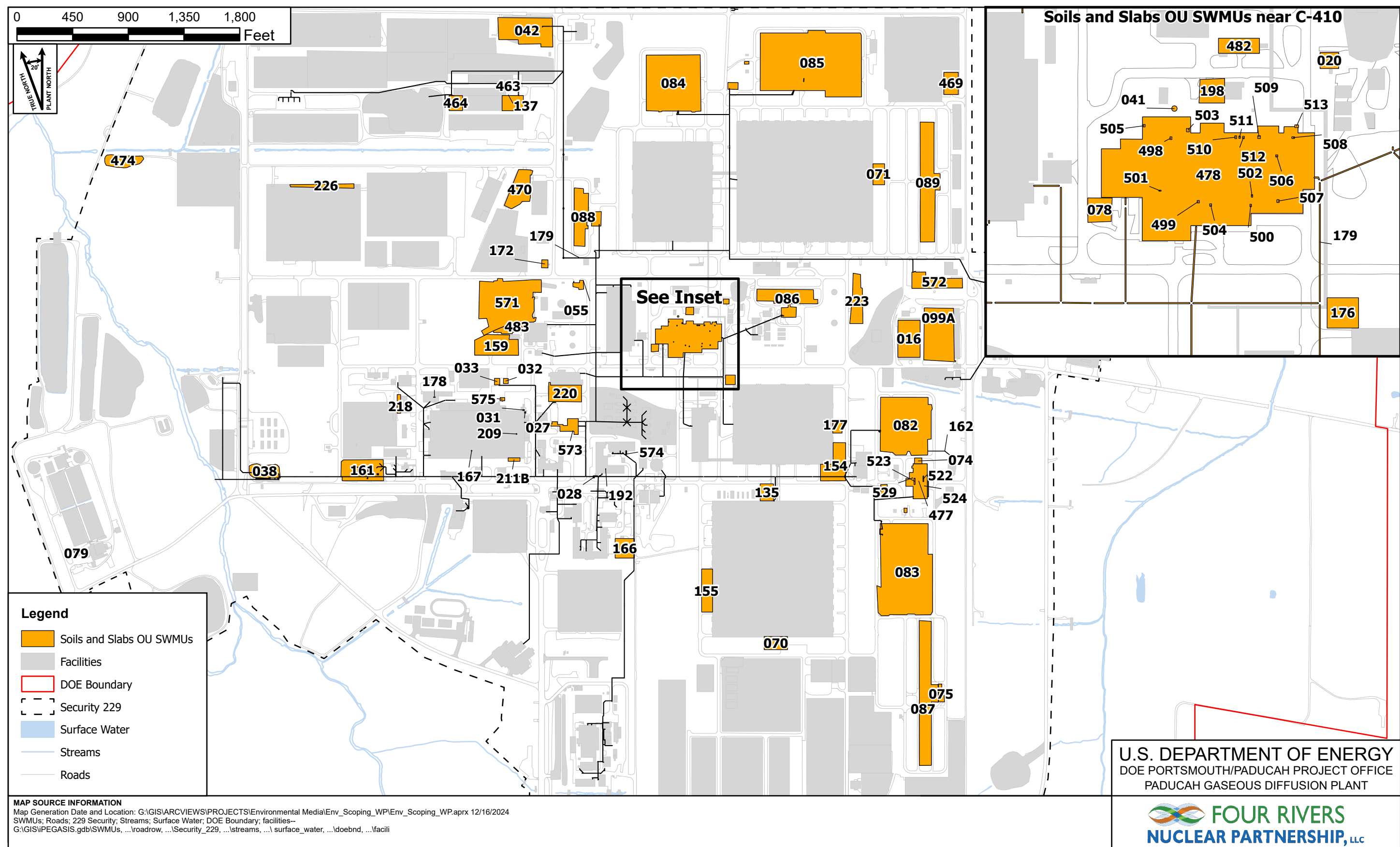


Figure A.2. Soils and Slabs OU SWMUs to be Addressed Under Environmental Media

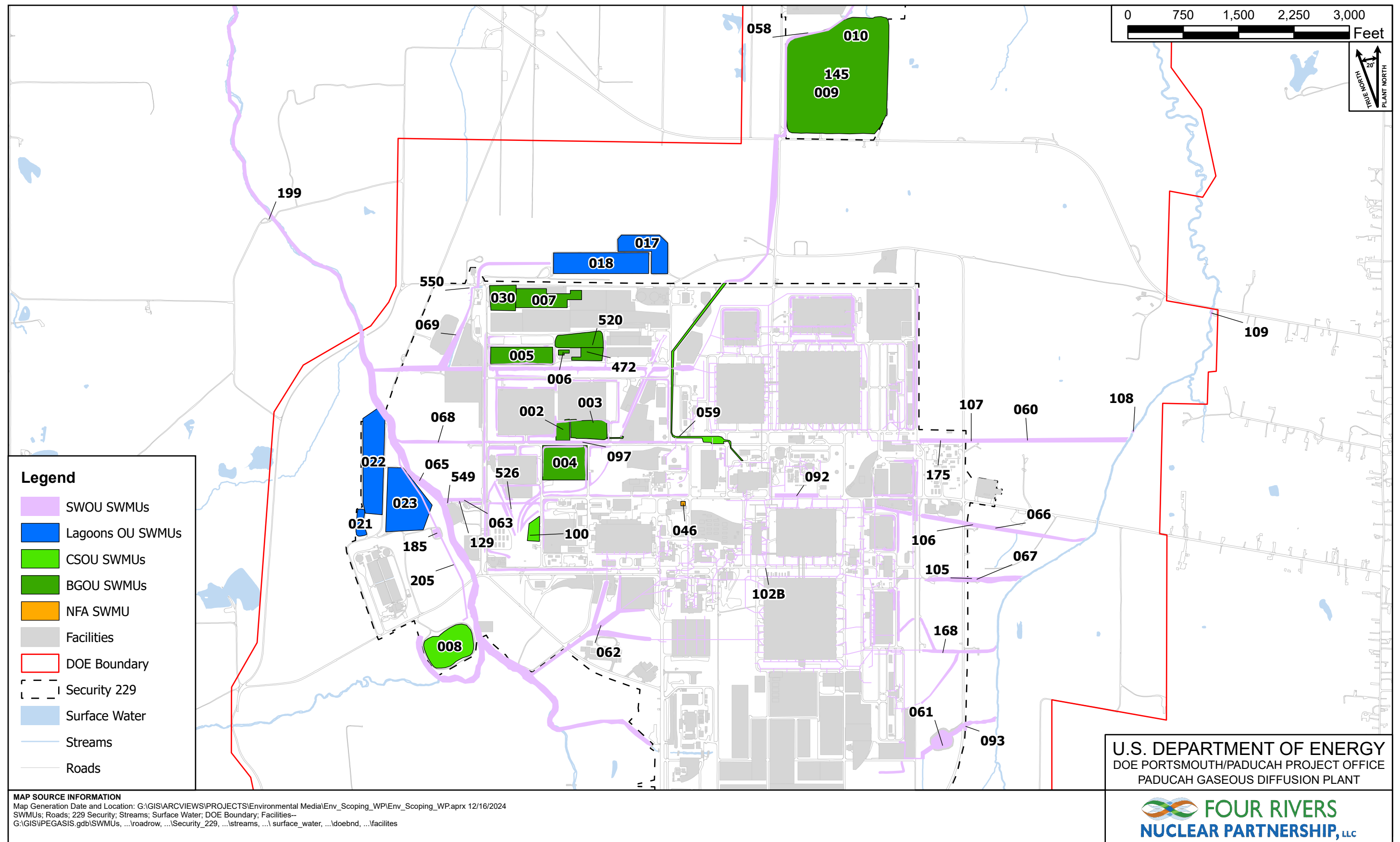


Figure A.3. Surface Water, Lagoons, Comprehensive Site, Burial Grounds and No Further Action SWMUs to be Addressed Under Environmental Media

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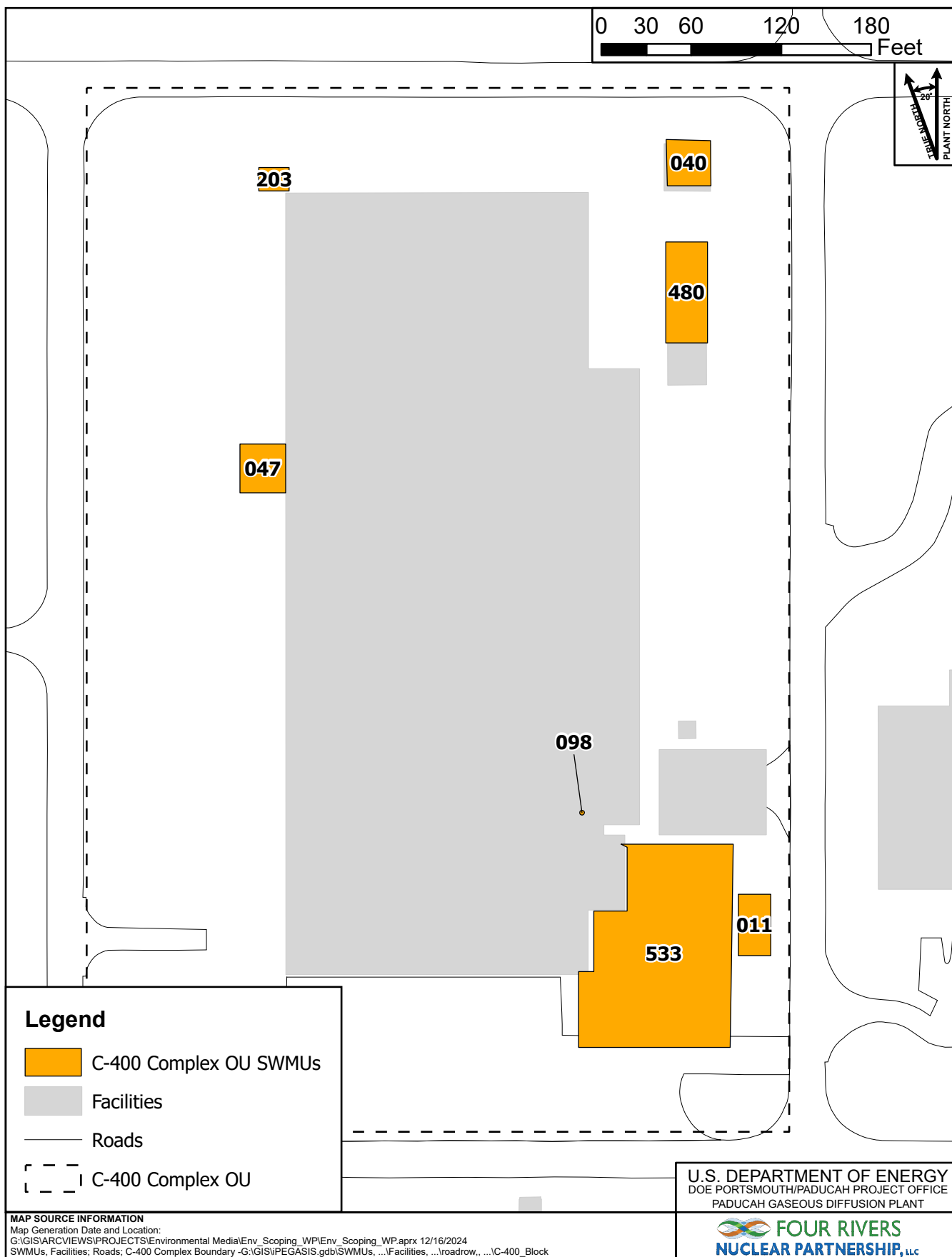


Figure A.4. C-400 Complex OU SWMUs

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APPENDIX B

DATA SUMMARIES AND ANALYTICAL DATA (DATA)

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Table B.1. Surface (0-1 ft bgs) Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	6.84E+02	2.81E+04	625/625	X	1.30E+04	-	1.00E+05	--	1.00E+05	X	3.00E+03	-	5.99E+04	4.3 - 200
METAL	Antimony	mg/kg	8.40E-02	2.45E+01	345/610	X	2.10E-01	-	9.34E+01	--	2.80E+03	X	3.52E-02	X	7.04E-01	0.026 - 21.9
METAL	Arsenic	mg/kg	1.28E+00	8.59E+01	595/654	X	1.20E+01	X	1.60E+00	--	1.60E+02	X	1.51E-03	X	3.02E-02	0.17 - 20
METAL	Arsenic XRF	mg/kg	3.00E+00	1.60E+02	638/1781	X	1.20E+01	X	1.60E+00	--	1.60E+02	X	1.51E-03	X	3.02E-02	1 - 11
METAL	Barium	mg/kg	6.19E+00	4.53E+02	654/654	X	2.00E+02	-	4.04E+04	--	1.00E+05	X	1.55E+01	X	3.11E+02	0.087 - 12.9
METAL	Beryllium	mg/kg	9.81E-02	2.45E+00	472/643	X	6.70E-01	-	4.50E+02	--	1.35E+04	X	1.95E+00	-	3.89E+01	0.02 - 3.5
METAL	Boron	mg/kg	9.98E-01	9.68E+00	130/143	N/A	N/A	-	4.65E+04	--	1.00E+05	X	1.28E+00	-	2.56E+01	2.91 - 14.8
METAL	Cadmium	mg/kg	2.10E-02	1.60E+01	451/643	X	2.10E-01	X	6.11E+00	--	1.83E+02	X	1.38E-02	X	2.77E-01	0.02 - 2.49
METAL	Chromium	mg/kg	4.33E+00	1.14E+03	653/654	X	1.60E+01	X	1.23E+01	--	1.23E+03	X	6.72E-04	X	1.34E-02	0.21 - 6.5
METAL	Chromium XRF	mg/kg	2.80E+01	3.35E+03	804/2780	X	1.60E+01	X	1.23E+01	X	1.23E+03	X	6.72E-04	X	1.34E-02	5 - 85
METAL	Cobalt	mg/kg	4.18E-01	1.04E+02	585/586	X	1.40E+01	X	6.87E+01	--	2.06E+03	X	2.71E-02	X	5.43E-01	0.06 - 4.97
METAL	Copper	mg/kg	1.41E+00	4.36E+03	608/614	X	1.90E+01	-	9.34E+03	--	1.00E+05	X	2.81E+00	X	5.62E+01	0.07 - 24.3
METAL	Copper XRF	mg/kg	6.00E+00	6.12E+03	634/1627	X	1.90E+01	-	9.34E+03	--	1.00E+05	X	2.81E+00	X	5.62E+01	4 - 35
METAL	Iron	mg/kg	1.57E+03	1.71E+05	635/635	X	2.80E+04	X	1.00E+05	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 248
METAL	Iron XRF	mg/kg	1.57E+03	1.42E+05	1781/1781	X	2.80E+04	X	1.00E+05	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 100
METAL	Lead	mg/kg	9.07E-01	8.27E+02	602/654	X	3.60E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	0.043 - 200
METAL	Lead XRF	mg/kg	6.08E+00	1.99E+03	2133/2780	X	3.60E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	2 - 13
METAL	Lithium	mg/kg	6.35E+00	1.22E+01	4/5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5 - 5
METAL	Manganese	mg/kg	3.79E+01	4.47E+04	634/634	X	1.50E+03	X	4.72E+03	--	1.00E+05	X	2.83E+00	X	5.65E+01	0.17 - 115
METAL	Manganese XRF	mg/kg	5.13E+01	3.09E+03	1772/1781	X	1.50E+03	-	4.72E+03	--	1.00E+05	X	2.83E+00	X	5.65E+01	3 - 85
METAL	Mercury	mg/kg	6.54E-03	1.00E+01	537/654	X	2.00E-01	-	7.01E+01	--	2.10E+03	X	2.95E-02	X	5.91E-01	0.00431 - 0.446
METAL	Mercury XRF	mg/kg	6.62E+00	4.37E+01	44/1781	X	2.00E-01	-	7.01E+01	--	2.10E+03	X	2.95E-02	X	5.91E-01	2 - 40
METAL	Molybdenum	mg/kg	2.10E-01	2.36E+01	422/564	N/A	N/A	-	1.17E+03	--	3.51E+04	X	2.02E-01	X	4.03E+00	0.06 - 5
METAL	Molybdenum XRF	mg/kg	5.60E+00	7.80E+01	59/1627	N/A	N/A	-	1.17E+03	--	3.51E+04	X	2.02E-01	X	4.03E+00	3 - 15
METAL	Nickel	mg/kg	4.10E+00	2.41E+03	628/654	X	2.10E+01	-	2.99E+03	--	8.98E+04	X	2.56E+00	X	5.12E+01	0.1 - 12.8
METAL	Nickel XRF	mg/kg	9.00E+00	3.79E+03	727/1781	X	2.10E+01	X	2.99E+03	--	8.98E+04	X	2.56E+00	X	5.12E+01	4 - 65
METAL	Selenium	mg/kg	1.00E-01	5.00E+00	379/651	X	8.00E-01	-	1.17E+03	--	3.51E+04	X	5.19E-02	X	1.04E+00	0.087 - 20
METAL	Selenium XRF	mg/kg	3.46E+00	2.67E+01	18/1781	X	8.00E-01	-	1.17E+03	--	3.51E+04	X	5.19E-02	X	1.04E+00	1 - 20
METAL	Silver	mg/kg	1.50E-02	9.97E+00	325/635	X	2.30E+00	-	1.17E+03	--	3.51E+04	X	7.99E-02	X	1.60E+00	0.0087 - 5.82
METAL	Silver XRF	mg/kg	8.06E+00	5.90E+01	115/1781	X	2.30E+00	-	1.17E+03	--	3.51E+04	X	7.99E-02	X	1.60E+00	6 - 50
METAL	Thallium	mg/kg	6.00E-02	2.36E+00	302/614	X	2.10E-01	X	2.34E+00	--	7.02E+01	X	1.42E-03	X	2.84E-02	0.017 - 200
METAL	Tin	mg/kg	1.34E+02	1.85E+02	2/5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100 - 100
METAL	Total Uranium ^a	mg/kg	1.50E+00	1.94E+01	10/10	X	4.90E+00	-	4.66E+01	--	1.40E+03	X	1.80E-01	X	3.60E+00	0.013 - 0.77
METAL	Total Uranium XRF ^a	mg/kg	--	--	0/25	--	4.90E+00	--	4.66E+01	--	1.40E+03	--	1.80E-01	--	3.60E+00	10 - 10
METAL	Uranium ^a	mg/kg	3.78E-01	6.41E+03	555/634	X	4.90E+00	X	4.66E+01	X	1.40E+03	X	1.80E-01	X	3.60E+00	0.0082 - 948
METAL	Uranium XRF ^a	mg/kg	5.80E+00	1.08E+04	843/2810	X	4.90E+00	X	4.66E+01	X	1.40E+03	X	1.80E-01	X	3.60E+00	6 - 53
METAL	Vanadium	mg/kg	3.44E+00	8.69E+01	654/654	X	3.80E+01	-	1.15E+03	--	3.45E+04	X	8.64E+00	-	1.73E+02	0.082 - 19.7
METAL	Zinc	mg/kg	8.54E+00	1.83E+03	582/605	X	6.50E+01	-	7.01E+04	--	1.00E+05	X	3.73E+01	X	7.46E+02	1.7 - 200
METAL	Zinc XRF	mg/kg	1.40E+01	3.17E+03	1626/1627	X	6.50E+01	-	7.01E+04	--	1.00E+05	X	3.73E+01	X	7.46E+02	1 - 25
ANION	Fluoride	mg/kg	4.80E-01	5.24E+01	114/114	N/A	N/A	-	9.33E+03	--	1.00E+05	X	1.20E+01	-	2.40E+02	1 - 1.26
DI/FURA	Total Dioxins and Furans ^b	mg/kg	2.81E-06	2.64E-05	28/28	N/A	N/A	X	1.57E-05	--	1.57E-03	X	5.91E-08	X	1.18E-06	0 - 0
PPCB	4,4'-DDD	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	4,4'-DDE	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	4,4'-DDT	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	Aldrin	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	Chlordane	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.036 - 0.42
PPCB	Dieldrin	mg/kg	--	--	0/37	N/A	N/A	--	5.08E-02	--	5.08E+00	--	7.08E-05	--	1.42E-03	0.00144 - 0.144
PPCB	Endosulfan I	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	Endosulfan II	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	Endosulfan sulfate	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	Endrin	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	Endrin aldehyde	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042

Table B.1. Surface (0-1 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
PPCB	Endrin ketone	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0036 - 0.042
PPCB	Heptachlor	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	Heptachlor epoxide	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	Lindane	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	Methoxychlor	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.018 - 0.21
PPCB	Total PCBs ^c	mg/kg	1.19E-03	2.22E+02	202/719	N/A	N/A	X	2.93E-01	X	2.93E+01	X	6.82E-03	X	1.36E-01	0.00336 - 12.4
PPCB	Total PCBs -HACH	mg/kg	1.00E+00	5.00E+01	232/3130	N/A	N/A	X	2.93E-01	X	2.93E+01	X	6.82E-03	X	1.36E-01	5 - 5
PPCB	Toxaphene	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.18 - 2.1
PPCB	alpha-BHC	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	alpha-Chlordane	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	beta-BHC	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	delta-BHC	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
PPCB	gamma-Chlordane	mg/kg	--	--	0/8	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0018 - 0.021
RADS	Actinium-227	pCi/g	--	--	0/2	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.312 - 0.316
RADS	Actinium-228	pCi/g	9.50E-01	1.41E+00	6/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.56
RADS	Americium-241	pCi/g	4.80E-03	3.93E+01	55/716	N/A	N/A	X	3.99E-01	--	3.99E+01	X	1.29E-01	X	2.57E+00	0.0067 - 1.38
RADS	Americium-243	pCi/g	--	--	0/19	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0434 - 0.191
RADS	Bismuth-212	pCi/g	5.90E-01	9.80E-01	3/3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.56 - 0.89
RADS	Bismuth-214	pCi/g	8.90E-01	1.46E+00	6/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.11 - 0.25
RADS	Cesium-134	pCi/g	--	--	0/30	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.015 - 0.0811
RADS	Cesium-137	pCi/g	2.50E-02	8.65E+00	435/714	X	4.90E-01	X	3.44E-01	--	3.44E+01	X	4.79E-01	-	9.58E+00	0.00834 - 0.69
RADS	Cobalt-60	pCi/g	--	--	0/200	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000232 - 0.653
RADS	Iodine-131	pCi/g	--	--	0/3	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0513 - 0.0773
RADS	Lead-210	pCi/g	3.00E+00	4.20E+00	2/5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2 - 12.3
RADS	Lead-212	pCi/g	1.16E+00	1.86E+00	6/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 0.21
RADS	Lead-214	pCi/g	1.07E+00	1.37E+00	6/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.12 - 0.24
RADS	Neptunium-237	pCi/g	5.10E-03	4.13E+02	122/713	X	1.00E-01	X	4.09E-01	X	4.09E+01	X	5.50E-03	X	1.10E-01	0.00461 - 4
RADS	Neptunium-239	pCi/g	--	--	0/19	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.106 - 1.5
RADS	Plutonium-238	pCi/g	1.03E-02	3.51E+00	68/694	X	7.30E-02	X	9.63E-02	--	9.63E+00	X	8.58E-03	X	1.72E-01	0.0032 - 6
RADS	Plutonium-239/240	pCi/g	6.10E-03	2.39E+02	201/717	X	2.50E-02	X	3.44E-01	X	3.44E+01	X	3.32E-02	X	6.64E-01	0.0027 - 3.5
RADS	Potassium-40	pCi/g	1.52E+00	1.40E+01	38/41	-	1.60E+01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0721 - 10.5
RADS	Protactinium-231	pCi/g	--	--	0/1	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.53 - 0.53
RADS	Protactinium-234m	pCi/g	1.66E+01	5.37E+02	4/22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.27 - 12.5
RADS	Radium-226	pCi/g	5.47E-01	1.46E+00	108/127	-	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0114 - 0.76
RADS	Strontium-90	pCi/g	--	--	0/5	--	4.70E+00	--	N/A	--	N/A	N/A	N/A	N/A	N/A	1.29 - 1.9
RADS	Technetium-99	pCi/g	3.28E-01	1.61E+03	284/717	X	2.50E+00	-	1.95E+03	--	1.95E+05	X	7.60E-03	X	1.52E-01	0.127 - 4.42
RADS	Thallium-208	pCi/g	2.90E-01	5.00E-01	6/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.064 - 0.15
RADS	Thorium-228	pCi/g	6.50E-02	3.36E+00	501/509	X	1.60E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 3.9
RADS	Thorium-230	pCi/g	1.00E-01	1.06E+04	682/717	X	1.50E+00	X	9.69E-02	X	9.69E+00	X	5.31E-02	X	1.06E+00	0.003 - 3.9
RADS	Thorium-232	pCi/g	6.90E-02	1.59E+00	506/509	N/A	N/A	X	7.52E-02	--	7.52E+00	X	1.16E-01	-	2.32E+00	0.004 - 2.9
RADS	Thorium-234	pCi/g	1.04E+00	2.65E+03	115/118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 8.31
RADS	Uranium	pCi/g	2.32E-01	2.75E+03	192/289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.134 - 111
RADS	Uranium-233/234	pCi/g	5.37E-01	2.90E+03	136/144	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.11 - 16.6
RADS	Uranium-234	pCi/g	1.09E-01	1.61E+03	489/572	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.004 - 24.8
RADS	Uranium-235	pCi/g	1.24E-02	1.03E+02	94/119	X	6.00E-02	X	3.49E-01	X	3.49E+01	X	4.78E-03	X	9.57E-02	0.00836 - 1.67
RADS	Uranium-235/236	pCi/g	1.30E-02	1.77E+02	211/321	X	6.00E-02	X	3.49E-01	X	3.49E+01	X	4.78E-03	X	9.57E-02	0.005 - 14.1
RADS	Uranium-238	pCi/g	8.90E-02	3.00E+03	665/716	X	1.20E+00	X	9.53E-02	X	9.53E+00	X	1.06E-03	X	2.12E-02	0.004 - 50.8
SVOA	1,1-biphenyl	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	1,2-Dichlorobenzene	mg/kg	--	--	0/289	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 0.5
SVOA	1,2-Diphenylhydrazine	mg/kg	--	--	0/19	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.44 - 0.5
SVOA	1,3-Dichlorobenzene	mg/kg	--	--	0/289	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 0.5

Table B.1. Surface (0-1 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20		DAF 20	
SVOA	1,4-Dichlorobenzene	mg/kg	--	--	0/296	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 0.5
SVOA	1,4-Dioxane	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2,4-Dinitrophenol	mg/kg	--	--	0/398	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.38 - 29
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.21 - 14.5
SVOA	2,6-Dichlorophenol	mg/kg	--	--	0/19	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.44 - 0.5
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.21 - 14.5
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	2-Chlorophenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	2-Methylnaphthalene	mg/kg	1.77E-02	1.10E+00	10/404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	2-Methylphenol	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/461	N/A	N/A	--	2.87E+02	--	8.61E+03	--	8.01E-03	--	1.60E-01	0.332 - 14.5
SVOA	2-Nitrophenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.21 - 14.5
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	4-Methylphenol	mg/kg	--	--	0/28	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.38 - 0.5
SVOA	4-Nitrophenol	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Acenaphthene	mg/kg	1.58E-02	2.70E+00	45/600	N/A	N/A	-	1.38E+03	--	4.14E+04	X	5.49E-01	-	1.10E+01	0.00774 - 1.45
SVOA	Acenaphthylene	mg/kg	4.20E-02	2.90E-01	5/598	N/A	N/A	-	1.38E+03	--	4.14E+04	-	5.49E-01	-	1.10E+01	0.00774 - 1.45
SVOA	Acetophenone	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Aniline	mg/kg	--	--	0/1	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.46 - 0.46
SVOA	Anthracene	mg/kg	1.17E-02	4.90E+00	66/600	N/A	N/A	-	6.89E+03	--	1.00E+05	-	5.81E+00	-	1.16E+02	0.00774 - 1.45
SVOA	Atrazine	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Benzaldehyde	mg/kg	--	--	0/113	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Benzenemethanol	mg/kg	5.90E-02	5.90E-02	1/280	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 0.5
SVOA	Benzo(ghi)perylene	mg/kg	3.33E-03	4.90E+00	120/542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00774 - 1.45
SVOA	Benzoic acid	mg/kg	3.70E-01	7.30E-01	6/282	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.44 - 2.3
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.0066 - 14.5
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.06E-02	1.50E+01	46/403	N/A	N/A	-	5.80E+01	--	5.80E+03	X	1.33E+00	-	2.66E+01	0.0332 - 2.1
SVOA	Butyl benzyl phthalate	mg/kg	3.08E-02	6.17E+00	7/403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	Caprolactam	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Carbazole	mg/kg	1.30E-02	1.40E+00	24/202	N/A	N/A	-	9.19E+02	--	2.76E+04	X	5.45E-01	-	1.09E+01	0.0332 - 1.45
SVOA	Di-n-butyl phthalate	mg/kg	1.07E-02	3.40E+01	42/400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 4.8
SVOA	Di-n-octylphthalate	mg/kg	1.28E-02	5.96E-02	3/403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	Dibenzofuran	mg/kg	4.40E-02	1.10E+00	13/401	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	Diethyl phthalate	mg/kg	7.20E-02	7.20E-02	1/400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	Dimethyl phthalate	mg/kg	2.11E-01	2.11E-01	1/398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0332 - 1.45
SVOA	Diphenylamine	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Fluoranthene	mg/kg	5.83E-03	2.40E+01	198/597	N/A	N/A	-	9.19E+02	--	2.76E+04	X	8.91E+00	-	1.78E+02	0.00774 - 1.9
SVOA	Fluorene	mg/kg	1.44E-02	2.20E+00	37/571	N/A	N/A	-	9.19E+02	--	2.76E+04	X	5.45E-01	-	1.09E+01	0.00774 - 1.45
SVOA	Hexachlorobenzene	mg/kg	--	--	0/463	N/A	N/A	--	1.26E+00	--	7.01E+01	--	1.23E-04	--	2.46E-03	0.0034 - 14.5
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/405	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.21 - 14.5

Table B.1. Surface (0-1 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Hexachloroethane	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	Isophorone	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/461	N/A	N/A	--	1.16E-01	--	1.16E+01	--	8.10E-06	--	1.62E-04	0.0066 - 14.5
SVOA	N-Nitrosodimethylamine	mg/kg	--	--	0/19	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.44 - 0.5
SVOA	N-Nitrosodiphenylamine	mg/kg	--	--	0/289	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.33 - 0.5
SVOA	Naphthalene	mg/kg	1.43E-02	1.80E+00	14/600	N/A	N/A	-	4.06E+00	--	4.06E+02	X	3.85E-04	X	7.70E-03	0.00774 - 1.45
SVOA	Nitrobenzene	mg/kg	--	--	0/410	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	Pentachlorophenol	mg/kg	--	--	0/439	N/A	N/A	--	8.77E-01	--	8.77E+01	--	5.71E-05	--	1.14E-03	0.332 - 14.5
SVOA	Phenanthrene	mg/kg	3.75E-03	1.90E+01	156/599	N/A	N/A	-	6.89E+02	--	2.07E+04	X	1.32E+00	-	2.63E+01	0.00774 - 1.45
SVOA	Phenol	mg/kg	1.30E-01	1.30E-01	1/403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 14.5
SVOA	Pyrene	mg/kg	4.58E-03	1.40E+01	190/600	N/A	N/A	-	6.89E+02	--	2.07E+04	X	1.32E+00	-	2.63E+01	0.00774 - 1.45
SVOA	Pyridine	mg/kg	--	--	0/296	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.35 - 0.93
SVOA	Total PAHs ^d	mg/kg	1.00E-05	9.87E+00	267/858	N/A	N/A	X	6.43E-01	--	6.43E+01	X	2.94E-02	X	5.89E-01	0.2 - 0.2
SVOA	m+p Methylphenol	mg/kg	--	--	0/114	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
SVOA	m,p-Cresol	mg/kg	--	--	0/268	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.35 - 0.93
SVOA	p-Nitroaniline	mg/kg	--	--	0/403	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.332 - 14.5
VOA	1,1,1-Trichloroethane	mg/kg	--	--	0/145	N/A	N/A	--	3.58E+03	--	1.00E+05	--	2.81E-01	--	5.62E+00	0.000808 - 0.362
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	0/129	N/A	N/A	--	2.81E+03	--	8.43E+04	--	2.56E+00	--	5.13E+01	0.00404 - 1.81
VOA	1,1,2-Trichloroethane	mg/kg	2.41E-03	2.41E-03	1/145	N/A	N/A	-	6.32E-01	--	1.90E+01	X	1.35E-05	X	2.69E-04	0.000808 - 0.362
VOA	1,1-Dichloroethane	mg/kg	--	--	0/116	N/A	N/A	--	1.58E+01	--	1.58E+03	--	7.82E-04	--	1.56E-02	0.000808 - 0.362
VOA	1,1-Dichloroethene	mg/kg	9.45E-04	5.97E-03	3/174	N/A	N/A	-	1.00E+02	--	3.00E+03	-	1.02E-02	-	2.04E-01	0.000808 - 0.362
VOA	1,2,3-Trichlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2-Dibromo-3-chloropropane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2-Dibromoethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2-Dichlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2-Dichloroethane	mg/kg	--	--	0/145	N/A	N/A	--	2.09E+00	--	2.09E+02	--	4.84E-05	--	9.69E-04	0.000808 - 0.362
VOA	1,2-Dichloroethene	mg/kg	--	--	0/29	N/A	N/A	--	2.10E+03	--	6.30E+04	--	4.78E-03	--	9.56E-02	0.0019 - 0.00246
VOA	1,2-Dichloropropane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,2-Dimethylbenzene	mg/kg	3.15E-04	2.21E-02	15/158	N/A	N/A	-	2.81E+02	--	8.43E+03	X	1.91E-02	-	3.81E-01	0.000808 - 0.362
VOA	1,3-Dichlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,4-Dichlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	1,4-Dioxane	mg/kg	5.52E-02	5.52E-02	1/112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0404 - 18.1
VOA	2-Butanone	mg/kg	1.63E-03	2.56E-01	26/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	2-Chloroethyl vinyl ether	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	2-Hexanone	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	2-Methoxy-2-methylpropane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	4-Methyl-2-pentanone	mg/kg	2.60E-03	2.60E-03	1/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Acetone	mg/kg	1.77E-03	2.49E-01	71/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Acrolein	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Acrylonitrile	mg/kg	--	--	0/158	N/A	N/A	--	1.24E+00	--	1.24E+02	--	1.14E-05	--	2.28E-04	0.00404 - 1.81
VOA	Benzene	mg/kg	3.47E-04	4.02E-03	13/158	N/A	N/A	-	5.31E+00	--	5.31E+02	X	2.33E-04	-	4.66E-03	0.000808 - 0.362
VOA	Bromochloromethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Bromodichloromethane	mg/kg	--	--	0/145	N/A	N/A	--	1.30E+00	--	1.30E+02	--	3.65E-05	--	7.30E-04	0.000808 - 0.362
VOA	Bromoform	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Bromomethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Carbon disulfide	mg/kg	1.62E-02	1.62E-02	1/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Carbon tetrachloride	mg/kg	--	--	0/158	N/A	N/A	--	2.96E+00	--	2.96E+02	--	1.77E-04	--	3.54E-03	0.000808 - 0.362
VOA	Chlorobenzene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Chloroethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362

Table B.1. Surface (0-1 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20		DAF 20	
VOA	Chloroform	mg/kg	3.36E-04	2.43E-03	34/158	N/A	N/A	-	1.39E+00	--	1.39E+02	X	6.12E-05	X	1.22E-03	0.000808 - 0.362
VOA	Chloromethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Cumene	mg/kg	4.34E-04	1.69E-03	3/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Cyclohexane	mg/kg	4.15E-04	4.81E-02	17/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Dibromochloromethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Dichlorodifluoromethane	mg/kg	--	--	0/129	N/A	N/A	--	3.68E+01	--	1.10E+03	--	3.04E-02	--	6.08E-01	0.000808 - 0.362
VOA	Ethylbenzene	mg/kg	3.49E-04	2.32E-02	17/158	N/A	N/A	-	2.66E+01	--	2.66E+03	X	1.68E-03	-	3.36E-02	0.000808 - 0.362
VOA	Methyl acetate	mg/kg	2.33E-03	1.88E-02	2/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Methylcyclohexane	mg/kg	3.66E-04	2.45E+00	31/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Methylene chloride	mg/kg	1.66E-03	2.30E-01	39/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00404 - 1.81
VOA	Styrene	mg/kg	1.18E-03	1.18E-03	1/116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Tetrachloroethene	mg/kg	3.63E-04	8.35E-02	5/158	N/A	N/A	-	4.00E+01	--	1.20E+03	X	1.84E-03	X	3.69E-02	0.000808 - 0.362
VOA	Toluene	mg/kg	3.41E-04	3.92E+00	53/129	N/A	N/A	-	6.25E+03	--	1.00E+05	X	7.62E-02	X	1.52E+00	0.000808 - 0.362
VOA	Total Xylene	mg/kg	1.14E-03	8.50E-02	15/158	N/A	N/A	-	2.50E+02	--	7.50E+03	X	1.91E-02	-	3.82E-01	0.00242 - 1.09
VOA	Trichloroethene	mg/kg	3.67E-04	2.36E+01	48/174	N/A	N/A	X	1.90E+00	--	5.70E+01	X	1.01E-04	X	2.02E-03	0.000808 - 0.362
VOA	Trichlorofluoromethane	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	Vinyl chloride	mg/kg	7.22E-04	2.21E-01	3/174	N/A	N/A	-	2.06E+00	--	2.06E+02	X	6.47E-06	X	1.29E-04	0.000808 - 0.362
VOA	cis-1,2-Dichloroethene	mg/kg	3.50E-04	1.85E+00	26/174	N/A	N/A	-	4.00E+01	--	1.20E+03	X	1.06E-03	X	2.12E-02	0.000808 - 0.362
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
VOA	m,p-Xylene	mg/kg	6.41E-04	6.29E-02	20/158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00162 - 0.724
VOA	trans-1,2-Dichloroethene	mg/kg	5.33E-04	2.71E-02	6/161	N/A	N/A	-	3.04E+01	--	9.12E+02	X	2.12E-03	-	4.24E-02	0.000808 - 0.362
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/116	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.000808 - 0.362
WETCHEM	Cyanide	mg/kg	--	--	0/4	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	1 - 1
WETCHEM	Releasable Hydrogen Cyanide	mg/kg	--	--	0/10	N/A	N/A	--	N/A	--	N/A	N/A	N/A	N/A	N/A	0.5 - 2
WETCHEM	Releasable Hydrogen Sulfide	mg/kg	4.20E+01	9.70E+01	3/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40 - 50
WETCHEM	Total Solids	mg/kg	8.03E+05	8.65E+05	4/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	46.8 - 81.2

X	Max Concentration Exceeds Background Level
X	Max Concentration Exceeds No Action Limit
X	Max Concentration Exceeds Action Limit
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024.

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	2.90E+03	5.28E+04	992/992	X	1.20E+04	X	3.26E+04	-	1.00E+05	X	3.00E+03	-	5.99E+04	4 - 1130
METAL	Antimony	mg/kg	8.00E-02	1.81E+01	355/917	X	2.10E-01	X	1.32E+01	-	3.96E+02	X	3.52E-02	X	7.04E-01	0.024 - 22.7
METAL	Arsenic	mg/kg	8.88E-01	5.46E+01	825/1072	X	7.90E+00	X	3.74E+00	-	3.60E+02	X	1.51E-03	X	3.02E-02	0.16 - 20
METAL	Arsenic XRF	mg/kg	2.00E+00	1.11E+02	773/2193	X	7.90E+00	X	3.74E+00	-	3.60E+02	X	1.51E-03	X	3.02E-02	3 - 11
METAL	Barium	mg/kg	9.50E+00	2.96E+03	1055/1055	X	1.70E+02	-	6.47E+03	-	1.00E+05	X	1.55E+01	X	3.11E+02	0.084 - 124
METAL	Beryllium	mg/kg	1.20E-01	4.48E+00	631/997	X	6.90E-01	-	6.55E+01	-	1.97E+03	X	1.95E+00	-	3.89E+01	0.042 - 3.1
METAL	Boron	mg/kg	8.98E-01	8.07E+00	143/177	N/A	N/A	-	6.57E+03	-	1.00E+05	X	1.28E+00	-	2.56E+01	2.91 - 17.5
METAL	Cadmium	mg/kg	1.30E-02	1.56E+01	515/997	X	2.10E-01	X	2.54E+00	-	7.62E+01	X	1.38E-02	X	2.77E-01	0.025 - 2.5
METAL	Chromium	mg/kg	3.31E+00	3.93E+02	1072/1072	X	4.30E+01	X	9.14E+00	-	9.14E+02	X	6.72E-04	X	1.34E-02	0.582 - 11.7
METAL	Chromium XRF	mg/kg	2.90E+01	2.96E+03	984/2760	X	4.30E+01	X	9.14E+00	X	9.14E+02	X	6.72E-04	X	1.34E-02	12 - 85
METAL	Cobalt	mg/kg	2.10E+00	1.90E+02	742/766	X	1.30E+01	X	9.84E+00	-	2.95E+02	X	2.71E-02	X	5.43E-01	0.08 - 4.99
METAL	Copper	mg/kg	2.43E+00	1.61E+02	909/917	X	2.50E+01	-	1.32E+03	-	3.96E+04	X	2.81E+00	X	5.62E+01	0.388 - 24.2
METAL	Copper XRF	mg/kg	5.00E+00	8.07E+02	551/2193	X	2.50E+01	-	1.32E+03	-	3.96E+04	X	2.81E+00	X	5.62E+01	4 - 35
METAL	Iron	mg/kg	2.57E+03	1.12E+05	962/962	X	2.80E+04	X	2.30E+04	X	1.00E+05	X	3.52E+01	X	7.04E+02	5 - 2270
METAL	Iron XRF	mg/kg	2.39E+03	8.07E+04	2193/2193	X	2.80E+04	X	2.30E+04	-	1.00E+05	X	3.52E+01	X	7.04E+02	12 - 100
METAL	Lead	mg/kg	2.80E+00	9.44E+02	820/1072	X	2.30E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	0.04 - 200
METAL	Lead XRF	mg/kg	6.00E+00	1.80E+03	2207/2860	X	2.30E+01	X	8.00E+02	X	8.00E+02	X	1.35E+01	X	2.70E+02	3 - 13
METAL	Lithium	mg/kg	5.15E+00	1.44E+01	23/27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5 - 5
METAL	Manganese	mg/kg	1.95E+01	3.11E+04	962/962	X	8.20E+02	X	7.74E+02	X	2.32E+04	X	2.83E+00	X	5.65E+01	0.16 - 285
METAL	Manganese XRF	mg/kg	5.30E+01	4.15E+03	2155/2193	X	8.20E+02	X	7.74E+02	-	2.32E+04	X	2.83E+00	X	5.65E+01	18 - 85
METAL	Mercury	mg/kg	7.10E-03	7.09E+00	616/1060	X	1.30E-01	-	9.86E+00	-	2.96E+02	X	2.95E-02	X	5.91E-01	0.01 - 0.521
METAL	Mercury XRF	mg/kg	6.41E+00	1.40E+01	58/2193	X	1.30E-01	X	9.86E+00	-	2.96E+02	X	2.95E-02	X	5.91E-01	6 - 40
METAL	Molybdenum	mg/kg	1.37E-01	2.01E+01	475/747	N/A	N/A	-	1.64E+02	-	4.92E+03	X	2.02E-01	X	4.03E+00	0.08 - 4.99
METAL	Molybdenum XRF	mg/kg	7.00E+00	9.49E+01	50/2193	N/A	N/A	-	1.64E+02	-	4.92E+03	X	2.02E-01	X	4.03E+00	3 - 15
METAL	Nickel	mg/kg	3.00E+00	3.23E+03	987/1060	X	2.20E+01	X	6.21E+02	-	1.86E+04	X	2.56E+00	X	5.12E+01	0.388 - 116
METAL	Nickel XRF	mg/kg	1.00E+01	1.29E+03	685/2193	X	2.20E+01	X	6.21E+02	-	1.86E+04	X	2.56E+00	X	5.12E+01	4 - 65
METAL	Selenium	mg/kg	6.00E-02	9.80E+00	450/1072	X	7.00E-01	-	1.64E+02	-	4.92E+03	X	5.19E-02	X	1.04E+00	0.08 - 20
METAL	Selenium XRF	mg/kg	3.06E+00	3.07E+01	13/2193	X	7.00E-01	-	1.64E+02	-	4.92E+03	X	5.19E-02	X	1.04E+00	3 - 20
METAL	Silver	mg/kg	1.10E-02	2.22E+01	341/980	X	2.70E+00	-	1.64E+02	-	4.92E+03	X	7.99E-02	X	1.60E+00	0.008 - 6.34
METAL	Silver XRF	mg/kg	8.26E+00	1.46E+02	127/2193	X	2.70E+00	-	1.64E+02	-	4.92E+03	X	7.99E-02	X	1.60E+00	10 - 50
METAL	Thallium	mg/kg	7.40E-02	2.40E+00	343/917	X	3.40E-01	X	3.29E-01	-	9.87E+00	X	1.42E-03	X	2.84E-02	0.016 - 200
METAL	Tin	mg/kg	1.13E+02	2.17E+02	12/27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100 - 1000
METAL	Total Uranium ^a	mg/kg	2.05E+00	8.21E+00	7/7	X	4.60E+00	X	6.58E+00	-	1.97E+02	X	1.80E-01	X	3.60E+00	0.02 - 0.07
METAL	Uranium ^a	mg/kg	4.73E-01	1.11E+04	678/965	X	4.60E+00	X	6.58E+00	X	1.97E+02	X	1.80E-01	X	3.60E+00	0.0084 - 1000
METAL	Uranium XRF ^a	mg/kg	5.13E+00	8.52E+03	522/2760	X	4.60E+00	X	6.58E+00	X	1.97E+02	X	1.80E-01	X	3.60E+00	10 - 53
METAL	Vanadium	mg/kg	2.80E+00	1.08E+02	1049/1056	X	3.70E+01	-	1.65E+02	-	4.95E+03	X	8.64E+00	-	1.73E+02	0.08 - 23.4
METAL	Zinc	mg/kg	8.22E+00	3.36E+02	781/885	X	6.00E+01	-	9.86E+03	-	1.00E+05	X	3.73E+01	-	7.46E+02	1.7 - 200
METAL	Zinc XRF	mg/kg	1.05E+01	1.04E+03	2187/2193	X	6.00E+01	-	9.86E+03	-	1.00E+05	X	3.73E+01	X	7.46E+02	1 - 25
ANION	Fluoride	mg/kg	8.80E-01	4.04E+01	177/177	N/A	N/A	-	1.32E+03	-	3.96E+04	X	1.20E+01	-	2.40E+02	1.03 - 2.36
DI/FURA	Total Dioxins and Furans ^b	mg/kg	2.42E-06	5.39E-05	40/40	N/A	N/A	X	1.89E-05	-	5.67E-04	X	5.91E-08	X	1.18E-06	0 - 0
PPCB	4,4'-DDD	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	4,4'-DDE	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	4,4'-DDT	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	Aldrin	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	Chlordane	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.039 - 0.04
PPCB	Dieldrin	mg/kg	--	--	0/2	N/A	N/A	--	1.66E-01	--	1.66E+01	--	7.08E-05	--	1.42E-03	0.0039 - 0.004
PPCB	Endosulfan I	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	Endosulfan II	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	Endosulfan sulfate	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	Endrin	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	Endrin aldehyde	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004
PPCB	Endrin ketone	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0039 - 0.004

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
PPCB	Heptachlor	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	Heptachlor epoxide	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	Lindane	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	Methoxychlor	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02 - 0.02
PPCB	Total PCBs ^c	mg/kg	1.53E-03	1.40E+02	183/1130	N/A	N/A	X	1.12E+00	X	1.12E+02	X	6.82E-03	X	1.36E-01	0.00339 - 67
PPCB	Total PCBs -HACH	mg/kg	5.00E+00	5.00E+01	43/2448	N/A	N/A	X	1.12E+00	-	1.12E+02	X	6.82E-03	X	1.36E-01	5 - 5
PPCB	Toxaphene	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.2 - 0.2
PPCB	alpha-BHC	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	alpha-Chlordane	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	beta-BHC	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	delta-BHC	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
PPCB	gamma-Chlordane	mg/kg	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.002
RADS	Actinium-227	pCi/g	--	--	0/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.252 - 0.252
RADS	Actinium-228	pCi/g	4.13E-01	5.05E+00	10/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.071 - 0.948
RADS	Americium-241	pCi/g	9.30E-03	1.06E+01	19/1004	N/A	N/A	X	1.69E+00	-	1.69E+02	X	1.29E-01	X	2.57E+00	0.0042 - 1.55
RADS	Americium-243	pCi/g	--	--	0/68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.042 - 0.3086
RADS	Antimony-124	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.017 - 0.04243
RADS	Antimony-125	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.053 - 0.1226
RADS	Barium-133	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.024 - 0.2607
RADS	Barium-140	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.074 - 1.132
RADS	Beryllium-7	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.39
RADS	Bismuth-211	pCi/g	--	--	0/9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3 - 2.928
RADS	Bismuth-212	pCi/g	1.60E-01	4.71E+00	11/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.11 - 1.832
RADS	Bismuth-214	pCi/g	3.90E-01	5.56E+00	12/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.403
RADS	Cerium-139	pCi/g	--	--	0/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01705 - 0.03556
RADS	Cerium-141	pCi/g	--	--	0/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.037 - 0.3281
RADS	Cerium-144	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 1.289
RADS	Cesium-134	pCi/g	--	--	0/94	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.421
RADS	Cesium-136	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.028 - 0.4441
RADS	Cesium-137	pCi/g	2.43E-02	4.60E+01	205/998	X	2.80E-01	X	2.26E+00	-	2.26E+02	X	4.79E-01	X	9.58E+00	0.000000662 - 0.543
RADS	Chromium-51	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.39
RADS	Cobalt-56	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.019 - 0.2433
RADS	Cobalt-57	pCi/g	--	--	0/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01522 - 0.03087
RADS	Cobalt-58	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.014 - 0.043
RADS	Cobalt-60	pCi/g	9.70E-02	9.70E-02	1/432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.014 - 0.366
RADS	Europium-152	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.051 - 0.12
RADS	Europium-154	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0315 - 0.15
RADS	Europium-155	pCi/g	--	--	0/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.081 - 0.6876
RADS	Iridium-192	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.017 - 0.2067
RADS	Iron-59	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03 - 0.09528
RADS	Lead-210	pCi/g	2.65E+00	2.65E+00	1/14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.28 - 31
RADS	Lead-211	pCi/g	--	--	0/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.24 - 2.928
RADS	Lead-212	pCi/g	2.26E-01	4.63E+00	11/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.037 - 0.3291
RADS	Lead-214	pCi/g	3.40E-01	5.46E+00	12/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.037 - 0.4324
RADS	Manganese-54	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.018 - 0.2825
RADS	Mercury-203	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.019 - 0.047
RADS	Neodymium-147	pCi/g	--	--	0/9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1801 - 0.9148
RADS	Neptunium-237	pCi/g	1.18E-02	1.00E+02	84/996	N/A	N/A	X	1.83E+00	-	1.83E+02	X	5.50E-03	X	1.10E-01	0.0083 - 1.97
RADS	Neptunium-239	pCi/g	--	--	0/70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0961 - 4.49
RADS	Niobium-94	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.014 - 0.2519
RADS	Niobium-95	pCi/g	--	--	0/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.022 - 0.2949
RADS	Plutonium-238	pCi/g	8.72E-03	8.27E-01	42/885	N/A	N/A	X	3.90E-01	-	3.90E+01	X	8.58E-03	X	1.72E-01	0.0053 - 1.14

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
RADS	Plutonium-239/240	pCi/g	3.80E-03	7.11E+01	116/1003	N/A	N/A	X	1.44E+00	-	1.44E+02	X	3.32E-02	X	6.64E-01	0.0033 - 1.14
RADS	Potassium-40	pCi/g	1.10E+00	5.22E+01	111/113	X	1.60E+01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0426 - 3.93
RADS	Promethium-144	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.016 - 0.2168
RADS	Promethium-146	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 0.06
RADS	Protactinium-231	pCi/g	2.16E-01	2.65E+00	7/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1702 - 1.451
RADS	Protactinium-233	pCi/g	1.37E-01	5.32E+00	4/15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.042 - 0.4874
RADS	Protactinium-234m	pCi/g	6.51E-01	2.60E+02	11/69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3178 - 11.1
RADS	Radium-223	pCi/g	5.28E-01	5.28E-01	1/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.11 - 1.363
RADS	Radium-226	pCi/g	1.60E-01	2.21E+00	69/171	X	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.073 - 1.389
RADS	Radium-228	pCi/g	2.10E-01	3.32E-01	2/10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.057 - 2.162
RADS	Radon-219	pCi/g	--	--	0/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 1.777
RADS	Ruthenium-106	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.15 - 2.132
RADS	Silver-110m	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.017 - 0.045
RADS	Sodium-22	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.014 - 0.05128
RADS	Strontium-90	pCi/g	1.40E+00	5.00E+00	5/55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 4
RADS	Technetium-99	pCi/g	4.10E-01	1.39E+03	252/1017	X	2.80E+00	-	1.66E+03	-	1.66E+05	X	7.60E-03	X	1.52E-01	0.33 - 8.85
RADS	Thallium-208	pCi/g	4.90E-02	3.46E-01	11/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02 - 0.5844
RADS	Thorium-227	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.12 - 1.364
RADS	Thorium-228	pCi/g	1.18E-01	1.42E+00	599/643	-	1.60E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.007 - 0.989
RADS	Thorium-229	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.075 - 0.6902
RADS	Thorium-230	pCi/g	1.06E-01	7.27E+02	901/997	X	1.40E+00	X	4.02E-01	X	4.02E+01	X	5.31E-02	X	1.06E+00	0.005 - 1.42
RADS	Thorium-232	pCi/g	6.51E-02	2.28E+00	642/643	N/A	N/A	X	4.29E-01	-	4.29E+01	X	1.16E-01	-	2.32E+00	0.004 - 0.371
RADS	Thorium-234	pCi/g	6.51E-01	2.60E+02	88/165	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3178 - 5.66
RADS	Tin-113	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.023 - 0.054
RADS	Uranium	pCi/g	2.39E-01	1.79E+03	207/474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0314 - 8.29
RADS	Uranium-233/234	pCi/g	5.72E-01	2.05E+02	139/173	X	1.20E+00	X	3.98E-01	X	3.98E+01	X	1.09E-03	X	2.17E-02	0.055 - 1.5
RADS	Uranium-234	pCi/g	1.06E-01	4.17E+03	525/839	X	1.20E+00	X	3.98E-01	X	3.98E+01	X	1.09E-03	X	2.17E-02	0.007 - 3.89
RADS	Uranium-235	pCi/g	1.57E-02	2.60E+02	164/258	X	6.00E-02	X	1.56E+00	X	1.56E+02	X	4.78E-03	X	9.57E-02	0.00824 - 2.86
RADS	Uranium-235/236	pCi/g	2.00E-02	1.45E+01	152/304	X	6.00E-02	X	1.56E+00	-	1.56E+02	X	4.78E-03	X	9.57E-02	0.005 - 1.36
RADS	Uranium-236	pCi/g	1.20E-01	1.20E-01	1/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0095 - 0.03
RADS	Uranium-238	pCi/g	9.45E-02	6.21E+03	777/1008	X	1.20E+00	X	3.91E-01	X	3.91E+01	X	1.06E-03	X	2.12E-02	0.004 - 4.61
RADS	Yttrium-88	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.012 - 0.2742
RADS	Zinc-65	pCi/g	--	--	0/13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.034 - 0.561
RADS	Zirconium-95	pCi/g	--	--	0/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.021 - 0.2801
SVOA	1,1-biphenyl	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	1,2-Dichlorobenzene	mg/kg	--	--	0/425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.345 - 3.92
SVOA	1,2-Diphenylhydrazine	mg/kg	--	--	0/56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 0.5
SVOA	1,3-Dichlorobenzene	mg/kg	--	--	0/425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.345 - 3.92
SVOA	1,4-Dichlorobenzene	mg/kg	--	--	0/424	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.345 - 3.92
SVOA	1,4-Dioxane	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/583	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/583	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2,4-Dinitrophenol	mg/kg	--	--	0/580	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 15.1
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/582	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22 - 7.53
SVOA	2,6-Dichlorophenol	mg/kg	--	--	0/56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 0.5
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22 - 7.53
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.753
SVOA	2-Chlorophenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
SVOA	2-Methylnaphthalene	mg/kg	1.21E-02	1.78E-01	15/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.753
SVOA	2-Methylphenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/610	N/A	N/A	--	1.89E+02	--	5.67E+03	--	8.01E-03	--	1.60E-01	0.341 - 7.53
SVOA	2-Nitrophenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22 - 7.53
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	4-Methylphenol	mg/kg	--	--	0/90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 0.5
SVOA	4-Nitrophenol	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Acenaphthene	mg/kg	1.13E-02	1.80E+00	28/831	N/A	N/A	-	1.01E+03	-	3.03E+04	X	5.49E-01	-	1.10E+01	0.0341 - 1.6
SVOA	Acenaphthylene	mg/kg	1.17E-02	1.62E-02	2/831	N/A	N/A	-	1.01E+03	-	3.03E+04	--	5.49E-01	-	1.10E+01	0.0341 - 1.6
SVOA	Acetophenone	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Anthracene	mg/kg	1.34E-02	1.90E+00	37/831	N/A	N/A	-	5.05E+03	-	1.00E+05	--	5.81E+00	-	1.16E+02	0.0341 - 1.6
SVOA	Atrazine	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Benzaldehyde	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Benzenemethanol	mg/kg	4.70E-02	2.80E-01	6/349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.345 - 3.92
SVOA	Benzo(ghi)perylene	mg/kg	1.12E-02	1.70E+00	39/763	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.753
SVOA	Benzoic acid	mg/kg	3.90E-01	6.40E-01	8/349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 7.83
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.007 - 7.53
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.23E-02	5.10E+00	43/584	N/A	N/A	-	1.90E+02	-	1.14E+04	X	1.33E+00	-	2.66E+01	0.0341 - 3.92
SVOA	Butyl benzyl phthalate	mg/kg	1.66E-02	1.80E-01	2/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 3.92
SVOA	Caprolactam	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Carbazole	mg/kg	1.39E-02	2.00E+00	19/317	N/A	N/A	-	6.73E+02	-	2.02E+04	X	5.45E-01	-	1.09E+01	0.0341 - 1.6
SVOA	Di-n-butyl phthalate	mg/kg	1.24E-02	2.20E+01	94/576	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 3.92
SVOA	Di-n-octylphthalate	mg/kg	1.70E-02	2.37E-02	3/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 3.92
SVOA	Dibenzofuran	mg/kg	4.80E-02	4.87E-01	5/517	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Diethyl phthalate	mg/kg	1.46E-02	3.43E-02	5/559	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 3.92
SVOA	Dimethyl phthalate	mg/kg	--	--	0/559	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 3.92
SVOA	Diphenylamine	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Fluoranthene	mg/kg	1.02E-02	1.20E+01	114/806	N/A	N/A	-	6.73E+02	-	2.02E+04	X	8.91E+00	-	1.78E+02	0.0341 - 1.6
SVOA	Fluorene	mg/kg	1.16E-02	1.50E+00	24/763	N/A	N/A	-	6.73E+02	-	2.02E+04	X	5.45E-01	-	1.09E+01	0.0341 - 0.753
SVOA	Hexachlorobenzene	mg/kg	--	--	0/625	N/A	N/A	--	3.29E-01	--	9.86E+00	--	1.23E-04	--	2.46E-03	0.0037 - 7.53
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/558	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22 - 7.53
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Hexachloroethane	mg/kg	--	--	0/582	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Isophorone	mg/kg	--	--	0/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/652	N/A	N/A	--	3.79E-01	--	3.79E+01	--	8.10E-06	--	1.62E-04	0.007 - 7.53
SVOA	N-Nitrosodimethylamine	mg/kg	--	--	0/56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.43 - 0.5
SVOA	N-Nitrosodiphenylamine	mg/kg	--	--	0/401	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35 - 0.5
SVOA	Naphthalene	mg/kg	1.33E-02	9.90E+00	20/831	N/A	N/A	-	1.67E+01	-	1.67E+03	X	3.85E-04	X	7.70E-03	0.0341 - 1.6
SVOA	Nitrobenzene	mg/kg	--	--	0/583	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Pentachlorophenol	mg/kg	--	--	0/583	N/A	N/A	--	4.06E+00	--	4.06E+02	--	5.71E-05	--	1.14E-03	0.341 - 7.53
SVOA	Phenanthrene	mg/kg	1.31E-02	1.80E+01	80/831	N/A	N/A	-	5.05E+02	-	1.52E+04	X	1.32E+00	-	2.63E+01	0.0341 - 1.6
SVOA	Phenol	mg/kg	5.40E-01	2.40E+00	2/584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	Pyrene	mg/kg	1.16E-02	9.90E+00	105/831	N/A	N/A	-	5.05E+02	-	1.52E+04	X	1.32E+00	-	2.63E+01	0.0341 - 1.6
SVOA	Pyridine	mg/kg	--	--	0/400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.36 - 0.97
SVOA	Total Cresols	mg/kg	--	--	0/42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.94 - 1

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
SVOA	Total PAHs ^d	mg/kg	3.00E-05	5.04E+00	187/1063	N/A	N/A	X	2.35E+00	-	1.51E+02	X	2.94E-02	X	5.89E-01	0.2 - 0.2
SVOA	m+p Methylphenol	mg/kg	--	--	0/159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
SVOA	m,p-Cresol	mg/kg	2.80E-01	2.80E-01	1/335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.345 - 3.92
SVOA	p-Nitroaniline	mg/kg	--	--	0/542	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.53
VOA	1,1,1,2-Tetrachloroethane	mg/kg	--	--	0/139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.0062
VOA	1,1,1-Trichloroethane	mg/kg	6.77E-02	1.59E-01	2/531	N/A	N/A	-	4.54E+03	-	1.00E+05	--	2.81E-01	-	5.62E+00	0.000842 - 2.24
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	3.24E-03	1.15E-02	2/247	N/A	N/A	-	3.79E+03	-	1.00E+05	--	2.56E+00	-	5.13E+01	0.00421 - 11.2
VOA	1,1,2-Trichloroethane	mg/kg	5.26E-03	1.49E-01	5/531	N/A	N/A	-	8.49E-01	-	2.55E+01	X	1.35E-05	X	2.69E-04	0.000842 - 2.24
VOA	1,1-Dichloroethane	mg/kg	6.81E-04	3.78E-01	4/531	N/A	N/A	-	9.52E+01	-	9.52E+03	X	7.82E-04	X	1.56E-02	0.000842 - 2.24
VOA	1,1-Dichloroethene	mg/kg	3.78E-04	1.66E+00	23/862	N/A	N/A	-	1.26E+02	-	3.78E+03	X	1.02E-02	X	2.04E-01	0.000842 - 2.24
VOA	1,2,3-Trichlorobenzene	mg/kg	1.63E-03	1.63E-03	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2,3-Trichloropropane	mg/kg	--	--	0/139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.0062
VOA	1,2,4-Trichlorobenzene	mg/kg	1.17E-03	1.95E-03	2/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2-Dibromo-3-chloropropane	mg/kg	6.61E-04	6.61E-04	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2-Dibromoethane	mg/kg	--	--	0/279	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2-Dichlorobenzene	mg/kg	6.07E-04	6.07E-04	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2-Dichloroethane	mg/kg	4.96E-04	1.63E-02	4/530	N/A	N/A	-	1.13E+01	-	5.19E+02	X	4.84E-05	X	9.69E-04	0.000842 - 2.24
VOA	1,2-Dichloroethene	mg/kg	--	--	0/13	N/A	N/A	--	2.96E+02	--	8.88E+03	--	4.78E-03	--	9.56E-02	0.15 - 2.4
VOA	1,2-Dichloropropane	mg/kg	--	--	0/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,2-Dimethylbenzene	mg/kg	4.90E-04	9.30E+00	16/605	N/A	N/A	-	3.61E+02	-	1.08E+04	X	1.91E-02	X	3.81E-01	0.000842 - 2.24
VOA	1,3-Dichlorobenzene	mg/kg	4.58E-04	4.66E-04	2/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,4-Dichlorobenzene	mg/kg	5.96E-04	5.96E-04	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	1,4-Dioxane	mg/kg	4.63E-02	4.63E-02	1/170	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0421 - 112
VOA	2-Butanone	mg/kg	1.47E-03	1.99E-01	83/520	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	2-Chloroethyl vinyl ether	mg/kg	--	--	0/309	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	2-Hexanone	mg/kg	2.34E-03	6.40E-03	2/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	2-Methoxy-2-methylpropane	mg/kg	--	--	0/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	4-Methyl-2-pentanone	mg/kg	2.15E-03	1.56E-01	6/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	Acetone	mg/kg	1.63E-03	8.90E-01	240/526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	Acrolein	mg/kg	2.44E-03	2.98E-03	4/251	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	Acrylonitrile	mg/kg	--	--	0/374	N/A	N/A	--	4.46E+00	--	2.14E+02	--	1.14E-05	--	2.28E-04	0.00421 - 11.2
VOA	Benzene	mg/kg	3.59E-04	2.12E-01	12/605	N/A	N/A	-	2.59E+01	-	1.28E+03	X	2.33E-04	X	4.66E-03	0.000842 - 2.24
VOA	Bromochloromethane	mg/kg	--	--	0/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Bromodichloromethane	mg/kg	--	--	0/531	N/A	N/A	--	7.93E+00	--	7.93E+02	--	3.65E-05	--	7.30E-04	0.000842 - 2.24
VOA	Bromoform	mg/kg	--	--	0/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Bromomethane	mg/kg	--	--	0/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Carbon disulfide	mg/kg	2.30E-03	7.60E-03	43/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	Carbon tetrachloride	mg/kg	--	--	0/605	N/A	N/A	--	1.57E+01	--	1.57E+03	--	1.77E-04	--	3.54E-03	0.000842 - 2.24
VOA	Chlorobenzene	mg/kg	--	--	0/530	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Chloroethane	mg/kg	--	--	0/506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Chloroform	mg/kg	3.61E-04	6.93E-03	17/580	N/A	N/A	-	8.90E+00	-	8.90E+02	X	6.12E-05	X	1.22E-03	0.000842 - 2.24
VOA	Chloromethane	mg/kg	--	--	0/506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Cumene	mg/kg	4.34E-04	4.88E-04	2/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Cyclohexane	mg/kg	4.35E-04	4.31E-03	7/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Dibromochloromethane	mg/kg	8.30E-03	8.30E-03	1/506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Dibromomethane	mg/kg	--	--	0/139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.0062
VOA	Dichlorodifluoromethane	mg/kg	5.86E-03	5.86E-03	1/392	N/A	N/A	-	4.94E+01	-	1.48E+03	--	3.04E-02	-	6.08E-01	0.000842 - 2.24
VOA	Ethyl methacrylate	mg/kg	--	--	0/138	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.0062
VOA	Ethylbenzene	mg/kg	3.59E-04	3.02E+00	15/605	N/A	N/A	-	1.30E+02	-	1.30E+04	X	1.68E-03	X	3.36E-02	0.000842 - 2.24
VOA	Iodomethane	mg/kg	--	--	0/139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.0062
VOA	Methyl acetate	mg/kg	2.27E-03	2.27E-03	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2

Table B.2. Subsurface (1-16 ft bgs) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Excavation Worker		Excavation Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	Methylcyclohexane	mg/kg	4.15E-04	5.20E-03	17/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Methylene chloride	mg/kg	1.73E-03	2.00E-02	85/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00421 - 11.2
VOA	Styrene	mg/kg	1.43E-03	1.43E-03	1/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Tetrachloroethene	mg/kg	4.77E-04	6.20E-03	10/604	N/A	N/A	-	4.34E+01	-	1.30E+03	X	1.84E-03	-	3.69E-02	0.000842 - 2.24
VOA	Toluene	mg/kg	3.20E-04	2.30E+00	92/605	N/A	N/A	-	2.18E+03	-	6.54E+04	X	7.62E-02	X	1.52E+00	0.000842 - 2.24
VOA	Total Xylene	mg/kg	8.97E-04	2.59E+01	15/310	N/A	N/A	-	3.23E+02	-	9.69E+03	X	1.91E-02	X	3.82E-01	0.00253 - 6.73
VOA	Trichloroethene	mg/kg	3.95E-04	1.44E+02	253/871	N/A	N/A	X	2.26E+00	X	6.78E+01	X	1.01E-04	X	2.02E-03	0.000842 - 5
VOA	Trichlorofluoromethane	mg/kg	--	--	0/318	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	Trichlorotrifluoroethane	mg/kg	--	--	0/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00517 - 0.00719
VOA	Vinyl acetate	mg/kg	--	--	0/267	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 1.3
VOA	Vinyl chloride	mg/kg	5.90E-04	4.79E-01	34/837	N/A	N/A	-	4.72E+00	-	4.72E+02	X	6.47E-06	X	1.29E-04	0.000842 - 29
VOA	cis-1,2-Dichloroethene	mg/kg	4.21E-04	9.11E+00	159/824	N/A	N/A	-	3.12E+01	-	9.35E+02	X	1.06E-03	X	2.12E-02	0.000842 - 2.24
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/506	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	m,p-Xylene	mg/kg	8.22E-04	1.66E+01	20/605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00168 - 4.49
VOA	trans-1,2-Dichloroethene	mg/kg	4.96E-04	4.62E-02	24/775	N/A	N/A	-	3.89E+01	-	1.17E+03	X	2.12E-03	X	4.24E-02	0.000842 - 2.24
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000842 - 2.24
VOA	trans-1,4-Dichloro-2-butene	mg/kg	--	--	0/139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0049 - 0.012
WETCHEM	Cyanide	mg/kg	--	--	0/9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 - 1
WETCHEM	Cyanide, reactive	mg/kg	--	--	0/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.29 - 0.31
WETCHEM	Sulfide, reactive	mg/kg	--	--	0/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25.3 - 27.3
WETCHEM	Total Organic Carbon (TOC)	mg/kg	2.90E+02	7.40E+02	9/9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100 - 100

- XMax Concentration Exceeds Background Level
- XMax Concentration Exceeds No Action Limit
- XMax Concentration Exceeds Action Limit
- XMax Concentration Exceeds Dilution Attenuation Factor GW Screening

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024.

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024.

Table B.3. Deep (16 ft bgs—Top of RGA) Soil Data Summary

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20	DAF 1	DAF 20	
METAL	Aluminum	mg/kg	9.39E+02	2.70E+04	800/800	X	1.20E+04	X	3.00E+03	-	5.99E+04	9.41 - 185
METAL	Antimony	mg/kg	3.44E-01	2.02E+01	99/651	X	2.10E-01	X	3.52E-02	X	7.04E-01	1 - 22.7
METAL	Arsenic	mg/kg	3.53E-01	5.88E+01	602/870	X	7.90E+00	X	1.51E-03	X	3.02E-02	0.17 - 200
METAL	Barium	mg/kg	4.72E+00	2.30E+03	852/852	X	1.70E+02	X	1.55E+01	X	3.11E+02	0.084 - 19
METAL	Beryllium	mg/kg	9.60E-02	2.92E+00	555/721	X	6.90E-01	X	1.95E+00	-	3.89E+01	0.042 - 0.612
METAL	Boron	mg/kg	8.69E-01	4.97E+00	170/440	N/A	N/A	X	1.28E+00	-	2.56E+01	2.82 - 17.8
METAL	Cadmium	mg/kg	2.08E-02	2.47E+00	110/721	X	2.10E-01	X	1.38E-02	X	2.77E-01	0.025 - 2.46
METAL	Chromium	mg/kg	2.38E+00	1.11E+02	860/870	X	4.30E+01	X	6.72E-04	X	1.34E-02	0.565 - 3.62
METAL	Cobalt	mg/kg	3.33E-01	1.72E+02	515/610	X	1.30E+01	X	2.71E-02	X	5.43E-01	0.188 - 10
METAL	Copper	mg/kg	7.20E-01	1.22E+02	606/651	X	2.50E+01	X	2.81E+00	X	5.62E+01	0.376 - 12.3
METAL	Iron	mg/kg	1.05E+03	1.46E+05	847/847	X	2.80E+04	X	3.52E+01	X	7.04E+02	0.0084 - 2220
METAL	Lead	mg/kg	7.96E-01	3.89E+01	667/852	X	2.30E+01	X	1.35E+01	-	2.70E+02	0.042 - 20
METAL	Manganese	mg/kg	3.58E+00	1.28E+04	846/847	X	8.20E+02	X	2.83E+00	X	5.65E+01	0.17 - 119
METAL	Mercury	mg/kg	8.37E-03	5.10E-01	129/815	X	1.30E-01	X	2.95E-02	-	5.91E-01	0.012 - 0.2
METAL	Molybdenum	mg/kg	8.87E-02	2.42E+00	383/567	N/A	N/A	X	2.02E-01	-	4.03E+00	0.188 - 4.92
METAL	Nickel	mg/kg	9.99E-01	9.83E+01	605/870	X	2.20E+01	X	2.56E+00	X	5.12E+01	0.376 - 5
METAL	Selenium	mg/kg	1.60E-01	8.32E+00	389/870	X	7.00E-01	X	5.19E-02	X	1.04E+00	0.084 - 200
METAL	Silver	mg/kg	2.80E-03	9.44E+00	126/698	X	2.70E+00	X	7.99E-02	X	1.60E+00	0.0084 - 22.5
METAL	Thallium	mg/kg	1.51E-01	1.77E+00	66/651	X	3.40E-01	X	1.42E-03	X	2.84E-02	0.376 - 20
METAL	Uranium ^a	mg/kg	1.25E-01	7.91E+02	528/833	X	4.60E+00	X	1.80E-01	X	3.60E+00	0.0084 - 1000
METAL	Vanadium	mg/kg	1.97E+00	1.85E+02	851/865	X	3.70E+01	X	8.64E+00	X	1.73E+02	0.084 - 23.7
METAL	Zinc	mg/kg	1.84E+00	9.37E+01	495/651	X	6.00E+01	X	3.73E+01	-	7.46E+02	3.76 - 24.2
ANION	Fluoride	mg/kg	4.83E-01	6.20E+02	436/440	N/A	N/A	X	1.20E+01	X	2.40E+02	0.946 - 24.2
DI/FURA	Total Dioxins and Furans ^b	mg/kg	4.58E-06	4.92E-06	2/2	N/A	N/A	X	5.91E-08	X	1.18E-06	0 - 0
PPCB	Total PCBs ^c	mg/kg	1.46E-03	3.55E+00	52/858	N/A	N/A	X	6.82E-03	X	1.36E-01	0.00341 - 0.197
RADS	Americium-241	pCi/g	1.39E-01	1.84E-01	2/824	N/A	N/A	X	1.29E-01	-	2.57E+00	0.0133 - 1.31
RADS	Americium-243	pCi/g	--	--	0/24	N/A	N/A	N/A	N/A	N/A	N/A	0.0559 - 0.227
RADS	Cesium-134	pCi/g	--	--	0/24	N/A	N/A	N/A	N/A	N/A	N/A	0.0179 - 0.162
RADS	Cesium-137	pCi/g	4.54E-02	8.89E+00	5/810	X	2.80E-01	X	4.79E-01	-	9.58E+00	0.0092 - 0.2
RADS	Cobalt-60	pCi/g	--	--	0/348	N/A	N/A	N/A	N/A	N/A	N/A	0.00901 - 0.21
RADS	Iodine-131	pCi/g	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	0.0161 - 0.225
RADS	Neptunium-237	pCi/g	1.01E-01	4.78E+00	17/871	N/A	N/A	X	5.50E-03	X	1.10E-01	0.0238 - 1.24
RADS	Neptunium-239	pCi/g	--	--	0/24	N/A	N/A	N/A	N/A	N/A	N/A	0.148 - 1.65
RADS	Plutonium-238	pCi/g	2.35E-02	3.63E-02	3/660	N/A	N/A	X	8.58E-03	-	1.72E-01	0.00701 - 1.06
RADS	Plutonium-239/240	pCi/g	2.65E-02	1.20E+00	7/867	N/A	N/A	X	3.32E-02	X	6.64E-01	0.0117 - 1.1
RADS	Potassium-40	pCi/g	1.10E+00	9.28E+00	26/28	-	1.60E+01	N/A	N/A	N/A	N/A	0.176 - 1.84
RADS	Protactinium-233	pCi/g	2.55E-01	1.97E+00	2/2	N/A	N/A	N/A	N/A	N/A	N/A	0.0565 - 0.0968
RADS	Protactinium-234m	pCi/g	5.54E+01	5.54E+01	1/24	N/A	N/A	N/A	N/A	N/A	N/A	3.35 - 26.4
RADS	Radium-226	pCi/g	2.07E-01	9.07E-01	8/38	-	1.50E+00	N/A	N/A	N/A	N/A	0.0956 - 0.748
RADS	Technetium-99	pCi/g	7.80E-01	1.02E+03	77/896	X	2.80E+00	X	7.60E-03	X	1.52E-01	0.653 - 8.9
RADS	Thorium-228	pCi/g	9.23E-02	1.30E+00	142/150	-	1.60E+00	N/A	N/A	N/A	N/A	0.00486 - 0.228
RADS	Thorium-230	pCi/g	1.12E-01	8.51E+02	528/810	X	1.40E+00	X	5.31E-02	X	1.06E+00	0.0133 - 2.18
RADS	Thorium-232	pCi/g	6.61E-02	1.34E+00	141/150	N/A	N/A	X	1.16E-01	-	2.32E+00	0.0133 - 0.174
RADS	Thorium-234	pCi/g	5.78E-01	4.70E+00	20/118	N/A	N/A	N/A	N/A	N/A	N/A	0.144 - 3.47
RADS	Uranium	pCi/g	3.29E-01	4.59E+01	23/164	N/A	N/A	N/A	N/A	N/A	N/A	0.226 - 3.6
RADS	Uranium-233/234	pCi/g	3.18E-01	2.24E+01	245/440	X	1.20E+00	X	1.09E-03	X	2.17E-02	0.25 - 1.34

Table B.3. Deep (16 ft bgs—Top of RGA) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background			GW Protection			DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20	DAF 1	DAF 20	
RADS	Uranium-234	pCi/g	1.19E-01	1.01E+02	144/427	X	1.20E+00	X	1.09E-03	X	2.17E-02	0.00771 - 2.35
RADS	Uranium-235	pCi/g	1.72E-02	6.91E+00	146/238	X	6.00E-02	X	4.78E-03	X	9.57E-02	0.00697 - 0.545
RADS	Uranium-235/236	pCi/g	1.33E-01	1.30E+00	13/440	X	6.00E-02	X	4.78E-03	X	9.57E-02	0.131 - 1.33
RADS	Uranium-238	pCi/g	1.25E-01	2.49E+02	537/867	X	1.20E+00	X	1.06E-03	X	2.12E-02	0.00777 - 2.34
SVOA	1,1-biphenyl	mg/kg	3.68E-01	3.68E-01	1/462	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	1,2-Dichlorobenzene	mg/kg	--	--	0/238	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 0.726
SVOA	1,2-Diphenylhydrazine	mg/kg	--	--	0/22	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	1,3-Dichlorobenzene	mg/kg	--	--	0/238	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 0.726
SVOA	1,4-Dichlorobenzene	mg/kg	--	--	0/238	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 0.726
SVOA	1,4-Dioxane	mg/kg	2.15E-01	2.15E-01	1/458	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,4-Dinitrophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.45 - 15.4
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2,6-Dichlorophenol	mg/kg	--	--	0/22	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	2-Chlorophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2-Methylnaphthalene	mg/kg	1.36E-02	4.10E-02	4/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	2-Methylphenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/716	N/A	N/A	--	8.01E-03	--	1.60E-01	0.341 - 7.68
SVOA	2-Nitrophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/697	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	4-Methylphenol	mg/kg	--	--	0/34	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	4-Nitrophenol	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Acenaphthene	mg/kg	--	--	0/734	N/A	N/A	--	5.49E-01	--	1.10E+01	0.0341 - 0.768
SVOA	Acenaphthylene	mg/kg	1.20E-02	1.20E-02	1/734	N/A	N/A	-	5.49E-01	-	1.10E+01	0.0341 - 0.768
SVOA	Acetophenone	mg/kg	--	--	0/462	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Anthracene	mg/kg	1.96E-02	1.96E-02	1/734	N/A	N/A	-	5.81E+00	-	1.16E+02	0.0341 - 0.768
SVOA	Atrazine	mg/kg	--	--	0/462	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Benzaldehyde	mg/kg	1.16E-01	1.16E-01	1/453	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Benzenemethanol	mg/kg	1.13E-01	3.22E-01	16/226	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 0.726
SVOA	Benzo(ghi)perylene	mg/kg	1.30E-02	2.29E-02	7/718	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Benzoic acid	mg/kg	5.00E-01	5.30E-01	4/214	N/A	N/A	N/A	N/A	N/A	N/A	0.45 - 1.45
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68

Table B.3. Deep (16 ft bgs—Top of RGA) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background			GW Protection			DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20			
									DAF 1	20	DAF 20	
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.14E-02	1.77E+00	64/700	N/A	N/A	X	1.33E+00	-	2.66E+01	0.0341 - 0.768
SVOA	Butyl benzyl phthalate	mg/kg	1.19E-02	4.91E-01	7/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Caprolactam	mg/kg	--	--	0/459	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Carbazole	mg/kg	1.23E-02	1.23E-02	1/512	N/A	N/A	-	5.45E-01	-	1.09E+01	0.0341 - 0.768
SVOA	Di-n-butyl phthalate	mg/kg	1.09E-02	3.40E+00	174/718	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Di-n-octylphthalate	mg/kg	1.18E-02	3.00E-01	13/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Dibenzofuran	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Diethyl phthalate	mg/kg	1.22E-02	2.79E-01	15/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Dimethyl phthalate	mg/kg	1.20E-02	1.20E-02	1/700	N/A	N/A	N/A	N/A	N/A	N/A	0.0341 - 0.768
SVOA	Diphenylamine	mg/kg	--	--	0/462	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Fluoranthene	mg/kg	1.12E-02	9.55E-02	2/734	N/A	N/A	-	8.91E+00	-	1.78E+02	0.0341 - 0.768
SVOA	Fluorene	mg/kg	1.16E-02	1.16E-02	1/718	N/A	N/A	-	5.45E-01	-	1.09E+01	0.0341 - 0.768
SVOA	Hexachlorobenzene	mg/kg	--	--	0/716	N/A	N/A	--	1.23E-04	--	2.46E-03	0.341 - 7.68
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Hexachloroethane	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Isophorone	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/716	N/A	N/A	--	8.10E-06	--	1.62E-04	0.341 - 7.68
SVOA	N-Nitrosodimethylamine	mg/kg	--	--	0/22	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	N-Nitrosodiphenylamine	mg/kg	--	--	0/158	N/A	N/A	N/A	N/A	N/A	N/A	0.45 - 0.5
SVOA	Naphthalene	mg/kg	1.19E-02	2.50E-02	3/734	N/A	N/A	X	3.85E-04	X	7.70E-03	0.0341 - 0.768
SVOA	Nitrobenzene	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Pentachlorophenol	mg/kg	--	--	0/700	N/A	N/A	--	5.71E-05	--	1.14E-03	0.341 - 7.68
SVOA	Phenanthrene	mg/kg	1.12E-02	7.79E-02	6/734	N/A	N/A	-	1.32E+00	-	2.63E+01	0.0341 - 0.768
SVOA	Phenol	mg/kg	1.41E-01	1.41E-01	1/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	Pyrene	mg/kg	5.79E-02	5.79E-02	1/734	N/A	N/A	-	1.32E+00	-	2.63E+01	0.0341 - 0.768
SVOA	Pyridine	mg/kg	--	--	0/79	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Total PAHs ^d	mg/kg	1.25E-03	4.47E-02	5/734	N/A	N/A	X	2.94E-02	-	5.89E-01	0 - 0
SVOA	m+p Methylphenol	mg/kg	--	--	0/462	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
SVOA	m,p-Cresol	mg/kg	--	--	0/204	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 0.726
SVOA	p-Nitroaniline	mg/kg	--	--	0/700	N/A	N/A	N/A	N/A	N/A	N/A	0.341 - 7.68
VOA	1,1,1,2-Tetrachloroethane	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
VOA	1,1,1-Trichloroethane	mg/kg	5.72E-04	3.40E-03	4/882	N/A	N/A	-	2.81E-01	-	5.62E+00	0.000818 - 5
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	5.12E-03	3.90E+00	9/669	N/A	N/A	X	2.56E+00	-	5.13E+01	0.00409 - 2.39
VOA	1,1,2-Trichloroethane	mg/kg	4.31E-04	7.30E-03	27/882	N/A	N/A	X	1.35E-05	X	2.69E-04	0.000818 - 5
VOA	1,1-Dichloroethane	mg/kg	5.30E-04	1.19E-02	6/882	N/A	N/A	X	7.82E-04	-	1.56E-02	0.000818 - 5
VOA	1,1-Dichloroethene	mg/kg	3.36E-04	4.40E+00	263/1868	N/A	N/A	X	1.02E-02	X	2.04E-01	0.000763 - 5
VOA	1,2,3-Trichlorobenzene	mg/kg	4.49E-04	1.27E-03	2/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,2,3-Trichloropropane	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
VOA	1,2,4-Trichlorobenzene	mg/kg	6.57E-04	6.57E-04	1/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,2-Dibromo-3-chloropropane	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,2-Dibromoethane	mg/kg	--	--	0/630	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,2-Dichlorobenzene	mg/kg	1.42E-03	1.42E-03	1/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,2-Dichloroethane	mg/kg	2.90E-03	4.40E-02	3/882	N/A	N/A	X	4.84E-05	X	9.69E-04	0.000818 - 5
VOA	1,2-Dichloroethene	mg/kg	--	--	0/27	N/A	N/A	--	4.78E-03	--	9.56E-02	0.15 - 10

Table B.3. Deep (16 ft bgs—Top of RGA) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background			GW Protection			DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20			
									DAF 1	20	DAF 20	
VOA	1,2-Dichloropropane	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	1,2-Dimethylbenzene	mg/kg	4.01E-04	6.50E-03	11/1008	N/A	N/A	-	1.91E-02	-	3.81E-01	0.000818 - 5
VOA	1,3-Dichlorobenzene	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,4-Dichlorobenzene	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	1,4-Dioxane	mg/kg	2.20E-02	1.33E-01	8/522	N/A	N/A	N/A	N/A	N/A	N/A	0.0409 - 5.88
VOA	2-Butanone	mg/kg	1.56E-03	3.58E-01	44/878	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	2-Chloroethyl vinyl ether	mg/kg	--	--	0/648	N/A	N/A	N/A	N/A	N/A	N/A	0.00409 - 0.588
VOA	2-Hexanone	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	2-Methoxy-2-methylpropane	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	4-Methyl-2-pentanone	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	Acetone	mg/kg	1.59E-03	3.01E+00	408/880	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	Acrolein	mg/kg	3.87E-03	4.48E-03	2/606	N/A	N/A	N/A	N/A	N/A	N/A	0.00409 - 0.588
VOA	Acrylonitrile	mg/kg	--	--	0/774	N/A	N/A	--	1.14E-05	--	2.28E-04	0.00409 - 4.1
VOA	Benzene	mg/kg	2.87E-04	8.30E-03	11/1008	N/A	N/A	X	2.33E-04	X	4.66E-03	0.000818 - 5
VOA	Bromochloromethane	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	Bromodichloromethane	mg/kg	4.63E-04	4.63E-04	1/882	N/A	N/A	X	3.65E-05	-	7.30E-04	0.000818 - 5
VOA	Bromoform	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Bromomethane	mg/kg	1.00E-03	1.00E-03	1/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Carbon disulfide	mg/kg	2.85E-03	5.50E-03	3/882	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	Carbon tetrachloride	mg/kg	4.09E-04	5.10E+00	18/1008	N/A	N/A	X	1.77E-04	X	3.54E-03	0.000818 - 5
VOA	Chlorobenzene	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Chloroethane	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Chloroform	mg/kg	3.08E-04	4.00E+00	131/1008	N/A	N/A	X	6.12E-05	X	1.22E-03	0.000818 - 5
VOA	Chloromethane	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Cumene	mg/kg	5.68E-04	5.68E-04	1/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	Cyclohexane	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	Dibromochloromethane	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Dibromomethane	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
VOA	Dichlorodifluoromethane	mg/kg	--	--	0/774	N/A	N/A	--	3.04E-02	--	6.08E-01	0.000818 - 0.558
VOA	Ethyl methacrylate	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
VOA	Ethylbenzene	mg/kg	3.89E-04	2.00E-03	2/1008	N/A	N/A	X	1.68E-03	-	3.36E-02	0.000818 - 5
VOA	Iodomethane	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
VOA	Methyl acetate	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.00409 - 0.588
VOA	Methylcyclohexane	mg/kg	--	--	0/546	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	Methylene chloride	mg/kg	1.70E-03	5.60E+00	86/882	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 5
VOA	Styrene	mg/kg	6.28E-04	1.41E-03	11/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	Tetrachloroethene	mg/kg	3.65E-04	7.00E-01	37/1008	N/A	N/A	X	1.84E-03	X	3.69E-02	0.000818 - 5
VOA	Toluene	mg/kg	3.15E-04	1.36E-01	58/1008	N/A	N/A	X	7.62E-02	-	1.52E+00	0.000818 - 5
VOA	Total Xylene	mg/kg	4.03E-04	1.40E-02	10/696	N/A	N/A	-	1.91E-02	-	3.82E-01	0.00246 - 1.44
VOA	Trichloroethene	mg/kg	3.38E-04	7.50E+02	1175/1886	N/A	N/A	X	1.01E-04	X	2.02E-03	0.000763 - 41
VOA	Trichlorofluoromethane	mg/kg	--	--	0/648	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 0.118
VOA	Trichlorotrifluoroethane	mg/kg	--	--	0/3	N/A	N/A	N/A	N/A	N/A	N/A	0.00469 - 0.641
VOA	Vinyl acetate	mg/kg	--	--	0/265	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 5
VOA	Vinyl chloride	mg/kg	3.90E-04	2.80E+00	85/1868	N/A	N/A	X	6.47E-06	X	1.29E-04	0.000763 - 24
VOA	cis-1,2-Dichloroethene	mg/kg	3.41E-04	1.42E+01	573/1841	N/A	N/A	X	1.06E-03	X	2.12E-02	0.000763 - 4.1
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5

Table B.3. Deep (16 ft bgs—Top of RGA) Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background			GW Protection			DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	m,p-Xylene	mg/kg	4.03E-04	9.10E-03	6/1008	N/A	N/A	N/A	N/A	N/A	N/A	0.00164 - 10
VOA	trans-1,2-Dichloroethene	mg/kg	4.96E-04	2.80E-03	6/1715	N/A	N/A	X	2.12E-03	-	4.24E-02	0.000763 - 0.56
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/882	N/A	N/A	N/A	N/A	N/A	N/A	0.000818 - 5
VOA	trans-1,4-Dichloro-2-butene	mg/kg	--	--	0/102	N/A	N/A	N/A	N/A	N/A	N/A	0.00495 - 0.0197
WETCHEM	Cyanide	mg/kg	--	--	0/12	N/A	N/A	N/A	N/A	N/A	N/A	1 - 1
WETCHEM	Total Organic Carbon (TOC)	mg/kg	1.50E+02	9.20E+02	18/19	N/A	N/A	N/A	N/A	N/A	N/A	100 - 100
X	Max Concentration Exceeds Background Level											
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening											

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

FOD = frequency of detection

FOE = frequency of exceedance

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024.

^c Total PCBs calculated by laboratory.

^d Total PAHs calculated using TEF values in RMD 2024.

Table B.4. McNairy Soil Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
METAL	Aluminum	mg/kg	4.27E+02	2.05E+04	189/189	X	3.00E+03	10.1 - 133
METAL	Antimony	mg/kg	4.15E-01	9.42E+00	28/189	X	3.52E-02	2.09 - 30.5
METAL	Arsenic	mg/kg	4.27E-01	2.20E+02	187/189	X	1.51E-03	1.01 - 1.55
METAL	Barium	mg/kg	2.12E+00	1.26E+03	189/189	X	1.55E+01	0.808 - 10.3
METAL	Beryllium	mg/kg	2.91E-02	3.34E+00	189/189	X	1.95E+00	0.101 - 0.155
METAL	Boron	mg/kg	8.75E-01	7.29E+01	168/189	X	1.28E+00	3.03 - 35.1
METAL	Cadmium	mg/kg	2.62E-02	1.12E+00	113/189	X	1.38E-02	0.202 - 0.31
METAL	Chromium	mg/kg	1.09E+00	1.07E+02	189/189	X	6.72E-04	0.606 - 0.93
METAL	Cobalt	mg/kg	1.47E-01	8.71E+01	189/189	X	2.71E-02	0.202 - 0.31
METAL	Copper	mg/kg	1.74E-01	2.94E+01	187/189	X	2.81E+00	0.404 - 0.62
METAL	Iron	mg/kg	6.65E+02	2.96E+05	189/189	X	3.52E+01	21 - 2910
METAL	Lead	mg/kg	8.83E-01	9.66E+01	189/189	X	1.35E+01	0.404 - 0.62
METAL	Manganese	mg/kg	1.01E+00	6.71E+03	189/189	X	2.83E+00	1.01 - 133
METAL	Mercury	mg/kg	8.45E-03	2.99E-01	67/189	X	2.95E-02	0.0221 - 0.0384
METAL	Molybdenum	mg/kg	9.94E-02	5.47E+00	132/189	X	2.02E-01	0.202 - 0.31
METAL	Nickel	mg/kg	3.00E-01	5.32E+01	189/189	X	2.56E+00	0.404 - 0.62
METAL	Selenium	mg/kg	3.80E-01	1.11E+01	167/189	X	5.19E-02	1.01 - 1.55
METAL	Silver	mg/kg	1.28E-01	5.05E+00	25/189	X	7.99E-02	0.52 - 12
METAL	Thallium	mg/kg	1.69E-01	3.54E+00	10/189	X	1.42E-03	0.404 - 0.62
METAL	Uranium ^a	mg/kg	5.19E-02	4.39E+00	189/189	X	1.80E-01	0.0404 - 0.062
METAL	Vanadium	mg/kg	1.73E+00	2.63E+02	189/189	X	8.64E+00	4.04 - 6.2
METAL	Zinc	mg/kg	2.45E+00	3.24E+02	189/189	X	3.73E+01	4.04 - 28.7
ANION	Fluoride	mg/kg	4.65E-01	3.00E+02	181/189	X	1.20E+01	1.08 - 13.6
PPCB	Total PCBs ^b	mg/kg	2.78E-03	9.03E-03	3/201	X	6.82E-03	0.00361 - 0.1
RADS	Americium-241	pCi/g	7.89E-01	7.89E-01	1/189	X	1.29E-01	0.151 - 1.09
RADS	Cesium-137	pCi/g	--	--	0/189	--	4.79E-01	0.0238 - 0.0948
RADS	Neptunium-237	pCi/g	--	--	0/189	--	5.50E-03	0.252 - 1.42
RADS	Plutonium-238	pCi/g	--	--	0/189	--	8.58E-03	0.158 - 1.23
RADS	Plutonium-239/240	pCi/g	--	--	0/189	--	3.32E-02	0.172 - 1.07
RADS	Technetium-99	pCi/g	--	--	0/199	--	7.60E-03	1.97 - 4.85
RADS	Thorium-230	pCi/g	2.16E-01	3.89E+00	129/189	X	5.31E-02	0.216 - 1.63
RADS	Thorium-232	pCi/g	4.35E-01	4.35E-01	1/1	X	1.16E-01	0.264 - 0.264
RADS	Uranium-233/234	pCi/g	3.88E-01	2.94E+00	86/189	X	1.09E-03	0.271 - 1.33
RADS	Uranium-235/236	pCi/g	1.54E-01	4.91E-01	6/189	X	4.78E-03	0.116 - 1.12
RADS	Uranium-238	pCi/g	3.01E-01	2.80E+00	128/189	X	1.06E-03	0.114 - 1.33
SVOA	1,1-biphenyl	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	1,2-Dichlorobenzene	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	1,3-Dichlorobenzene	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	1,4-Dichlorobenzene	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	1,4-Dioxane	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2,4-Dinitrophenol	mg/kg	4.39E-01	4.39E-01	1/201	N/A	N/A	0.46 - 4.5

Table B.4. McNairy Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/201	N/A	N/A	0.0365 - 0.5
SVOA	2-Chlorophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2-Methylnaphthalene	mg/kg	--	--	0/201	N/A	N/A	0.0365 - 0.5
SVOA	2-Methylphenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/201	--	8.01E-03	0.365 - 2.25
SVOA	2-Nitrophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	4-Nitrophenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Acenaphthene	mg/kg	--	--	0/201	--	5.49E-01	0.0365 - 0.5
SVOA	Acenaphthylene	mg/kg	--	--	0/201	--	5.49E-01	0.0365 - 0.5
SVOA	Acetophenone	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	Anthracene	mg/kg	--	--	0/201	--	5.81E+00	0.0365 - 0.5
SVOA	Atrazine	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	Benzaldehyde	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	Benzenemethanol	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	Benzo(ghi)perylene	mg/kg	--	--	0/201	N/A	N/A	0.0365 - 0.5
SVOA	Benzoic acid	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.36E-02	8.09E-02	17/201	-	1.33E+00	0.0365 - 0.5
SVOA	Butyl benzyl phthalate	mg/kg	1.80E-02	2.30E+00	7/201	N/A	N/A	0.0365 - 0.5
SVOA	Caprolactam	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	Carbazole	mg/kg	1.58E-02	1.58E-02	1/191	-	5.45E-01	0.0365 - 0.225
SVOA	Di-n-butyl phthalate	mg/kg	1.31E-02	4.59E-02	53/201	N/A	N/A	0.0349 - 0.5
SVOA	Di-n-octylphthalate	mg/kg	2.73E-02	5.16E-02	4/201	N/A	N/A	0.0365 - 0.5
SVOA	Dibenzofuran	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Diethyl phthalate	mg/kg	1.42E-02	6.05E-02	6/201	N/A	N/A	0.0365 - 0.5
SVOA	Dimethyl phthalate	mg/kg	--	--	0/201	N/A	N/A	0.0365 - 0.5
SVOA	Diphenylamine	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	Fluoranthene	mg/kg	1.67E-02	2.60E-02	2/201	-	8.91E+00	0.0365 - 0.5
SVOA	Fluorene	mg/kg	--	--	0/201	--	5.45E-01	0.0365 - 0.5
SVOA	Hexachlorobenzene	mg/kg	--	--	0/201	--	1.23E-04	0.365 - 2.25
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Hexachloroethane	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Isophorone	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/200	--	8.10E-06	0.365 - 2.25

Table B.4. McNairy Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
SVOA	N-Nitrosodiphenylamine	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	Naphthalene	mg/kg	--	--	0/201	--	3.85E-04	0.0365 - 0.5
SVOA	Nitrobenzene	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Pentachlorophenol	mg/kg	3.13E-01	3.13E-01	1/201	X	5.71E-05	0.365 - 2.25
SVOA	Phenanthrene	mg/kg	--	--	0/201	--	1.32E+00	0.0365 - 0.5
SVOA	Phenol	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
SVOA	Pyrene	mg/kg	2.22E-02	2.22E-02	1/201	-	1.32E+00	0.0365 - 0.5
SVOA	Total PAHs ^c	mg/kg	1.19E-03	1.19E-03	1/201	-	2.94E-02	0 - 0
SVOA	m+p Methylphenol	mg/kg	--	--	0/191	N/A	N/A	0.365 - 2.25
SVOA	m,p-Cresol	mg/kg	--	--	0/10	N/A	N/A	0.46 - 0.5
SVOA	p-Nitroaniline	mg/kg	--	--	0/201	N/A	N/A	0.365 - 2.25
VOA	1,1,1-Trichloroethane	mg/kg	6.64E-04	8.95E-04	2/229	-	2.81E-01	0.000956 - 1.2
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	2.05E-03	1.10E-02	25/228	-	2.56E+00	0.00466 - 1.05
VOA	1,1,2-Trichloroethane	mg/kg	4.11E-04	1.56E-02	41/228	X	1.35E-05	0.000932 - 0.21
VOA	1,1-Dichloroethane	mg/kg	--	--	0/229	--	7.82E-04	0.000956 - 1.2
VOA	1,1-Dichloroethene	mg/kg	4.50E-04	1.22E-03	4/254	-	1.02E-02	0.000956 - 0.21
VOA	1,2,3-Trichlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2-Dibromo-3-chloropropane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2-Dibromoethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2-Dichlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2-Dichloroethane	mg/kg	7.47E-04	7.47E-04	1/229	X	4.84E-05	0.000956 - 1.2
VOA	1,2-Dichloropropane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,2-Dimethylbenzene	mg/kg	9.32E-04	9.32E-04	1/228	-	1.91E-02	0.000956 - 0.21
VOA	1,3-Dichlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,4-Dichlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	1,4-Dioxane	mg/kg	--	--	0/194	N/A	N/A	0.0517 - 10.5
VOA	2-Butanone	mg/kg	1.80E-03	4.70E-01	24/228	N/A	N/A	0.00478 - 1.05
VOA	2-Chloroethyl vinyl ether	mg/kg	--	--	0/228	N/A	N/A	0.00478 - 1.05
VOA	2-Hexanone	mg/kg	--	--	0/228	N/A	N/A	0.00478 - 1.05
VOA	2-Methoxy-2-methylpropane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	4-Methyl-2-pentanone	mg/kg	3.64E-02	3.64E-02	1/228	N/A	N/A	0.00478 - 1.05
VOA	Acetone	mg/kg	1.97E-03	5.07E-01	147/228	N/A	N/A	0.00478 - 1.05
VOA	Acrolein	mg/kg	2.93E-03	2.93E-03	1/228	N/A	N/A	0.00478 - 1.05
VOA	Acrylonitrile	mg/kg	--	--	0/228	--	1.14E-05	0.00478 - 1.05
VOA	Benzene	mg/kg	--	--	0/228	--	2.33E-04	0.000956 - 0.21
VOA	Bromochloromethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Bromodichloromethane	mg/kg	4.47E-04	2.74E-03	5/228	X	3.65E-05	0.000956 - 0.21
VOA	Bromoform	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Bromomethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Carbon disulfide	mg/kg	6.62E-03	1.16E-02	2/228	N/A	N/A	0.00478 - 1.05
VOA	Carbon tetrachloride	mg/kg	4.54E-04	5.35E-02	14/229	X	1.77E-04	0.000932 - 1.2
VOA	Chlorobenzene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Chloroethane	mg/kg	--	--	0/229	N/A	N/A	0.000956 - 1.2
VOA	Chloroform	mg/kg	4.01E-04	8.44E-03	39/229	X	6.12E-05	0.000956 - 1.2

Table B.4. McNairy Soil Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	GW Protection		DL Range
			Min	Max		Max Concentration Exceeds DAF 1	DAF 1	
VOA	Chloromethane	mg/kg	--	--	0/229	N/A	N/A	0.000956 - 1.2
VOA	Cumene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Cyclohexane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Dibromochloromethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Dichlorodifluoromethane	mg/kg	--	--	0/228	--	3.04E-02	0.000956 - 0.21
VOA	Ethylbenzene	mg/kg	--	--	0/228	--	1.68E-03	0.000956 - 0.21
VOA	Methyl acetate	mg/kg	--	--	0/228	N/A	N/A	0.00478 - 1.05
VOA	Methylcyclohexane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Methylene chloride	mg/kg	2.05E-03	3.76E-01	43/229	N/A	N/A	0.00478 - 1.2
VOA	Styrene	mg/kg	1.08E-03	1.72E-03	2/228	N/A	N/A	0.000956 - 0.21
VOA	Tetrachloroethene	mg/kg	3.25E-04	1.16E-02	49/228	X	1.84E-03	0.000956 - 25.9
VOA	Toluene	mg/kg	3.45E-04	6.56E-03	21/228	-	7.62E-02	0.000956 - 0.21
VOA	Total Xylene	mg/kg	9.32E-04	9.32E-04	1/228	-	1.91E-02	0.00287 - 0.629
VOA	Trichloroethene	mg/kg	4.06E-04	6.94E+03	133/256	X	1.01E-04	0.00103 - 240
VOA	Trichlorofluoromethane	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	Vinyl chloride	mg/kg	--	--	0/255	--	6.47E-06	0.000956 - 1.2
VOA	cis-1,2-Dichloroethene	mg/kg	5.44E-04	3.08E-02	51/255	X	1.06E-03	0.000956 - 1.2
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
VOA	m,p-Xylene	mg/kg	--	--	0/228	N/A	N/A	0.00191 - 0.419
VOA	trans-1,2-Dichloroethene	mg/kg	--	--	0/255	--	2.12E-03	0.000956 - 1.2
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/228	N/A	N/A	0.000956 - 0.21
X	Max Concentration Exceeds Dilution Attenuation Factor 1 GW Screening							

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g, if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs caluclated by laboratory

^c Total PAHs calculated using TEF values in RMD 2024.

Table B.5. C-400 and C-410 Concrete/Brick Data Summary

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	2.96E+02	1.05E+04	88/88	-	1.30E+04	-	1.00E+05	-	1.00E+05	X	3.00E+03	-	5.99E+04	9.16 - 94.7
METAL	Antimony	mg/kg	3.22E-01	1.30E+01	62/88	X	2.10E-01	-	9.34E+01	-	2.80E+03	X	3.52E-02	X	7.04E-01	0.909 - 19.4
METAL	Arsenic	mg/kg	4.06E-01	1.15E+01	90/95	-	1.20E+01	X	1.60E+00	-	1.60E+02	X	1.51E-03	X	3.02E-02	0.912 - 19.7
METAL	Barium	mg/kg	9.10E+00	3.87E+02	95/95	X	2.00E+02	-	4.04E+04	-	1.00E+05	X	1.55E+01	X	3.11E+02	0.365 - 25
METAL	Beryllium	mg/kg	2.85E-02	4.21E-01	87/88	-	6.70E-01	-	4.50E+02	-	1.35E+04	-	1.95E+00	-	3.89E+01	0.0912 - 0.509
METAL	Boron	mg/kg	3.07E+00	1.40E+02	87/88	N/A	N/A	-	4.65E+04	-	1.00E+05	X	1.28E+00	X	2.56E+01	2.74 - 30.1
METAL	Cadmium	mg/kg	5.33E-02	2.24E+00	92/95	X	2.10E-01	-	6.11E+00	-	1.83E+02	X	1.38E-02	X	2.77E-01	0.182 - 2.5
METAL	Chromium	mg/kg	3.32E+00	1.94E+02	95/95	X	1.60E+01	X	1.23E+01	-	1.23E+03	X	6.72E-04	X	1.34E-02	0.547 - 5
METAL	Cobalt	mg/kg	1.82E+00	1.37E+02	88/88	X	1.40E+01	X	6.87E+01	-	2.06E+03	X	2.71E-02	X	5.43E-01	0.182 - 0.207
METAL	Copper	mg/kg	2.04E+00	4.09E+02	88/88	X	1.90E+01	-	9.34E+03	-	1.00E+05	X	2.81E+00	X	5.62E+01	0.182 - 2.07
METAL	Iron	mg/kg	1.37E+03	3.43E+04	88/88	X	2.80E+04	-	1.00E+05	-	1.00E+05	X	3.52E+01	X	7.04E+02	18.3 - 204
METAL	Lead	mg/kg	1.77E+00	5.09E+02	91/95	X	3.60E+01	-	8.00E+02	-	8.00E+02	X	1.35E+01	X	2.70E+02	0.365 - 19.7
METAL	Manganese	mg/kg	2.51E+01	1.34E+03	88/88	-	1.50E+03	-	4.72E+03	-	1.00E+05	X	2.83E+00	X	5.65E+01	0.928 - 10.3
METAL	Mercury	mg/kg	3.88E-03	3.30E+00	38/95	X	2.00E-01	-	7.01E+01	-	2.10E+03	X	2.95E-02	X	5.91E-01	0.0103 - 0.31
METAL	Molybdenum	mg/kg	1.61E-01	8.33E+00	88/88	N/A	N/A	-	1.17E+03	-	3.51E+04	X	2.02E-01	X	4.03E+00	0.182 - 0.98
METAL	Nickel	mg/kg	6.37E+00	3.32E+02	88/88	X	2.10E+01	-	2.99E+03	-	8.98E+04	X	2.56E+00	X	5.12E+01	0.365 - 3.85
METAL	Selenium	mg/kg	3.44E-01	5.44E+00	46/95	X	8.00E-01	-	1.17E+03	-	3.51E+04	X	5.19E-02	X	1.04E+00	0.912 - 19.7
METAL	Silver	mg/kg	1.12E-01	2.22E+00	41/95	-	2.30E+00	-	1.17E+03	-	3.51E+04	X	7.99E-02	X	1.60E+00	0.459 - 5.27
METAL	Thallium	mg/kg	--	--	0/88	--	2.10E-01	--	2.34E+00	--	7.02E+01	--	1.42E-03	--	2.84E-02	0.365 - 0.414
METAL	Uranium ^a	mg/kg	9.46E-01	1.28E+03	88/88	X	4.90E+00	X	4.66E+01	-	1.40E+03	X	1.80E-01	X	3.60E+00	0.0365 - 0.37
METAL	Vanadium	mg/kg	1.19E+00	2.56E+01	86/88	-	3.80E+01	-	1.15E+03	-	3.45E+04	X	8.64E+00	-	1.73E+02	0.912 - 4.14
METAL	Zinc	mg/kg	5.07E+00	7.17E+02	88/88	X	6.50E+01	-	7.01E+04	-	1.00E+05	X	3.73E+01	-	7.46E+02	1.82 - 20.5
ANION	Fluoride	mg/kg	3.59E-01	9.19E+01	78/88	N/A	N/A	-	9.33E+03	-	1.00E+05	X	1.20E+01	-	2.40E+02	0.87 - 4.98
PPCB	Dieldrin	mg/kg	--	--	0/24	N/A	N/A	--	5.08E-02	--	5.08E+00	--	7.08E-05	--	1.42E-03	0.0013 - 0.133
PPCB	Total PCBs ^b	mg/kg	7.16E-03	1.90E+01	94/102	N/A	N/A	X	2.93E-01	-	2.93E+01	N/A	N/A	X	1.36E-01	0.00331 - 3.42
RADS	Actinium-227	pCi/g	--	--	0/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.213 - 0.712
RADS	Americium-241	pCi/g	6.43E-01	1.96E+01	9/94	N/A	N/A	X	3.99E-01	-	3.99E+01	X	1.29E-01	X	2.57E+00	0.148 - 1.5
RADS	Cesium-137	pCi/g	3.60E-02	1.89E+01	29/94	X	4.90E-01	X	3.44E-01	-	3.44E+01	X	4.79E-01	X	9.58E+00	0.0228 - 0.116
RADS	Cobalt-60	pCi/g	--	--	0/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0264 - 0.0708
RADS	Lead-210	pCi/g	--	--	0/6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.949 - 19
RADS	Neptunium-237	pCi/g	5.10E-01	1.13E+02	18/94	X	1.00E-01	X	4.09E-01	X	4.09E+01	X	5.50E-03	X	1.10E-01	0.32 - 1.11
RADS	Plutonium-238	pCi/g	1.22E+00	1.22E+00	1/94	X	7.30E-02	X	9.63E-02	-	9.63E+00	X	8.58E-03	X	1.72E-01	0.203 - 1.27
RADS	Plutonium-239/240	pCi/g	3.05E-01	9.86E+01	17/94	X	2.50E-02	X	3.44E-01	X	3.44E+01	X	3.32E-02	X	6.64E-01	0.232 - 1.25
RADS	Protactinium-231	pCi/g	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.387 - 0.662
RADS	Radium-226	pCi/g	5.69E-01	3.11E+00	3/6	X	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35 - 1.47
RADS	Strontium-90	pCi/g	3.97E-01	1.24E+01	3/6	X	4.70E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.128 - 1.83
RADS	Technetium-99	pCi/g	3.41E+00	5.77E+03	84/94	X	2.50E+00	X	1.95E+03	-	1.95E+05	X	7.60E-03	X	1.52E-01	1.74 - 5.77
RADS	Thorium-228	pCi/g	3.94E-01	3.94E-01	1/6	-	1.60E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.243 - 1.18
RADS	Thorium-230	pCi/g	5.37E-01	1.21E+02	61/94	X	1.50E+00	X	9.69E-02	X	9.69E+00	X	5.31E-02	X	1.06E+00	0.232 - 3.94
RADS	Thorium-232	pCi/g	3.89E-01	3.89E-01	1/6	-	1.50E+00	X	7.52E-02	-	7.52E+00	X	1.16E-01	-	2.32E+00	0.108 - 0.846
RADS	Uranium-233/234	pCi/g	6.20E-01	3.31E+02	85/94	X	1.20E+00	X	9.67E-02	X	9.67E+00	X	1.09E-03	X	2.17E-02	0.444 - 5.14
RADS	Uranium-235/236	pCi/g	2.18E-01	1.94E+01	53/94	X	6.00E-02	X	3.49E-01	-	3.49E+01	X	4.78E-03	X	9.57E-02	0.184 - 3.7
RADS	Uranium-238	pCi/g	6.50E-01	3.71E+02	90/94	X	1.20E+00	X	9.53E-02	X	9.53E+00	X	1.06E-03	X	2.12E-02	0.179 - 3.85
SVOA	1,1-biphenyl	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	1,4-Dioxane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,4-Dinitrophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.659 - 27.5
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	2-Chlorophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7

Table B.5. C-400 and C-410 Concrete/Brick Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20		DAF 20	
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2-Methylnaphthalene	mg/kg	1.13E-02	4.99E+00	15/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	2-Methylphenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/86	N/A	N/A	--	2.87E+02	--	8.61E+03	--	8.01E-03	--	1.60E-01	0.329 - 13.7
SVOA	2-Nitrophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	4-Nitrophenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Acenaphthene	mg/kg	1.23E-02	7.36E-01	4/86	N/A	N/A	-	1.38E+03	-	4.14E+04	X	5.49E-01	-	1.10E+01	0.0329 - 1.37
SVOA	Acenaphthylene	mg/kg	--	--	0/86	N/A	N/A	--	1.38E+03	--	4.14E+04	--	5.49E-01	--	1.10E+01	0.0329 - 1.37
SVOA	Acetophenone	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Anthracene	mg/kg	1.12E-02	1.97E+00	5/86	N/A	N/A	-	6.89E+03	-	1.00E+05	-	5.81E+00	-	1.16E+02	0.0329 - 1.37
SVOA	Atrazine	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Benzaldehyde	mg/kg	--	--	0/62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Benzo(ghi)perylene	mg/kg	1.02E-01	5.08E+00	9/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	1.55E-02	3.64E+00	43/64	N/A	N/A	-	5.80E+01	-	5.80E+03	X	1.33E+00	-	2.66E+01	0.0329 - 1.37
SVOA	Butyl benzyl phthalate	mg/kg	1.41E-01	2.53E+00	6/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	Caprolactam	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Carbazole	mg/kg	1.02E-02	2.50E+00	11/86	N/A	N/A	-	9.19E+02	-	2.76E+04	X	5.45E-01	-	1.09E+01	0.0329 - 1.37
SVOA	Di-n-butyl phthalate	mg/kg	1.24E-02	1.16E+01	45/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0329 - 1.37
SVOA	Di-n-octylphthalate	mg/kg	9.64E-02	1.75E-01	2/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	Dibenzofuran	mg/kg	1.28E-01	7.93E+00	3/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Diethyl phthalate	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	Dimethyl phthalate	mg/kg	2.28E-02	5.57E-02	3/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.033 - 1.37
SVOA	Diphenylamine	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Fluoranthene	mg/kg	1.37E-02	2.52E+01	35/86	N/A	N/A	-	9.19E+02	-	2.76E+04	X	8.91E+00	-	1.78E+02	0.0329 - 1.37
SVOA	Fluorene	mg/kg	1.42E-02	3.49E-01	2/86	N/A	N/A	-	9.19E+02	-	2.76E+04	-	5.45E-01	-	1.09E+01	0.0329 - 1.37
SVOA	Hexachlorobenzene	mg/kg	--	--	0/86	N/A	N/A	--	1.26E+00	--	7.01E+01	--	1.23E-04	--	2.46E-03	0.329 - 13.7
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Hexachloroethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Isophorone	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/86	N/A	N/A	--	1.16E-01	--	1.16E+01	--	8.10E-06	--	1.62E-04	0.329 - 13.7
SVOA	Naphthalene	mg/kg	1.14E-02	3.08E+00	16/86	N/A	N/A	-	4.06E+00	-	4.06E+02	X	3.85E-04	X	7.70E-03	0.0329 - 1.37
SVOA	Nitrobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Pentachlorophenol	mg/kg	3.32E-01	3.56E-01	2/64	N/A	N/A	-	8.77E-01	-	8.77E+01	X	5.71E-05	X	1.14E-03	0.33 - 13.7
SVOA	Phenanthrene	mg/kg	1.09E-02	4.06E+01	41/86	N/A	N/A	-	6.89E+02	-	2.07E+04	X	1.32E+00	X	2.63E+01	0.0329 - 1.37
SVOA	Phenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	Pyrene	mg/kg	1.38E-02	1.85E+01	29/86	N/A	N/A	-	6.89E+02	-	2.07E+04	X	1.32E+00	-	2.63E+01	0.0329 - 1.37
SVOA	Total PAHs ^c	mg/kg	1.19E-05	8.57E+00	21/87	N/A	N/A	X	6.43E-01	-	6.43E+01	N/A	N/A	X	5.89E-01	0 - 0
SVOA	m+p Methylphenol	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
SVOA	p-Nitroaniline	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33 - 13.7
VOA	1,1,1-Trichloroethane	mg/kg	--	--	0/86	N/A	N/A	--	3.58E+03	--	1.00E+05	--	2.81E-01	--	5.62E+00	0.000947 - 0.102
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/kg	--	--	0/64	N/A	N/A	--	2.81E+03	--	8.43E+04	--	2.56E+00	--	5.13E+01	0.00473 - 0.509
VOA	1,1,2-Trichloroethane	mg/kg	--	--	0/86	N/A	N/A	--	6.32E-01	--	1.90E+01	--	1.35E-05	--	2.69E-04	0.000947 - 0.102
VOA	1,1-Dichloroethane	mg/kg	--	--	0/64	N/A	N/A	--	1.58E+01	--	1.58E+03	--	7.82E-04	--	1.56E-02	0.000947 - 0.102
VOA	1,1-Dichloroethene	mg/kg	--	--	0/86	N/A	N/A	--	1.00E+02	--	3.00E+03	--	1.02E-02	--	2.04E-01	0.000947 - 0.102

Table B.5. C-400 and C-410 Concrete/Brick Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Industrial Worker		Industrial Worker		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20		DAF 20	
VOA	1,2,3-Trichlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,2-Dibromo-3-chloropropane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,2-Dibromoethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,2-Dichlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,2-Dichloroethane	mg/kg	--	--	0/86	N/A	N/A	--	2.09E+00	--	2.09E+02	--	4.84E-05	--	9.69E-04	0.000947 - 0.102
VOA	1,2-Dichloroethene	mg/kg	6.30E-04	6.30E-04	1/22	N/A	N/A	-	2.10E+03	-	6.30E+04	-	4.78E-03	-	9.56E-02	0.002 - 0.201
VOA	1,2-Dichloropropane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,2-Dimethylbenzene	mg/kg	3.72E-04	1.85E+00	54/86	N/A	N/A	-	2.81E+02	-	8.43E+03	X	1.91E-02	X	3.81E-01	0.000947 - 0.102
VOA	1,3-Dichlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	1,4-Dichlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	2-Butanone	mg/kg	1.73E-03	4.25E-01	54/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	2-Chloroethyl vinyl ether	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	2-Hexanone	mg/kg	1.77E-03	3.26E-01	26/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	2-Methoxy-2-methylpropane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	4-Methyl-2-pentanone	mg/kg	1.73E-03	2.32E-01	17/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Acetone	mg/kg	4.19E-03	8.84E-01	63/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Acrolein	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Acrylonitrile	mg/kg	--	--	0/86	N/A	N/A	--	1.24E+00	--	1.24E+02	--	1.14E-05	--	2.28E-04	0.00473 - 0.509
VOA	Benzene	mg/kg	3.63E-04	2.06E-03	4/86	N/A	N/A	-	5.31E+00	-	5.31E+02	X	2.33E-04	-	4.66E-03	0.000947 - 0.102
VOA	Bromochloromethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Bromodichloromethane	mg/kg	--	--	0/86	N/A	N/A	--	1.30E+00	--	1.30E+02	--	3.65E-05	--	7.30E-04	0.000947 - 0.102
VOA	Bromoform	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Bromomethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Carbon disulfide	mg/kg	2.19E-03	3.86E-03	3/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Carbon tetrachloride	mg/kg	--	--	0/86	N/A	N/A	--	2.96E+00	--	2.96E+02	--	1.77E-04	--	3.54E-03	0.000947 - 0.102
VOA	Chlorobenzene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Chloroethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Chloroform	mg/kg	3.52E-04	1.92E-03	30/86	N/A	N/A	-	1.39E+00	-	1.39E+02	X	6.12E-05	X	1.22E-03	0.000947 - 0.102
VOA	Chloromethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Cumene	mg/kg	3.57E-04	3.64E-03	8/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Cyclohexane	mg/kg	3.62E-04	1.47E-03	17/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Dibromochloromethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Dichlorodifluoromethane	mg/kg	--	--	0/64	N/A	N/A	--	3.68E+01	--	1.10E+03	--	3.04E-02	--	6.08E-01	0.000947 - 0.102
VOA	Ethylbenzene	mg/kg	3.22E-04	9.79E-02	38/86	N/A	N/A	-	2.66E+01	-	2.66E+03	X	1.68E-03	X	3.36E-02	0.000947 - 0.102
VOA	Methyl acetate	mg/kg	1.84E-03	4.02E-01	2/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Methylcyclohexane	mg/kg	3.86E-04	2.74E-02	49/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Methylene chloride	mg/kg	1.96E-03	3.31E-03	15/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00473 - 0.509
VOA	Styrene	mg/kg	3.49E-04	4.22E-04	3/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Tetrachloroethene	mg/kg	5.50E-04	5.50E-04	1/86	N/A	N/A	-	4.00E+01	-	1.20E+03	-	1.84E-03	-	3.69E-02	0.000947 - 0.102
VOA	Toluene	mg/kg	1.00E-03	9.60E-01	84/86	N/A	N/A	-	6.25E+03	-	1.00E+05	X	7.62E-02	-	1.52E+00	0.000947 - 0.102
VOA	Total Xylene	mg/kg	1.22E-03	5.00E+00	54/86	N/A	N/A	-	2.50E+02	-	7.50E+03	X	1.91E-02	X	3.82E-01	0.00284 - 0.307
VOA	Trichloroethene	mg/kg	3.47E-04	5.73E-01	50/86	N/A	N/A	-	1.90E+00	-	5.70E+01	X	1.01E-04	X	2.02E-03	0.000947 - 0.102
VOA	Trichlorofluoromethane	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	Vinyl chloride	mg/kg	--	--	0/86	N/A	N/A	--	2.06E+00	--	2.06E+02	--	6.47E-06	--	1.29E-04	0.000947 - 0.102
VOA	cis-1,2-Dichloroethene	mg/kg	6.30E-04	7.84E-04	2/86	N/A	N/A	-	4.00E+01	-	1.20E+03	-	1.06E-03	-	2.12E-02	0.000947 - 0.102
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
VOA	m,p-Xylene	mg/kg	6.90E-04	3.15E+00	57/86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00189 - 0.205
VOA	trans-1,2-Dichloroethene	mg/kg	--	--	0/86	N/A	N/A	--	3.04E+01	--	9.12E+02	--	2.12E-03	--	4.24E-02	0.000947 - 0.102
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000947 - 0.102
X	Max Concentration Exceeds Background Level															
X	Max Concentration Exceeds No Action Limit															
X	Max Concentration Exceeds Action Limit															
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening															

Table B.5. C-400 and C-410 Concrete/Brick Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Industrial Worker		Industrial Worker		GW Protection			DL Range
			Min	Max		Max Concentration Exceeds Background	Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	Max Concentration Exceeds DAF 20	DAF 20	

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory and by using method specified in RMD 2024.

^c Total PAHs calculated using TEF values in RMD 2024

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Table B.6. Sediment Data Summary

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
METAL	Aluminum	mg/kg	4.55E+02	1.55E+04	634/635	X	1.30E+04	-	1.95E+04	-	1.00E+05	X	3.00E+03	-	5.99E+04	10.9 - 178
METAL	Antimony	mg/kg	--	--	0/615	--	2.10E-01	--	7.82E+00	--	2.35E+02	--	3.52E-02	--	7.04E-01	5.27 - 20
METAL	Arsenic	mg/kg	8.71E-01	3.23E+01	161/617	X	1.20E+01	X	8.09E-01	-	8.09E+01	X	1.51E-03	X	3.02E-02	0.84 - 46.9
METAL	Barium	mg/kg	6.76E+00	1.84E+02	615/616	-	2.00E+02	-	3.89E+03	-	1.00E+05	X	1.55E+01	-	3.11E+02	1.36 - 5
METAL	Beryllium	mg/kg	3.10E-01	2.42E+00	105/636	X	6.70E-01	-	3.91E+01	-	1.17E+03	X	1.95E+00	-	3.89E+01	0.27 - 0.5
METAL	Cadmium	mg/kg	1.33E+00	1.93E+01	25/617	X	2.10E-01	X	1.33E+00	-	3.98E+01	X	1.38E-02	X	2.77E-01	1.09 - 2
METAL	Chromium	mg/kg	2.50E+00	2.84E+02	616/617	X	1.60E+01	X	7.47E-01	X	7.47E+01	X	6.72E-04	X	1.34E-02	1.36 - 13.6
METAL	Cobalt	mg/kg	2.10E+00	4.39E+01	544/631	X	1.40E+01	X	5.86E+00	-	1.76E+02	X	2.71E-02	X	5.43E-01	1.36 - 4.49
METAL	Copper	mg/kg	2.24E+00	2.34E+02	553/617	X	1.90E+01	-	7.82E+02	-	2.35E+04	X	2.81E+00	X	5.62E+01	1.36 - 5
METAL	Iron	mg/kg	1.56E+03	1.82E+05	606/606	X	2.80E+04	X	1.37E+04	X	1.00E+05	X	3.52E+01	X	7.04E+02	10 - 188
METAL	Lead	mg/kg	1.89E+01	2.69E+02	57/617	X	3.60E+01	X	2.00E+02	X	2.00E+02	X	1.35E+01	-	2.70E+02	10.9 - 20
METAL	Manganese	mg/kg	1.69E+01	2.88E+03	631/631	X	1.50E+03	X	4.67E+02	-	1.40E+04	X	2.83E+00	X	5.65E+01	1.36 - 10
METAL	Mercury	mg/kg	1.10E-02	1.70E+00	65/636	X	2.00E-01	-	5.87E+00	-	1.76E+02	X	2.95E-02	X	5.91E-01	0.01 - 0.2
METAL	Molybdenum	mg/kg	5.21E+00	2.64E+01	54/321	N/A	N/A	-	9.78E+01	-	2.93E+03	X	2.02E-01	X	4.03E+00	2.1 - 5
METAL	Nickel	mg/kg	2.84E+00	1.82E+02	404/636	X	2.10E+01	-	3.90E+02	-	1.17E+04	X	2.56E+00	X	5.12E+01	2.72 - 5
METAL	Selenium	mg/kg	2.03E+01	2.79E+01	2/597	X	8.00E-01	-	9.78E+01	-	2.93E+03	X	5.19E-02	X	1.04E+00	1 - 20
METAL	Silver	mg/kg	2.41E+00	7.31E+00	9/623	X	2.30E+00	-	9.78E+01	-	2.93E+03	X	7.99E-02	X	1.60E+00	1.32 - 4
METAL	Sodium	mg/kg	6.99E+01	4.14E+02	194/612	X	3.20E+02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	54.3 - 990
METAL	Thallium	mg/kg	--	--	0/617	--	2.10E-01	--	1.96E-01	--	5.87E+00	--	1.42E-03	--	2.84E-02	10.9 - 20
METAL	Uranium ^a	mg/kg	1.00E-01	3.26E+02	431/602	X	4.90E+00	X	3.91E+00	X	1.17E+02	X	1.80E-01	X	3.60E+00	0.84 - 200
METAL	Vanadium	mg/kg	3.06E+00	5.95E+01	616/616	X	3.80E+01	-	9.85E+01	-	2.95E+03	X	8.64E+00	-	1.73E+02	1.36 - 2.5
METAL	Zinc	mg/kg	1.24E+01	1.43E+03	498/619	X	6.50E+01	-	5.87E+03	-	1.00E+05	X	3.73E+01	X	7.46E+02	10 - 20
DI/FURA	Total Dioxins and Furans ^b	mg/kg	1.87E-06	3.29E-05	8/8	N/A	N/A	X	7.22E-06	-	3.03E-04	X	5.91E-08	X	1.18E-06	0 - 0
HERB	Diazinon	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.016
METAL-D	Antimony, Dissolved	mg/kg	--	--	0/19	--	2.10E-01	--	7.82E+00	--	2.35E+02	--	3.52E-02	--	7.04E-01	20 - 20
METAL-D	Arsenic, Dissolved	mg/kg	5.97E+00	1.14E+01	2/19	-	1.20E+01	X	8.09E-01	-	8.09E+01	X	1.51E-03	X	3.02E-02	5 - 5
METAL-D	Barium, Dissolved	mg/kg	1.06E+01	8.71E+01	19/19	-	2.00E+02	-	3.89E+03	-	1.00E+05	X	1.55E+01	-	3.11E+02	2.5 - 2.5
METAL-D	Cadmium, Dissolved	mg/kg	--	--	0/19	--	2.10E-01	--	1.33E+00	--	3.98E+01	--	1.38E-02	--	2.77E-01	2 - 2
METAL-D	Chromium, Dissolved	mg/kg	6.26E+00	7.79E+01	19/19	X	1.60E+01	X	7.47E-01	X	7.47E+01	X	6.72E-04	X	1.34E-02	2.5 - 2.5
METAL-D	Copper, Dissolved	mg/kg	3.32E+00	3.16E+01	13/19	X	1.90E+01	-	7.82E+02	-	2.35E+04	X	2.81E+00	-	5.62E+01	2.5 - 2.5
METAL-D	Iron, Dissolved	mg/kg	2.28E+03	1.82E+04	19/19	-	2.80E+04	X	1.37E+04	-	1.00E+05	X	3.52E+01	X	7.04E+02	20 - 20
METAL-D	Lead, Dissolved	mg/kg	--	--	0/19	--	N/A	--	2.00E+02	--	2.00E+02	--	1.35E+01	--	2.70E+02	20 - 20
METAL-D	Selenium, Dissolved	mg/kg	1.08E+00	1.08E+00	1/19	X	8.00E-01	-	9.78E+01	-	2.93E+03	X	5.19E-02	X	1.04E+00	1 - 1
METAL-D	Sodium, Dissolved	mg/kg	2.10E+02	3.54E+02	14/19	X	3.20E+02	-	N/A	-	N/A	N/A	N/A	N/A	N/A	200 - 200
METAL-D	Thallium, Dissolved	mg/kg	--	--	0/19	--	2.10E-01	--	1.96E-01	--	5.87E+00	--	1.42E-03	--	2.84E-02	20 - 20
METAL-D	Uranium, Dissolved	mg/kg	5.41E+00	8.07E+01	6/19	X	4.90E+00	X	3.91E+00	-	1.17E+02	X	1.80E-01	X	3.60E+00	100 - 100
METAL-D	Vanadium, Dissolved	mg/kg	6.42E+00	3.96E+01	19/19	X	3.80E+01	-	9.85E+01	-	2.95E+03	X	8.64E+00	-	1.73E+02	2.5 - 2.5
METAL-D	Zinc, Dissolved	mg/kg	1.17E+01	1.02E+02	18/19	X	6.50E+01	-	5.87E+03	-	1.00E+05	X	3.73E+01	-	7.46E+02	10 - 10
PPCB	2,4'-DDD	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00043 - 0.031
PPCB	2,4'-DDE	mg/kg	6.20E-04	1.50E-02	3/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00043 - 0.031
PPCB	2,4'-DDT	mg/kg	5.50E-04	5.50E-04	1/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00043 - 0.031
PPCB	4,4'-DDD	mg/kg	6.60E-04	2.20E-02	9/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	4,4'-DDE	mg/kg	4.90E-04	6.30E-02	8/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	4,4'-DDT	mg/kg	9.00E-04	2.20E-02	4/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Aldrin	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	alpha-BHC	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	alpha-Chlordane	mg/kg	3.00E-03	9.80E-03	3/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Azinphos-methyl	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 0.16
PPCB	beta-BHC	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Chlordane	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.017 - 1.2
PPCB	Co-Ral	mg/kg	2.30E-02	2.30E-02	1/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.021 - 0.032
PPCB	delta-BHC	mg/kg	3.20E-04	7.50E-03	6/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Demeton	mg/kg	1.10E-02	1.70E-01	3/9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.015

Table B.6. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
PPCB	Diazinon	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.015
PPCB	Dichlorvos	mg/kg	1.20E-02	1.90E-02	4/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.021 - 0.03
PPCB	Dieldrin	mg/kg	1.90E-02	2.50E-02	2/84	N/A	N/A	-	2.90E-02	-	2.90E+00	X	7.08E-05	X	1.42E-03	0.0022 - 0.16
PPCB	Dimethoate	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.021 - 0.03
PPCB	Endosulfan I	mg/kg	1.70E-03	1.70E-03	1/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Endosulfan II	mg/kg	3.10E-03	3.10E-03	1/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Endosulfan sulfate	mg/kg	1.00E-03	1.00E-02	3/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Endrin	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Endrin aldehyde	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Endrin ketone	mg/kg	--	--	0/8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0038 - 0.041
PPCB	Ethion	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.015
PPCB	Famphur	mg/kg	2.80E-02	2.80E-02	1/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.042 - 0.063
PPCB	Fensulfothion	mg/kg	9.20E-03	9.20E-03	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.038 - 0.053
PPCB	Fenthion	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.015
PPCB	gamma-Chlordane	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Heptachlor	mg/kg	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Heptachlor epoxide	mg/kg	1.10E-03	1.10E-03	1/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.62
PPCB	Lindane	mg/kg	2.00E-03	2.00E-03	1/65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0019 - 0.16
PPCB	Malathion	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 0.038
PPCB	Methoxychlor	mg/kg	8.30E-04	8.30E-04	1/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0043 - 0.31
PPCB	Methyl parathion	mg/kg	9.00E-03	9.00E-03	1/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.016
PPCB	Mirex	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0022 - 0.16
PPCB	Mocap	mg/kg	7.90E-03	7.90E-03	1/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.015
PPCB	Parathion	mg/kg	2.40E-03	3.00E-03	2/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.015
PPCB	Phorate	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.016
PPCB	Total PCBs ^c	mg/kg	1.42E-03	2.28E+01	882/3242	N/A	N/A	X	1.79E-01	X	1.79E+01	X	6.82E-03	X	1.36E-01	0.0006 - 12.4
PPCB	Toxaphene	pCi/g	--	--	0/84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.19 - 16
RADS	Americium-241	pCi/g	1.25E-02	2.97E+00	96/684	N/A	N/A	X	2.52E-01	-	2.52E+01	X	1.29E-01	X	2.57E+00	0.0081 - 0.944
RADS	Americium-243	pCi/g	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0428 - 0.0783
RADS	Cesium-134	pCi/g	2.28E-02	2.28E-02	1/12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.02
RADS	Cesium-137	pCi/g	6.70E-03	1.12E+01	427/705	X	4.90E-01	X	2.36E-01	-	2.36E+01	X	4.79E-01	X	9.58E+00	0.0061 - 0.17
RADS	Cobalt-60	pCi/g	--	--	0/635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00277 - 0.16
RADS	Neptunium-237	pCi/g	6.78E-03	2.90E+00	180/670	N/A	N/A	X	2.60E-01	-	2.60E+01	X	5.50E-03	X	1.10E-01	0.0063 - 1.53
RADS	Plutonium-238	pCi/g	5.36E-02	2.53E-01	8/391	N/A	N/A	X	6.13E-02	-	6.13E+00	X	8.58E-03	X	1.72E-01	0.02 - 0.98
RADS	Plutonium-239/240	pCi/g	7.19E-03	1.37E+01	308/682	N/A	N/A	X	2.21E-01	-	2.21E+01	X	3.32E-02	X	6.64E-01	0.00325 - 1.15
RADS	Potassium-40	pCi/g	3.57E-01	1.12E+01	324/324	-	1.60E+01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0498 - 0.895
RADS	Protactinium-234m	pCi/g	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.67 - 6.86
RADS	Radium-226	pCi/g	--	--	0/4	--	1.50E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.154 - 0.246
RADS	Technetium-99	pCi/g	1.33E-01	2.53E+02	427/676	X	2.50E+00	-	3.49E+03	-	3.49E+05	X	7.60E-03	X	1.52E-01	0.11 - 45.7
RADS	Thorium-228	pCi/g	6.08E-02	1.26E+00	334/357	-	1.60E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0122 - 0.697
RADS	Thorium-230	pCi/g	3.47E-03	1.39E+02	672/705	X	1.50E+00	X	6.19E-02	X	6.19E+00	X	5.31E-02	X	1.06E+00	0.000571 - 0.899
RADS	Thorium-232	pCi/g	5.89E-02	1.58E+00	350/357	N/A	N/A	X	4.99E-02	-	4.99E+00	X	1.16E-01	-	2.32E+00	0.0157 - 0.469
RADS	Thorium-234	pCi/g	6.46E-01	9.23E+00	18/21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.291 - 2.92
RADS	Uranium-234	pCi/g	4.41E-02	4.21E+01	521/550	X	1.20E+00	X	6.17E-02	X	6.17E+00	X	1.09E-03	X	2.17E-02	0.01 - 1.25
RADS	Uranium-235	pCi/g	1.21E-02	9.09E-01	37/101	X	6.00E-02	X	2.25E-01	-	2.25E+01	X	4.78E-03	X	9.57E-02	0.00793 - 0.993
RADS	Uranium-238	pCi/g	6.72E-02	2.87E+01	534/550	X	1.20E+00	X	6.07E-02	X	6.07E+00	X	1.06E-03	X	2.12E-02	0.0077 - 1.35
SVOA	1,1-biphenyl	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.027 - 0.13
SVOA	1,2,4-Trichlorobenzene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	1,2-Dichlorobenzene	mg/kg	--	--	0/15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	1,2-Diphenylhydrazine	mg/kg	--	--	0/80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	1,3-Dichlorobenzene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	1,4-Dichlorobenzene	mg/kg	--	--	0/15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,4,5-Trichlorophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5

Table B.6. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
SVOA	2,4,6-Trichlorophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,4-Dichlorophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,4-Dimethylphenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,4-Dinitrophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,4-Dinitrotoluene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2,6,10,14-Tetramethylhexadecane	mg/kg	5.90E-02	5.90E-02	1/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	2,6,10,14-Tetramethylpentadecane	mg/kg	2.50E-02	7.80E-01	5/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	2,6-Dichlorophenol	mg/kg	--	--	0/80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	2,6-Dimethylnaphthalene	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.038 - 0.13
SVOA	2,6-Dinitrotoluene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Chloronaphthalene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Chlorophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Methyl-4,6-dinitrophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Methylnaphthalene	mg/kg	2.00E-02	2.00E-02	1/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Methylphenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	2-Nitrobenzenamine	mg/kg	--	--	0/91	N/A	N/A	--	8.93E+01	--	2.68E+03	--	8.01E-03	--	1.60E-01	0.42 - 0.5
SVOA	2-Nitrophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	3,3'-Dichlorobenzidine	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	3-Nitrobenzenamine	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Bromophenyl phenyl ether	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Chloro-3-methylphenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Chlorobenzenamine	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Chlorophenyl phenyl ether	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Methylphenol	mg/kg	--	--	0/53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	4-Nitrophenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Acenaphthene	mg/kg	1.20E-02	9.40E+00	15/412	N/A	N/A	-	4.61E+02	-	1.38E+04	X	5.49E-01	-	1.10E+01	0.42 - 0.56
SVOA	Acenaphthylene	mg/kg	1.50E+00	1.50E+00	1/412	N/A	N/A	-	4.61E+02	-	1.38E+04	X	5.49E-01	-	1.10E+01	0.42 - 0.56
SVOA	Aniline	mg/kg	4.90E-01	4.90E-01	1/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Anthracene	mg/kg	1.30E-02	3.00E+01	26/412	N/A	N/A	-	2.31E+03	-	6.92E+04	X	5.81E+00	-	1.16E+02	0.42 - 0.56
SVOA	Benzenemethanol	mg/kg	9.40E-01	9.40E-01	1/80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Benzidine	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Benzo(ghi)perylene	mg/kg	1.00E-02	4.20E+01	47/412	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.56
SVOA	Benzoic acid	mg/kg	5.10E-01	5.10E-01	1/80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Bis(2-chloroethoxy)methane	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Bis(2-chloroethyl) ether	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Bis(2-chloroisopropyl) ether	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Bis(2-ethylhexyl)phthalate	mg/kg	--	--	0/76	N/A	N/A	--	3.32E+01	--	3.32E+03	--	1.33E+00	--	2.66E+01	0.42 - 0.5
SVOA	Butyl benzyl phthalate	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Carbazole	mg/kg	--	--	0/91	N/A	N/A	--	3.08E+02	--	9.23E+03	--	5.45E-01	--	1.09E+01	0.42 - 0.5
SVOA	Co-Ral	mg/kg	3.30E-02	3.30E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.022 - 0.032
SVOA	Decane	mg/kg	--	--	0/38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Dibenzofuran	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Dibenzothiophene	mg/kg	3.50E-02	1.60E-01	7/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.027 - 0.13
SVOA	Dichlorvos	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.022 - 0.032
SVOA	Diethyl phthalate	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Dimethoate	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.022 - 0.032
SVOA	Dimethyl phthalate	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Di-n-butyl phthalate	mg/kg	4.80E-01	1.20E+01	46/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Di-n-octylphthalate	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Docosane	mg/kg	4.00E-03	4.60E-02	37/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Dodecane	mg/kg	4.00E-03	2.20E-02	3/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Dotriacontane	mg/kg	6.00E-03	1.50E-01	46/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Eicosane	mg/kg	3.00E-03	4.10E-02	37/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75

Table B.6. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
SVOA	Ethion	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.016
SVOA	Fensulfothion	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.038 - 0.057
SVOA	Fenthion	mg/kg	--	--	0/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.016
SVOA	Fluoranthene	mg/kg	1.10E-02	2.00E+02	110/412	N/A	N/A	-	3.08E+02	-	9.23E+03	X	8.91E+00	X	1.78E+02	0.06 - 0.56
SVOA	Fluorene	mg/kg	1.10E-02	7.60E+00	11/412	N/A	N/A	-	3.08E+02	-	9.23E+03	X	5.45E-01	-	1.09E+01	0.42 - 0.56
SVOA	Henicosane	mg/kg	3.00E-03	6.80E-02	40/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	heptacosane	mg/kg	1.80E-02	1.20E+00	56/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Heptadecane	mg/kg	6.00E-03	7.90E-01	45/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Hexachlorobenzene	mg/kg	--	--	0/91	N/A	N/A	--	1.96E-01	--	5.87E+00	--	1.23E-04	--	2.46E-03	0.42 - 0.5
SVOA	Hexachlorobutadiene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Hexachlorocyclopentadiene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Hexachloroethane	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Hexacosane	mg/kg	7.00E-03	1.10E-01	43/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Hexadecane	mg/kg	2.00E-03	4.50E-02	34/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Isophorone	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Lindane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0023 - 0.031
SVOA	m,p-Cresol	mg/kg	--	--	0/38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	Mocap	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.016
SVOA	Naphthalene	mg/kg	1.40E-02	2.70E+00	9/412	N/A	N/A	-	2.99E+00	-	2.99E+02	X	3.85E-04	X	7.70E-03	0.42 - 0.56
SVOA	n-Hentriacontane	mg/kg	4.80E-02	3.90E+00	57/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Nitrobenzene	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	N-Nitrosodimethylamine	mg/kg	--	--	0/80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
SVOA	N-Nitroso-di-n-propylamine	mg/kg	--	--	0/91	N/A	N/A	--	6.63E-02	--	6.63E+00	--	8.10E-06	--	1.62E-04	0.42 - 0.5
SVOA	N-Nitrosodiphenylamine	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	n-Octacosane	mg/kg	9.00E-03	1.80E-01	50/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Nonacosane	mg/kg	3.50E-02	3.60E+00	57/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Nonadecane	mg/kg	2.00E-03	4.90E-02	33/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	n-Pentacosane	mg/kg	1.20E-02	2.60E-01	54/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	n-Tetracosane	mg/kg	5.00E-03	7.00E-02	39/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	n-Triacontane	mg/kg	1.00E-02	2.60E-01	51/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	n-Tricosane	mg/kg	7.00E-03	1.10E-01	47/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	n-Tritriacontane	mg/kg	1.70E-02	8.50E-01	57/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.49
SVOA	Octadecane	mg/kg	2.00E-03	3.50E-02	36/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Parathion	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 - 0.016
SVOA	Pentachlorophenol	mg/kg	--	--	0/91	N/A	N/A	--	5.56E-01	--	5.56E+01	--	5.71E-05	--	1.14E-03	0.42 - 0.5
SVOA	Pentadecane	mg/kg	2.00E-03	6.70E-02	36/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Perylene	mg/kg	9.00E-03	4.60E-01	29/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.027 - 0.13
SVOA	Phenanthrene	mg/kg	9.00E-03	1.30E+02	90/412	N/A	N/A	-	2.31E+02	-	6.92E+03	X	1.32E+00	X	2.63E+01	0.06 - 0.56
SVOA	Phenol	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	p-Nitroaniline	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Pyrene	mg/kg	8.00E-03	4.60E+01	103/412	N/A	N/A	-	2.31E+02	-	6.92E+03	X	1.32E+00	X	2.63E+01	0.06 - 0.56
SVOA	Pyridine	mg/kg	--	--	0/91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42 - 0.5
SVOA	Tetradecane	mg/kg	2.00E-03	3.60E-02	24/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Tetratriacontane	mg/kg	5.00E-03	9.00E-02	21/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Total PAHs ^d	mg/kg	5.20E-04	1.84E+02	101/412	N/A	N/A	X	1.09E-01	X	1.09E+01	X	2.94E-02	X	5.89E-01	0 - 0
SVOA	Tridecane	mg/kg	2.00E-03	2.80E-02	9/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
SVOA	Undecane	mg/kg	1.10E-02	2.60E-02	4/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14 - 0.75
VOA	1,1,1-Trichloroethane	mg/kg	--	--	0/258	N/A	N/A	--	8.16E+03	--	1.00E+05	--	2.81E-01	--	5.62E+00	0.005 - 0.01
VOA	1,1,2,2-Tetrachloroethane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	1,1,2-Trichloroethane	mg/kg	--	--	0/4	N/A	N/A	--	1.77E+00	--	5.30E+01	--	1.35E-05	--	2.69E-04	0.01 - 0.01
VOA	1,1-biphenyl	mg/kg	2.60E-02	2.60E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	1,1-Dichloroethane	mg/kg	--	--	0/4	N/A	N/A	--	4.18E+01	--	4.18E+03	--	7.82E-04	--	1.56E-02	0.01 - 0.01
VOA	1,1-Dichloroethene	mg/kg	--	--	0/4	N/A	N/A	--	2.23E+02	--	6.69E+03	--	1.02E-02	--	2.04E-01	0.01 - 0.01

Table B.6. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	1,2-Dichlorobenzene	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
VOA	1,2-Dichloroethane	mg/kg	--	--	0/4	N/A	N/A	--	4.86E+00	--	4.86E+02	--	4.84E-05	--	9.69E-04	0.01 - 0.01
VOA	1,2-Dichloropropane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	1,2-Dimethylbenzene	mg/kg	--	--	0/4	N/A	N/A	--	6.69E+02	--	2.01E+04	--	1.91E-02	--	3.81E-01	0.01 - 0.01
VOA	1,4-Dichlorobenzene	mg/kg	--	--	0/76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46 - 0.5
VOA	2,6,10,14-Tetramethylhexadecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	2,6,10,14-Tetramethylpentadecane	mg/kg	3.40E-02	3.40E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	2,6-Dimethylnaphthalene	mg/kg	9.00E-03	2.90E-02	4/57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.027 - 0.09
VOA	2-Hexanone	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	2-Methylnaphthalene	mg/kg	3.00E-02	6.50E-02	2/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	4-Methyl-2-pentanone	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Acenaphthene	mg/kg	2.50E-02	3.00E-01	3/19	N/A	N/A	N/A	N/A	N/A	N/A	-	5.49E-01	N/A	N/A	0.031 - 0.065
VOA	Acenaphthylene	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	--	5.49E-01	--	N/A	0.031 - 0.065
VOA	Anthracene	mg/kg	4.00E-02	3.60E-01	3/19	N/A	N/A	N/A	N/A	N/A	N/A	-	5.81E+00	N/A	N/A	0.031 - 0.065
VOA	Benz(a)anthracene	mg/kg	2.40E-02	1.20E+00	12/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Benzene	mg/kg	--	--	0/4	N/A	N/A	--	1.09E+01	--	1.09E+03	--	2.33E-04	--	4.66E-03	0.01 - 0.01
VOA	Benzo(a)pyrene	mg/kg	9.00E-03	1.20E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Benzo(b)fluoranthene	mg/kg	1.70E-02	1.80E+00	14/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Benzo(e)pyrene	mg/kg	9.00E-03	8.50E-01	13/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Benzo(ghi)perylene	mg/kg	8.00E-03	4.30E-01	6/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Benzo(k)fluoranthene	mg/kg	1.20E-02	9.40E-01	13/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Bromodichloromethane	mg/kg	--	--	0/4	N/A	N/A	--	3.49E+00	--	3.49E+02	--	3.65E-05	--	7.30E-04	0.01 - 0.01
VOA	Bromoform	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Bromomethane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Carbon disulfide	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Carbon tetrachloride	mg/kg	--	--	0/4	N/A	N/A	--	6.72E+00	--	6.72E+02	--	1.77E-04	--	3.54E-03	0.01 - 0.01
VOA	Chlorobenzene	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Chloroethane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Chloroform	mg/kg	--	--	0/4	N/A	N/A	--	3.96E+00	--	3.96E+02	--	6.12E-05	--	1.22E-03	0.01 - 0.01
VOA	Chloromethane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Chrysene	mg/kg	1.20E-02	1.30E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	cis-1,2-Dichloroethene	mg/kg	--	--	0/4	N/A	N/A	--	2.98E+01	--	8.94E+02	--	1.06E-03	--	2.12E-02	0.01 - 0.01
VOA	cis-1,3-Dichloropropene	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Decane	mg/kg	1.50E-01	1.50E-01	1/38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.45
VOA	Dibenz(a,h)anthracene	mg/kg	2.00E-02	9.40E-02	3/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Dibenzothiophene	mg/kg	4.50E-02	4.50E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Dibromochloromethane	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Docosane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Dodecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Dotriacontane	mg/kg	1.60E-02	3.60E-02	5/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Eicosane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Ethylbenzene	mg/kg	--	--	0/4	N/A	N/A	--	5.46E+01	--	5.46E+03	--	1.68E-03	--	3.36E-02	0.01 - 0.01
VOA	Fluoranthene	mg/kg	1.80E-02	2.30E+00	14/19	N/A	N/A	N/A	N/A	N/A	N/A	-	8.91E+00	N/A	N/A	0.031 - 0.065
VOA	Fluorene	mg/kg	1.10E-01	2.80E-01	2/19	N/A	N/A	N/A	N/A	N/A	N/A	-	5.45E-01	N/A	N/A	0.031 - 0.065
VOA	Henicosane	mg/kg	1.60E-02	3.70E-02	3/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	heptacosane	mg/kg	4.20E-02	5.10E-01	19/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Heptadecane	mg/kg	5.70E-02	3.50E-01	4/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Hexacosane	mg/kg	1.90E-02	4.10E-02	7/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Hexadecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Indeno(1,2,3-cd)pyrene	mg/kg	1.50E-02	5.20E-01	8/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	m,p-Xylene	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02 - 0.02
VOA	Methylene chloride	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Naphthalene	mg/kg	2.00E-02	1.40E-01	5/19	N/A	N/A	N/A	N/A	N/A	N/A	X	3.85E-04	N/A	N/A	0.031 - 0.065

Table B.6. Sediment Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Provisional Background		Child Recreation		Child Recreation		GW Protection				DL Range
			Min	Max		Max Concentration Exceeds Background	Surface Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds DAF 1	DAF 1	Max Concentration Exceeds DAF 20	DAF 20	
VOA	n-Hentriacontane	mg/kg	1.40E-01	1.10E+00	19/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Octacosane	mg/kg	1.80E-02	8.90E-02	12/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Nonacosane	mg/kg	1.20E-01	1.30E+00	19/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Nonadecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Pentacosane	mg/kg	2.90E-02	3.20E-01	17/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Tetracosane	mg/kg	1.70E-02	1.70E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Triacontane	mg/kg	1.80E-02	8.20E-02	14/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Tricosane	mg/kg	2.10E-02	1.00E-01	11/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	n-Tritriacontane	mg/kg	5.30E-02	2.40E-01	19/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Octadecane	mg/kg	3.40E-02	3.40E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Pentadecane	mg/kg	3.30E-02	3.30E-02	1/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Perylene	mg/kg	3.80E-02	3.80E-01	7/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.031 - 0.065
VOA	Phenanthrene	mg/kg	9.00E-03	2.20E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	X	1.32E+00	N/A	N/A	0.031 - 0.065
VOA	Pyrene	mg/kg	1.40E-02	1.90E+00	13/19	N/A	N/A	N/A	N/A	N/A	N/A	X	1.32E+00	N/A	N/A	0.031 - 0.065
VOA	Styrene	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Tetrachloroethene	mg/kg	--	--	0/4	N/A	N/A	--	5.87E+01	--	1.76E+03	--	1.84E-03	--	3.69E-02	0.01 - 0.01
VOA	Tetradecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Tetratriacontane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Toluene	mg/kg	--	--	0/4	N/A	N/A	--	1.48E+03	--	4.43E+04	--	7.62E-02	--	1.52E+00	0.01 - 0.01
VOA	Total Xylene	mg/kg	--	--	0/4	N/A	N/A	--	6.07E+02	--	1.82E+04	--	1.91E-02	--	3.82E-01	0.03 - 0.03
VOA	trans-1,2-Dichloroethene	mg/kg	--	--	0/4	N/A	N/A	--	7.14E+01	--	2.14E+03	--	2.12E-03	--	4.24E-02	0.01 - 0.01
VOA	trans-1,3-Dichloropropene	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Trichloroethene	mg/kg	--	--	0/258	N/A	N/A	--	3.53E+00	--	1.06E+02	--	1.01E-04	--	2.02E-03	0.005 - 0.01
VOA	Tridecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Undecane	mg/kg	--	--	0/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.16 - 0.33
VOA	Vinyl acetate	mg/kg	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01 - 0.01
VOA	Vinyl chloride	mg/kg	--	--	0/4	N/A	N/A	--	6.78E-02	--	6.78E+00	--	6.47E-06	--	1.29E-04	0.01 - 0.01
WETCHEM	Cyanide	mg/kg	--	--	0/11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 - 1
WETCHEM	Total Organic Carbon (TOC)	mg/kg	7.30E+02	4.69E+04	148/148	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100 - 1811
X	Max Concentration Exceeds Background Level															
X	Max Concentration Exceeds No Action Limit															
X	Max Concentration Exceeds Action Limit															
X	Max Concentration Exceeds Dilution Attenuation Factor GW Screening															

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total Dioxins and Furans calculated using TEF values in RMD 2024

^c Total PCBs calculated by laboratory

^d Total PAHs calculated using TEF values in RMD 2024

Table B.7. C-400 Complex OU UCRS Groundwater Data Summary

Type	Analysis	Unit	Detected Results		FOD	Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
METAL	Aluminum	mg/L	4.01E-02	8.10E-01	11/13	-	2.00E+00	-	6.00E+01	-	N/A	0.05 - 0.05
METAL	Antimony	mg/L	1.03E-03	1.07E-03	2/13	X	7.79E-04	-	2.34E-02	-	6.00E-03	0.003 - 0.003
METAL	Arsenic	mg/L	2.00E-03	2.73E-03	6/13	X	5.17E-05	-	5.17E-03	-	1.00E-02	0.005 - 0.005
METAL	Barium	mg/L	7.79E-02	1.73E-01	13/13	-	3.77E-01	-	1.13E+01	-	2.00E+00	0.004 - 0.004
METAL	Beryllium	mg/L	--	--	0/13	--	2.46E-03	--	7.38E-02	--	4.00E-03	0.0005 - 0.0005
METAL	Boron	mg/L	5.38E-03	2.13E-02	11/13	-	3.99E-01	-	1.20E+01	-	N/A	0.015 - 0.015
METAL	Cadmium	mg/L	4.08E-04	4.08E-04	1/13	X	1.84E-04	-	5.52E-03	-	5.00E-03	0.001 - 0.001
METAL	Chromium	mg/L	3.23E-03	1.14E-02	7/13	X	3.50E-05	X	3.50E-03	-	N/A	0.01 - 0.01
METAL	Cobalt	mg/L	3.80E-04	3.50E-03	13/13	X	6.01E-04	-	1.80E-02	-	N/A	0.001 - 0.001
METAL	Copper	mg/L	3.39E-04	4.92E-03	13/13	-	7.99E-02	-	2.40E+00	-	1.30E+00	0.002 - 0.002
METAL	Iron	mg/L	5.49E-02	1.17E+00	11/13	-	1.40E+00	-	4.20E+01	-	N/A	0.1 - 0.1
METAL	Lead	mg/L	5.89E-04	2.41E-03	10/13	-	1.50E-02	-	3.00E-02	-	1.50E-02	0.002 - 0.002
METAL	Manganese	mg/L	1.09E-02	5.14E-01	13/13	X	4.34E-02	-	1.30E+00	-	N/A	0.005 - 0.005
METAL	Mercury	mg/L	9.50E-05	2.36E-04	2/13	-	5.66E-04	-	1.70E-02	-	2.00E-03	0.0002 - 0.0002
METAL	Molybdenum	mg/L	2.62E-04	1.03E-03	8/13	-	9.98E-03	-	2.99E-01	-	N/A	0.001 - 0.001
METAL	Nickel	mg/L	6.61E-04	3.09E-03	13/13	-	3.92E-02	-	1.18E+00	-	N/A	0.002 - 0.002
METAL	Selenium	mg/L	--	--	0/13	--	9.98E-03	--	2.99E-01	--	5.00E-02	0.005 - 0.005
METAL	Silver	mg/L	--	--	0/13	--	9.41E-03	--	2.82E-01	-	N/A	0.001 - 0.001
METAL	Thallium	mg/L	--	--	0/13	--	2.00E-05	--	6.00E-04	--	2.00E-03	0.002 - 0.002
METAL	Uranium ^a	mg/L	1.23E-04	1.26E-03	12/13	X	3.99E-04	-	1.20E-02	-	3.00E-02	0.0002 - 0.0002
METAL	Vanadium	mg/L	3.52E-03	4.76E-03	4/13	-	8.64E-03	-	2.59E-01	-	N/A	0.02 - 0.02
METAL	Zinc	mg/L	3.46E-03	2.59E-02	11/13	-	6.00E-01	-	1.80E+01	-	N/A	0.02 - 0.02
ANION	Fluoride	mg/L	6.17E-02	2.29E-01	13/13	X	7.99E-02	-	2.40E+00	-	4.00E+00	0.1 - 0.1
ANION	Nitrate as Nitrogen	mg/L	5.98E-02	1.73E+00	3/4	N/A	N/A	N/A	N/A	-	1.00E+01	0.1 - 0.1
ANION	Sulfate	mg/L	2.25E+01	5.16E+01	4/4	N/A	N/A	N/A	N/A	-	N/A	0.8 - 10
PPCB	Total PCBs ^b	mg/L	--	--	0/13	--	4.36E-05	--	4.36E-03	--	5.00E-04	0.0000958 - 0.000106
RADS	Americium-241	pCi/L	--	--	0/13	--	6.77E-02	--	6.77E+00	--	1.50E+01	0.239 - 0.832
RADS	Cesium-137	pCi/L	--	--	0/13	--	1.71E+00	--	1.71E+02	--	2.00E+02	5.41 - 12.9
RADS	Neptunium-237	pCi/L	--	--	0/13	--	7.38E-02	--	7.38E+00	--	1.50E+01	0.449 - 0.931
RADS	Plutonium-238	pCi/L	--	--	0/13	--	1.56E-02	--	1.56E+00	--	1.50E+01	0.325 - 1.17
RADS	Plutonium-239/240	pCi/L	--	--	0/13	--	6.03E-02	--	6.03E+00	--	1.50E+01	0.275 - 1.06
RADS	Technetium-99	pCi/L	1.96E+01	5.77E+01	8/13	X	1.90E+01	-	1.90E+03	-	9.00E+02	2.92 - 4.17
RADS	Thorium-230	pCi/L	--	--	0/13	--	1.66E-02	--	1.66E+00	--	1.50E+01	0.368 - 1.2
RADS	Uranium-233/234	pCi/L	--	--	0/13	--	1.62E-02	--	1.62E+00	--	1.02E+01	0.549 - 1.21
RADS	Uranium-235/236	pCi/L	--	--	0/13	--	7.14E-02	--	7.14E+00	--	4.66E-01	0.143 - 0.811
RADS	Uranium-238	pCi/L	--	--	0/13	--	1.58E-02	--	1.58E+00	--	9.99E+00	0.279 - 1.04
SVOA	1,1-biphenyl	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	1,4-Dioxane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,4,5-Trichlorophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,4,6-Trichlorophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,4-Dichlorophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,4-Dimethylphenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,4-Dinitrophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.019 - 0.0232
SVOA	2,4-Dinitrotoluene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2,6-Dinitrotoluene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116

Table B.7. C-400 Complex OU UCRS Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
SVOA	2-Chloronaphthalene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.000952 - 0.00116
SVOA	2-Chlorophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2-Methyl-4,6-dinitrophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2-Methylnaphthalene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.000952 - 0.00116
SVOA	2-Methylphenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	2-Nitrobenzenamine	mg/L	--	--	0/13	--	1.89E-02	--	5.67E-01	-	N/A	0.00952 - 0.0116
SVOA	2-Nitrophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	3,3'-Dichlorobenzidine	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	3-Nitrobenzenamine	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	4-Bromophenyl phenyl ether	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	4-Chloro-3-methylphenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	4-Chlorobenzenamine	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	4-Chlorophenyl phenyl ether	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	4-Nitrophenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Acenaphthene	mg/L	--	--	0/13	--	5.35E-02	--	1.61E+00	-	N/A	0.000952 - 0.00116
SVOA	Acenaphthylene	mg/L	--	--	0/13	--	5.35E-02	--	1.61E+00	-	N/A	0.000952 - 0.00116
SVOA	Acetophenone	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Anthracene	mg/L	--	--	0/13	--	1.77E-01	--	5.31E+00	-	N/A	0.000952 - 0.00116
SVOA	Atrazine	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Benzaldehyde	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Benzo(ghi)perylene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.000952 - 0.00116
SVOA	Bis(2-chloroethoxy)methane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Bis(2-chloroethyl) ether	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Bis(2-chloroisopropyl) ether	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Bis(2-ethylhexyl)phthalate	mg/L	3.20E-04	7.24E-04	3/13	-	5.56E-03	-	5.56E-01	-	6.00E-03	0.000952 - 0.00116
SVOA	Butyl benzyl phthalate	mg/L	6.20E-04	6.20E-04	1/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Caprolactam	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Carbazole	mg/L	--	--	0/13	--	2.94E-02	--	8.82E-01	-	N/A	0.000952 - 0.00116
SVOA	Di-n-butyl phthalate	mg/L	9.10E-04	9.10E-04	1/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Di-n-octylphthalate	mg/L	6.38E-04	1.07E-03	2/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Dibenzofuran	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Diethyl phthalate	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Dimethyl phthalate	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Diphenylamine	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Fluoranthene	mg/L	--	--	0/13	--	8.02E-02	--	2.41E+00	-	N/A	0.000952 - 0.00116
SVOA	Fluorene	mg/L	--	--	0/13	--	2.94E-02	--	8.82E-01	-	N/A	0.000952 - 0.00116
SVOA	Hexachlorobenzene	mg/L	--	--	0/13	--	9.76E-06	--	6.02E-04	--	1.00E-03	0.00952 - 0.0116
SVOA	Hexachlorobutadiene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Hexachlorocyclopentadiene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Hexachloroethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Isophorone	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	N-Nitroso-di-n-propylamine	mg/L	--	--	0/13	--	1.08E-05	--	1.08E-03	-	N/A	0.00952 - 0.0116
SVOA	Naphthalene	mg/L	3.30E-04	3.30E-04	1/13	X	1.17E-04	-	1.17E-02	-	N/A	0.000952 - 0.00116
SVOA	Nitrobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Pentachlorophenol	mg/L	--	--	0/13	--	4.13E-05	--	4.13E-03	--	1.00E-03	0.00952 - 0.0116
SVOA	Phenanthrene	mg/L	--	--	0/13	--	1.21E-02	--	3.63E-01	-	N/A	0.000952 - 0.00116

Table B.7. C-400 Complex OU UCRS Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
SVOA	Phenol	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
SVOA	Pyrene	mg/L	--	--	0/13	--	1.21E-02	--	3.63E-01	-	N/A	0.000952 - 0.00116
SVOA	Total PAHs ^c	mg/L	--	--	0/13	--	2.51E-05	--	2.51E-03	--	2.00E-04	0 - 0
SVOA	m+p Methylphenol	mg/L	--	--	0/9	N/A	N/A	N/A	N/A	-	N/A	0.00999 - 0.0116
SVOA	m,p-Cresol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.01
SVOA	p-Nitroaniline	mg/L	5.10E-03	5.10E-03	1/13	N/A	N/A	N/A	N/A	-	N/A	0.00952 - 0.0116
VOA	1,1,1-Trichloroethane	mg/L	--	--	0/13	--	8.01E-01	--	2.40E+01	--	2.00E-01	0.001 - 50
VOA	1,1,2,2-Tetrachloroethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	0/13	--	1.02E+00	--	3.06E+01	-	N/A	0.005 - 250
VOA	1,1,2-Trichloroethane	mg/L	2.16E-03	2.16E-03	1/13	X	4.15E-05	X	1.25E-03	-	5.00E-03	0.001 - 50
VOA	1,1-Dichloroethane	mg/L	--	--	0/13	--	2.75E-03	--	2.75E-01	-	N/A	0.001 - 50
VOA	1,1-Dichloroethene	mg/L	1.70E-02	1.70E-02	1/13	-	2.85E-02	-	8.55E-01	X	7.00E-03	0.001 - 50
VOA	1,2,3-Trichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2-Dibromo-3-chloropropane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2-Dibromoethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2-Dichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2-Dichloroethane	mg/L	3.90E-04	3.90E-04	1/13	X	1.71E-04	-	1.71E-02	-	5.00E-03	0.001 - 50
VOA	1,2-Dichloropropane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,2-Dimethylbenzene	mg/L	--	--	0/13	--	1.93E-02	--	5.79E-01	-	N/A	0.001 - 50
VOA	1,3-Dichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,4-Dichlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	1,4-Dioxane	mg/L	2.33E+05	2.33E+05	1/10	N/A	N/A	N/A	N/A	-	N/A	0.05 - 2500
VOA	2-Butanone	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	2-Chloroethyl vinyl ether	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	2-Hexanone	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	2-Methoxy-2-methylpropane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	4-Methyl-2-pentanone	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Acetone	mg/L	2.16E+02	2.16E+02	1/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Acrolein	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Acrylonitrile	mg/L	--	--	0/13	--	5.23E-05	--	5.23E-03	-	N/A	0.005 - 250
VOA	Benzene	mg/L	8.50E-04	8.50E-04	1/13	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 50
VOA	Bromochloromethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Bromodichloromethane	mg/L	--	--	0/13	--	1.34E-04	--	1.34E-02	--	8.00E-02	0.001 - 50
VOA	Bromoform	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Bromomethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Carbon disulfide	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Carbon tetrachloride	mg/L	5.60E-04	5.60E-04	1/13	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 50
VOA	Chlorobenzene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Chloroethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Chloroform	mg/L	6.90E-04	6.90E-04	1/13	X	2.21E-04	-	2.21E-02	-	8.00E-02	0.001 - 50
VOA	Chloromethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Cumene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Cyclohexane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Dibromochloromethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Dichlorodifluoromethane	mg/L	--	--	0/13	--	1.97E-02	--	5.91E-01	-	N/A	0.001 - 50

Table B.7. C-400 Complex OU UCRS Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		FOD	Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
VOA	Ethylbenzene	mg/L	--	--	0/13	--	1.50E-03	--	1.50E-01	--	7.00E-01	0.001 - 50
VOA	Methyl acetate	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Methylcyclohexane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Methylene chloride	mg/L	5.20E-03	5.20E-03	1/13	N/A	N/A	N/A	N/A	-	N/A	0.005 - 250
VOA	Styrene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Tetrachloroethene	mg/L	3.90E-03	3.90E-03	1/13	-	4.06E-03	-	1.22E-01	-	5.00E-03	0.001 - 50
VOA	Toluene	mg/L	--	--	0/13	--	1.10E-01	--	3.30E+00	--	1.00E+00	0.001 - 50
VOA	Total Xylene	mg/L	--	--	0/13	--	1.93E-02	--	5.79E-01	--	1.00E+01	0.003 - 150
VOA	Trichloroethene	mg/L	1.86E-03	6.45E+02	13/13	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.001 - 50
VOA	Trichlorofluoromethane	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	Vinyl chloride	mg/L	2.71E-02	2.71E-02	1/13	X	1.88E-05	X	1.88E-03	X	2.00E-03	0.001 - 50
VOA	cis-1,2-Dichloroethene	mg/L	5.70E-02	7.37E+00	4/13	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.001 - 50
VOA	cis-1,3-Dichloropropene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
VOA	m,p-Xylene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.002 - 100
VOA	trans-1,2-Dichloroethene	mg/L	4.15E-03	4.15E-03	1/13	-	6.78E-03	-	2.03E-01	-	1.00E-01	0.001 - 50
VOA	trans-1,3-Dichloropropene	mg/L	--	--	0/13	N/A	N/A	N/A	N/A	-	N/A	0.001 - 50
WETCHEM	Bicarbonate	mg/L	7.54E+01	2.27E+02	4/4	N/A	N/A	N/A	N/A	-	N/A	4 - 4

X Max Concentration Exceeds No Action Limit

X Max Concentration Exceeds Action Limit

X Max Concentration Exceeds MCL

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

^c Total PAHs calculated using TEF values in RMD 2024.

Table B.8. C-400 Complex OU RGA Groundwater Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
METAL	Aluminum	mg/L	1.94E-02	4.17E+00	125/244	X	1.64E+00	X	2.00E+00	-	6.00E+01	N/A	N/A	0.05 - 0.2
METAL	Antimony	mg/L	1.02E-03	1.47E-03	22/244	-	6.00E-02	X	7.79E-04	-	2.34E-02	-	6.00E-03	0.003 - 0.005
METAL	Arsenic	mg/L	1.47E-03	8.97E-03	84/244	X	5.00E-03	X	5.17E-05	X	5.17E-03	-	1.00E-02	0.001 - 0.005
METAL	Barium	mg/L	3.68E-02	9.11E-01	244/244	X	2.02E-01	X	3.77E-01	-	1.13E+01	-	2.00E+00	0.002 - 0.005
METAL	Beryllium	mg/L	2.00E-04	8.91E-04	20/244	-	4.00E-03	-	2.46E-03	-	7.38E-02	-	4.00E-03	0.0005 - 0.001
METAL	Boron	mg/L	7.42E-03	5.61E-02	240/240	N/A	N/A	-	3.99E-01	-	1.20E+01	N/A	N/A	0.015 - 0.015
METAL	Cadmium	mg/L	3.06E-04	6.84E-04	11/244	-	1.00E-02	X	1.84E-04	-	5.52E-03	-	5.00E-03	0.001 - 0.001
METAL	Chromium	mg/L	3.10E-03	2.72E+00	148/244	X	1.34E-01	X	3.50E-05	X	3.50E-03	N/A	N/A	0.01 - 0.1
METAL	Cobalt	mg/L	3.17E-04	2.68E-02	170/244	-	4.50E-02	X	6.01E-04	X	1.80E-02	N/A	N/A	0.001 - 0.001
METAL	Copper	mg/L	3.29E-04	3.30E-02	232/244	-	3.40E-02	-	7.99E-02	-	2.40E+00	-	1.30E+00	0.001 - 0.02
METAL	Iron	mg/L	3.34E-02	2.76E+01	224/244	X	3.72E+00	X	1.40E+00	-	4.20E+01	N/A	N/A	0.1 - 1
METAL	Iron (2+)	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.28 - 0.28
METAL	Lead	mg/L	5.15E-04	1.80E-02	60/244	-	2.50E-01	X	1.50E-02	-	3.00E-02	X	1.50E-02	0.0013 - 0.002
METAL	Manganese	mg/L	1.19E-03	7.29E+00	238/244	X	8.20E-02	X	4.34E-02	X	1.30E+00	N/A	N/A	0.005 - 0.1
METAL	Mercury	mg/L	7.00E-05	2.59E-04	21/240	X	2.00E-04	-	5.66E-04	-	1.70E-02	-	2.00E-03	0.0002 - 0.0002
METAL	Molybdenum	mg/L	2.06E-04	6.04E-02	160/244	X	5.00E-02	X	9.98E-03	-	2.99E-01	N/A	N/A	0.0005 - 0.001
METAL	Nickel	mg/L	7.13E-04	4.30E-01	244/244	-	5.30E-01	X	3.92E-02	-	1.18E+00	N/A	N/A	0.002 - 0.005
METAL	Potassium	mg/L	8.20E-01	3.52E+00	62/62	-	4.47E+00	N/A	N/A	N/A	N/A	N/A	N/A	0.2 - 0.3
METAL	Selenium	mg/L	1.61E-03	5.28E-03	20/244	X	5.00E-03	-	9.98E-03	-	2.99E-01	-	5.00E-02	0.005 - 0.005
METAL	Silver	mg/L	3.26E-04	5.34E-03	14/244	-	1.10E-02	-	9.41E-03	-	2.82E-01	N/A	N/A	0.001 - 0.001
METAL	Thallium	mg/L	6.01E-04	6.99E-04	4/240	-	5.60E-02	X	2.00E-05	X	6.00E-04	-	2.00E-03	0.002 - 0.002
METAL	Uranium ^a	mg/L	6.90E-05	3.12E-02	101/289	X	2.00E-03	X	3.99E-04	X	1.20E-02	X	3.00E-02	0.0002 - 0.005
METAL	Vanadium	mg/L	3.30E-03	2.97E-02	51/240	-	1.39E-01	X	8.64E-03	-	2.59E-01	N/A	N/A	0.02 - 0.02
METAL	Zinc	mg/L	3.30E-03	2.02E-01	201/244	X	2.50E-02	-	6.00E-01	-	1.80E+01	N/A	N/A	0.01 - 0.02
ANION	Fluoride	mg/L	3.45E-02	2.49E+00	243/244	X	2.45E-01	X	7.99E-02	X	2.40E+00	-	4.00E+00	0.1 - 4
ANION	Nitrate as Nitrogen	mg/L	5.02E-02	8.35E+01	57/62	X	1.35E+01	N/A	N/A	N/A	N/A	X	1.00E+01	0.1 - 5
ANION	Phosphate as Phosphorous	mg/L	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.2 - 0.2
ANION	Sulfate	mg/L	3.94E+00	8.18E+01	62/62	X	1.91E+01	N/A	N/A	N/A	N/A	N/A	N/A	0.4 - 20
PFAS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000064 - 0.0000756
PFAS	2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000339 - 0.0004
PFAS	3-Perfluoroheptyl propanoic acid (7:3FTCA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000339 - 0.0004
PFAS	3-Perfluoropropyl propanoic acid (3:3FTCA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000677 - 0.00008
PFAS	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000064 - 0.0000756
PFAS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000633 - 0.0000748
PFAS	Fluorotelomer sulfonate 4:2 (4:2 FTS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000635 - 0.000075
PFAS	Fluorotelomer sulfonate 6:2 (6:2 FTS)	mg/L	2.71E-06	2.71E-06	1/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000643 - 0.000076
PFAS	Fluorotelomer sulfonate 8:2 (8:2 FTS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000065 - 0.0000768
PFAS	Hexafluoropropylene oxide dimer acid (HFPO-DA)	mg/L	--	--	0/35	N/A	N/A	--	1.46E-06	--	4.37E-05	--	1.00E-05	0.00000677 - 0.00008
PFAS	N-ethyl perfluorooctanesulfonamide (NEtFOSA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002

Table B.8. C-400 Complex OU RGA Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
PFAS	N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000169 - 0.0002
PFAS	N-ethylperfluoro-1-octanesulfonamidoacetic acid	mg/L	1.36E-06	2.47E-06	2/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	N-methyl perfluorooctanesulfonamide (NMeFOSA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0000169 - 0.0002
PFAS	Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000339 - 0.00004
PFAS	Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000301 - 0.0000356
PFAS	Perfluoro-3-methoxypropanoic acid (PFMPA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000339 - 0.00004
PFAS	Perfluoro-4-methoxybutanoic acid (PFMBA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000339 - 0.00004
PFAS	Perfluorobutanesulfonate (PFBS)	mg/L	1.03E-06	4.18E-05	35/35	N/A	N/A	-	6.01E-04	-	1.80E-02	N/A	N/A	0.0000015 - 0.0000177
PFAS	Perfluorobutyric acid (PFBA)	mg/L	2.39E-06	7.30E-05	34/35	N/A	N/A	-	1.85E-03	-	5.54E-02	N/A	N/A	0.00000677 - 0.00008
PFAS	Perfluorodecanesulfonate (PFDS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000163 - 0.0000193
PFAS	Perfluorodecanoic acid (PFDA)	mg/L	3.07E-06	1.06E-05	2/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorododecanesulfonic acid (PFDoS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000164 - 0.0000194
PFAS	Perfluorododecanoic acid (PFDoA)	mg/L	7.04E-07	1.51E-06	2/35	N/A	N/A	-	1.00E-04	-	3.01E-03	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluoroheptanesulfonate (PFHpS)	mg/L	6.37E-07	5.38E-05	27/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000161 - 0.0000191
PFAS	Perfluoroheptanoic acid (PFHpA)	mg/L	7.03E-07	1.48E-05	33/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorohexanesulfonate (PFHxS)	mg/L	8.50E-07	4.03E-04	32/35	N/A	N/A	X	3.94E-05	-	1.18E-03	X	1.00E-05	0.00000155 - 0.0000366
PFAS	Perfluorohexanoic acid (PFHxA)	mg/L	1.54E-06	9.32E-05	33/35	N/A	N/A	-	9.92E-04	-	2.98E-02	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorononanesulfonate (PFNS)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000163 - 0.0000192
PFAS	Perfluorononanoic acid (PFNA)	mg/L	9.99E-07	1.63E-05	34/35	N/A	N/A	X	5.89E-06	-	1.77E-04	X	1.00E-05	0.00000169 - 0.00002
PFAS	Perfluorooctanesulfonamide (PFOSA)	mg/L	1.01E-06	1.16E-06	2/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorooctanesulfonate (PFOS)	mg/L	2.39E-06	3.68E-04	35/35	N/A	N/A	X	4.01E-06	X	1.20E-04	X	4.00E-06	0.00000157 - 0.0000186
PFAS	Perfluorooctanoic acid (PFOA)	mg/L	1.08E-06	5.97E-05	35/35	N/A	N/A	X	6.01E-06	-	1.80E-04	X	4.00E-06	0.00000169 - 0.00002
PFAS	Perfluoropentanesulfonate (PFPeS)	mg/L	9.73E-07	4.52E-05	30/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000159 - 0.0000188
PFAS	Perfluoropentanoic acid (PFPeA)	mg/L	1.84E-06	2.73E-05	32/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorotetradecanoic acid (PFTeDA)	mg/L	--	--	0/35	N/A	N/A	--	2.01E-03	--	6.02E-02	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluorotridecanoic acid (PFTTrDA)	mg/L	--	--	0/35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00000169 - 0.00002
PFAS	Perfluoroundecanoic acid (PFUdA)	mg/L	6.85E-07	6.42E-06	3/35	N/A	N/A	-	6.02E-04	-	1.80E-02	N/A	N/A	0.00000169 - 0.00002
PPCB	Total PCBs ^b	mg/L	6.08E-05	4.73E-04	5/288	N/A	N/A	X	4.36E-05	-	4.36E-03	-	5.00E-04	0.0000938 - 0.000538
RADS	Americium-241	pCi/L	--	--	0/240	N/A	N/A	--	6.77E-02	--	6.77E+00	--	1.50E+01	0.211 - 1.41
RADS	Cesium-137	pCi/L	--	--	0/239	N/A	N/A	--	1.71E+00	--	1.71E+02	--	2.00E+02	4.22 - 14.3
RADS	Neptunium-237	pCi/L	9.23E-01	3.85E+00	8/240	X	2.10E-01	X	7.83E-02	-	7.83E+00	-	1.50E+01	0.253 - 1.42
RADS	Plutonium-238	pCi/L	--	--	0/240	N/A	N/A	--	1.56E-02	--	1.56E+00	--	1.50E+01	0.199 - 1.42
RADS	Plutonium-239/240	pCi/L	--	--	0/240	--	3.00E-02	--	6.03E-02	--	6.03E+00	--	1.50E+01	0.293 - 1.38
RADS	Technetium-99	pCi/L	3.12E+00	4.46E+04	1166/1419	X	1.08E+01	X	1.90E+01	X	1.90E+03	X	9.00E+02	2 - 81

Table B.8. C-400 Complex OU RGA Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
RADS	Thorium-230	pCi/L	6.58E-01	6.58E-01	1/240	X	5.40E-01	X	1.66E-02	-	1.66E+00	-	1.50E+01	0.315 - 1.44
RADS	Uranium-233/234	pCi/L	4.29E-01	8.10E+01	5/240	X	7.00E-01	X	1.62E-02	X	1.62E+00	X	1.02E+01	0.222 - 1.42
RADS	Uranium-235/236	pCi/L	3.88E-01	4.68E+00	2/240	X	3.00E-01	X	7.14E-02	-	7.14E+00	X	4.66E-01	0.127 - 1.26
RADS	Uranium-238	pCi/L	2.09E-01	8.51E+01	22/240	X	7.00E-01	X	1.58E-02	X	1.58E+00	X	9.99E+00	0.102 - 1.22
SVOA	1,1-biphenyl	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	1,4-Dioxane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,4,5-Trichlorophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,4,6-Trichlorophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,4-Dichlorophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,4-Dimethylphenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,4-Dinitrophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0182 - 0.0257
SVOA	2,4-Dinitrotoluene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2,6-Dinitrotoluene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2-Chloronaphthalene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000909 - 0.00129
SVOA	2-Chlorophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2-Methyl-4,6-dinitrophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2-Methylnaphthalene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000909 - 0.00129
SVOA	2-Methylphenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	2-Nitrobenzenamine	mg/L	--	--	0/240	N/A	N/A	--	1.89E-02	--	5.67E-01	N/A	N/A	0.00909 - 0.0129
SVOA	2-Nitrophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	3,3'-Dichlorobenzidine	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	3-Nitrobenzenamine	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	4-Bromophenyl phenyl ether	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	4-Chloro-3-methylphenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	4-Chlorobenzenamine	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	4-Chlorophenyl phenyl ether	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	4-Nitrophenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Acenaphthene	mg/L	--	--	0/240	N/A	N/A	--	5.35E-02	--	1.61E+00	N/A	N/A	0.000909 - 0.00129
SVOA	Acenaphthylene	mg/L	--	--	0/240	N/A	N/A	--	5.35E-02	--	1.61E+00	N/A	N/A	0.000909 - 0.00129
SVOA	Acetophenone	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Anthracene	mg/L	--	--	0/240	N/A	N/A	--	1.77E-01	--	5.31E+00	N/A	N/A	0.000909 - 0.00129
SVOA	Atrazine	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Benzaldehyde	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Benzo(ghi)perylene	mg/L	4.52E-04	9.26E-04	3/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000909 - 0.00129
SVOA	Bis(2-chloroethoxy)methane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Bis(2-chloroethyl) ether	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Bis(2-chloroisopropyl) ether	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Bis(2-ethylhexyl)phthalate	mg/L	3.08E-04	7.01E-02	40/240	N/A	N/A	X	5.56E-03	-	5.56E-01	X	6.00E-03	0.000909 - 0.00129
SVOA	Butyl benzyl phthalate	mg/L	3.51E-04	5.85E-04	5/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Caprolactam	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Carbazole	mg/L	--	--	0/240	N/A	N/A	--	2.94E-02	--	8.82E-01	N/A	N/A	0.000909 - 0.00129
SVOA	Di-n-butyl phthalate	mg/L	3.20E-04	2.71E-03	12/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Di-n-octylphthalate	mg/L	3.23E-04	1.56E-03	13/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Dibenzofuran	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Diethyl phthalate	mg/L	4.17E-04	4.50E-04	2/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129

Table B.8. C-400 Complex OU RGA Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
SVOA	Dimethyl phthalate	mg/L	3.51E-04	3.51E-04	1/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Diphenylamine	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Fluoranthene	mg/L	3.51E-04	5.54E-04	2/240	N/A	N/A	-	8.02E-02	-	2.41E+00	N/A	N/A	0.000909 - 0.00129
SVOA	Fluorene	mg/L	--	--	0/240	N/A	N/A	--	2.94E-02	--	8.82E-01	N/A	N/A	0.000909 - 0.00129
SVOA	Hexachlorobenzene	mg/L	--	--	0/240	N/A	N/A	--	9.76E-06	--	6.02E-04	--	1.00E-03	0.00909 - 0.0129
SVOA	Hexachlorobutadiene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Hexachlorocyclopentadiene	mg/L	4.44E-03	4.74E-03	2/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Hexachloroethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Isophorone	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	N-Nitroso-di-n-propylamine	mg/L	--	--	0/240	N/A	N/A	--	1.08E-05	--	1.08E-03	N/A	N/A	0.00909 - 0.0129
SVOA	Naphthalene	mg/L	--	--	0/240	N/A	N/A	--	1.17E-04	--	1.17E-02	N/A	N/A	0.000909 - 0.00129
SVOA	Nitrobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Pentachlorophenol	mg/L	6.10E-03	6.41E-03	2/240	N/A	N/A	X	4.13E-05	X	4.13E-03	X	1.00E-03	0.00909 - 0.0129
SVOA	Phenanthrene	mg/L	3.95E-04	3.95E-04	1/240	N/A	N/A	-	1.21E-02	-	3.63E-01	N/A	N/A	0.000909 - 0.00129
SVOA	Phenol	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
SVOA	Pyrene	mg/L	3.51E-04	4.13E-04	2/240	N/A	N/A	-	1.21E-02	-	3.63E-01	N/A	N/A	0.000909 - 0.00129
SVOA	Total PAHs ^c	mg/L	4.54E-06	1.55E-03	8/288	N/A	N/A	X	2.51E-05	-	2.51E-03	X	2.00E-04	0 - 0
SVOA	m+p Methylphenol	mg/L	--	--	0/182	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00944 - 0.0129
SVOA	m,p-Cresol	mg/L	--	--	0/58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0114
SVOA	p-Nitroaniline	mg/L	3.69E-03	5.45E-03	8/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00909 - 0.0129
VOA	1,1,1-Trichloroethane	mg/L	3.90E-04	2.61E-03	12/285	N/A	N/A	-	8.01E-01	-	2.40E+01	-	2.00E-01	0.001 - 2
VOA	1,1,2,2-Tetrachloroethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	3.02E-03	6.25E-02	35/240	N/A	N/A	-	1.02E+00	-	3.06E+01	N/A	N/A	0.005 - 10
VOA	1,1,2-Trichloroethane	mg/L	3.40E-04	9.70E-03	80/283	N/A	N/A	X	4.15E-05	X	1.25E-03	X	5.00E-03	0.001 - 2
VOA	1,1-Dichloroethane	mg/L	3.30E-04	3.02E-03	20/283	N/A	N/A	X	2.75E-03	-	2.75E-01	N/A	N/A	0.001 - 2
VOA	1,1-Dichloroethene	mg/L	3.90E-04	1.72E-01	276/1419	N/A	N/A	X	2.85E-02	-	8.55E-01	X	7.00E-03	0.001 - 20
VOA	1,2,3-Trichlorobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2-Dibromo-3-chloropropane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2-Dibromoethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2-Dichlorobenzene	mg/L	3.50E-04	4.40E-04	3/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2-Dichloroethane	mg/L	3.50E-04	1.46E-03	7/283	N/A	N/A	X	1.71E-04	-	1.71E-02	-	5.00E-03	0.001 - 2
VOA	1,2-Dichloropropane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,2-Dimethylbenzene	mg/L	--	--	0/240	N/A	N/A	--	1.93E-02	--	5.79E-01	N/A	N/A	0.001 - 2
VOA	1,3-Dichlorobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,4-Dichlorobenzene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	1,4-Dioxane	mg/L	3.94E+00	3.94E+00	1/179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05 - 50
VOA	2-Butanone	mg/L	1.20E-02	1.12E-01	2/244	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 10
VOA	2-Chloroethyl vinyl ether	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	2-Hexanone	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	2-Methoxy-2-methylpropane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	4-Methyl-2-pentanone	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Acetone	mg/L	2.00E-03	6.41E-03	3/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Acrolein	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Acrylonitrile	mg/L	--	--	0/240	N/A	N/A	--	5.23E-05	--	5.23E-03	N/A	N/A	0.005 - 10
VOA	Benzene	mg/L	4.70E-04	6.90E-04	5/287	N/A	N/A	X	4.55E-04	-	4.55E-02	-	5.00E-03	0.001 - 2

Table B.8. C-400 Complex OU RGA Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
VOA	Bromochloromethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Bromodichloromethane	mg/L	4.30E-04	1.79E-03	11/283	N/A	N/A	X	1.34E-04	-	1.34E-02	-	8.00E-02	0.001 - 2
VOA	Bromoform	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Bromomethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Carbon disulfide	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Carbon tetrachloride	mg/L	4.30E-04	8.80E-02	56/287	N/A	N/A	X	4.55E-04	X	4.55E-02	X	5.00E-03	0.001 - 2
VOA	Chlorobenzene	mg/L	--	--	0/244	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Chloroethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Chloroform	mg/L	3.40E-04	8.28E-03	104/283	N/A	N/A	X	2.21E-04	-	2.21E-02	-	8.00E-02	0.001 - 2
VOA	Chloromethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Cumene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Cyclohexane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Dibromochloromethane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Dichlorodifluoromethane	mg/L	--	--	0/240	N/A	N/A	--	1.97E-02	--	5.91E-01	N/A	N/A	0.001 - 2
VOA	Ethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 0.025
VOA	Ethylbenzene	mg/L	--	--	0/283	N/A	N/A	--	1.50E-03	--	1.50E-01	--	7.00E-01	0.001 - 2
VOA	Ethylene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 0.025
VOA	Methane	mg/L	1.31E-02	1.31E-02	1/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.025 - 0.025
VOA	Methyl acetate	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Methylcyclohexane	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Methylene chloride	mg/L	6.00E-04	2.60E-01	38/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 10
VOA	Styrene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Tetrachloroethene	mg/L	3.40E-04	8.60E-02	100/287	N/A	N/A	X	4.06E-03	-	1.22E-01	X	5.00E-03	0.001 - 2
VOA	Toluene	mg/L	3.50E-04	1.25E-03	6/283	N/A	N/A	-	1.10E-01	-	3.30E+00	-	1.00E+00	0.001 - 2
VOA	Total Xylene	mg/L	--	--	0/283	N/A	N/A	--	1.93E-02	--	5.79E-01	--	1.00E+01	0.003 - 6
VOA	Trichloroethene	mg/L	3.60E-04	1.40E+03	1418/1421	N/A	N/A	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.001 - 20
VOA	Trichlorofluoromethane	mg/L	4.20E-04	1.09E-03	4/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	Vinyl chloride	mg/L	3.50E-04	5.43E-02	29/1337	N/A	N/A	X	1.88E-05	X	1.88E-03	X	2.00E-03	0.001 - 20
VOA	cis-1,2-Dichloroethene	mg/L	3.80E-04	7.50E+01	1091/1337	N/A	N/A	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.001 - 10
VOA	cis-1,3-Dichloropropene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
VOA	m,p-Xylene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 4
VOA	trans-1,2-Dichloroethene	mg/L	3.10E-04	2.15E-02	152/1337	N/A	N/A	X	6.78E-03	-	2.03E-01	-	1.00E-01	0.001 - 10
VOA	trans-1,3-Dichloropropene	mg/L	--	--	0/240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 2
WETCHEM	Alkalinity	mg/L	7.00E+01	7.00E+01	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10 - 10
WETCHEM	Alkalinity as CaCO3	mg/L	7.31E+01	7.65E+01	3/3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 - 4
WETCHEM	Bicarbonate	mg/L	4.44E+01	1.78E+02	58/58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4 - 4
WETCHEM	Chemical Oxygen Demand (COD)	mg/L	1.03E+01	3.71E+01	15/15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20 - 20
WETCHEM	Dissolved Solids	mg/L	3.03E+02	4.31E+02	4/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14.3 - 35
WETCHEM	Phosphate as Phosphorous	mg/L	--	--	0/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.2 - 1

Table B.8. C-400 Complex OU RGA Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	RGA (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
WETCHEM	Silica	mg/L	1.81E+01	2.20E+01	4/4	X	2.11E+01	N/A	N/A	N/A	N/A	N/A	N/A	0.213 - 3
WETCHEM	Total Organic Carbon (TOC)	mg/L	9.15E-01	1.36E+00	3/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 - 2
X	Max Concentration Exceeds Background Level													
X	Max Concentration Exceeds No Action Limit													
X	Max Concentration Exceeds Action Limit													
X	Max Concentration Exceeds MCL													

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

^c Total PAHs calculated using TEF values in RMD 2024.

Table B.9. C-400 Complex OU McNairy Groundwater Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	McNairy (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
METAL	Aluminum	mg/L	4.08E-02	6.37E-01	3/4	-	7.50E-01	-	2.00E+00	-	6.00E+01	N/A	N/A	0.05 - 0.05
METAL	Antimony	mg/L	1.22E-03	1.22E-03	1/4	-	6.00E-02	X	7.79E-04	-	2.34E-02	-	6.00E-03	0.003 - 0.003
METAL	Arsenic	mg/L	2.52E-03	2.52E-03	1/4	-	5.00E-03	X	5.17E-05	-	5.17E-03	-	1.00E-02	0.005 - 0.005
METAL	Barium	mg/L	9.04E-02	9.88E-02	4/4	-	2.65E-01	-	3.77E-01	-	1.13E+01	-	2.00E+00	0.004 - 0.004
METAL	Beryllium	mg/L	--	--	0/4	--	1.70E-02	--	2.46E-03	--	7.38E-02	--	4.00E-03	0.0005 - 0.0005
METAL	Boron	mg/L	1.39E-02	1.70E-02	4/4	N/A	N/A	-	3.99E-01	-	1.20E+01	N/A	N/A	0.015 - 0.015
METAL	Cadmium	mg/L	--	--	0/4	--	1.00E-02	--	1.84E-04	--	5.52E-03	--	5.00E-03	0.001 - 0.001
METAL	Chromium	mg/L	3.30E-03	2.00E-02	2/4	-	6.00E-02	X	3.50E-05	X	3.50E-03	N/A	N/A	0.01 - 0.01
METAL	Cobalt	mg/L	1.01E-03	5.95E-03	4/4	-	7.20E-02	X	6.01E-04	-	1.80E-02	N/A	N/A	0.001 - 0.001
METAL	Copper	mg/L	5.75E-04	1.46E-03	3/4	-	3.30E-02	-	7.99E-02	-	2.40E+00	-	1.30E+00	0.002 - 0.002
METAL	Iron	mg/L	6.12E-02	5.91E-01	3/4	-	1.58E+01	-	1.40E+00	-	4.20E+01	N/A	N/A	0.1 - 0.1
METAL	Lead	mg/L	1.04E-03	1.04E-03	1/4	-	5.00E-02	-	1.50E-02	-	3.00E-02	-	1.50E-02	0.002 - 0.002
METAL	Manganese	mg/L	1.76E-01	2.51E-01	4/4	-	7.29E-01	X	4.34E-02	-	1.30E+00	N/A	N/A	0.005 - 0.005
METAL	Mercury	mg/L	--	--	0/4	--	2.00E-04	--	5.66E-04	--	1.70E-02	--	2.00E-03	0.0002 - 0.0002
METAL	Molybdenum	mg/L	3.41E-04	2.01E-03	2/4	-	5.00E-02	-	9.98E-03	-	2.99E-01	N/A	N/A	0.001 - 0.001
METAL	Nickel	mg/L	1.36E-03	8.23E-03	4/4	-	1.09E-01	-	3.92E-02	-	1.18E+00	N/A	N/A	0.002 - 0.002
METAL	Selenium	mg/L	--	--	0/4	--	5.00E-03	--	9.98E-03	--	2.99E-01	--	5.00E-02	0.005 - 0.005
METAL	Silver	mg/L	--	--	0/4	--	5.00E-02	--	9.41E-03	--	2.82E-01	N/A	N/A	0.001 - 0.001
METAL	Thallium	mg/L	--	--	0/4	--	2.55E-01	--	2.00E-05	--	6.00E-04	--	2.00E-03	0.002 - 0.002
METAL	Uranium ^a	mg/L	8.10E-05	3.85E-04	4/4	-	1.00E-03	-	3.99E-04	-	1.20E-02	-	3.00E-02	0.0002 - 0.0002
METAL	Vanadium	mg/L	4.25E-03	4.25E-03	1/4	-	1.19E-01	-	8.64E-03	-	2.59E-01	N/A	N/A	0.02 - 0.02
METAL	Zinc	mg/L	5.17E-03	3.12E-02	4/4	-	1.04E-01	-	6.00E-01	-	1.80E+01	N/A	N/A	0.02 - 0.02
ANION	Fluoride	mg/L	1.65E-01	2.23E-01	4/4	-	2.98E-01	X	7.99E-02	-	2.40E+00	-	4.00E+00	0.1 - 0.1
ANION	Nitrate as Nitrogen	mg/L	--	--	0/1	--	1.43E+00	--	N/A	--	N/A	--	1.00E+01	0.1 - 0.1
ANION	Sulfate	mg/L	2.40E+01	2.40E+01	1/1	-	2.73E+01	N/A	N/A	N/A	N/A	N/A	N/A	0.8 - 0.8
PPCB	Total PCBs ^b	mg/L	--	--	0/4	N/A	N/A	--	4.36E-05	--	4.36E-03	--	5.00E-04	0.0000984 - 0.000109
RADS	Americium-241	pCi/L	--	--	0/4	N/A	N/A	--	6.77E-02	--	6.77E+00	--	1.50E+01	0.33 - 0.904
RADS	Cesium-137	pCi/L	--	--	0/4	N/A	N/A	--	1.71E+00	--	1.71E+02	--	2.00E+02	8.4 - 12.4
RADS	Neptunium-237	pCi/L	--	--	0/4	--	1.30E-01	--	7.38E-02	--	7.38E+00	--	1.50E+01	0.411 - 1.09
RADS	Plutonium-238	pCi/L	--	--	0/4	N/A	N/A	--	1.56E-02	--	1.56E+00	--	1.50E+01	0.381 - 0.675
RADS	Plutonium-239/240	pCi/L	--	--	0/4	--	4.00E-02	--	6.03E-02	--	6.03E+00	--	1.50E+01	0.515 - 0.644
RADS	Technetium-99	pCi/L	--	--	0/4	--	7.80E+00	--	1.90E+01	--	1.90E+03	--	9.00E+02	3.37 - 3.82
RADS	Thorium-230	pCi/L	--	--	0/4	--	4.00E-01	--	1.66E-02	--	1.66E+00	--	1.50E+01	0.508 - 0.716
RADS	Uranium-233/234	pCi/L	--	--	0/4	--	3.60E-01	--	1.62E-02	--	1.62E+00	--	1.02E+01	0.504 - 0.652
RADS	Uranium-235/236	pCi/L	--	--	0/4	--	2.00E-01	--	7.14E-02	--	7.14E+00	--	4.66E-01	0.25 - 0.438
RADS	Uranium-238	pCi/L	6.92E-01	6.92E-01	1/4	X	3.00E-01	X	1.58E-02	-	1.58E+00	-	9.99E+00	0.354 - 0.555
SVOA	1,1-biphenyl	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	1,4-Dioxane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,4,5-Trichlorophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,4,6-Trichlorophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,4-Dichlorophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,4-Dimethylphenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,4-Dinitrophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0199 - 0.0215
SVOA	2,4-Dinitrotoluene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2,6-Dinitrotoluene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108

FOD = frequency of detection
FOE = frequency of exceedance
N/A = not applicable

Table B.9. C-400 Complex OU McNairy Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	McNairy (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
SVOA	2-Chloronaphthalene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000997 - 0.00108
SVOA	2-Chlorophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2-Methyl-4,6-dinitrophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2-Methylnaphthalene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000997 - 0.00108
SVOA	2-Methylphenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	2-Nitrobenzenamine	mg/L	--	--	0/4	N/A	N/A	--	1.89E-02	--	5.67E-01	N/A	N/A	0.00997 - 0.0108
SVOA	2-Nitrophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	3,3'-Dichlorobenzidine	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	3-Nitrobenzenamine	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	4-Bromophenyl phenyl ether	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	4-Chloro-3-methylphenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	4-Chlorobenzenamine	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	4-Chlorophenyl phenyl ether	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	4-Nitrophenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Acenaphthene	mg/L	--	--	0/4	N/A	N/A	--	5.35E-02	--	1.61E+00	N/A	N/A	0.000997 - 0.00108
SVOA	Acenaphthylene	mg/L	--	--	0/4	N/A	N/A	--	5.35E-02	--	1.61E+00	N/A	N/A	0.000997 - 0.00108
SVOA	Acetophenone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Anthracene	mg/L	--	--	0/4	N/A	N/A	--	1.77E-01	--	5.31E+00	N/A	N/A	0.000997 - 0.00108
SVOA	Atrazine	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Benzaldehyde	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Benzo(ghi)perylene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000997 - 0.00108
SVOA	Bis(2-chloroethoxy)methane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Bis(2-chloroethyl) ether	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Bis(2-chloroisopropyl) ether	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Bis(2-ethylhexyl)phthalate	mg/L	--	--	0/4	N/A	N/A	--	5.56E-03	--	5.56E-01	--	6.00E-03	0.000997 - 0.00108
SVOA	Butyl benzyl phthalate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Caprolactam	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Carbazole	mg/L	--	--	0/4	N/A	N/A	--	2.94E-02	--	8.82E-01	N/A	N/A	0.000997 - 0.00108
SVOA	Di-n-butyl phthalate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Di-n-octylphthalate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Dibenzofuran	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Diethyl phthalate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Dimethyl phthalate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Diphenylamine	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Fluoranthene	mg/L	--	--	0/4	N/A	N/A	--	8.02E-02	--	2.41E+00	N/A	N/A	0.000997 - 0.00108
SVOA	Fluorene	mg/L	--	--	0/4	N/A	N/A	--	2.94E-02	--	8.82E-01	N/A	N/A	0.000997 - 0.00108
SVOA	Hexachlorobenzene	mg/L	--	--	0/4	N/A	N/A	--	9.76E-06	--	6.02E-04	--	1.00E-03	0.00997 - 0.0108
SVOA	Hexachlorobutadiene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Hexachlorocyclopentadiene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Hexachloroethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Isophorone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	N-Nitroso-di-n-propylamine	mg/L	--	--	0/4	N/A	N/A	--	1.08E-05	--	1.08E-03	N/A	N/A	0.00997 - 0.0108
SVOA	Naphthalene	mg/L	--	--	0/4	N/A	N/A	--	1.17E-04	--	1.17E-02	N/A	N/A	0.000997 - 0.00108
SVOA	Nitrobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Pentachlorophenol	mg/L	--	--	0/4	N/A	N/A	--	4.13E-05	--	4.13E-03	--	1.00E-03	0.00997 - 0.0108
SVOA	Phenanthrene	mg/L	--	--	0/4	N/A	N/A	--	1.21E-02	--	3.63E-01	N/A	N/A	0.000997 - 0.00108

Table B.9. C-400 Complex OU McNairy Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	McNairy (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
SVOA	Phenol	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
SVOA	Pyrene	mg/L	--	--	0/4	N/A	N/A	--	1.21E-02	--	3.63E-01	N/A	N/A	0.000997 - 0.00108
SVOA	Total PAHs ^c	mg/L	--	--	0/4	N/A	N/A	--	2.51E-05	--	2.51E-03	--	2.00E-04	0 - 0
SVOA	m+p Methylphenol	mg/L	--	--	0/3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0102 - 0.0108
SVOA	m,p-Cresol	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.00997
SVOA	p-Nitroaniline	mg/L	6.03E-03	6.03E-03	1/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00997 - 0.0108
VOA	1,1,1-Trichloroethane	mg/L	--	--	0/4	N/A	N/A	--	8.01E-01	--	2.40E+01	--	2.00E-01	0.001 - 0.05
VOA	1,1,2,2-Tetrachloroethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	0/4	N/A	N/A	--	1.02E+00	--	3.06E+01	N/A	N/A	0.005 - 0.25
VOA	1,1,2-Trichloroethane	mg/L	5.10E-04	5.10E-04	1/4	N/A	N/A	X	4.15E-05	-	1.25E-03	-	5.00E-03	0.001 - 0.05
VOA	1,1-Dichloroethane	mg/L	--	--	0/4	N/A	N/A	--	2.75E-03	--	2.75E-01	N/A	N/A	0.001 - 0.05
VOA	1,1-Dichloroethene	mg/L	1.19E-03	1.19E-03	1/4	N/A	N/A	-	2.85E-02	-	8.55E-01	-	7.00E-03	0.001 - 0.05
VOA	1,2,3-Trichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2,4-Trichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2-Dibromo-3-chloropropane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2-Dibromoethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2-Dichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2-Dichloroethane	mg/L	--	--	0/4	N/A	N/A	--	1.71E-04	--	1.71E-02	--	5.00E-03	0.001 - 0.05
VOA	1,2-Dichloropropane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,2-Dimethylbenzene	mg/L	--	--	0/4	N/A	N/A	--	1.93E-02	--	5.79E-01	N/A	N/A	0.001 - 0.05
VOA	1,3-Dichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,4-Dichlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	1,4-Dioxane	mg/L	--	--	0/3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5 - 2.5
VOA	2-Butanone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	2-Chloroethyl vinyl ether	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	2-Hexanone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	2-Methoxy-2-methylpropane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	4-Methyl-2-pentanone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Acetone	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Acrolein	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Acrylonitrile	mg/L	--	--	0/4	N/A	N/A	--	5.23E-05	--	5.23E-03	N/A	N/A	0.005 - 0.25
VOA	Benzene	mg/L	--	--	0/4	N/A	N/A	--	4.55E-04	--	4.55E-02	--	5.00E-03	0.001 - 0.05
VOA	Bromochloromethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Bromodichloromethane	mg/L	--	--	0/4	N/A	N/A	--	1.34E-04	--	1.34E-02	--	8.00E-02	0.001 - 0.05
VOA	Bromoform	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Bromomethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Carbon disulfide	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Carbon tetrachloride	mg/L	--	--	0/4	N/A	N/A	--	4.55E-04	--	4.55E-02	--	5.00E-03	0.001 - 0.05
VOA	Chlorobenzene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Chloroethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Chloroform	mg/L	--	--	0/4	N/A	N/A	--	2.21E-04	--	2.21E-02	--	8.00E-02	0.001 - 0.05
VOA	Chloromethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Cumene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Cyclohexane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Dibromochloromethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Dichlorodifluoromethane	mg/L	--	--	0/4	N/A	N/A	--	1.97E-02	--	5.91E-01	N/A	N/A	0.001 - 0.05

Table B.9. C-400 Complex OU McNairy Groundwater Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Provisional Background		Child Resident		Child Resident		MCL		DL Range
			Min	Max		Max Concentration Exceeds Background	McNairy (Over Wells) Background Level	Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	Max Concentration Exceeds MCL	MCL	
VOA	Ethylbenzene	mg/L	--	--	0/4	N/A	N/A	--	1.50E-03	--	1.50E-01	--	7.00E-01	0.001 - 0.05
VOA	Methyl acetate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Methylcyclohexane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Methylene chloride	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.005 - 0.25
VOA	Styrene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Tetrachloroethene	mg/L	1.96E-03	1.96E-03	1/4	N/A	N/A	-	4.06E-03	-	1.22E-01	-	5.00E-03	0.001 - 0.05
VOA	Toluene	mg/L	--	--	0/4	N/A	N/A	--	1.10E-01	--	3.30E+00	--	1.00E+00	0.001 - 0.05
VOA	Total Xylene	mg/L	--	--	0/4	N/A	N/A	--	1.93E-02	--	5.79E-01	--	1.00E+01	0.003 - 0.15
VOA	Trichloroethene	mg/L	4.40E+00	6.80E+00	4/4	N/A	N/A	X	2.83E-04	X	8.49E-03	X	5.00E-03	0.05 - 0.1
VOA	Trichlorofluoromethane	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	Vinyl chloride	mg/L	--	--	0/4	N/A	N/A	--	1.88E-05	--	1.88E-03	--	2.00E-03	0.001 - 0.05
VOA	cis-1,2-Dichloroethene	mg/L	6.95E-02	2.76E-01	4/4	N/A	N/A	X	2.52E-03	X	7.56E-02	X	7.00E-02	0.05 - 0.05
VOA	cis-1,3-Dichloropropene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
VOA	m,p-Xylene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002 - 0.1
VOA	trans-1,2-Dichloroethene	mg/L	8.40E-04	8.40E-04	1/4	N/A	N/A	-	6.78E-03	-	2.03E-01	-	1.00E-01	0.001 - 0.05
VOA	trans-1,3-Dichloropropene	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.05
WETCHEM	Bicarbonate	mg/L	7.62E+01	7.62E+01	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4 - 4
X	Max Concentration Exceeds Background Level													
X	Max Concentration Exceeds No Action Limit													
X	Max Concentration Exceeds Action Limit													
X	Max Concentration Exceeds MCL													

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g, if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory.

^c Total PAHs calculated using TEF values in RMD 2024.

Table B.10. Surface Water Data Summary

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
METAL	Aluminum	mg/L	2.13E-02	1.93E+00	114/117	-	4.57E+01	-	1.37E+03	0.05 - 0.05
METAL	Antimony	mg/L	1.04E-03	2.87E-03	7/175	-	1.35E-02	-	4.06E-01	0.003 - 0.003
METAL	Arsenic	mg/L	1.06E-03	5.00E-03	64/315	X	1.80E-03	-	1.80E-01	0.001 - 0.05
METAL	Barium	mg/L	1.05E-02	3.70E+00	172/172	-	5.01E+00	-	1.50E+02	0.002 - 0.25
METAL	Beryllium	mg/L	--	--	0/230	--	9.31E-03	--	2.79E-01	0.0005 - 0.025
METAL	Bismuth	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL	Boron	mg/L	7.52E-03	1.57E+00	61/63	-	9.14E+00	-	2.74E+02	0.015 - 0.15
METAL	Cadmium	mg/L	1.10E-04	4.50E-03	3/288	X	2.10E-03	-	6.30E-02	0.001 - 0.025
METAL	Cesium	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.0005 - 0.0005
METAL	Chromium	mg/L	2.03E-03	2.30E-02	10/230	X	1.90E-04	X	1.90E-02	0.01 - 0.05
METAL	Chromium, hexavalent	mg/L	5.01E-03	1.47E-02	2/4	X	1.90E-04	-	1.90E-02	0.01 - 0.01
METAL	Cobalt	mg/L	3.02E-04	1.05E-03	17/63	-	1.42E-02	-	4.27E-01	0.001 - 0.001
METAL	Copper	mg/L	3.60E-04	4.50E-02	283/315	-	1.83E+00	-	5.49E+01	0.001 - 0.02
METAL	Hafnium	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.01 - 0.01
METAL	Iron	mg/L	1.33E-02	1.20E+02	566/583	X	3.20E+01	-	9.60E+02	0.001 - 2
METAL	Lead	mg/L	5.00E-04	3.00E-02	56/288	X	1.50E-02	-	3.00E-02	0.0013 - 0.05
METAL	Lithium	mg/L	3.15E-03	6.23E-03	5/47	N/A	N/A	N/A	N/A	0.01 - 0.01
METAL	Manganese	mg/L	1.17E-02	2.90E+00	118/118	X	4.40E-01	-	1.32E+01	0.005 - 0.075
METAL	Mercury	mg/L	7.75E-07	1.36E-02	61/215	X	7.51E-03	-	2.25E-01	0.0000005 - 0.0025
METAL	Molybdenum	mg/L	5.12E-04	4.14E-02	63/63	-	2.29E-01	-	6.86E+00	0.0005 - 0.001
METAL	Nickel	mg/L	5.10E-04	5.00E+00	232/261	X	7.32E-01	-	2.20E+01	0.002 - 0.2
METAL	Phosphorus	mg/L	2.08E-02	4.16E+00	1449/1478	N/A	N/A	N/A	N/A	0.04 - 0.2
METAL	Rhenium	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL	Rhodium	mg/L	--	--	0/48	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL	Selenium	mg/L	2.07E-03	2.10E-02	26/233	-	2.29E-01	-	6.86E+00	0.005 - 0.005
METAL	Silver	mg/L	3.17E-04	3.97E-04	14/233	-	1.22E-01	-	3.67E+00	0.001 - 0.001
METAL	Strontium	mg/L	6.95E-02	2.29E+00	47/47	N/A	N/A	N/A	N/A	0.01 - 0.5
METAL	Tantalum	mg/L	--	--	0/41	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL	Thallium	mg/L	4.85E-04	1.38E-03	15/175	X	4.57E-04	-	1.37E-02	0.002 - 0.002
METAL	Thorium	mg/L	8.89E-04	9.40E-04	2/47	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL	Tin	mg/L	1.40E-03	1.25E-02	16/63	N/A	N/A	N/A	N/A	0.005 - 0.01
METAL	Titanium	mg/L	1.19E-03	7.61E-03	29/63	N/A	N/A	N/A	N/A	0.005 - 0.01
METAL	Tungsten	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL	Uranium ^a	mg/L	6.80E-05	1.87E+02	2207/2262	X	9.14E-03	X	2.74E-01	0.0002 - 5
METAL	Vanadium	mg/L	3.46E-03	3.40E-02	11/49	-	6.92E-02	-	2.08E+00	0.01 - 0.25
METAL	Zinc	mg/L	3.38E-03	3.00E+00	537/595	-	1.41E+01	-	4.22E+02	0.01 - 0.2
METAL	Zirconium	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.01 - 0.01
ANION	Bromide	mg/L	2.58E-01	2.58E-01	1/5	N/A	N/A	N/A	N/A	0.2 - 1
ANION	Fluoride	mg/L	9.66E-02	5.45E-01	19/19	-	1.83E+00	-	5.49E+01	0.1 - 0.1
ANION	Nitrate as Nitrogen	mg/L	2.34E-01	4.04E+00	26/31	N/A	N/A	N/A	N/A	0.1 - 2
ANION	Nitrite	mg/L	4.52E-02	4.52E-02	1/4	N/A	N/A	N/A	N/A	0.1 - 0.1
ANION	Orthophosphate	mg/L	6.96E-02	8.09E-02	2/4	N/A	N/A	N/A	N/A	0.2 - 0.2
ANION	Sulfate	mg/L	1.51E-01	2.15E+02	231/231	N/A	N/A	N/A	N/A	0.4 - 8
HERB	2,4,5-T	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	2,4-D	mg/L	8.47E-05	1.41E-02	28/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	2,4-DB	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
HERB	alpha-Chlordane	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.00000404 - 0.00000404
HERB	Dalapon	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.00431 - 0.05
HERB	Dicamba	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	Dichloroprop	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	Dinoseb	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	gamma-Chlordane	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.00000404 - 0.00000404
HERB	MCPA	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.0431 - 0.5
HERB	MCPP	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.0431 - 0.5
HERB	Pentachlorophenol	mg/L	--	--	0/43	N/A	N/A	N/A	N/A	0.000216 - 0.0025
HERB	Silvex	mg/L	--	--	0/57	N/A	N/A	N/A	N/A	0.000216 - 0.0025
METAL-D	Aluminum, Dissolved	mg/L	2.93E-02	3.06E-02	2/45	-	4.57E+01	-	1.37E+03	0.05 - 0.05
METAL-D	Antimony, Dissolved	mg/L	--	--	0/45	--	1.35E-02	--	4.06E-01	0.003 - 0.003
METAL-D	Arsenic, Dissolved	mg/L	2.01E-03	2.82E-03	17/45	X	1.80E-03	-	1.80E-01	0.005 - 0.005
METAL-D	Barium, Dissolved	mg/L	1.35E-02	2.04E-01	45/45	-	5.01E+00	-	1.50E+02	0.002 - 0.002
METAL-D	Beryllium, Dissolved	mg/L	--	--	0/45	--	9.31E-03	--	2.79E-01	0.0005 - 0.0005
METAL-D	Bismuth, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL-D	Boron, Dissolved	mg/L	8.50E-03	4.52E-02	45/45	-	9.14E+00	-	2.74E+02	0.015 - 0.015
METAL-D	Cadmium, Dissolved	mg/L	--	--	0/45	--	2.10E-03	--	6.30E-02	0.001 - 0.001
METAL-D	Calcium, Dissolved	mg/L	1.01E+01	5.34E+01	45/45	N/A	N/A	N/A	N/A	0.2 - 2
METAL-D	Cesium, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.0005 - 0.0005
METAL-D	Chromium, Dissolved	mg/L	--	--	0/45	--	1.90E-04	--	1.90E-02	0.01 - 0.01
METAL-D	Cobalt, Dissolved	mg/L	--	--	0/45	--	1.42E-02	--	4.27E-01	0.001 - 0.001
METAL-D	Copper, Dissolved	mg/L	6.17E-04	5.59E-03	45/45	-	1.83E+00	-	5.49E+01	0.001 - 0.001
METAL-D	Hafnium, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.01 - 0.01
METAL-D	Iron, Dissolved	mg/L	3.52E-02	2.31E-01	28/45	-	3.20E+01	-	9.60E+02	0.1 - 0.1
METAL-D	Lead, Dissolved	mg/L	--	--	0/45	--	1.50E-02	--	3.00E-02	0.002 - 0.002
METAL-D	Lithium, Dissolved	mg/L	3.07E-03	3.26E-03	2/40	N/A	N/A	N/A	N/A	0.01 - 0.01
METAL-D	Magnesium, Dissolved	mg/L	1.69E+00	1.26E+01	45/45	N/A	N/A	N/A	N/A	0.03 - 0.06
METAL-D	Manganese, Dissolved	mg/L	1.24E-03	1.19E-01	43/45	-	4.40E-01	-	1.32E+01	0.005 - 0.005
METAL-D	Mercury, Dissolved	mg/L	1.08E-04	2.71E-03	3/45	-	7.51E-03	-	2.25E-01	0.0002 - 0.0002
METAL-D	Molybdenum, Dissolved	mg/L	5.47E-04	4.00E-02	44/45	-	2.29E-01	-	6.86E+00	0.0005 - 0.0005
METAL-D	Nickel, Dissolved	mg/L	6.14E-04	2.28E-03	43/45	-	7.32E-01	-	2.20E+01	0.002 - 0.002
METAL-D	Phosphorus, Dissolved	mg/L	2.02E-02	2.36E-01	38/40	N/A	N/A	N/A	N/A	0.05 - 0.05
METAL-D	Potassium, Dissolved	mg/L	7.11E-01	2.96E+00	45/45	N/A	N/A	N/A	N/A	0.3 - 0.3
METAL-D	Rhenium, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL-D	Rhodium, Dissolved	mg/L	--	--	0/45	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL-D	Selenium, Dissolved	mg/L	2.04E-03	2.99E-03	6/45	-	2.29E-01	-	6.86E+00	0.005 - 0.005
METAL-D	Silver, Dissolved	mg/L	--	--	0/45	--	1.22E-01	--	3.67E+00	0.001 - 0.001
METAL-D	Sodium, Dissolved	mg/L	5.84E+00	4.30E+01	45/45	N/A	N/A	N/A	N/A	0.25 - 2.5
METAL-D	Strontium, Dissolved	mg/L	7.37E-02	2.29E+00	40/40	N/A	N/A	N/A	N/A	0.01 - 0.5
METAL-D	Tantalum, Dissolved	mg/L	--	--	0/45	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL-D	Thallium, Dissolved	mg/L	--	--	0/45	--	4.57E-04	--	1.37E-02	0.002 - 0.002
METAL-D	Thorium, Dissolved	mg/L	1.15E-03	1.15E-03	1/40	N/A	N/A	N/A	N/A	0.002 - 0.002
METAL-D	Tin, Dissolved	mg/L	2.88E-03	2.88E-03	1/45	N/A	N/A	N/A	N/A	0.005 - 0.005
METAL-D	Titanium, Dissolved	mg/L	--	--	0/44	N/A	N/A	N/A	N/A	0.01 - 0.01
METAL-D	Tungsten, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.005 - 0.005

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
METAL-D	Uranium, Dissolved	mg/L	8.50E-05	5.74E+01	56/56	X	9.14E-03	X	2.74E-01	0.0002 - 1
METAL-D	Vanadium, Dissolved	mg/L	3.55E-03	3.66E-03	2/45	-	6.92E-02	-	2.08E+00	0.01 - 0.01
METAL-D	Zinc, Dissolved	mg/L	3.34E-03	4.91E-02	39/48	-	1.41E+01	-	4.22E+02	0.01 - 0.02
METAL-D	Zirconium, Dissolved	mg/L	--	--	0/40	N/A	N/A	N/A	N/A	0.01 - 0.01
PEST	alpha-Chlordane	mg/L	--	--	0/33	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PEST	gamma-Chlordane	mg/L	1.92E-06	1.92E-06	1/12	N/A	N/A	N/A	N/A	0.00000377 - 0.00000412
PEST	gamma-Chlordene	mg/L	--	--	0/17	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PFAS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000646 - 0.0000378
PFAS	2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000342 - 0.0002
PFAS	3-Perfluoroheptyl propanoic acid (7:3FTCA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000342 - 0.0002
PFAS	3-Perfluoropropyl propanoic acid (3:3FTCA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000684 - 0.00004
PFAS	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000646 - 0.0000378
PFAS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000064 - 0.0000374
PFAS	Fluorotelomer sulfonate 4:2 (4:2 FTS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000641 - 0.0000375
PFAS	Fluorotelomer sulfonate 6:2 (6:2 FTS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000065 - 0.000038
PFAS	Fluorotelomer sulfonate 8:2 (8:2 FTS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000657 - 0.0000384
PFAS	Hexafluoropropylene oxide dimer acid (HFPO-DA)	mg/L	--	--	0/16	--	6.51E-06	--	1.95E-04	0.00000684 - 0.00004
PFAS	N-ethyl perfluorooctanesulfonamide (NEtFOSA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000171 - 0.0005
PFAS	N-ethylperfluoro-1-octanesulfonamidoacetic acid	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	N-methyl perfluorooctanesulfonamide (NMeFOSA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.0000171 - 0.0005
PFAS	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000342 - 0.00002
PFAS	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000304 - 0.0000178
PFAS	Perfluoro-3-methoxypropanoic acid (PFMPA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000342 - 0.00002
PFAS	Perfluoro-4-methoxybutanoic acid (PFMBA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000342 - 0.00002
PFAS	Perfluorobutanesulfonate (PFBS)	mg/L	1.06E-06	1.35E-05	13/16	-	1.46E-02	-	4.37E-01	0.00000152 - 0.00000887
PFAS	Perfluorobutyric acid (PFBA)	mg/L	3.02E-06	6.51E-05	14/16	-	3.06E-02	-	9.17E-01	0.00000684 - 0.0002

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
PFAS	Perfluorodecanesulfonate (PFDS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000165 - 0.00000965
PFAS	Perfluorodecanoic acid (PFDA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	Perfluorododecanesulfonic acid (PFDoS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000166 - 0.0000097
PFAS	Perfluorododecanoic acid (PFDoA)	mg/L	--	--	0/16	--	2.44E-03	--	7.31E-02	0.00000171 - 0.00001
PFAS	Perfluoroheptanesulfonate (PFHpS)	mg/L	7.54E-07	2.46E-06	2/16	N/A	N/A	N/A	N/A	0.00000163 - 0.00000953
PFAS	Perfluoroheptanoic acid (PFHpA)	mg/L	6.20E-07	1.08E-05	14/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	Perfluorohexanesulfonate (PFHxS)	mg/L	7.06E-07	6.94E-05	12/16	-	8.66E-04	-	2.60E-02	0.00000156 - 0.00000914
PFAS	Perfluorohexanoic acid (PFHxA)	mg/L	7.08E-07	5.04E-05	16/16	-	2.27E-02	-	6.80E-01	0.00000171 - 0.00001
PFAS	Perfluorononanesulfonate (PFNS)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000165 - 0.00000962
PFAS	Perfluorononanoic acid (PFNA)	mg/L	6.97E-07	4.41E-06	15/16	-	1.28E-04	-	3.83E-03	0.00000171 - 0.00001
PFAS	Perfluorooctanesulfonamide (PFOSA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	Perfluorooctanesulfonate (PFOS)	mg/L	1.03E-06	9.98E-05	14/16	X	9.75E-05	-	2.92E-03	0.00000159 - 0.00000928
PFAS	Perfluorooctanoic acid (PFOA)	mg/L	6.85E-07	7.21E-06	15/16	-	1.45E-04	-	4.34E-03	0.00000171 - 0.00001
PFAS	Perfluoropentanesulfonate (PFPeS)	mg/L	6.41E-07	9.94E-06	5/16	N/A	N/A	N/A	N/A	0.00000161 - 0.00000941
PFAS	Perfluoropentanoic acid (PFPeA)	mg/L	1.29E-06	6.51E-05	13/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00001
PFAS	Perfluorotetradecanoic acid (PFTeDA)	mg/L	--	--	0/16	--	4.87E-02	--	1.46E+00	0.00000171 - 0.00005
PFAS	Perfluorotridecanoic acid (PFTrDA)	mg/L	--	--	0/16	N/A	N/A	N/A	N/A	0.00000171 - 0.00005
PFAS	Perfluoroundecanoic acid (PFUdA)	mg/L	--	--	0/16	--	1.46E-02	--	4.39E-01	0.00000171 - 0.00001
PPCB	4,4'-DDD	mg/L	5.82E-06	5.82E-06	1/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	4,4'-DDE	mg/L	2.35E-06	2.35E-06	1/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	4,4'-DDT	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	Aldrin	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	alpha-BHC	mg/L	5.49E-06	5.49E-06	1/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	alpha-Chlordane	mg/L	--	--	0/22	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	beta-BHC	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	Chlordane	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.0000472 - 0.00025
PPCB	Dieldrin	mg/L	3.68E-06	3.68E-06	1/56	-	9.78E-06	-	9.78E-04	0.00000755 - 0.00004
PPCB	Endosulfan I	mg/L	6.20E-06	6.20E-06	1/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	Endosulfan II	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	Endosulfan sulfate	mg/L	2.89E-06	2.89E-06	1/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	Endrin	mg/L	2.94E-06	3.40E-06	2/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	Endrin aldehyde	mg/L	3.35E-06	7.70E-05	4/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	Endrin ketone	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000755 - 0.00004
PPCB	gamma-Chlordane	mg/L	--	--	0/15	N/A	N/A	N/A	N/A	0.00000377 - 0.00000421
PPCB	gamma-Chlordene	mg/L	--	--	0/11	N/A	N/A	N/A	N/A	0.00000381 - 0.00002
PPCB	Heptachlor	mg/L	8.80E-06	3.78E-05	3/123	N/A	N/A	N/A	N/A	0.0000005 - 0.00002
PPCB	Heptachlor epoxide	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	Hexachlorobenzene	mg/L	--	--	0/39	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	Lindane	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.00000377 - 0.00002
PPCB	Methoxychlor	mg/L	1.12E-05	1.12E-05	1/56	N/A	N/A	N/A	N/A	0.0000377 - 0.0002
PPCB	Total PCBs ^b	mg/L	3.20E-05	9.33E-03	88/2474	X	7.45E-03	-	7.45E-01	0.000084 - 0.0018
PPCB	Toxaphene	mg/L	--	--	0/56	N/A	N/A	N/A	N/A	0.0000943 - 0.0005
RADS	Americium-241	pCi/L	--	--	0/664	--	4.59E+00	--	4.59E+02	0.234 - 8.07
RADS	Cesium-137	pCi/L	--	--	0/406	--	1.16E+02	--	1.16E+04	1.22 - 25.7
RADS	Cobalt-60	pCi/L	--	--	0/7	N/A	N/A	N/A	N/A	3.54 - 15.2
RADS	Neptunium-237	pCi/L	--	--	0/744	--	5.30E+00	--	5.30E+02	0.128 - 7.53

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
RADS	Plutonium-238	pCi/L	--	--	0/745	--	1.06E+00	--	1.06E+02	0.0954 - 4.19
RADS	Plutonium-239/240	pCi/L	--	--	0/745	--	4.08E+00	--	4.08E+02	0.221 - 4.39
RADS	Potassium-40	pCi/L	2.49E+01	1.01E+02	3/73	N/A	N/A	N/A	N/A	13.4 - 115
RADS	Radium-226	pCi/L	3.74E-01	5.63E-01	3/9	N/A	N/A	N/A	N/A	0.292 - 0.568
RADS	Technetium-99	pCi/L	1.53E+01	1.17E+03	93/1777	-	1.29E+03	-	1.29E+05	9.66 - 574
RADS	Thorium-228	pCi/L	--	--	0/28	N/A	N/A	N/A	N/A	0.29 - 1.92
RADS	Thorium-230	pCi/L	1.46E+00	4.57E+00	6/709	X	1.12E+00	-	1.12E+02	0.172 - 5.49
RADS	Thorium-232	pCi/L	--	--	0/28	N/A	N/A	N/A	N/A	0.0952 - 1.24
RADS	Thorium-234	pCi/L	5.25E+01	5.25E+01	1/73	N/A	N/A	N/A	N/A	29.4 - 209
RADS	Uranium-233/234	pCi/L	7.34E+00	1.76E+01	3/15	X	1.10E+00	-	1.10E+02	0.683 - 3.91
RADS	Uranium-234	pCi/L	4.14E-01	2.51E+03	387/1206	X	1.10E+00	X	1.10E+02	0.0596 - 77.1
RADS	Uranium-235	pCi/L	5.13E-02	3.55E+02	163/1206	X	4.84E+00	-	4.84E+02	0.0378 - 30.2
RADS	Uranium-235/236	pCi/L	2.47E+00	2.47E+00	1/15	-	4.84E+00	-	4.84E+02	0.299 - 3.29
RADS	Uranium-238	pCi/L	4.25E-01	2.24E+04	621/1221	X	1.07E+00	X	1.07E+02	0.0483 - 37
RADS-D	Americium-241	pCi/L	--	--	0/1	--	4.59E+00	--	4.59E+02	1.13 - 1.13
RADS-D	Cesium-137	pCi/L	--	--	0/1	--	1.16E+02	--	1.16E+04	7.1 - 7.1
RADS-D	Neptunium-237	pCi/L	--	--	0/1	--	5.30E+00	--	5.30E+02	0.734 - 0.734
RADS-D	Plutonium-238	pCi/L	--	--	0/1	--	1.06E+00	--	1.06E+02	0.488 - 0.488
RADS-D	Plutonium-239/240	pCi/L	--	--	0/1	--	4.08E+00	--	4.08E+02	1.15 - 1.15
RADS-D	Technetium-99	pCi/L	2.18E+01	2.18E+01	1/1	-	1.29E+03	-	1.29E+05	16.8 - 16.8
RADS-D	Thorium-228	pCi/L	--	--	0/1	N/A	N/A	N/A	N/A	1.08 - 1.08
RADS-D	Thorium-230	pCi/L	--	--	0/1	--	1.12E+00	--	1.12E+02	1.29 - 1.29
RADS-D	Thorium-232	pCi/L	--	--	0/1	N/A	N/A	N/A	N/A	0.578 - 0.578
RADS-D	Uranium-234	pCi/L	5.18E+01	5.18E+01	1/1	X	1.10E+00	-	1.10E+02	6.03 - 6.03
RADS-D	Uranium-235	pCi/L	6.02E+00	6.02E+00	1/1	X	4.84E+00	-	4.84E+02	0.899 - 0.899
RADS-D	Uranium-238	pCi/L	3.51E+02	3.51E+02	1/1	X	1.07E+00	X	1.07E+02	5.37 - 5.37
SVOA	2,4-Dinitrotoluene	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.01 - 0.01
SVOA	2-Nitrobenzenamine	mg/L	--	--	0/1	--	3.40E-01	--	1.02E+01	0.0095 - 0.0095
SVOA	Acenaphthene	mg/L	--	--	0/1	--	3.02E-01	--	9.07E+00	0.0095 - 0.0095
SVOA	Acenaphthylene	mg/L	--	--	0/1	--	3.02E-01	--	9.07E+00	0.0095 - 0.0095
SVOA	Anthracene	mg/L	--	--	0/1	--	8.35E-01	--	2.50E+01	0.0095 - 0.0095
SVOA	Benz(a)anthracene	mg/L	2.50E-06	1.20E-05	3/46	N/A	N/A	N/A	N/A	0.000002 - 0.0095
SVOA	Benzo(a)pyrene	mg/L	--	--	0/1	--	7.26E-04	--	7.26E-02	0.0095 - 0.0095
SVOA	Benzo(b)fluoranthene	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.0095 - 0.0095
SVOA	Benzo(k)fluoranthene	mg/L	6.90E-06	1.10E-05	2/22	N/A	N/A	N/A	N/A	0.000002 - 0.0095
SVOA	Bis(2-ethylhexyl)phthalate	mg/L	4.70E-04	4.70E-04	1/21	-	2.13E-01	-	2.13E+01	0.000947 - 0.01
SVOA	Carbazole	mg/L	--	--	0/1	--	1.48E-01	--	4.45E+00	0.0095 - 0.0095
SVOA	Chrysene	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.0095 - 0.0095
SVOA	Dibenz(a,h)anthracene	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.0095 - 0.0095
SVOA	Fluoranthene	mg/L	--	--	0/1	--	1.95E+00	--	5.85E+01	0.0095 - 0.0095
SVOA	Hexachlorobenzene	mg/L	--	--	0/18	--	4.87E-04	--	1.46E-02	0.00000377 - 0.0095
SVOA	Indeno(1,2,3-cd)pyrene	mg/L	5.20E-05	1.00E-04	2/24	N/A	N/A	N/A	N/A	0.00001 - 0.0095
SVOA	Naphthalene	mg/L	--	--	0/1	--	3.25E-03	--	3.24E-01	0.0095 - 0.0095
SVOA	N-Nitroso-di-n-propylamine	mg/L	--	--	0/1	--	3.14E-04	--	3.14E-02	0.0095 - 0.0095
SVOA	Pentachlorophenol	mg/L	--	--	0/14	--	1.92E-04	--	1.92E-02	0.000238 - 0.000275
SVOA	Phenanthrene	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.0095 - 0.0095

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
SVOA	Pyrene	mg/L	--	--	0/1	--	5.17E-02	--	1.55E+00	0.0095 - 0.0095
VOA	1,1,1,2-Tetrachloroethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,1,1-Trichloroethane	mg/L	5.70E-04	5.70E-04	1/78	-	4.45E+01	-	1.34E+03	0.001 - 0.01
VOA	1,1,2,2-Tetrachloroethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	--	--	0/1	--	4.63E+02	--	1.39E+04	0.001 - 0.001
VOA	1,1,2-Trichloroethane	mg/L	--	--	0/47	--	2.95E-02	--	2.85E+00	0.001 - 0.01
VOA	1,1-Dichloroethane	mg/L	--	--	0/47	--	2.73E-01	--	2.73E+01	0.001 - 0.01
VOA	1,1-Dichloroethene	mg/L	1.00E-03	1.00E-03	1/651	-	1.24E+00	-	3.71E+01	0.001 - 0.01
VOA	1,2,3-Trichloropropane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,2-Dibromo-3-chloropropane	mg/L	--	--	0/6	N/A	N/A	N/A	N/A	0.001 - 0.001
VOA	1,2-Dibromoethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,2-Dichlorobenzene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,2-Dichloroethane	mg/L	--	--	0/47	--	2.08E-02	--	2.08E+00	0.001 - 0.01
VOA	1,2-Dichloropropane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	1,2-Dimethylbenzene	mg/L	8.80E-05	8.80E-05	1/7	-	2.03E+00	-	6.09E+01	0.001 - 0.001
VOA	1,4-Dichlorobenzene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	2-Butanone	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	2-Hexanone	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	4-Methyl-2-pentanone	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Acetone	mg/L	1.95E-03	4.98E-03	5/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Acrolein	mg/L	--	--	0/41	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Acrylonitrile	mg/L	--	--	0/47	--	4.83E-03	--	4.83E-01	0.005 - 0.05
VOA	Benzene	mg/L	--	--	0/48	--	1.88E-02	--	1.88E+00	0.001 - 0.01
VOA	Bromochloromethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Bromodichloromethane	mg/L	3.40E-04	3.13E-03	23/47	-	2.81E-02	-	2.81E+00	0.001 - 0.01
VOA	Bromoform	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Bromomethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Carbon disulfide	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Carbon tetrachloride	mg/L	--	--	0/48	--	1.14E-02	--	1.14E+00	0.001 - 0.01
VOA	Chlorobenzene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Chloroethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Chloroform	mg/L	5.30E-04	6.19E-03	33/48	-	4.83E-02	-	4.83E+00	0.001 - 0.01
VOA	Chloromethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	cis-1,2-Dichloroethene	mg/L	2.80E-04	4.83E-03	5/102	-	5.09E-02	-	1.53E+00	0.001 - 0.01
VOA	cis-1,3-Dichloropropene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Dibromochloromethane	mg/L	3.40E-04	1.30E-03	15/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Dibromomethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Dichlorodifluoromethane	mg/L	--	--	0/1	--	5.39E+00	--	1.62E+02	0.002 - 0.002
VOA	Ethylbenzene	mg/L	--	--	0/48	--	3.66E-02	--	3.66E+00	0.001 - 0.01
VOA	Iodomethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	m,p-Xylene	mg/L	--	--	0/7	N/A	N/A	N/A	N/A	0.002 - 0.002
VOA	Methylene chloride	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.002 - 0.05
VOA	Propylene glycol	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	10 - 10
VOA	Styrene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Tetrachloroethene	mg/L	--	--	0/48	--	6.27E-02	--	1.88E+00	0.001 - 0.01
VOA	Toluene	mg/L	2.30E-03	5.70E-03	3/48	-	1.13E+00	-	3.38E+01	0.001 - 0.01

Table B.10. Surface Water Data Summary (Continued)

Type	Analysis	Unit	Detected Results		Frequency of Detection	Child Recreation (Swim)		Child Recreation (Swim)		DL Range
			Min	Max		Max Concentration Exceeds NAL	NAL	Max Concentration Exceeds AL	AL	
VOA	Total Xylene	mg/L	--	--	0/48	--	1.94E+00	--	5.82E+01	0.003 - 0.03
VOA	trans-1,2-Dichloroethene	mg/L	--	--	0/101	--	5.09E-01	--	1.53E+01	0.001 - 0.01
VOA	trans-1,3-Dichloropropene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	trans-1,4-Dichloro-2-butene	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Trichloroethene	mg/L	3.00E-04	1.12E-01	457/2986	X	1.17E-02	-	3.50E-01	0.001 - 0.01
VOA	Trichlorofluoromethane	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.001 - 0.01
VOA	Vinyl acetate	mg/L	--	--	0/47	N/A	N/A	N/A	N/A	0.005 - 0.05
VOA	Vinyl chloride	mg/L	--	--	0/102	--	4.95E-05	--	4.95E-03	0.001 - 0.01
WETCHEM	Ammonia	mg/L	1.76E-04	5.76E-02	4/4	N/A	N/A	N/A	N/A	0 - 0
WETCHEM	Ammonia as Nitrogen	mg/L	2.11E-02	4.71E+01	74/79	N/A	N/A	N/A	N/A	0.05 - 2.5
WETCHEM	Carbonate	mg/L	--	--	0/4	N/A	N/A	N/A	N/A	4 - 4
WETCHEM	Cyanide	mg/L	--	--	0/36	N/A	N/A	N/A	N/A	0.005 - 0.04
WETCHEM	Nitrate/Nitrite as Nitrogen	mg/L	1.26E-01	4.45E+00	11/14	N/A	N/A	N/A	N/A	0.05 - 0.5
WETCHEM	Non-settleable solids	mg/L	2.00E-01	4.36E+01	482/715	N/A	N/A	N/A	N/A	0 - 10
WETCHEM	Sulfide	mg/L	--	--	0/1	N/A	N/A	N/A	N/A	0.1 - 0.1
X	Max Concentration Exceeds No Action Limit									
X	Max Concentration Exceeds Action Limit									

Notes:

Counts of analyses are based on the maximum detected result from a sample (e.g., if a sample has analytical results from two different labs, only the maximum value is counted).

Field replicates, or separate samples are counted independently.

-- = No calculation completed, analyte not detected

N/A - No screening value available

^a Screened against Uranium (Soluble Salts).

^b Total PCBs calculated by laboratory

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APPENDIX B

DATA SUMMARIES AND ANALYTICAL DATA (DATA)

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APPENDIX C

PRELIMINARY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

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ACRONYMS

ALARA	as low as reasonably achievable
AOC	area of contamination
ARAR	applicable or relevant and appropriate requirement
CAMU	corrective action management unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
<i>CFR</i>	<i>Code of Federal Regulations</i>
CI	compression ignition
CWA	Clean Water Act
DOE	U.S. Department of Energy
EDE	effective dose equivalent
E.O.	executive order
EPA	U.S. Environmental Protection Agency
ESD	explanation of significant differences
FFA	Federal Facility Agreement
<i>FR</i>	<i>Federal Register</i>
FS	feasibility study
HMR	hazardous materials regulations
ICE	internal combustion engine
<i>KAR</i>	<i>Kentucky Administrative Regulations</i>
KPDES	Kentucky Pollutant Discharge Elimination System
LLW	low-level waste
MTR	minimum technological requirement
O	order
OSHA	Occupational Safety and Health Administration
PGDP	Paducah Gaseous Diffusion Plant
POTW	publicly owned treatment works
PQL	practical quantification limit
RAWP	remedial action work plan
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
ROD	Record of Decision
TBC	to be considered
TBEL	technology-based effluent limitation
TED	total equivalent dose
TSCA	Toxic Substances Control Act
<i>U.S.C.</i>	<i>United States Code</i>
UTS	universal treatment standard
WDF	waste disposal facility
WQBEL	water quality-based effluent limitation
WWTU	wastewater treatment unit

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C.1. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

C.1.1 INTRODUCTION

Congress specified in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, *Cleanup Standards*, that remedial actions for the cleanup of hazardous substances must require a level or standard of control that attains those requirements, criteria, standards, or limitations under federal or more stringent state environmental laws that are legally applicable or relevant and appropriate requirements (ARARs) to the hazardous substances or circumstances at a site (unless an ARAR is waived). ARARs include those federal and state laws/regulations that are designed to protect the environment and other important considerations such as cultural resources. ARARs do not include occupational safety or worker radiation protection requirements. The U.S. Environmental Protection Agency (EPA) requires compliance with the Occupational Safety and Health Administration (OSHA) standards independent of the ARARs process. Neither the regulations promulgated by OSHA nor U.S. Department of Energy (DOE) Orders related to occupational safety are addressed as ARARs. These requirements would be addressed in the required health and safety plans for any action.

CERCLA Section 121(e) exempts on-site CERCLA activities from administrative permitting requirements [see also 40 *CFR* § 300.400(e)]. In addition, CERCLA on-site remedial response actions are required to comply only with the substantive requirements of a law or regulation. Substantive requirements pertain directly to the actions or conditions at a site, while administrative requirements facilitate their implementation.

The following terms are used throughout this appendix.

- **Applicable Requirements.** Are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting law that are legally applicable and specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site (40 *CFR* § 300.5, *Definitions*).
- **Relevant and Appropriate Requirements.** Are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting law that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site (40 *CFR* § 300.5).
- **To Be Considered (TBC) Guidance.** In addition to federal or state-promulgated regulations, there are other advisories, criteria, or guidance to be considered for a particular release that were developed by EPA, other federal agencies, or states that may be useful in developing CERCLA remedies [40 *CFR* § 300.400(g)(3)].

The remainder of this appendix will address those requirements that apply to the Environmental Media remedial actions through the CERCLA (i.e., ARARs) process. The development of ARARs is an iterative, negotiated process, beginning with a large realm of potential ARARs found in the remedial investigation/feasibility study report, with revisions, additions, and deletions occurring as the remedial process progresses, until the ARARs are finalized as the Record of Decision (ROD) is signed.

As described elsewhere in this document, the Environmental Media Remedial Investigation (RI)/Feasibility Study (FS) is being built upon prior RI and FS efforts at the Paducah Site. Extensive discussion on ARARs has occurred over the years, and the preliminary ARARs included in this appendix are intended to continue discussions and agreement on the ARARs and TBCs for the remedies selected. Section 5.7 of this scoping document/work plan provides further explanation as to why action-specific ARARs that have been the subject of extended discussions, or even disputes, are included in this preliminary list. The contextual description of ARARs in Section 5.7 and the preliminary ARARs list are meant to be considered together.

Table C.1. Preliminary List of Potential Location-Specific ARARs and TBC Guidance

Location	Summary of Requirements	Prerequisite	Citation
<i>Floodplains/Wetlands</i>			
Presence of wetlands as defined in 10 <i>CFR</i> § 1022.4	Avoid, to the extent possible, the long- and short-term adverse effects associated with destruction, occupancy, and modification of wetlands.	DOE actions that involve potential impacts to, or take place within, wetlands— applicable	10 <i>CFR</i> § 1022.3(c)
	Take action, to extent practicable, to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.		10 <i>CFR</i> § 1022.3(a)(7) and (8)
	Undertake a careful evaluation of the potential effects of any new construction in wetlands. Identify, evaluate, and, as appropriate, implement alternative actions that may avoid or mitigate adverse impacts on wetlands.		10 <i>CFR</i> § 1022.3(b) and (d)
	Measures that mitigate the adverse effects of actions in a wetland including, but not limited to, minimum grading requirements, runoff controls, design and construction constraints, and protection of ecologically-sensitive areas.		10 <i>CFR</i> § 1022.13(a)(3)
	If no practicable alternative to locating or conducting the action in the wetland is available, then before taking action, design or modify the action in order to minimize potential harm to or within the wetland, consistent with the policies set forth in Executive Order (E.O.) 11990, <i>Protection of Wetlands</i> .		10 <i>CFR</i> § 1022.14(a)
Presence of floodplain as defined in 10 <i>CFR</i> § 1022.4	Avoid, to the extent possible, the long- and short-term adverse effects associated with occupancy and modification of floodplains.	DOE actions that involve potential impacts to, or take place within, floodplains— applicable	10 <i>CFR</i> § 1022.3(c)
	Undertake a careful evaluation of the potential effects of any action taken in a floodplain. Identify, evaluate, and, as appropriate, implement alternative actions that may avoid or mitigate adverse impacts on floodplains.		10 <i>CFR</i> § 1022.3(b) and (d)

Table C.1. Preliminary List of Potential Location-Specific ARARs and TBC Guidance (Continued)

Location	Summary of Requirements	Prerequisite	Citation
Presence of floodplain as defined in 10 <i>CFR</i> § 1022.4 (continued)	Restore and preserve natural and beneficial values served by floodplains to the extent practicable.	DOE actions that involve potential impacts to, or take place within, floodplains— applicable	10 <i>CFR</i> § 1022.3(a)(3)
	Measures that mitigate the adverse effects of actions in a floodplain including, but not limited to, minimum grading requirements, runoff controls, design and construction constraints, and protection of ecologically-sensitive areas.		10 <i>CFR</i> § 1022.13(a)(3)
	If no practicable alternative to locating or conducting the action in the floodplain is available, then before taking action, design or modify its action in order to minimize potential harm to or within the floodplain, consistent with the policies set forth in E.O. 11988, <i>Floodplain Management</i> , and E.O. 11990.		10 <i>CFR</i> § 1022.14(a)
Nationwide Permit Program	Must comply with the substantive requirements of the NWP 38, General Conditions, as appropriate.	Discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands by a federal agency other than the U.S. Army Corps of Engineers— relevant and appropriate	NWP (38) Cleanup of Hazardous and Toxic Waste 33 <i>CFR</i> § 323.3(b)
Location encompassing aquatic ecosystem as defined in 40 <i>CFR</i> § 230.3(c)	Except as provided under § 404(b)(2), no discharge of dredged or fill material is permitted if there is a practicable alternative that would have less adverse impact on the aquatic ecosystem or if it will cause or contribute to significant degradation of the waters of the United States.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands— relevant and appropriate	40 <i>CFR</i> § 230.10(a) and (c)
	No discharge of dredged or fill material is permitted: 1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands— relevant and appropriate	40 <i>CFR</i> § 230.10(b)

Table C.1. Preliminary List of Potential Location-Specific ARARs and TBC Guidance (Continued)

Location	Summary of Requirements	Prerequisite	Citation
Location encompassing aquatic ecosystem as defined in 40 <i>CFR</i> § 230.3(c) (continued)	2) Violates any applicable toxic effluent standard or prohibition under Section 307 of the Toxic Substances Control Act (TSCA). 3) Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended. If an exemption has been granted by the Endangered Species Committee, the terms of such exemption shall apply in lieu of this subparagraph; 4) Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972.		
	Except as provided under § 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem. 40 <i>CFR</i> § 230 Subpart H identifies such possible steps.		40 <i>CFR</i> § 230.10(d)

Table C.1. Preliminary List of Potential Location-Specific ARARs and TBC Guidance (Continued)

Location	Summary of Requirements	Prerequisite	Citation
Within area impacting stream or any other body of water and presence of wildlife resources (e.g., fish)	Consider the effects of water-related projects on wildlife resources with a view to the conservation of wildlife resources by preventing loss of and damage to such resources.	Federal agency action that impounds, modifies, diverts, or controls a stream or other body of water except where the maximum surface area of an impoundment is less than ten acres or for land management activities by federal agencies with respect to federal lands under their jurisdiction— relevant and appropriate	16 <i>U.S.C.</i> § 662(b)
<i>Cultural Resources</i>			
Presence of archaeological or historic resources	Provide for the preservation of significant historical and archeological data which might otherwise be irreparably lost or destroyed as a result of any alternation of terrain caused as a result of any federal construction project.	Federal construction project that would cause the irreparable loss or destruction of significant historical or archeological data— relevant and appropriate	54 <i>U.S.C.</i> § 312502(a)
Presence of historical resources	The head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking in any state and the head of any federal department or independent agency having authority to license any undertaking, prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license, shall take into account the effect of the undertaking on any historic property. The head of the federal agency shall afford the council a reasonable opportunity to comment with regard to the undertaking.	Federal agency undertaking that may impact historical properties listed or eligible for inclusion on the National Register of Historic Places— applicable	54 <i>U.S.C.</i> § 306108
<i>Endangered, Threatened, or Rare Species</i>			
Presence of federally endangered or threatened species, as designated in 50 <i>CFR</i> § 17.11 and § 17.12 or critical habitat of such species	Actions that jeopardize the existence of a listed species or results in the destruction or adverse modification of critical habitat must be avoided or reasonable and prudent mitigation measures taken.	Action that is likely to jeopardize fish, wildlife, or plant species or destroy or adversely modify critical habitat— applicable	16 <i>U.S.C.</i> § 1536(a)(2)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Site Preparation and Excavation Activities</i>			
Activities causing fugitive dust emissions	No person shall cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished, or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, when applicable, but not be limited to the following: • Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land; • Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; • Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; • The maintenance of paved roadways in a clean condition; and • The prompt removal of earth or other material from a paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water.	Fugitive emissions from land-disturbing activities (e.g., handling, processing, transporting, or storing of any material, demolition of structures, construction operations, grading of roads, or the clearing of land)— applicable	401 KAR 63:010 § 3(1) (a), (b), (d), (e) and (f)
	No person shall cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate.	Fugitive emissions from land-disturbing activities (e.g., handling, processing, transporting, or storing of any material, demolition of structures, construction operations, grading of roads, or the clearing of land)— applicable	401 KAR 63:010 § 3(2)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Radiation protection of the public and the environment	Except as provided in 458.1(4)(c), exposure to individual members of the public from radiation shall not exceed a total effective dose equivalent (EDE) of 0.1 rem/year (100 mrem/year), exclusive of the dose contributions from background radiation, any medical administration the individual has received, or voluntary participation in medical/research programs.	Radionuclide emissions from all exposure modes from all DOE activities (including remedial actions) at a DOE facility— TBC	DOE Order (O) 458.1(4)(b) and (c)
	Shall use, to the extent practicable, procedures and engineering controls based on sound radiation protection principles to achieve doses to members of the public that are as low as reasonably achievable (ALARA).	Radionuclide emissions from all exposure modes from all DOE activities (including remedial actions) at a DOE facility— TBC	DOE O 458.1(4)(d)
Activities causing storm water runoff (e.g., clearing, grading, excavation)	Implement measures to control pollutants in storm water discharges during and after construction in accordance with substantive requirements provided by permits issued pursuant to 40 <i>CFR</i> § 122.26(c).	Storm water discharges associated with an industrial activity as defined in 40 <i>CFR</i> § 122.26(b)(14) (x) and 401 <i>KAR</i> 5:002 § 1(183)— applicable	40 <i>CFR</i> § 122.26(c)(1)(ii)(C) and (D) 401 <i>KAR</i> 5:060 § 8
	Best management storm water controls will be implemented and may include, as appropriate, erosion and sedimentation control measures, structural practices (e.g., silt fences, straw bale barriers) and vegetative practices (e.g., seeding); storm water management (e.g., diversion); and maintenance of control measures in order to ensure compliance with the standards in Section A.5 Storm Water Discharge Quality.	Storm water runoff associated with construction activities taking place at a facility [Paducah Gaseous Diffusion Plant (PGDP)] with an existing Best Management Practices Plan— TBC	Appendix A of the PGDP Best Management Practices Plan (2024)—Examples of Storm water Controls

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Low-level Waste (LLW) Management</i>			
Management, storage and disposal of LLW	Management, storage, and disposal must be conducted in a manner such that exposure to members of the public to radiation from radioactive waste complies with ALARA process requirements and does not exceed a total equivalent dose (TED) of 25 mrem in a year from all exposure pathways and radiation sources associated with the waste, except for transportation and radon and its decay products.	Management, storage, and disposal of low-level radioactive waste— TBC	DOE O 458.1(4)(h)(1)(c)
Disposal of LLW in a landfill	Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	Disposal of LLW— TBC	DOE Manual (M) 435.1-1 (IV)(G)(1)(d)(1)
Disposal of solid LLW at DOE facilities	Shall meet waste acceptance requirements before it is transferred to the receiving facility.	Generation of LLW for disposal at a DOE facility— TBC	DOE M 435.1-1 (IV)(J)(2)
Disposal of LLW	Waste shall not be pyrophoric. Pyrophoric material contained in waste shall be treated, prepared, and packaged to be nonflammable	Disposal of LLW— relevant and appropriate	902 <i>KAR</i> 100:021 § 7(1)(g)
Structural stability of LLW	Waste shall have structural stability. A structurally stable waste form shall maintain its physical dimension and its form under expected disposal conditions, such as: • Weight of overburden and compaction equipment; • Presence of moisture and microbial activity; and • Internal factors such as radiation effects and chemical changes.	Generation of LLW for disposal— relevant and appropriate	902 <i>KAR</i> 100:021 § 7(2)(a)(1)
	Structural stability may be provided by: • The waste form itself; • Processing the waste to a stable form; or • Placing the waste in a disposal container or structure that provides stability after disposal.		902 <i>KAR</i> 100:021 § 7(2)(a)(2)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Management of TSCA Waste</i>			
Disposal of TSCA wastes	Shall be placed in manner that will prevent damage to containers or articles. Other wastes that are not chemically compatible with polychlorinated biphenyls (PCBs) shall be segregated from the PCBs throughout the handling and disposal process.	Disposal of PCBs or PCB Items in chemical waste landfill— applicable	40 <i>CFR</i> § 761.75(b)(8)(i)
	May be disposed of provided such waste is pretreated and/or stabilized (e.g., chemically fixed, evaporated, mixed with dry inert absorbent) to reduce its liquid content or increase its solid content so that a nonflowing consistency is achieved to eliminate the presence of free liquids prior to final disposal.	Disposal of PCB bulk liquids not exceeding 500 ppm— applicable	40 <i>CFR</i> § 761.75(b)(8)(ii)
	May be disposed of if each container is surrounded by an amount of inert sorbent material capable of absorbing all of the liquid contents of the container.	Disposal of PCB container with liquid PCB between 50 ppm and 500 ppm— applicable	40 <i>CFR</i> § 761.75(b)(8)(ii)
Management of PCB waste	Any person storing or disposing of PCB waste must do so in accordance with 40 <i>CFR</i> Part 761, Subpart D	Storage or disposal of waste containing PCBs at concentrations ≥ 50 ppm— applicable	40 <i>CFR</i> § 761.50(a)
	Any person cleaning up and disposing of PCBs shall do so based on the concentration at which the PCBs are found.	Cleanup or disposal of PCB remediation waste as defined in 40 <i>CFR</i> § 761.3— applicable	40 <i>CFR</i> § 761.61
Cleanup of new PCB spills	Spills shall be cleaned up in accordance with 40 <i>CFR</i> Part 761, Subpart G, “PCB Spill Cleanup Policy.” This policy does not apply to existing spills (old spills which occurred prior to May 4, 1987).	Release into the environment of materials containing PCBs at ≥ 50 ppm, which occurs after May 4, 1987— applicable	40 <i>CFR</i> § 761.125
	There may be exceptional spill situations that require less stringent cleanup or a different approach to cleanup because of factors associated with the particular spill. These factors may mitigate expected exposures and risks or make cleanup to these requirements impracticable.		40 <i>CFR</i> § 761.120(a)(4)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Decontamination of water containing PCBs to levels acceptable for discharge	For water discharged to a treatment works or to navigable waters, decontaminate to < 3 µg/L (approximately < 3 ppb) or a PCB discharge limit included in a permit issued under Section 307(b) or 402 of the Clean Water Act (CWA); or	Discharge of water containing PCBs to a treatment works or navigable waters— applicable	40 <i>CFR</i> § 761.79 (b)(1)(ii)
Decontamination of water containing PCBs to levels acceptable for unrestricted use	Decontaminate to ≤ 0.5 µg/L (approximately ≤ 0.5 ppb) for unrestricted use.	Release of water containing PCBs for unrestricted use— applicable	40 <i>CFR</i> § 761.79 (b)(1)(iii)
Management of PCB/radioactive waste	Any person storing such waste ≥ 50 ppm PCBs must do so taking into account both its PCB concentration and radioactive properties, except as provided in 40 <i>CFR</i> §§ 761.65(a)(1), (b)(1)(ii) and (c)(6)(i).	Generation of PCB/radioactive waste for disposal— applicable	40 <i>CFR</i> § 761.50 (b)(7)(i)
	Any person disposing of such waste must do so taking into account both its PCB concentration and its radioactive properties. If, after taking into account only the PCB properties in the waste, the waste meets the requirements for disposal in a facility permitted, licensed, or registered by a state as a municipal or nonmunicipal nonhazardous waste landfill, then the person may dispose of such waste without regard to the PCBs, based on its radioactive properties alone.		40 <i>CFR</i> § 761.50 (b)(7)(ii)
<i>Groundwater Monitoring Well Installation, Operation, and Abandonment</i>			
Monitoring well construction	Permanent monitoring wells shall be constructed, modified, and abandoned in such a manner as to prevent the introduction or migration of contamination to a water-bearing zone or aquifer through the casing, drill hole, or annular materials.	Construction of a monitoring well as defined in 401 <i>KAR</i> 6:001 § 1(22)— applicable	401 <i>KAR</i> 6:350 § 1(4)
	All permanent wells (including boreholes) shall be constructed to comply with the substantive requirements provided in the following Sections of 401 <i>KAR</i> 6:350: Section 2. Design Factors; Section 3. Monitoring Well Construction; Section 7. Materials		401 <i>KAR</i> 6:350 § 2, 3, 7, and 8

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Monitoring well construction (continued)	for Monitoring Wells; and Section 8. Surface Completion. <i>NOTE: Variance shall be made as part of the Federal Facility Agreement (FFA) CERCLA document review and approval process and shall include: A justification for the variance; and proposed construction, modification, or abandonment procedures to be used in lieu of compliance with 401 KAR 6:350 and an explanation as to how the alternate well construction procedures ensure the protection of the quality of the groundwater and the protection of public health and safety.</i>		
Development of monitoring wells	Newly installed wells shall be developed until the column of water in the well is free of visible sediment. This well-development protocol shall not be used as a method for purging prior to water quality sampling.	Construction of a monitoring well as defined in 401 KAR 6:001 § 1(22)— applicable	401 KAR 6:350 § 9
Closure of groundwater monitoring well(s)	Monitoring wells shall be abandoned in such a manner as to prevent the migration of surface water or contaminants to the subsurface and to prevent migration of contaminants among water bearing zones.	Permanent plugging and abandonment of a well— applicable	401 KAR 6:350 § 11(1)(b)
Monitoring well abandonment	A monitoring well that has been damaged or is otherwise unsuitable for use as a monitoring well, shall be abandoned within 30 days from the last sampling date or 30 days from the date it is determined that the well is no longer suitable for its intended use.	Construction of a monitoring well as defined in 401 KAR 6:001 § 1(22) for remedial action— applicable	401 KAR 6:350 § 11(1)(a)
	Abandonment methods and sealing materials for all types of monitoring wells provided in subparagraphs (a)-(b) and (d)-(e) shall be followed.		401 KAR 6:350 § 11(2)(a), (b), (d), and (e)
Groundwater monitoring well construction	All monitoring wells must be cased in a manner that maintains the integrity of the monitoring-well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The	Construction of Resource Conservation and Recovery Act (RCRA) groundwater monitoring well— applicable	40 CFR § 264.97(c) 401 KAR 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring well construction (continued)	annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.		
	All monitor wells shall be cased and the annular space between the monitor zone (zone of saturation) and the surface shall be completely backfilled with Portland cement or an equivalent material and plugged with Portland cement to effectively prevent percolation of surface water into the well bore. The well opening at the surface shall have a removable cap to provide access and to prevent entrance of rainfall or storm water runoff. The groundwater monitoring well shall be pumped before obtaining a sample for analysis to remove the volume of liquid initially contained in the well. The discharge shall be treated to meet applicable state or federal standards or recycled to the chemical waste landfill.		40 <i>CFR</i> § 761.75(b)(6)(ii)(B)
Water analysis requirements	As a minimum, all samples [groundwater and surface water] shall be analyzed for the following parameters: PCBs, pH, specific conductance, chlorinated organics. Sampling methods and analytical procedures for these parameters shall comply with those specified in 40 <i>CFR</i> Part 136, as amended in 41 <i>FR</i> 52779 on December 1, 1976.	Construction of TSCA monitoring well— applicable	40 <i>CFR</i> § 761.75(b)(6)(iii)
Groundwater Monitoring Requirements			
Groundwater monitoring requirements for a RCRA regulated unit	The owner or operator's regulated unit or units are not subject to regulation for releases into the uppermost aquifer under this subpart if:	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.90(b) 401 <i>KAR</i> 39:090 § 1
	(2) He operates a unit which the Regional Administrator finds: (i) Is an engineered structure, (ii) Does not receive or contain liquid waste or waste containing free liquids,		40 <i>CFR</i> § 264.90(b)(2) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for a RCRA regulated unit (continued)	(iii) Is designed and operated to exclude liquid, precipitation, and other run-on and run-off, (iv) Has both inner and outer layers of containment enclosing the waste, (v) Has a leak detection system built into each containment layer, (vi) The owner or operator will provide continuing operation and maintenance of these leak detection systems during the active life of the unit and the closure and post-closure care periods, and		
	(vii) To a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the post-closure care period. <i>NOTE: The determination on use of an exemption will be documented in a CERCLA decision document [i.e., ROD, ROD Amendment, or Explanation of Significant Differences (ESD)] subject to review and approval under the FFA process.</i>	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.90(b)(2) 401 <i>KAR</i> 39:090 § 1
	The Regional Administrator may replace all or part of the requirements of §§264.91 through 264.100 applying to a regulated unit with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit (or in an enforceable document) (as defined in 40 <i>CFR</i> § 270.1(c)(7)) where the Regional Administrator determines that:	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> § 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.90(f) 401 <i>KAR</i> 39:090 § 1
	(1) The regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management units(s) (or areas of concern) are likely to have contributed to the release; and		40 <i>CFR</i> § 264.90(f)(1) 401 <i>KAR</i> 39:090 § 1
	(2) It is not necessary to apply the groundwater monitoring and corrective action requirements of 264.91 through 264.100 because alternative		40 <i>CFR</i> § 264.90(f)(2) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for a RCRA regulated unit (continued)	requirements will protect human health and the environment. <i>NOTE: Alternate groundwater monitoring requirements will be documented in a CERCLA decision document (i.e., ROD, ROD Amendment, or ESD) subject to review and approval under the FFA process.</i>		
Point of Compliance for meeting groundwater protection standards	The Regional Administrator will specify in the facility permit the point of compliance at which the groundwater protection standard of § 264.92 applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units. <i>NOTE: Permitting is an administrative requirement and not ARAR. The point of compliance will be specified in the appropriate FFA CERCLA primary document.</i>	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> § 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.95(a) 401 <i>KAR</i> 39:090 § 1
	The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.		40 <i>CFR</i> § 264.95(b) 401 <i>KAR</i> 39:090 § 1
	(1) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> § 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.95(b)(1) 401 <i>KAR</i> 39:090 § 1
	(2) If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units		40 <i>CFR</i> § 264.95(b)(2) 401 <i>KAR</i> 39:090 § 1
	Owners and operators subject to this subpart must conduct a monitoring and response program as follows:	Operation of a RCRA regulated unit as defined in 40 <i>CFR</i> § 264.90(a)(2), e.g., hazardous waste landfill— applicable	40 <i>CFR</i> § 264.91(a)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Point of Compliance for meeting groundwater protection standards (continued)	Whenever hazardous constituents under § 264.93 from a regulated unit are detected at a compliance point under § 264.95, the owner or operator must institute a compliance monitoring program under § 264.99. Detected is defined as statistically significant evidence of contamination as described in § 264.98(f);		40 <i>CFR</i> § 264.91(a)(1) 401 <i>KAR</i> 39:090 § 1
	Whenever the groundwater protection standard under § 264.92 is exceeded, the owner or operator must institute a corrective action program under § 264.100. Exceeded is defined as statistically significant evidence of increased contamination as described in § 264.99(d);		40 <i>CFR</i> § 264.91(a)(2) 401 <i>KAR</i> 39:090 § 1
	Whenever hazardous constituents under § 264.93 from a regulated unit exceed concentration limits under § 264.94 in ground water between the compliance point under § 264.95 and the downgradient facility property boundary, the owner or operator must institute a corrective action program under § 264.100; or <i>NOTE: The decision to move from compliance monitoring into a corrective action program will be included in a ROD Amendment that identifies the ARARs including 40 CFR § 264.100.</i>	Operation of a RCRA regulated unit as defined in 40 <i>CFR</i> § 264.90(a)(2), e.g., hazardous waste landfill— applicable	40 <i>CFR</i> § 264.91(a)(3) 401 <i>KAR</i> 39:090 § 1
	In all other cases, the owner or operator must institute a detection monitoring program under § 264.98.	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.91(a)(4) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills	The Regional Administrator will specify in the facility permit the specific elements of the monitoring and response program. The Regional Administrator may include one or more of the programs identified in paragraph (a) of this section in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. <i>NOTE: Permitting is an administrative requirement. Specific elements of the groundwater monitoring and response program will be included in the appropriate FFA CERCLA primary document.</i>	Groundwater monitoring of hazardous constituents from a RCRA regulated unit as defined in 40 <i>CFR</i> 264.90(a)(2)— applicable	40 <i>CFR</i> § 264.91(b) 401 <i>KAR</i> 39:090 § 1
	The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that:	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(a) 401 <i>KAR</i> 39:090 § 1
	(1) Represent the quality of background ground water that has not been affected by leakage from a regulated unit (i) A determination of background groundwater quality may include sampling of wells that are not hydraulically upgradient of the waste management area where: (A) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; and (B) Sampling at other wells will provide an indication of background groundwater quality that is representative or more representative than that provided by the upgradient wells; and		40 <i>CFR</i> § 264.97(a)(1) 401 <i>KAR</i> 39:090 § 1
	(2) Represent the quality of groundwater passing the point of compliance; and		40 <i>CFR</i> § 264.97(a)(2) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills (continued)	(3) Allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.		40 <i>CFR</i> § 264.97(a)(3) 401 <i>KAR</i> 39:090 § 1
	The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum the program must include procedures and techniques for:	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(d) 401 <i>KAR</i> 39:090 § 1
	(1) Sample collection; (2) Sample preservation and shipment; (3) Analytical procedures; and (4) Chain of custody control.		
	The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in groundwater samples.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(e) 401 <i>KAR</i> 39:090 § 1
	Groundwater monitoring program must include a determination of the groundwater surface elevation each time groundwater is sampled.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(f) 401 <i>KAR</i> 39:090 § 1
	In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance point(s). The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed, following generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to ground water from a facility will be detected. The owner or operator	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(g) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills (continued)	will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit which shall be specified in the unit permit upon approval by the Regional Administrator. The sampling procedure shall be: (1) A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants, or		
	(2) an alternate sampling procedure proposed by the owner or operator and approved by the Regional Administrator. <i>NOTE: Permitting is an administrative requirement. The appropriate sampling procedure and sampling interval will be included in the appropriate FFA CERCLA primary document.</i>		40 <i>CFR</i> § 264.97(g)(2) 401 <i>KAR</i> 39:090 § 1
	The owner or operator will specify one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent which, upon approval by the Regional Administrator, will be specified in the unit permit. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical quantification limits (pqls) are used in any of the following statistical procedures to comply with § 264.97(i)(5), the pql must be proposed by the owner or operator and approved by the Regional Administrator. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in paragraph (i) of this section.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100—applicable	40 <i>CFR</i> § 264.97(h) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills (continued)	A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(h)(1) 401 <i>KAR</i> 39:090 § 1
	An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.		40 <i>CFR</i> § 264.97(h)(2) 401 <i>KAR</i> 39:090 § 1
	A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.		40 <i>CFR</i> § 264.97(h)(3) 401 <i>KAR</i> 39:090 § 1
	A control chart approach that gives control limits for each constituent.		40 <i>CFR</i> § 264.97(h)(4) 401 <i>KAR</i> 39:090 § 1
	Another statistical test method submitted by the owner or operator and approved by the Regional Administrator. <i>NOTE: Permitting is an administrative requirement. The statistical method for evaluating groundwater monitoring data will be specified in the appropriate FFA CERCLA primary document.</i>		40 <i>CFR</i> § 264.97(h)(5) 401 <i>KAR</i> 39:090 § 1
	Any statistical method chosen under § 264.97(h) for specification in the unit permit shall comply with the following performance standards, as appropriate.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(i) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills (continued)	The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(i)(1) 401 <i>KAR</i> 39:090 § 1
	If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.		40 <i>CFR</i> § 264.97(i)(2) 401 <i>KAR</i> 39:090 § 1
	If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be proposed by the owner or operator and approved by the Regional Administrator if he or she finds it to be protective of human health and the environment. <i>NOTE: Permitting is an administrative requirement. If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values will be included in the appropriate FFA CERCLA primary document.</i>		40 <i>CFR</i> § 264.97(i)(3) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Groundwater monitoring requirements for RCRA hazardous waste landfills (continued)	If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence, and, for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the owner or operator and approved by the Regional Administrator if he or she finds these parameters to be protective of human health and the environment. These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern. <i>NOTE: Permitting is an administrative requirement. If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain will be included in the appropriate FFA CERCLA primary document.</i>	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(i)(4) 401 <i>KAR</i> 39:090 § 1
	The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any PQL approved by the Regional Administrator under § 264.97(h) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.		40 <i>CFR</i> § 264.97(i)(5) 401 <i>KAR</i> 39:090 § 1
	If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.	Operation of a groundwater monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.97(i)(6) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Detection monitoring	The owner or operator must monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The Regional Administrator will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(a) 401 <i>KAR</i> 39:090 § 1
	(1) The types, quantities, and concentrations of constituents in wastes managed at the regulated unit;		40 <i>CFR</i> § 264.98(a)(1) 401 <i>KAR</i> 39:090 § 1
	(2) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;		40 <i>CFR</i> § 264.98(a)(2) 401 <i>KAR</i> 39:090 § 1
	(3) The detectability of indicator parameters, waste constituents, and reaction products in ground water; and,		40 <i>CFR</i> § 264.98(a)(3) 401 <i>KAR</i> 39:090 § 1
	(4) The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the groundwater background. <i>NOTE: Permitting is an administrative requirement and not ARAR. The indicator parameters will be included in the appropriate FFA CERCLA primary documents.</i>		40 <i>CFR</i> § 264.98(a)(4) 401 <i>KAR</i> 39:090 § 1
	The owner or operator must install a groundwater monitoring system at the compliance point as specified under 40 <i>CFR</i> § 264.95. The groundwater monitoring system must comply with § 264.97(a)(2), (b), and (c).	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(b) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Detection monitoring (continued)	The owner or operator must conduct a groundwater monitoring program for each chemical parameter and hazardous constituent specified in the permit pursuant to paragraph (a) of this section in accordance with § 264.97(g). The owner or operator must maintain a record of groundwater analytical data as measured and in a form necessary for the determination of statistical significance under § 264.97(h).	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(c) 401 <i>KAR</i> 39:090 § 1
	The Regional Administrator will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit conditions under paragraph (a) of this section in accordance with § 264.97(g). <i>NOTE: Permitting is an administrative requirement. The frequencies for collecting samples and conducting statistical tests will be included in the appropriate FFA CERCLA primary document.</i>	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(d) 401 <i>KAR</i> 39:090 § 1
	The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.		40 <i>CFR</i> § 264.98(e) 401 <i>KAR</i> 39:090 § 1
	The owner or operator must determine whether there is statistically significant evidence of contamination for any chemical parameter or hazardous constituent specified in the permit pursuant to paragraph (a) of this section at a frequency specified under paragraph (d) of this section	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(f) 401 <i>KAR</i> 39:090 § 1
	(1) In determining whether statistically significant evidence of contamination exists, the owner or operator must use the method(s) specified in the permit under § 264.97(h). These method(s) must compare data collected at the compliance point(s) to the background groundwater quality data.	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(f)(1) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Detection monitoring (continued)	(2) The owner or operator must determine whether there is statistically significant evidence of contamination at each monitoring well as the compliance point within a reasonable period of time after completion of sampling. The Regional Administrator will specify in the facility permit what period of time is reasonable, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples. <i>NOTE: Permitting and time frames are administrative requirements and not ARARs. The process for conducting determinations to identify statistically significant evidence of contamination will be included in the appropriate FFA CERCLA primary document.</i>		40 <i>CFR</i> § 264.98(f)(2) 401 <i>KAR</i> 39:090 § 1
	If the owner or operator determines pursuant to paragraph (f) of this section that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he or she must:	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100—applicable	40 <i>CFR</i> § 264.98(g) 401 <i>KAR</i> 39:090 § 1
	Notify the Regional Administrator of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination. <i>NOTE: Notifications and time frames are administrative requirements and are not ARARs. Notifications will be performed in accordance with the CERCLA FFA process.</i>	Statistically significant evidence of contamination for a specified chemical parameters or hazardous constituents at any monitoring well at the compliance point—applicable	40 <i>CFR</i> § 264.98(g)(1) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Detection monitoring (continued)	Immediately sample the ground water in all monitoring wells and determine whether constituents in the list of appendix IX of this part are present, and if so, in what concentration. However, the Regional Administrator, on a discretionary basis, may allow sampling for a site-specific subset of constituents from the appendix IX list of this part and other representative/related waste constituents.	Statistically significant evidence of contamination for a specified chemical parameters or hazardous constituents at any monitoring well at the compliance point— applicable	40 <i>CFR</i> § 264.98(g)(2) 401 <i>KAR</i> 39:090 § 1
	For any appendix IX compounds found in the analysis pursuant to paragraph (g)(2) of this section, the owner or operator may resample within one month or at an alternative site-specific schedule approved by the Administrator and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the owner or operator does not resample for the compounds in paragraph (g)(2) of this section, the hazardous constituents found during this initial appendix IX analysis will form the basis for compliance monitoring. <i>NOTE: Permitting and time frames are administrative requirements and are not ARARs. Any approved use of a site-specific subset of hazardous constituents from Appendix IX and the sampling schedule will be established in an appropriate FFA CERCLA primary document.</i>	Operation of a detection monitoring program under 40 <i>CFR</i> §§ 264.98, 264.99, or 264.100— applicable	40 <i>CFR</i> § 264.98(g)(3) 401 <i>KAR</i> 39:090 § 1
	If the owner or operator determines, pursuant to paragraph (f) of this section, that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water.	Statistically significant difference for specified chemical parameters or hazardous constituents at any monitoring well at the compliance point— applicable	40 <i>CFR</i> § 264.98(g)(6) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Detection monitoring (continued)	(iv) Continue to monitor in accordance with the detection monitoring program established under this section <i>NOTE: Notification, reporting, time frames, and permit applications are administrative requirements and are not ARARs. The process for making an alternative source demonstration will be included in the appropriate FFA CERCLA primary document. Any alternative source demonstration will be provided in a separate FFA CERCLA secondary document that is subject to review, approval, and dispute under the FFA process or in an appropriate FFA CERCLA primary document.</i>		
General Facility Requirements			
Security system	Must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of this facility, unless: • Physical contact with the waste, structures, or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and • Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of this part, or comply with the substantive requirements of 40 <i>CFR</i> § 264.14(b) and (c).	Operation of a RCRA hazardous waste facility— applicable	40 <i>CFR</i> § 264.14 (a)(1) and (2) 401 <i>KAR</i> 39:090 § 1
	Unless the owner or operator has made a successful demonstration under paragraphs (a) (1) and (2) of 40 <i>CFR</i> § 264.14, a facility must have:		40 <i>CFR</i> § 264.14 (b)(1) and (2) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Security system (continued)	A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) that continuously monitors and controls entry onto the active portion of the facility; or an artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility, and a means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility).		
	Unless the owner or operator has made a successful demonstration under paragraphs (a) (1) and (2) of this section, a sign with the legend, “Danger-Unauthorized Personnel Keep Out,” must be posted at each entrance to the active portion of a facility and at other locations in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility (e.g., facilities in counties bordering the Canadian province of Quebec must post signs in French; facilities in counties bordering Mexico must post signs in Spanish), and must be legible from a distance of at least 25 ft. Existing signs with a legend other than “Danger-Unauthorized Personnel Keep Out” may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.	Operation of a RCRA hazardous waste facility— applicable	40 <i>CFR</i> § 264.14 (c) 401 <i>KAR</i> 39:090 § 1
General requirements for ignitable, reactive, or incompatible waste	Must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including, but not limited to, open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat.	Operation of a RCRA hazardous waste facility (e.g., landfill)— applicable	40 <i>CFR</i> § 264.17(a) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
General requirements for ignitable, reactive, or incompatible waste (continued)	While ignitable or reactive waste is being handled, smoking and open flames must be confined to specially designated locations. “No Smoking” signs must be placed conspicuously wherever there is a hazard from ignitable or reactive waste.		
Management of incompatible RCRA wastes	Must take precautions to prevent reactions which: • Generate extreme heat, pressure, fire or explosion, or violent reaction; • Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to pose a risk of fire or explosion; • Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion; • Damage the structural integrity of the device or facility; or • Through other like means threaten human health and the environment.	Operation of a RCRA facility that treats, stores, or disposes of incompatible wastes— applicable	40 <i>CFR</i> § 264.17(b) 401 <i>KAR</i> 39:090 § 1
Preparedness and prevention	When operating a RCRA hazardous waste facility, the facility must be designed, constructed, maintained, and operated to prevent any unplanned release of hazardous waste or hazardous waste constituents into the environment and minimize the possibility of fire or explosion.	Operation of a RCRA hazardous waste facility— applicable	40 <i>CFR</i> § 264.31 401 <i>KAR</i> 39:090 § 1
	Unless it can be demonstrated to the Regional Administrator that none of the hazards posed by waste handled at the facility could require the particular kind of equipment specified in 40 <i>CFR</i> § 264.32, all facilities must be equipped with internal communication or alarm system; a device such as a telephone or hand-held two-way radio; fire suppression equipment; and undertake additional measures as specified in 40 <i>CFR</i> § 264.32. <i>NOTE: Any demonstration that none of the hazards posed by waste handled at the facility could require</i>	Operation of a RCRA hazardous waste facility— applicable	40 <i>CFR</i> § 264.32 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Preparedness and prevention (continued)	<i>the particular kind of equipment in this section shall be made as part of the FFA CERCLA document review and approval process.</i> All facility communication or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.		40 <i>CFR</i> § 264.33 401 <i>KAR</i> 39:090 § 1
	Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel must have immediate access to internal alarm or emergency communications device either directly or through visual or voice contact with another employee, unless such internal alarm or communications device is not required under 40 <i>CFR</i> § 264.32.		40 <i>CFR</i> § 264.34(a) 401 <i>KAR</i> 39:090 § 1
	If there is just one employee on the premises while the facility is operating, he must have immediate access to a device such as a telephone or hand-held two-way radio, unless such communication device is not required under 40 <i>CFR</i> § 264.32.		40 <i>CFR</i> § 264.34(b) 401 <i>KAR</i> 39:090 § 1
	Must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility in an emergency unless it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes. <i>NOTE: This demonstration shall be made as part of the FFA CERCLA document review and approval process.</i>	Storage of RCRA hazardous waste in containers—applicable	40 <i>CFR</i> § 264.35 401 <i>KAR</i> 39:090 § 1
Emergency coordinator	Must be at least one emergency coordinator on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with responsibility for coordinating emergency response measures in accordance with 40 <i>CFR</i> § 264.56.	Operation of a RCRA hazardous waste facility (e.g., landfill)—applicable	40 <i>CFR</i> § 264.55 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Waste Generation Associated with Operations</i>			
Characterization of industrial wastewater	Industrial wastewater discharges that are point source discharges subject to regulation under § 402 of the CWA, as amended, are not solid wastes for the purpose of hazardous waste management. [Comment: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored, or treated before discharge, nor does it exclude sludges that are generated by industrial wastewater treatment.] <i>NOTE: For the purpose of this exclusion, the CERCLA on-site treatment system will be considered equivalent to a wastewater treatment unit (WWTU) and the point source discharges subject to regulation under CWA Section 402, provided the effluent meets all identified CWA ARARs.</i>	Generation of industrial wastewater for treatment and discharge into surface water— applicable	40 <i>CFR</i> § 261.4(a)(2) 401 <i>KAR</i> 39:060 § 3
Characterization of solid waste	Must determine if solid waste is excluded from regulation under 40 <i>CFR</i> § 261.4.	Generation of solid waste as defined in 40 <i>CFR</i> § 261.2— applicable	40 <i>CFR</i> § 262.11(b) 401 <i>KAR</i> 39:080 § 1(1)
	Must determine if waste is listed as a hazardous waste in subpart D of 40 <i>CFR</i> Part 261.	Generation of solid waste that is not excluded under 40 <i>CFR</i> § 261.4— applicable	40 <i>CFR</i> § 262.11(c) 401 <i>KAR</i> 39:080 § 1(1)
	Must determine whether the waste is identified in subpart C of 40 <i>CFR</i> Part 261 by using prescribed testing methods or applying generator knowledge based on information regarding material or processes used.	Generation of solid waste that is not listed in subpart D of 40 <i>CFR</i> Part 261 and not excluded under 40 <i>CFR</i> § 261.4— applicable	40 <i>CFR</i> § 262.11(d) 401 <i>KAR</i> 39:080 § 1(1)
	Must refer to Parts 261, 264–266, 267, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Generation of solid waste that is determined to be hazardous— applicable	40 <i>CFR</i> § 262.11(e) 401 <i>KAR</i> 39:080 § 1(1)
Characterization of hazardous waste	Must determine if the hazardous waste meets the treatment standards in 40 <i>CFR</i> § 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste.	Generation of a hazardous waste— applicable	40 <i>CFR</i> § 268.7(a) 401 <i>KAR</i> 39:060 § 4

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Characterization of LLW	Shall be characterized using direct or indirect methods and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance criteria of the receiving facility.	Generation of LLW for disposal at a DOE facility— TBC	DOE M 435.1-1 (IV)(I)
	Characterization data shall, at a minimum, include the following information relevant to the management of the waste:		DOE M 435.1-1(IV)(I)(2)
	• Physical and chemical characteristics;		DOE M 435.1-1(IV)(I)(2)(a)
	• Volume, including the waste and any stabilization or absorbent media		DOE M 435.1-1(IV)(I)(2)(b)
	• Weight of the container and contents;		DOE M 435.1-1(IV)(I)(2)(c)
	• Identities, activities, and concentration of major radionuclides;	Generation of LLW for disposal at a DOE facility— TBC	DOE M 435.1-1(IV)(I)(2)(d)
	• Characterization date;		DOE M 435.1-1(IV)(I)(2)(e)
	• Generating source; and		DOE M 435.1-1(IV)(I)(2)(f)
	• Any other information that may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with the performance objectives contained in DOE O 435.1.		DOE M 435.1-1(IV)(I)(2)(g)
Characterization and management of universal waste	A large quantity handler of universal waste is prohibited from disposing, diluting, or treating universal waste except in accordance with 40 <i>CFR</i> Part 273	Generation of universal waste as defined in 40 § <i>CFR</i> 273.9 for disposal— applicable	40 <i>CFR</i> § 273.31 401 <i>KAR</i> 39:080 § 3(1-3)
	A large quantity handler of universal waste must manage universal waste in accordance with 40 <i>CFR</i> Part 273 in a way that prevents releases of any universal waste or component of a universal waste to the environment.		40 <i>CFR</i> § 273.33 401 <i>KAR</i> 39:080 § 3(1-3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Characterization and management of universal waste (continued)	A large quantity handler of universal waste must contain any universal waste battery that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. Container must be closed, structurally sound, compatible with the contents of the battery, and lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.	Generation of universal waste batteries as defined in 40 <i>CFR</i> 273.9—applicable	40 <i>CFR</i> § 273.33(a)(1) 401 <i>KAR</i> 39:080 § 3(1-3)
	A large quantity handler of universal waste must contain any mercury-containing equipment that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. Container must be closed, structurally sound, compatible with the contents of the thermostat, and lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions, and be reasonably designed to prevent the escape of mercury into the environment by volatilization or any other means.	Generation of universal waste mercury-containing equipment as defined in 40 <i>CFR</i> § 273.9—applicable	40 <i>CFR</i> § 273.33(c)(1) 401 <i>KAR</i> 39:080 § 3(1-3)
	May remove the mercury-containing ampule or the open original housing holding the mercury from mercury-containing equipment and manage and dispose of it in accordance with regulations.		40 <i>CFR</i> § 273.33 (c)(2) – (4) 401 <i>KAR</i> 39:080 § 3(1-3)
	Must label or mark the universal waste to identify the type of universal waste.		40 <i>CFR</i> § 273.34 401 <i>KAR</i> 39:080 § 3(1-3)
	Batteries, or container or tank in which the batteries are contained, must be labeled or marked clearly with any one of the following phrases: “Universal Waste – Battery(ies)” or “Waste Battery(ies)” or “Used Battery(ies).”		40 <i>CFR</i> § 273.34(a) 401 <i>KAR</i> 39:080 § 3(1-3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Characterization and management of universal waste (continued)	May accumulate waste for no longer than 1 year from the date the waste is generated or received from another handler unless the requirements of 40 <i>CFR</i> § 273.35(b) are met.		40 <i>CFR</i> § 273.35(a) 401 <i>KAR</i> 39:080 § 3(1-3)
	May accumulate universal waste for longer than 1 year from the date the universal waste is generated or received from another handler if such activity is solely for the purpose of accumulation of such quantities of universal waste as necessary to facilitate proper recovery, treatment, or disposal. However, the handler bears the burden of proving that such activity was solely for this purpose.		40 <i>CFR</i> § 273.35(b) 401 <i>KAR</i> 39:080 § 3(1-3)
	Shall ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures relative to their responsibilities during normal facility operations and emergencies.		40 <i>CFR</i> § 273.36 401 <i>KAR</i> 39:080 § 3(1-3)
	Mark or label the individual item with the date the lamp(s) became a waste, or mark or label the container or package with the date the wastes were received.		40 <i>CFR</i> § 273.35(c) 401 <i>KAR</i> 39:080 § 3(1-3)
Management of universal waste lamps (fluorescent, mercury vapor)	A large quantity handler of universal waste must immediately contain all releases of universal wastes and other residues from universal wastes, and must determine whether any material resulting from the release is hazardous waste, and if so, must manage the hazardous waste in compliance with all applicable requirements.		40 <i>CFR</i> § 273.37 401 <i>KAR</i> 39:080 § 3(1-3)
	A large quantity handler of universal waste must contain any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers and packages must remain closed and must lack evidence of leakage, spillage, or damage that could cause leakage of hazardous constituents under reasonably foreseeable conditions.	Generation of universal waste lamps as defined in 40 <i>CFR</i> § 273.9— applicable	40 <i>CFR</i> § 273.33(d)(1) 401 <i>KAR</i> 39:080 § 3(1-3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Management of universal waste lamps (fluorescent, mercury vapor) (continued)	A large quantity handler of universal waste lamps must immediately clean up and place in a container any lamp that is broken and must place in a container any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment.		40 <i>CFR</i> § 273.33(d)(2) 401 <i>KAR</i> 39:080 § 3(1-3)
	Each lamp or container or package in which such lamps are contained must be labeled or marked clearly with one of the following phrases: “Universal Waste-Lamp(s),” or “Waste Lamps,” or “Used Lamps.”		40 <i>CFR</i> § 273.34(e) 401 <i>KAR</i> 39:080 § 3(1-3)
Management of used oil	Used oil shall not be stored in a unit other than a tank, container, or RCRA regulated unit.	Generation and storage of used oil, as defined in 40 <i>CFR</i> § 279.1 that meets the applicability requirements of 40 <i>CFR</i> § 279.10 — applicable	40 <i>CFR</i> § 279.22(a) 401 <i>KAR</i> 39:080 § 4 (1,2, and 7)
	Containers and aboveground tanks used to store used oil must be in good condition (no severe rusting, apparent structural defects, or deterioration) and not leaking (no visible leaks).		40 <i>CFR</i> § 279.22 (b)(1) and (2) 401 <i>KAR</i> 39:080 § 4(1, 2, and 7)
Disposal of hazardous used oil	Used oils that are identified as a hazardous waste and cannot be recycled must be managed in accordance with the hazardous waste management requirements.	Generation of used oil— applicable	40 <i>CFR</i> § 279.81(a) 401 <i>KAR</i> 39:080 § 4(1, 2, and 7)
Disposal of nonhazardous used oils	Used oils that are not hazardous wastes and cannot be recycled must be disposed in accordance with the applicable requirements.		40 <i>CFR</i> § 279.81(b) 401 <i>KAR</i> 39:080 § 4(1, 2, and 7)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Staging and Storage of Wastes for Disposal</i>			
Temporary on-site storage of remediation waste in staging piles	Must be located within the contiguous property under the control of the owner/operator where the wastes are to be managed in the staging pile originated. For purposes of this section, storage includes mixing, sizing, blending or other similar physical operations so long as intended to prepare the wastes for subsequent management or treatment.	Accumulation of non-flowing hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) as defined in 40 <i>CFR</i> § 260.10— applicable	40 <i>CFR</i> § 264.554(a)(1) 401 <i>KAR</i> 39:090 § 1
Operation of a staging pile	Staging piles may be used to store hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) based on approved standards and design criteria designated for that staging pile. <i>NOTE: Design and standards of the staging pile should be included in CERCLA remedial design document approved by EPA.</i>		40 <i>CFR</i> § 264.554(b) 401 <i>KAR</i> 39:090 § 1
	Must not operate for more than two years, except when an operating term extension under 40 <i>CFR</i> § 264.554(i) is granted. <i>NOTE: Must measure the two-year limit (or other operating term specified) from first time remediation waste placed in staging pile.</i> <i>NOTE: It is recognized that a staging pile for the waste disposal facility (WDF) may need to be operated past the two-year time limit. Any time period greater than two years will be documented and justified in the ROD. The ROD would provide a process for further Post-ROD extensions of the operating term by using a memorandum in the administrative record that documents the justification with the concurrence of the FFA parties.</i>	Storage of remediation waste in a staging pile— applicable	40 <i>CFR</i> § 264.554(d)(1)(iii) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Operation of a staging pile (continued)	Must not use staging pile longer than the length of time designated by EPA in appropriate decision document. <i>NOTE: It is recognized that a staging pile for the WDF may need to be operated past the two-year time limit. Any time period greater than two years will be documented and justified in the ROD. The ROD would provide a process for further Post-ROD extensions of the operating term by using a memorandum in the administrative record that documents the justification with the concurrence of the FFA parties.</i>		40 <i>CFR</i> § 264.554(h) 401 <i>KAR</i> 39:090 § 1
Performance criteria for staging pile	The standards and design criteria for a staging pile must: • Facilitate a reliable, effective, and protective remedy; and • Be designed to prevent or minimize releases of hazardous wastes and constituents into the environment, and minimize or adequately control cross-media transfer as necessary to protect human health and the environment (e.g., use of liners, covers, runoff/run-on controls as appropriate).		40 <i>CFR</i> §264.554(d)(1) (i) and (ii) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Design criteria for staging pile	In setting the standards and design criteria the director must consider the following factors: • Length of time pile will be in operation; • Volumes of waste you intend to store in the pile; • Physical and chemical characteristics of the wastes to be stored in the unit; • Potential for releases from the unit; • Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and • Potential for human and environmental exposure to potential releases from the unit.	Accumulation of non-flowing hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) as defined in 40 <i>CFR</i> § 260.10— applicable	40 <i>CFR</i> § 264.554(d)(2)(i)–(vi) 401 <i>KAR</i> 39:090 § 1
Staging pile prohibitions	Must not place ignitable or reactive remediation waste in a staging pile unless the remediation waste has been treated, rendered, or mixed before placed in the staging pile so that: • The remediation waste no longer meets the definition of ignitable or reactive under 40 <i>CFR</i> § 261.21 or 40 <i>CFR</i> § 261.23; and • You have complied with 40 <i>CFR</i> § 264.17(b); or Must manage the remediation waste to protect it from exposure to any material or condition that may cause it to ignite or react	Storage of ignitable or reactive remediation waste in staging pile— applicable	40 <i>CFR</i> § 264.554(e) 401 <i>KAR</i> 39:090 § 1 40 <i>CFR</i> § 264.554(e)(1)(i) 401 <i>KAR</i> 39:090 § 1 40 <i>CFR</i> § 264.554(e)(1)(ii) 401 <i>KAR</i> 39:090 § 1 40 <i>CFR</i> § 264.554(e)(2) 401 <i>KAR</i> 39:090 § 1
	Must not place incompatible wastes in the same staging pile unless you have complied with 40 <i>CFR</i> § 264.17(b).	Storage of “incompatible” remediation waste, as defined in 40 <i>CFR</i> § 260.10, in staging pile— applicable	40 <i>CFR</i> § 264.554(f)(1) 401 <i>KAR</i> 39:090 § 1
	Must separate the incompatible materials, or protect them from one another by using a dike, berm, wall, or other device.		40 <i>CFR</i> § 264.554(f)(2) 401 <i>KAR</i> 39:090 § 1
	Must not pile remediation waste on same base where incompatible wastes or materials were previously piled unless the base has been decontaminated sufficiently to comply with 40 <i>CFR</i> § 264.17(b).		40 <i>CFR</i> § 264.554(f)(3) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Operation of a staging pile	Does not constitute land disposal of hazardous waste or create a unit that is subject to the minimum technological requirements (MRTs) of Section 3004(o) of RCRA.	Placement of hazardous remediation wastes into a staging pile— applicable	40 <i>CFR</i> § 264.554(g) 401 <i>KAR</i> 39:090 § 1
Closure of staging pile of remediation waste	Must be closed within 180 days after the operating term by removing or decontaminating all remediation waste, contaminated containment system components, and structures and equipment contaminated with waste and leachate. Must decontaminate contaminated sub-soils in a manner that EPA determines will protect human and the environment. <i>NOTE: The time period for closure will be specified in the appropriate CERCLA documentation, which may be greater than 180 days.</i>	Storage of remediation waste in staging pile in <i>previously contaminated area</i> — applicable	40 <i>CFR</i> § 264.554(j)(1) and (2) 401 <i>KAR</i> 39:090 § 1
	Must be closed within 180 days after the operating term according to 40 <i>CFR</i> 264.258(a) and 264.111 or 265.258(a) and 265.111. <i>NOTE: The time period for closure will be specified in the appropriate CERCLA documentation, which may be greater than 180 days.</i>	Storage of remediation waste in staging pile in <i>uncontaminated area</i> — applicable	40 <i>CFR</i> § 264.554(k) 401 <i>KAR</i> 39:090 § 1
Temporary on-site storage of hazardous waste in containers	A generator may accumulate hazardous waste at the facility provided that waste is placed in containers that comply with 40 <i>CFR</i> § 265.171–173, the date upon which accumulation begins is clearly marked and visible for inspection on each container; container is marked with the words “hazardous waste.”	Accumulation of RCRA hazardous waste on-site as defined in 40 <i>CFR</i> §260.10— applicable	40 <i>CFR</i> § 262.17 401 <i>KAR</i> 39:080 § 1(1)
	If container is not in good condition or if it begins to leak, must transfer waste into a container in good condition.	Storage of RCRA hazardous waste in containers— applicable	40 <i>CFR</i> § 264.171 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Temporary on-site storage of hazardous waste in containers (continued)	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired.		40 <i>CFR</i> § 264.172 401 <i>KAR</i> 39:090 § 1
	Keep containers closed during storage, except to add/remove waste		40 <i>CFR</i> § 264.173(a) 401 <i>KAR</i> 39:090 § 1
	Open, handle, and store containers in a manner that will not cause containers to rupture or leak.		40 <i>CFR</i> § 264.173(b) 401 <i>KAR</i> 39:090 § 1
Closure of RCRA container accumulation area	Must close the unit in a manner that:	Closure of a RCRA container accumulation area— applicable	40 <i>CFR</i> § 264.111 401 <i>KAR</i> 39:090 § 1
	Minimizes the need for further maintenance.		40 <i>CFR</i> § 264.111(a) 401 <i>KAR</i> 39:090 § 1
	Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to ground or surface waters or to the atmosphere.	Closure of a RCRA container accumulation area— applicable	40 <i>CFR</i> § 264.111(b) 401 <i>KAR</i> 39:090 § 1
	Complies with the substantive closure requirements of 40 <i>CFR</i> Part 264, including, but not limited to, the requirements of §§ 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601-603, and 264.1102.		40 <i>CFR</i> § 264.111(c) 401 <i>KAR</i> 39:090 § 1
Use and management of containers holding hazardous waste	If container is not in good condition or if it begins to leak, must transfer waste into container in good condition.	Storage of RCRA hazardous waste in containers— applicable	40 <i>CFR</i> § 264.171 401 <i>KAR</i> 39:090 § 1
	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired.		40 <i>CFR</i> § 264.172 401 <i>KAR</i> 39:090 § 1
	Keep containers closed during storage, except to add/remove waste.		40 <i>CFR</i> § 264.173(a) 401 <i>KAR</i> 39:090 § 1
	Open, handle, and store containers in a manner that will not cause containers to rupture or leak.		40 <i>CFR</i> § 264.173(b) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Use and management of containers holding hazardous waste (continued)	Area must have a containment system designed and operated in accordance with 40 <i>CFR</i> § 264.175(b)	Storage of RCRA hazardous waste in containers with free liquids— applicable	40 <i>CFR</i> § 264.175(a) 401 <i>KAR</i> 39:090 § 1
	Base must underlie containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.		40 <i>CFR</i> § 264.175(b)(1) 401 <i>KAR</i> 39:090 § 1
	The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.	Storage of RCRA hazardous waste in containers with free liquids— applicable	40 <i>CFR</i> § 264.175(b)(2) 401 <i>KAR</i> 39:090 § 1
	The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater.		40 <i>CFR</i> § 264.175(b)(3) 401 <i>KAR</i> 39:090 § 1
	Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in paragraph (b)(3) of this section to contain any run-on which might enter the system.		40 <i>CFR</i> § 264.175(b)(4) 401 <i>KAR</i> 39:090 § 1
	Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner as is necessary to prevent overflow of the collection system.	Storage of RCRA hazardous waste in containers with free liquids— applicable	40 <i>CFR</i> § 264.175(b)(5) 401 <i>KAR</i> 39:090 § 1
	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or containers must be elevated or otherwise protected from contact with accumulated liquid.	Storage of RCRA hazardous waste in containers that do not contain free liquids (other than F020, F021, F022, F023, F026, and F027)— applicable	40 <i>CFR</i> § 264.175(c) 401 <i>KAR</i> 39:090 § 1
Special requirements for ignitable or reactive waste	Containers holding ignitable or reactive waste must be located at least 15 m (50 ft) from the facility's property line.	Storage of ignitable or reactive RCRA hazardous waste in containers— applicable	40 <i>CFR</i> § 264.176 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Special requirements for incompatible waste	• Incompatible wastes or incompatible wastes and materials must not be placed in the same container, unless § 264.17(b) is complied with. • Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material. • A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.	Storage of incompatible RCRA hazardous waste in containers— applicable	40 <i>CFR</i> § 264.177(a)-(c) 401 <i>KAR</i> 39:090 § 1
Closure of a containment system	At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soils containing or contaminated with hazardous waste and hazardous waste residues must be decontaminated or removed. [Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with 40 <i>CFR</i> § 261.3(d) of this chapter that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262 through 266 of this chapter.]	Storage of RCRA hazardous waste in containers in a unit with a containment system— applicable	40 <i>CFR</i> § 264.178 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Closure performance standard for RCRA container storage unit	Must close the facility (e.g., container storage unit) in a manner that: - Minimizes the need for further maintenance; - Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or the atmosphere; and - Complies with the closure requirements of subpart, but not limited to, the requirements of 40 <i>CFR</i> § 264.178 for containers.	Storage of RCRA hazardous waste in containers— applicable	40 <i>CFR</i> § 264.111 401 <i>KAR</i> 39:090 § 1
Storage of PCB waste and/or PCB/radioactive waste in non-RCRA regulated unit	Any PCB waste shall be disposed of as required by subpart D of this part within 1-year from the date it was determined to be PCB waste and the decision was made to dispose of it. This date is the date of removal from service for disposal and the point at which the 1-year time frame for disposal begins. PCB/radioactive waste removed from service for disposal is exempt from the 1-year time limit provided that the provisions at paragraphs (a)(2)(ii) and (a)(2)(iii) of this section are followed and the waste is managed in accordance with all other applicable federal, state, and local laws and regulations for the management of radioactive material.	Storage of PCBs and PCB Items at concentrations $\geq$ 50 ppm designated for disposal— applicable	40 <i>CFR</i> § 761.65(a)(1)
	Except as provided in 40 <i>CFR</i> § 761.65 (b)(2), (c)(1), (c)(7), (c)(9), and (c)(10), after July 1, 1978, owners or operators of any facilities used for the storage of PCBs and PCB items designated for disposal shall comply with the storage unit requirements in 40 <i>CFR</i> § 761.65(b)(1).	Storage of PCBs and PCB Items at concentrations $\geq$ 50 ppm designated for disposal— applicable	40 <i>CFR</i> § 761.65(b)
	Storage facility shall meet the following criteria:		40 <i>CFR</i> § 761.65(b)(1)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Storage of PCB waste and/or PCB/radioactive waste in non-RCRA regulated unit (continued)	Adequate roof and walls to prevent rainwater from reaching stored PCBs and PCB items;		40 <i>CFR</i> § 761.65(b)(1)(i)
	Adequate floor that has continuous curbing with a minimum 6-inch high curb. Floor and curb must provide a containment volume equal to at least two times the internal volume of the largest PCB article or container or 25% of the internal volume of all articles or containers stored there, whichever is greater. <i>NOTE: 6-inch minimum curbing not required for area storing PCB/radioactive waste;</i>		40 <i>CFR</i> § 761.65(b)(1)(ii)
	No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from curbed area;	Storage of PCBs and PCB Items at concentrations ≥ 50 ppm designated for disposal— applicable	40 <i>CFR</i> § 761.65(b)(1)(iii)
	Floors and curbing constructed of Portland cement, concrete, or a continuous, smooth, nonporous surface that prevents or minimizes penetration of PCBs; and		40 <i>CFR</i> § 761.65(b)(1)(iv)
	Not located at a site that is below the 100-year flood water elevation.		40 <i>CFR</i> § 761.65(b)(1)(v)
Storage of PCB waste and/or PCB/radioactive waste in a RCRA-regulated container storage area	Does not have to meet storage unit requirements in 40 <i>CFR</i> § 761.65(b)(1) provided unit:	Storage of PCBs and PCB Items at concentrations ≥ 50 ppm designated for disposal— applicable	40 <i>CFR</i> § 761.65(b)(2)
	Is permitted by EPA under RCRA § 3004 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 <i>CFR</i> § 761;		40 <i>CFR</i> § 761.65(b)(2)(i)
	Qualifies for interim status under RCRA § 3005 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 <i>CFR</i> § 761; or		40 <i>CFR</i> § 761.65(b)(2)(ii)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Storage of PCB waste and/or PCB/radioactive waste in a RCRA-regulated container storage area (continued)	Is permitted by an authorized state under RCRA § 3006 to manage hazardous waste in containers and spills of PCBs cleaned up in accordance with Subpart G of 40 <i>CFR</i> § 761. <i>NOTE: For purpose of this exclusion, CERCLA remediation waste (which is also considered PCB waste), can be stored on-site provided the area meets all of the identified RCRA container storage ARARs and spills of PCBs are cleaned up in accordance with Subpart G of 40 CFR § 761.</i>		40 <i>CFR</i> § 761.65(b)(2)(iii)
Storage for disposal	Storage area must be properly marked as required by 40 <i>CFR</i> § 761.40(a)(10).	Storage of PCBs and PCB items at concentrations ≥ 50 ppm in containers for disposal— applicable	40 <i>CFR</i> § 761.65(c)(3)
	Any leaking PCB Items and their contents shall be transferred immediately to a properly marked nonleaking container(s).		40 <i>CFR</i> § 761.65(c)(5)
	Except as provided in 40 <i>CFR</i> § 761.65(c)(6)(i) and (c)(6)(ii), container(s) shall be in accordance with requirements set forth in U.S. Department of Transportation hazardous materials regulations (HMR) at 49 <i>CFR</i> §§ 171–180.		40 <i>CFR</i> § 761.65(c)(6)
	Container(s) shall be marked as illustrated in 40 <i>CFR</i> § 761.45(a).		40 <i>CFR</i> § 761.40(a)(1)
Risk-based sampling, storage or disposal of PCB remediation waste	May sample or dispose PCB remediation waste in a manner other than prescribed in 40 <i>CFR</i> § 761.61(a) or (b), or store PCB remediation waste in a manner other than prescribed in 40 <i>CFR</i> § 761.65 if approved in writing from EPA and EPA finds the method will not pose an unreasonable risk of injury to human health or the environment. <i>NOTE: EPA approval of alternative methods will be obtained through a CERCLA FFA primary document that is approved by EPA.</i>	Sampling, storage or disposal of waste containing PCBs in a manner other than prescribed in 40 <i>CFR</i> § 761.61(a) or (b), or 40 <i>CFR</i> § 761.65 (see above)— applicable	40 <i>CFR</i> § 761.61(c)(1)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Risk-based storage of PCB bulk product waste	May store bulk product waste in a manner other than prescribed in 40 <i>CFR</i> 761.65, if approved in writing from EPA providing that the method will not pose an unreasonable risk of injury to human health or the environment. <i>NOTE: EPA approval of alternative methods will be obtained through a CERCLA FFA primary document that is approved by EPA.</i>	Storage of PCB bulk product waste in a manner other than prescribed in 40 <i>CFR</i> § 761.65— applicable	40 <i>CFR</i> § 761.62(c)(1)
Temporary storage of bulk PCB remediation waste or PCB bulk product waste in a waste pile	May be stored at the clean-up site or site of generation subject to the following conditions: • Waste must be placed in a pile designed and operated to control dispersal by wind, where necessary, by means other than wetting. • Waste must not generate leachate through decomposition or other reactions.	Storage of PCB remediation waste or PCB bulk product waste in a waste pile— applicable	40 <i>CFR</i> § 761.65(c)(9)(i) 40 <i>CFR</i> § 761.65(c)(9)(ii)
	• Storage site must have a liner designed, constructed, and installed to prevent any migration of wastes off or through liner into adjacent subsurface soil, groundwater or surface water at any time during the active life (including closure period) of the storage site.		40 <i>CFR</i> § 761.65(c)(9)(iii)(A)
	• Liner must be constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure because of pressure gradients, physical contact with waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation.		40 <i>CFR</i> § 761.65(c)(9)(iii)(A)(1)
	• Placed on foundation or base capable of providing support to liner and resistance to pressure gradients above and below the liner to prevent failure because of settlement compression or uplift.		40 <i>CFR</i> § 761.65(c)(9)(iii)(A)(2)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Temporary storage of bulk PCB remediation waste or PCB bulk product waste in a waste pile (continued)	Installed to cover all surrounding earth likely to be in contact with waste.		40 <i>CFR</i> § 761.65(c)(9)(iii)(A)(3)
	Waste pile must have a cover that meets the above requirements and installed to cover all of the stored waste likely to be contacted by precipitation, and is secured so as not to be functionally disabled by winds expected under normal seasonal meteorological conditions at the storage site.		40 <i>CFR</i> § 761.65(c)(9)(iii)(B)
	Requirements of 40 <i>CFR</i> § 761.65(c)(9) may be modified under the risk-based disposal option of 40 <i>CFR</i> § 761.61(c).		40 <i>CFR</i> § 761.65(c)(9)(iv)
<i>Low-Level Radioactive Waste Management</i>			
Temporary staging and storage of LLW	Shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water.	Management and storage of LLW at a DOE facility— TBC	DOE M 435.1-1(IV)(N)(1)
Staging of LLW	Shall be for the purpose of the accumulation of such quantities of wastes necessary to facilitate transportation, treatment, and disposal.	Staging of LLW at a DOE facility— TBC	DOE M 435.1-1 (IV)(N)(7)
Packaging of LLW	Vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	Storage of LLW in containers at a DOE facility— TBC	DOE M 435.1-1 (IV)(L)(1)(b)
Treatment of LLW	Treatment to provide more stable waste forms and to improve the long-term performance of a LLW disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility	Treatment of LLW for disposal at a DOE LLW disposal facility— TBC	DOE M 435.1-1(IV)(O)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Treatment of uranium- and thorium-bearing LLW	Such wastes shall be properly conditioned so that the generation and escape of biogenic gases will not cause exceedance of Radon-222 (Rn-222) emission limits of DOE O 458.1(4)(h)(1) and will not result in premature structure failure of the facility.	Placement of potentially biodegradable contaminated waste in a long-term management facility— TBC	DOE O 458.1(4)(h)(1)(d)(3)
<i>Discharge of Wastewater from Treatment System</i>			
Protection of surface waters	The minimum water quality criteria established in this administrative regulation shall be applicable to all surface waters including mixing zones, with the exception that toxicity to aquatic life in mixing zones shall be subject to the provisions of 401 <i>KAR</i> 10:029, Section 4 Mixing Zones. Surface waters shall not be aesthetically or otherwise degraded by substances that: (a) Settle to form objectionable deposits; (b) Float as debris, scum, oil, or other matter to form a nuisance; (c) Produce objectionable color, odor, taste, or turbidity; (d) Injure or are chronically or acutely toxic to or produce adverse physiological or behavioral responses in humans, animals, fish, and other aquatic life; (e) Produce undesirable aquatic life or result in the dominance of nuisance species; or (f) Cause fish flesh tainting.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:031 § 2(1)(a-f)
	Surface waters may be designated as having one (1) or more legitimate uses established in 401 <i>KAR</i> 10:026 and associated criteria protective of those uses. Nothing in this administrative regulation shall be construed to prohibit or impair the legitimate beneficial uses of these waters. The criteria in	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:031 §3(1)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Protection of surface waters (continued)	Sections 2 Minimum Criteria Applicable to All Surface Waters, 4 Aquatic Life, 6 Pollutants, and 7 Recreational Waters of this administrative regulation represent minimum conditions necessary to: (a) Protect surface waters for the indicated designated use; and (b) Protect human health regarding fish consumption.		
	The concentration of phenol shall not exceed 300 µg/L as an instream value.		401 <i>KAR</i> 10:031 §2(2)
Consideration of natural conditions	On occasion, surface water quality may be outside of the limits established to protect designated uses because of natural conditions. If this occurs during periods when stream flows are below the flow that is used by the cabinet to establish effluent limitations for wastewater treatment facilities, a discharger shall not be considered a contributor to instream violations of water quality standards, if treatment results in compliance with permit requirements.		401 <i>KAR</i> 10:031 §3(2)
Stream flow requirements for Water Quality-based Effluent Limitations (WQBELs)	Stream flows for water quality-based permits. The following stream flows shall be utilized if deriving Kentucky Pollutant Discharge Elimination System (KPDES) permit limitations to protect surface waters for the listed uses and purposes: (a) Aquatic life protection shall be 7Q10; (b) Water-based recreation protection shall be 7Q10; (c) Domestic water supply protection shall be determined at points of withdrawal as:	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY—applicable	401 <i>KAR</i> 10:031 §3(3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Stream flow requirements for Water Quality-based Effluent Limitations (WQBELs) (continued)	1. The harmonic mean for cancer-linked substances; and 2. 7Q10 for noncancer-linked substances (d) Human health protection regarding fish consumption and for changes in radionuclides shall be the harmonic mean; and (e) Protection of aesthetics shall be 7Q10.		
Numeric water quality criteria	Allowable instream concentrations of pollutants are listed as water column values in Table 1 of this section unless otherwise indicated.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:031 §6, Table 1
Water quality criteria for warm water aquatic habitat	The parameters and associated criteria in subparagraphs (a) through (k) shall apply for the protection of productive warm water aquatic communities, fowl, animal wildlife, arborous growth, agricultural, and industrial uses.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY designated as Warm Water Aquatic Habitat— applicable	401 <i>KAR</i> 10:031 §4(1)(a-k)
Water quality criteria for recreational waters	(1) Primary contact recreation water. The criteria provided in subparagraph (b), pH shall be between six and zero-tenths (6.0) to nine and zero-tenths (9.0) and shall not change more than one and zero-tenths (1.0) pH unit within this range over a period of twenty-four (24) hours, shall apply to waters designated as primary contact recreation use during the primary contact recreation season of May 1 through October 31. (2) Secondary contact recreation water. The criteria provided in subparagraph (b), pH shall be between six and zero-tenths (6.0) to nine and zero-tenths (9.0) and shall not change more than one and zero-tenths (1.0) pH unit within this range over a period of twenty-four (24) hours shall apply to waters designated for secondary contact recreation use during the entire year.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY designated Recreational— applicable	401 <i>KAR</i> 10:031 §7(1)(b), (2)(b)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Antidegradation requirements	Where the quality of surface waters exceeds that necessary to support propagation of fish, shellfish, wildlife and recreation in and on the water, that quality shall be maintained and protected unless the cabinet finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the cabinet’s continuing planning process required by 33 <i>U.S.C.</i> 1313 and 40 <i>CFR</i> § 130.5, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. (a) For point source discharges, water quality shall be maintained and protected in these waters according to the procedures specified in 401 <i>KAR</i> 10:030, Section 1(2)(b) or (3)(b). (b) In allowing degradation or lower water quality, the cabinet shall assure water quality adequate to protect existing uses fully. (c) The cabinet shall assure that there shall be achieved the highest statutory and regulatory requirements for waste treatment by all new and existing point sources and that nonpoint sources of pollutants be controlled by application of all cost effective and reasonable best management practices.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:029 § 1(2)
	Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. A KPDES permit application for a new or expanded discharge into a high quality or exceptional water shall be subject to the provisions of this paragraph, except as provided in subparagraphs 1 through 6. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision, and “permittee” to mean DOE.</i>	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY considered ‘High Quality’ ³ — applicable	401 <i>KAR</i> 10:030 § 1(3)(b)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
General duty to mitigate for discharge of wastewater	Take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of effluent standards which has a reasonable likelihood of adversely affecting human health or the environment.	Point source discharge of pollutants to surface waters— applicable	401 <i>KAR</i> 5:065 § 2(1) and 40 <i>CFR</i> § 122.41(d)
Operation and maintenance of treatment system	Properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used to achieve compliance with the effluent standards. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.	Discharge of pollutants to surface waters— applicable	401 <i>KAR</i> 5:065 § 2(1) and 40 <i>CFR</i> § 122.41(e)
Protection of human health from fish consumption	The water quality criteria for the protection of human health related to fish consumption in Table 1 of Section 6 Pollutants of this administrative regulation shall apply to all surface water at the edge of the assigned mixing zones except for those points where water is withdrawn for domestic water supply use (a) The criteria are established to protect human health regarding the consumption of fish tissue and shall not be exceeded. (b) For those substances associated with a cancer risk, an acceptable risk level of not more than one (1) additional cancer case in a population of 1,000,000 people, or 1 x 10⁻⁶ shall be utilized to establish the allowable concentration.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:031 §2(3)
Technology-based effluent limitations (TBELs) for wastewater discharge	To the extent that EPA-promulgated effluent limitations are inapplicable, shall develop on a case-by-case best professional judgment basis under § 402(a)(1)(B) of the CWA, TBELs by applying the appropriate factors listed in 40 <i>CFR</i> § 125.3(d) and shall consider: • The appropriate technology for this category or class of point sources, based upon all available information; and • Any unique factors relating to the discharger.	Discharge of pollutants to surface waters from other than a publicly owned treatment works (POTW)— applicable	40 <i>CFR</i> § 125.3(c)(2)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Technology-based effluent limitations (TBELs) for wastewater discharge (continued)	Technology-based treatment requirements are applied prior to or at the point of discharge.		40 <i>CFR</i> § 125.3(e)
	Technology-based treatment requirements cannot be satisfied through the use of “non-treatment” techniques such as flow augmentation and in-stream mechanical aerators.		40 <i>CFR</i> § 125.3(f)
Water quality standards and State requirements	Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision, and “permittee” to mean DOE. Limitations that otherwise would be included in a permit will be identified in a CERCLA ROD or post-ROD FFA Primary document.</i>	Discharge that causes or has the reasonable potential to cause, or contributes to an excursion above any State water quality standard, including State narrative criteria for water quality— applicable	40 <i>CFR</i> § 122.44(d)(1)(i) 401 <i>KAR</i> 5:065 § 2(4)
Establishing effluent limits for whole effluent toxicity	When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision, and “permittee” to mean DOE. Limitations that otherwise would be included in a permit will be identified in a CERCLA ROD or post-ROD FFA Primary document.</i>	Discharge that causes or has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity— applicable	40 <i>CFR</i> § 122.44(d)(1)(iv) 401 <i>KAR</i> 5:065 § 2(4)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Establishing WQBELs using a calculated numeric water quality criterion	Permitting authority must establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such criterion may be derived using an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include EPA’s Water Quality Standards Handbook, October 1983, risk assessment data, exposure data and current EPA criteria documents. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision, and “permittee” to mean DOE. Limitations that otherwise would be included in a permit will be identified in a CERCLA ROD or post-ROD FFA Primary document.</i>	Determination of effluent limits where a State has not established a water quality criterion for a specific pollutant— applicable	40 <i>CFR</i> § 122.44(d)(1)(vi)(A) 401 <i>KAR</i> 5:065 § 2(4)
WQBELs for wastewater discharge	When developing WQBELs under this paragraph the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point source(s) established under this paragraph is derived from, and complies with all applicable water quality standards; and (B) Effluent limits developed to protect narrative or numeric water quality criteria are consistent with the assumptions and any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 <i>CFR</i> § 130.7. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision, and “permittee” to mean DOE. Limitations that otherwise would be included in a permit will be identified in a CERCLA ROD or post-ROD FFA Primary document.</i>	Point source discharge of pollutants to surface waters— applicable	40 <i>CFR</i> § 122.44(d)(1)(vii) 401 <i>KAR</i> 5:065 § 2(4)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
WQBELs for wastewater discharge (continued)	Attain or maintain a specified water quality through water quality related effluent limits established under section 302 of CWA.	Discharge of pollutants to surface waters— applicable	40 <i>CFR</i> § 122.44(d)(2) 401 <i>KAR</i> 5:065 § 2(4)
Variance from TBELs	If conditions exist or are believed to exist that preclude compliance with the requirements of TBELs, a non-POTW may request a variance from otherwise applicable effluent limitations as established in 40 <i>CFR</i> § 122.21(m). <i>NOTE: Variance shall be made as part of the FFA CERCLA document review and approval process.</i>	Discharge of pollutants to surface waters— applicable	401 <i>KAR</i> 5:055 § 6
Minimum monitoring requirements for discharges from on-site CERCLA WWTU	In addition to § 122.48, and to assure compliance with permit limitations, the following monitoring requirements shall be followed: (i) The mass (or other measurement specified in the permit) for each pollutant limited in the permit; (ii) The volume of effluent discharged from each outfall; (iii) Other measurements as appropriate including pollutants in internal waste streams under § 122.45(i); pollutants in intake water for net limitations under § 122.45(f); frequency, rate of discharge, etc., for non-continuous discharges under § 122.45(e); pollutants subject to notification requirements under § 122.42(a); and pollutants in sewage sludge or other monitoring as specified in 40 <i>CFR</i> part 503; or as determined to be necessary on a case-by-case basis pursuant to section 405(d)(4) of the CWA. <i>NOTE: DOE is not required to obtain a permit for any part of a remedial action conducted entirely onsite, per CERCLA § 121(e). Use of the terms “permit” and “permittee” reflect regulatory language; in this remedial action, “permit” can generally be taken to mean the Record of Decision or post-ROD Primary Document such as a Remedial Design, and “permittee” to mean DOE. Monitoring parameters, including frequency of sampling, will be developed as part of the CERCLA process and included in a Remedial Design, remedial action work plan (RAWP), or other appropriate FFA CERCLA document.</i>	Point source discharge of pollutants as defined in 40 <i>CFR</i> 122.2 into surface water— applicable	40 <i>CFR</i> § 122.44(i)(1) 401 <i>KAR</i> 5:065 § 2(4)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Effluent limitations	All effluent limitations, standards and prohibitions shall be established for each outfall or discharge point, except as provided under § 122.44(k)	Continuous discharge of pollutants to surface waters— applicable	40 <i>CFR</i> § 122.45(a) 401 <i>KAR</i> 5:065 § 2(5)
	All effluent limitations, standards and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as: Maximum daily and average monthly discharge limitations for all discharges.	Continuous discharge of pollutants to surface waters— applicable	40 <i>CFR</i> § 122.45(d)(1) 401 <i>KAR</i> 5:065 § 2(5)
Mixing zone limitations	The cabinet may assign definable geometric limits for mixing zones for a discharge of a pollutant or pollutants within a discharge based on the following criteria: (a) Applicable limits shall include the linear distances from the point of discharge, surface area involvement, volume of receiving water, and shall take into account other nearby mixing zones; (b) Dilution provided by assigned mixing zones shall not be allowed until applicable limits are assigned by the cabinet in accordance with this section; (c) In a stream or river, unless assigned on or before December 8, 1999, an assigned mixing zone, from the point of discharge in a spatial direction, shall not exceed one third (1/3) of the width of the receiving stream or one-half (1/2) of the cross-sectional area; (e) An assigned mixing zone shall be limited to an area or volume that shall not adversely affect the designated uses of the receiving water and shall not be so large as to adversely affect an established community of aquatic organisms; (f) The location of a mixing zone shall not: 1. Interfere with fish spawning or nursery areas, fish migration routes, public water supply intakes, or bathing areas; 2. Preclude the free passage of fish or other aquatic life; or	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:029 §4(1)(a-c), (e-h) 40 <i>CFR</i> § 122.45(d)(1) 401 <i>KAR</i> 5:065 § 2(5)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Mixing zone limitations (continued)	3. Jeopardize the continued existence of endangered or threatened aquatic species listed under Section 4 of the Endangered Species Act, 16 <i>U.S.C.</i> 1531 through 1544, or result in the destruction or adverse modification of their critical habitat; (g) For thermal discharges, a successful demonstration conducted under Section 316(a) of the CWA, 33 <i>U.S.C.</i> Section 1326(a), shall constitute compliance with this section; and (h) Unless assigned by the cabinet on or before September 8, 2004, there shall not be mixing zones for bioaccumulative chemicals of concern.		
Mixing zone limitations for toxic substances	Concentrations of toxic substances that exceed the acute criteria for protection of aquatic life in 401 <i>KAR</i> 10:031 shall not exist within an assigned mixing zone or in the discharge itself unless a zone of initial dilution is assigned. (a) A zone of initial dilution shall be assigned pursuant to subsection (3) of this section. (b) Chronic criteria for the protection of aquatic life and criteria for the protection of human health regarding the consumption of fish tissue shall be met at the edge of the assigned mixing zone.	Point source discharge of toxic pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:029 §4(2)
Mixing Zone—zone of initial dilution	The following requirements shall apply to a zone of initial dilution: (a) The cabinet shall require an applicant to provide a technical evaluation for a zone of initial dilution; and (b) Concentrations of toxic substances shall not exceed the acute criteria for the protection of aquatic life at the edge of the assigned zone of initial dilution, except, numeric acute criteria may be exceeded within the zone if the frequency and duration of exposure of aquatic organisms are not sufficient to cause acute toxicity.	Point source discharge of pollutants as defined in 40 <i>CFR</i> § 122.2 into surface waters of the Commonwealth of KY— applicable	401 <i>KAR</i> 10:029 §4(3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Transport or conveyance of collected RCRA wastewater to a WWTU located on the facility	All tank systems, conveyance systems, and ancillary equipment used to treat, store, or convey wastewater to an on-site wastewater treatment facility are exempt from the requirements of RCRA Subtitle C standards. <i>NOTE: For purposes of this exclusion, any dedicated tank systems, conveyance systems, and ancillary equipment used to treat, store or convey CERCLA remediation wastewater to a CERCLA on-site WWTU that meets all of the identified CWA ARARs for point source discharges from such a facility, are exempt from the requirements of RCRA Subtitle C standards.</i>	On-site WWTUs (as defined in 40 <i>CFR</i> § 260.10) subject to regulation under § 402 or § 307(b) of the CWA (i.e., KPDES-permitted) that managed hazardous wastewaters— applicable	40 <i>CFR</i> § 264.1(g)(6) 401 <i>KAR</i> 39:090 § 1
Control and Management of Radionuclides from DOE Activities in Liquid Discharges	Except for tritium and sanitary sewers, apply best available technology if, at the point of discharge, the discharge contributes > 10 mrem (0.1 mSv) annual TED to members of the public.	Discharge of radioactive concentrations to surface water— TBC .	DOE O 458.1(4)(g)(5)
Criteria for discharge of wastewater with radionuclides into surface water	Concentrations of radioactive material which may be released to the general environment in groundwater, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 mrem to the whole body, 75 mrem to the thyroid, and 25 mrem to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment ALARA. <i>NOTE: The EPA has stated that the Nuclear Regulatory Commission dose-based limit of 25/75/25 millirem per year (mrem/year) for radionuclide releases (all pathways) equates to roughly 10 mrem/year EDE, which EPA has determined comports with CERCLA's generally accepted cancer risk range.</i>	Discharge of radioactive concentrations to surface water— relevant and appropriate .	10 <i>CFR</i> § 61.41

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>RCRA Waste Land Disposal Requirements</i>			
Prohibition of dilution to meet LDRs	Except as provided under 40 <i>CFR</i> 268.3(b) must not in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with land disposal restriction levels.	Land disposal, as defined in 40 <i>CFR</i> 268.2, of RCRA-restricted hazardous soils— applicable	40 <i>CFR</i> § 268.3(a) 401 <i>KAR</i> 39:060 §4
Disposal of RCRA prohibited waste in a land-based unit	May be land disposed if it meets the requirements in the table “Treatment Standards for Hazardous Waste” at 40 <i>CFR</i> § 268.40 before land disposal.	Land disposal, as defined in 40 <i>CFR</i> § 268.2, of prohibited RCRA hazardous waste— applicable	40 <i>CFR</i> § 268.40(a) 401 <i>KAR</i> 39:060 § 4
	All underlying hazardous constituents [as defined in 40 <i>CFR</i> § 268.2(i)] must meet the Universal Treatment Standards (UTS), found in 40 <i>CFR</i> § 268.48 Table UTS prior to land disposal.	Land disposal of restricted RCRA characteristic wastes (D001–D043) that are subject to treatment standards in 40 <i>CFR</i> § 268.40 table and are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I nonhazardous injection well— applicable .	40 <i>CFR</i> § 268.40(e) 401 <i>KAR</i> 39:060 §4
	May be disposed of if it is treated according to the alternative treatment standards of 40 <i>CFR</i> § 268.49(c) <u>or</u> according to the UTSs specified in 40 <i>CFR</i> § 268.48, applicable to the listed hazardous waste and/or applicable characteristic of hazardous waste if the soil is characteristic.	Land disposal, as defined in 40 <i>CFR</i> § 268.2, of restricted hazardous soils— applicable	40 <i>CFR</i> § 268.49(b) 401 <i>KAR</i> 39:060 §4
	May be disposed if treated prior to land disposal as provided in 40 <i>CFR</i> § 268.45(a)(1)–(5) unless it is determined under 40 <i>CFR</i> § 261.3(f)(2) that the debris is no longer contaminated with hazardous waste <u>or</u> the debris is treated to the waste-specific treatment standard provided in 40 <i>CFR</i> § 268.40 for the waste contaminating the debris.	Land disposal, as defined in 40 <i>CFR</i> § 268.2, of restricted hazardous debris— applicable	40 <i>CFR</i> § 268.45(a) 401 <i>KAR</i> 39:060 §4

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Disposal of treated hazardous debris	Debris treated by one of the specified extraction or destruction technologies on Table 1 of 40 <i>CFR</i> § 268.45 and which no longer exhibits a characteristic, is not a hazardous waste, and need not be managed in RCRA Subtitle C facility.	Treated debris contaminated with RCRA-listed or characteristic waste— applicable	40 <i>CFR</i> § 268.45(c) 401 <i>KAR</i> 39:060 §4
Disposal requirements for particular RCRA waste forms and types	Must not be placed in a landfill unless the waste and the landfill meet applicable provisions of 40 <i>CFR</i> Part 268 and: The resulting waste, mixture, or dissolution of material no longer is reactive or ignitable.	Disposal of ignitable or reactive RCRA waste— applicable	40 <i>CFR</i> § 264.312(a) 401 <i>KAR</i> 39:090 § 1
Disposal of bulk or containerized hazardous liquids	The placement of bulk or noncontainerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents have been added) in any landfill is prohibited.	Placement of bulk or containerized hazardous waste liquids in a landfill— applicable	40 <i>CFR</i> § 264.314(a) 401 <i>KAR</i> 39:090 § 1
	Containers holding free liquids must not be placed in a landfill, unless:		40 <i>CFR</i> § 264.314(c) 401 <i>KAR</i> 39:090 § 1
	All free-standing liquid has been removed by decanting, or other methods; or has been mixed with sorbent or solidified so that free-standing liquid is no longer observed; or has been otherwise eliminated; or		40 <i>CFR</i> § 264.314(c)(1)
	Container is very small, such as an ampule; or		40 <i>CFR</i> § 264.314(c)(2)
	Container is designed to hold free liquids for use other than storage, such as a battery or capacitor or		40 <i>CFR</i> § 264.314(c)(3)
	Container is a lab pack as defined in 40 <i>CFR</i> 264.316 and is disposed of in accordance with 40 <i>CFR</i> § 264.316		40 <i>CFR</i> § 264.314(c)(4)
	Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable as described in 40 <i>CFR</i> § 264.314(d)(1).		40 <i>CFR</i> § 264.314(d)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Property and Equipment Decontamination Requirements</i>			
Release of property with residual radioactive material to an off-site commercial facility	Residual Radioactive Material. Property potentially containing residual radioactive material must not be cleared from DOE control unless either (a) The property is demonstrated not to contain residual radioactive material based on process and historical knowledge, radiological monitoring or surveys, or a combination of these; or (b) The property is evaluated and appropriately monitored or surveyed to determine: 1. The types and quantities of residual radioactive material within the property; 2. The quantities of removable and total residual radioactive material on property surfaces (including residual radioactive material present on and under any coating); 3. That for property with potentially contaminated surfaces that are difficult to access for radiological monitoring or surveys, an evaluation of residual radioactive material on such surfaces is performed which is (a) Based on process and historical knowledge meeting the requirements of paragraph 4.k.(5) of this Order and monitoring and or surveys, to the extent feasible; and (b) Sufficient to demonstrate that applicable specific or pre-approved DOE Authorized Limits will not be exceeded. 4. That any residual radioactive material within or on the property is in compliance with applicable specific or pre-approved DOE Authorized Limits.	Generation of DOE materials and equipment with residual radioactive material— TBC	DOE O 458.1(4)(k)(3)
Decontamination standards for removing PCBs from non-porous surfaces and non-porous surfaces covered with a porous surface (e.g. paint) for distribution in commerce	For tools and equipment, in contact with liquid or non-liquid PCBs, to be released for unrestricted use must meet the decontamination standard of 10 µg/100 cm ² or undergo the appropriate decontamination method.	Decontamination of moveable equipment, tools and sampling equipment— applicable	40 <i>CFR</i> § 761.79(b)(3)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Decontamination/disposal of equipment	During the partial and final closure periods, all contaminated equipment, structures and soils must be properly disposed of or decontaminated unless otherwise specified in §§ 264.197, 264.228, 264.258, 264.280 or § 264.310.	Closure of RCRA hazardous waste landfill— relevant and appropriate	40 <i>CFR</i> § 264.114 401 <i>KAR</i> 39:090 § 1
<i>Management of Wastes in a Corrective Action Management Unit (CAMU) or Area of Contamination</i>			
Designation and management of CAMUs	CAMUs may be designated at a facility by the Regional Administrator under the requirements of this section. CAMUs are areas within a facility that are used only for managing CAMU-eligible wastes for implementing corrective action or cleanup at the facility. A CAMU must be located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated. One or more CAMUs may be designated at a facility.	Management of CAMU-eligible wastes within a CAMU— applicable	40 <i>CFR</i> § 264.552(a) 401 <i>KAR</i> 39:090 § 1
	CAMU-eligible waste means all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris that are managed for implementing cleanup. As-generated wastes from ongoing industrial operations at a site are not CAMU-eligible wastes.		40 <i>CFR</i> § 264.552(a)(1)(i) 401 <i>KAR</i> 39:090 § 1
	Wastes that would otherwise meet the description in paragraph (a)(1)(i) of this section are not “CAMU-Eligible Wastes” where: (A) The wastes are hazardous wastes found during cleanup in intact or substantially intact containers, tanks, or other non-land-based units found above ground, unless the wastes are first placed in these units as part of cleanup, or the units are excavated during the course of cleanup;		40 <i>CFR</i> § 264.552(a)(1)(ii) 401 <i>KAR</i> 39:090 § 1
	Notwithstanding paragraph (a)(1)(i) of this section, where appropriate, as-generated non-hazardous waste may be placed in a CAMU where such waste is being used to facilitate treatment or the performance of the CAMU.		40 <i>CFR</i> § 264.552(a)(1)(iii)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Designation and management of CAMUs (continued)	The placement of bulk or noncontainerized liquid hazardous waste or free liquids contained in hazardous waste (whether or not sorbents have been added) in any CAMU is prohibited except where placement of such wastes facilitates the remedy selected for the waste.		40 <i>CFR</i> § 264.552(a)(3) 401 <i>KAR</i> 39:090 § 1
	Placement of CAMU-eligible wastes into or within a CAMU does not constitute land disposal of hazardous wastes.		40 <i>CFR</i> § 264.552(a)(4) 401 <i>KAR</i> 39:090 § 1
	Consolidation or placement of CAMU-eligible wastes into or within a CAMU does not constitute creation of a unit subject to minimum technology requirements.		40 <i>CFR</i> § 264.552(a)(5) 401 <i>KAR</i> 39:090 § 1
	May designate a regulated unit as a CAMU, or may incorporate a regulated unit into a CAMU, if the regulated unit is closed or closing and inclusion of the unit will enhance implementation of effective, protective, and reliable remedial actions for the facility.		40 <i>CFR</i> § 264.552(b)(1) 401 <i>KAR</i> 39:090 § 1
	The subpart F and G requirements and unit-specific requirements of this part of 264 or part 265 of this chapter that applied to the regulated unit will continue to apply to that portion of the CAMU after incorporation into the CAMU.		40 <i>CFR</i> § 264.552(b)(2) 401 <i>KAR</i> 39:090 § 1
	CAMU shall facilitate implementation of reliable, effective, protective and cost-effective remedies.		40 <i>CFR</i> § 264.552(c)(1) 401 <i>KAR</i> 39:090 § 1
	Waste management activities shall not create unacceptable risks or to the environment resulting from exposure to hazardous wastes or hazardous constituents.		40 <i>CFR</i> § 264.552(c)(2) 401 <i>KAR</i> 39:090 § 1
	CAMU shall include uncontaminated areas of the facility, only if including such areas for the purpose of managing CAMU-eligible waste is more protective than management of such wastes at contaminated areas of the facility.		40 <i>CFR</i> § 264.552(c)(3) 401 <i>KAR</i> 39:090 § 1
	CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable.		40 <i>CFR</i> § 264.552(c)(5) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Designation and management of CAMUs (continued)	CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU.		40 <i>CFR</i> § 264.552(c)(6) 401 <i>KAR</i> 39:090 § 1
Design, operation, and closure of a CAMU	The requirements for a CAMU designation shall include the following:	Placement of CAMU-eligible wastes within a new, replacement, or laterally expanded CAMUs located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated— applicable	40 <i>CFR</i> § 264.552(e) 401 <i>KAR</i> 39:090 § 1
	Areal configuration of the CAMU, and		40 <i>CFR</i> § 264.552(e)(1) 401 <i>KAR</i> 39:090 § 1
	Treatment of principal hazardous constituents.		40 <i>CFR</i> § 264.552(e)(4) 401 <i>KAR</i> 39:090 § 1
Designation, design, operation, and closure of a CAMU used for storage and/or treatment only	CAMUs used for storage and/or treatment only are CAMUs in which wastes will not remain after closure. Such CAMUs must be designated in accordance with all of the requirements 40 <i>CFR</i> 264.552, except as follows:	Management of CAMU-eligible wastes within a CAMU used for storage and/or treatment only— applicable	40 <i>CFR</i> § 264.552(f) 401 <i>KAR</i> 39:090 § 1
	Such CAMUs that operate in accordance with time limits established in the staging pile regulations are subject to requirements for staging piles in lieu of performance standards and requirements for CAMUs. <i>NOTE: It is recognized that a CAMU for storage and/or treatment for the WDF may need to be operated past the two-year time limit. Any time period greater than two years will be documented and justified in the ROD. The ROD would provide a process for further Post-ROD extensions of the operating term by using a memorandum in the administrative record that documents the justification with the concurrence of the FFA parties.</i>	CAMU used for storage and/or treatment only and that operate in accordance with the time limits established in the staging pile regulations at 40 <i>CFR</i> 264.554(d)(1)(iii), (h) and (i)— applicable	40 <i>CFR</i> § 264.552(f)(1) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Operation of a temporary unit	A temporary unit must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the temporary unit originated. The Regional Administrator may replace the design, operating, or closure standards applicable to these units under 40 <i>CFR</i> § 264 or part 265 with alternative requirements which protect human health and the environment. <i>NOTE: Alternative design, operating, or closure standards will be developed as part of the CERCLA process and approved by EPA in a remedial design, RAWP, or other appropriate FFA CERCLA document.</i>	Use of temporary tanks and container storage areas to treat or store hazardous remediation wastes during remedial activities— applicable	40 <i>CFR</i> § 264.553(a) 401 <i>KAR</i> 39:090 § 1
	Any temporary unit to which alternative requirements are applied in accordance with part 264.553(a) shall be: (1) Located within the facility boundary; and (2) Used only for treatment and storage of remediation wastes. <i>NOTE: Alternate requirements for a temporary unit would be approved through the CERCLA document review process.</i>		40 <i>CFR</i> § 264.553(b) 401 <i>KAR</i> 39:090 § 1
Design criteria for temporary unit	In establishing standards to be applied to a temporary unit, the Regional Administrator shall consider the following factors: (1) Length of time such unit will be in operation; (2) Type of unit; (3) Volumes of wastes to be managed; (4) Physical and chemical characteristics of the wastes to be managed in the unit; (5) Potential for releases from the unit; (6) Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential releases; and (7) Potential for exposure of humans and environmental receptors if releases were to occur from the unit.		40 <i>CFR</i> § 264.553(c) 401 <i>KAR</i> 39:090 § 1

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Off-site disposal of CAMU-eligible wastes	The Regional Administrator with regulatory oversight at the location where the cleanup is taking place may approve, using the CERCLA process, placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the waste originated, without the wastes meeting the requirements of RCRA 40 CFR Part 268, if the conditions in paragraphs (a)(1) through (3) of this section are met: (1) The waste meets the definition of CAMU-eligible waste in §264.552(a)(1) and (2). (2) The principal hazardous constituents in such waste are identified, in accordance with § 264.552(e)(4)(i) and (ii), and such principal hazardous constituents are treated to any of the following standards specified for CAMU-eligible wastes: (i) The treatment standards under § 264.552(e)(4)(iv); or (ii) Treatment standards adjusted in accordance with § 264.552(e)(4)(v)(A), (C), (D) or (E)(1); or (iii) Treatment standards adjusted in accordance with § 264.552(e)(4)(v)(E)(2), where treatment has been used and that treatment significantly reduces the toxicity or mobility of the principal hazardous constituents in the waste, minimizing the short-term and long-term threat posed by the waste, including the threat at the remediation site. (3) The landfill receiving the CAMU-eligible waste must have a RCRA hazardous waste permit, meet the requirements for new landfills in Subpart N of this part, and be authorized to accept CAMU-eligible wastes; for the purposes of this requirement, “permit” does not include interim status. <i>NOTE: Approval of disposal in an off-site hazardous waste landfill shall be made as part of the FFA CERCLA document review and approval process.</i>	Placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the waste is generated—applicable	40 <i>CFR</i> § 264.555(a) 401 <i>KAR</i> 39:090 § 1
Designation of Area of Contamination (AOC)	EPA guidance provides regulatory flexibility under RCRA for management of waste, environmental media, or debris generated and managed within the designated AOC. Management activities within the AOC such as movement/consolidation and <i>in situ</i> treatment are not considered placement under RCRA and, as such, do not trigger land disposal requirements or minimum technology requirements	Management of hazardous waste and environmental media or debris contaminated with hazardous waste— TBC	EPA Policy Memorandum, dated March 13, 1996: “Use of the Areas of Contamination (AOC) Concept During RCRA Cleanups.”

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
<i>Activities Causing Emissions into the Air</i>			
Activities causing radionuclide emissions	Emissions of radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public to receive in any year an EDE of 10 mrem per year.	Radionuclide emissions at a DOE facility— applicable	40 <i>CFR</i> § 61.92 401 <i>KAR</i> 57:002 § 2
Air emissions from stacks	Shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity..	Release of particulates from an affected facility or source associated with new process operations as defined in 401 <i>KAR</i> 59:010 Section 2, which are not subject to another emission standard in Chapter 59— applicable	401 <i>KAR</i> 59:010 § 3(1)(a)
Air emissions from stacks (Continued)	Shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is in excess of the quantity specified in Appendix A.		401 <i>KAR</i> 59:010 § 3(2)
Air emissions from site remediation activities	For each site remediation with an affected source designated under § 63.7882, standards specified in §§ 63.7885 through 63.7955 must be met, as applicable to the affected source, unless site remediation meets the requirements for an exemption under paragraph (b) of this section.	Release of hazardous air pollutants related to the cleanup of remediation material that is co-located with a major source of hazardous air pollutants at the facility provided those emissions exceed 1 Mg/year— applicable	40 <i>CFR</i> § 63.7884(a)
Air emissions from stationary diesel engines	Owners and operators of 2007 model year and later nonemergency stationary compression ignition (CI) internal combustion engine (ICE) with a displacement of less than 30 L per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.	Owners and operators of stationary diesel engines that commence construction after July 11, 2005, where the stationary engines are manufactured after April 1, 2006— applicable	40 <i>CFR</i> § 60.4204 (b)
Emission standards for stationary emergency engines (e.g., generators)	Must comply with the emission standards for new nonroad CI engines in 40 <i>CFR</i> § 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICEs.	Operation of 2007 model year and later emergency stationary CI ICEs with a displacement of < 30 L per cylinder that are not fire pump engines— applicable .	40 <i>CFR</i> § 60.4205(b)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Packaging and Transportation			
Transportation of hazardous waste on-site	The generator manifesting requirements of 40 <i>CFR</i> §§ 262.20 to 262.23(b) do not apply. Generator or transporter must comply with the requirements set forth in 40 <i>CFR</i> §§ 263.30 and 263.31 in the event of a discharge of hazardous waste on a private or public right-of-way.	Transportation of hazardous wastes on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by public or private right-of-way— applicable	40 <i>CFR</i> § 262.20(f) 401 <i>KAR</i> 39:080 § 1
Transportation of hazardous materials on-site	Must meet the substantive requirements of 49 <i>CFR</i> Parts 171–174, 177, and 178 or the site- or facility-specific Transportation Safety Document (<i>Four Rivers Nuclear Partnership, LLC, Paducah Deactivation and Remediation Project Transportation Safety Document for On-Site Transport</i>)	Transport of hazardous materials at PGDP— TBC	DOE O 460.1D (4)(b)
Transportation of radioactive waste	Shall be packed and transported in accordance with the substantive requirements of DOE O 460.1D (<i>Packaging and Transportation Safety</i>) and DOE O 460.2B (<i>Departmental Materials Transportation Management</i>).	Preparation of shipment of radioactive waste— TBC	DOE M 435.1-1 (I)(1)(D)(11)
	To the extent practicable, the volume of waste and number of shipments shall be minimized.		DOE M 435.1-1 (IV)(L)(2)
Transportation of PCB wastes off-site	Must comply with the manifesting provisions at 40 <i>CFR</i> 761.207 through 218.	Relinquishment of control over PCB wastes by transporting or offering for transport— applicable	40 <i>CFR</i> § 761.207(a)
Transportation of universal waste off-site	Off-site shipments of universal waste by a large quantity handler of universal waste shall be made in accordance with 40 <i>CFR</i> § 273.38.	Preparation of universal waste that meets the definition of hazardous material for transport off site— applicable	40 <i>CFR</i> § 273.38(c) 401 <i>KAR</i> 39:080 §3(1)

Table C.2. Preliminary List of Potential Action-Specific ARARs and TBC Guidance (Continued)

Action	Summary of Requirements	Prerequisite	Citation
Transportation of used oil off-site	Except as provided in paragraphs (a) to (c) of 40 <i>CFR</i> §279.24, generators must ensure that their used oil is transported by transporters who have obtained EPA ID numbers.	Preparation of used oil for transport off site— applicable	40 <i>CFR</i> § 279.24 401 <i>KAR</i> 39:080 §4(1)
Transportation of asbestos-containing waste materials off-site	For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and location at which the waste was generated.	Preparation for transport of asbestos-containing waste materials off site— applicable	40 <i>CFR</i> §61.150 (a)(1)(v)
	Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of 40 <i>CFR</i> §§ 61.149(d)(1)(i), (ii), and (iii).		40 <i>CFR</i> § 61.150(c)
Transportation of hazardous materials off-site	Any person who, under contract with a department or agency of the Federal government, transports “in commerce,” or causes to be transported or shipped, a hazardous material, shall be subject to and must comply with all applicable provisions of the HMTA and HMR at 49 <i>CFR</i> Parts 171–180 related to marking, labeling, placarding, etc.	Preparation for transport or shipment “in commerce” of a hazardous material— applicable.	49 <i>CFR</i> § 171.1(c)

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APPENDIX D

PREVIOUS RISK ASSESSMENT SUMMARIES (DATA)

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PREVIOUS RISK ASSESSMENT SUMMARIES (DATA)

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APPENDIX E

PRELIMINARY REMEDIAL ACTION OBJECTIVES

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Table E.1. Remedial Action Objectives in Prior Approved Documents

Media Specific RAOs	Burial Grounds OU FS ^a	Burial Grounds OU SWMUs 2, 3, 7, 30 FS ^b	Burial Grounds OU SWMUs 5, 6 FS ^c	Burial Grounds OU SWMU 4 FS ^d	Southwest Plume Sources ROD ^e	C-400 Complex OU RI ^f
SOIL						
Prevent exposure to contaminated soils that exceed target cumulative ELCRs and cumulative non-cancer HIs for the current and future industrial worker and future excavation worker receptors. The acceptable cumulative risk levels for this RAO are defined as follows. • Surface soil: cumulative ELCR < 1E-05 and cumulative HI ≤ 1 for a current and future industrial worker [considering default exposures in the Human Health RMD (DOE 2024b)] • Surface and subsurface soil: cumulative ELCR < 1E-05 and cumulative HI ≤ 1 for a future excavation worker (considering a five-year exposure based on the outdoor worker scenario in the 2013 Risk Methods Document^k)^l		X		X		
Prevent exposure to waste or waste-related contaminated soils that exceed target excess lifetime cancer risks and cumulative noncancer HIs for the future industrial and future outdoor worker receptors. The acceptable cumulative risk levels for this RAO are defined as follows. • Surface Soil: cumulative ELCR < 1E-05 and cumulative HI ≤ 1 for a future industrial worker • Subsurface Soil: cumulative ELCR < 1E-04 and cumulative HI ≤ 1 for an future outdoor worker			X			
Prevent exposure to contaminated subsurface waste source material (e.g., DNAPL), soils, sediment, and sludge inside the C-400 Complex that exceeds revised PRGs selected from risk-based, background-based, and ARAR-based chemical-specific values. The acceptable cumulative risk levels for this RAO are defined as follows. • Surface soil: cumulative ELCRs < 1E-05 and cumulative target organ noncancer HI ≤ 1 for a current and future industrial worker • Surface and subsurface soil: cumulative ELCR < 1E-05 and cumulative target organ HI ≤ 1 for a future excavation worker						X

Table E.1. Remedial Action Objectives in Prior Approved Documents (Continued)

Media Specific RAOs	Burial Grounds OU FS^a	Burial Grounds OU SWMUs 2, 3, 7, 30 FS^b	Burial Grounds OU SWMUs 5, 6 FS^c	Burial Grounds OU SWMU 4 FS^d	Southwest Plume Sources ROD^e	C-400 Complex OU RI^f
SOIL (Continued)						
Prevent exposure to contaminated subsurface soils that exceeds target cumulative ELCRs < 1E-04 and cumulative noncancer HI ≤ 1 for the future outdoor worker receptor.			X			
Prevent exposure to VOC contamination in the source areas that will cause an unacceptable risk to excavation workers (< 10 ft).					X	
Prevent exposure to non-VOC contamination and residual VOC contamination through interim LUCs within the Southwest Plume source areas (i.e., SWMU 1, SWMU 211-A, SWMU 211-B) pending remedy selection as part of the Soils OU and the Groundwater OU.					X	
Reduce VOC migration from contaminated subsurface soils in the treatment areas at the Oil Landfarm and the C-720 Northeast and Southeast sites so that contaminants migrating from the treatment areas do not result in the exceedance of MCLs in underlying RGA groundwater.					X	
Contribute to the protection of groundwater by eliminating, reducing, or controlling non-PTW sources that exceed revised PRGs selected from risk-based, background-based, and ARAR-based chemical-specific values in soil/sediment/sludge inside the C-400 Complex to reduce the migration of COCs to groundwater.						X
Contribute to the protection of groundwater by eliminating, reducing, or controlling non-PTW sources that exceed revised PRGs selected from risk-based, background-based, and ARAR-based chemical-specific values in soil/sediment/sludge inside the C-400 Complex to minimize migration of COCs to surface water and air.						X
INFRASTRUCTURE						
Eliminate, reduce, or otherwise mitigate the potential for releases of hazardous substances from infrastructure (including slabs, aboveground structures, and subsurface structures) to soil, groundwater, or surface water.						X

Table E.1. Remedial Action Objectives in Prior Approved Documents (Continued)

Media Specific RAOs	Burial Grounds OU FS^a	Burial Grounds OU SWMUs 2, 3, 7, 30 FS^b	Burial Grounds OU SWMUs 5, 6 FS^c	Burial Grounds OU SWMU 4 FS^d	Southwest Plume Sources ROD^e	C-400 Complex OU RI^f
WASTE/SOURCE AREAS						
Prevent exposure to waste that exceeds target cumulative ELCRs and cumulative noncancer HIs for the future industrial and future excavation worker receptors. The acceptable cumulative risk levels for this RAO are defined as follows. Waste: cumulative ELCR < 1E-05 and cumulative HI ≤ 1 for a future excavation worker (considering a five-year exposure based on the outdoor worker scenario in the 2013 Risk Methods Documentⁱ)		X				
Prevent exposure to waste that exceeds target cumulative ELCRs and cumulative non-cancer HIs for the future excavation worker receptor. The acceptable cumulative risk levels for this RAO are defined as follows. Waste: cumulative ELCR < 1E-05 and cumulative HI ≤ 1 for a future excavation worker.				X		
Treat or remove PTW wherever practicable, consistent with 40 <i>CFR</i> § 300.430 (a)(1)(iii)(A).	X ^j	X		X		
Treat and/or remove PTW consistent with the NCP.					X	
Treat PTW inside the C-400 Complex, consistent with 40 <i>CFR</i> § 300.430(a)(1)(iii)(A), or remove, wherever practicable. If treatment or removal of PTW is not practicable, then reduce or control PTW wherever practicable.						X
GROUNDWATER						
Contribute to the protection of groundwater by eliminating, reducing, or controlling sources of groundwater contamination that will result in an exceedance of the MCL [or risk-based concentration for residential use of groundwater in the absence of an MCL (in RGA) groundwater].		X	X	X		
Contribute to the protection of groundwater by eliminating, reducing, or controlling sources of groundwater contamination;						X

Table E.1. Remedial Action Objectives in Prior Approved Documents (Continued)

Media Specific RAOs	Burial Grounds OU FS^a	Burial Grounds OU SWMUs 2, 3, 7, 30 FS^b	Burial Grounds OU SWMUs 5, 6 FS^c	Burial Grounds OU SWMU 4 FS^d	Southwest Plume Sources ROD^e	C-400 Complex OU RI^f
GROUNDWATER (Continued)						
Contribute to the protection of groundwater by eliminating, reducing, or controlling (PTW ^g and non-PTW ^h) sources that exceed revised preliminary remediation goals (PRGs) selected from risk-based, background-based, and ARAR-based chemical-specific values of groundwater COCs inside the C-400 Complex in the UCRS, RGA, and Upper McNairy Formation.						X
Prevent exposure to groundwater inside the C-400 Complex, including exposure to vapors that exceed revised PRGs selected from risk-based, background-based, and ARAR-based chemical-specific values.						X

^a Feasibility Study for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2010f)

^b Feasibility Study for Solid Waste Management Units 2, 3, 7, and 30 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2017a)

^c Feasibility Study for Solid Waste Management Units 5 and 6 of the Burial Grounds Operable Unit, Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2013b)

^d Feasibility Study for Solid Waste Management Unit 4 of the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2018)

^e Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2012d)

^f Remedial Investigation Report for the C-400 Complex Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2023)

^g Nonaqueous-phase liquids

^h Contaminants sorbed to soil in saturated zones (e.g., perched UCRS, RGA, McNairy)

ⁱ RAO as written in the referenced FS; current RMD will be applied.

^j In accordance with *Resolution Agreement of the Formal Dispute for the D2 Feasibility Study for the Burial Grounds Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/LX/07-0130&D2)*, the RAO will be utilized consistent with the NCP and the EPA's PTW guidance, including the following: (a) remedy selection is "determined solely through the ... selection process outlined in the NCP (Le., all remedy selection decisions are site-specific and must be based on a comparative analysis of the alternatives using the nine criteria in accordance with the NCP)." [Quote from EPA's Guide to Principal Threat and Low Level Threat Wastes]; (b) the determination and application of the expectation "serve[s] as [a] general guideline ... and do[es] not dictate selection of a particular remedy." [Quote from EPA's Guide to Principal Threat and Low Level Threat Wastes.]; and (c) the PTW determinations agreed to by the FFA parties will not require a reranking of the nine criteria analysis as described in the BGOU FS (DOE 2010f).

^k RAO as written in the referenced FS; current RMD will be applied.

^m Five-year exposure text is not included in the SWMU 4 RAO.