**Department of Energy**

Portsmouth/Paducah Project Office
1017 Majestic Drive, Suite 200
Lexington, Kentucky 40513
(859) 219-4000

May 27, 2025

Mr. Brian Begley
Federal Facility Agreement Manager
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

PPPO-02-10032775-25

Ms. April Webb
Interim Federal Facility Agreement Manager
Division of Waste Management
Kentucky Department for Environmental Protection
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601

Dear Mr. Begley and Ms. Webb:

**U.S. DEPARTMENT OF ENERGY SUBMITTAL OF THE ENVIRONMENTAL BASELINE SURVEY REPORT FOR THE TITLE TRANSFER OF PARCEL 1 AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2506&D2**

References:

1. Letter from V. Weeks, to A. Ladd, "RE: U.S. Environmental Protection Agency Region 4 acknowledgement of receipt and comment on the D1 Environmental Baseline Survey Report for the planned transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2506&D1," dated January 15, 2025
2. Letter from A. Webb, to A. Ladd, "KDWM Acknowledgement of the Environmental Baseline Survey Report for the Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant (PGDP) (DOE/LX/07-2506&D1)," dated January 15, 2025

The U.S. Department of Energy (DOE) Portsmouth/Paducah Project Office (PPPO) is pleased to submit the enclosed environmental baseline survey (EBS) report in support of the planned transfer of real property at the Paducah Gaseous Diffusion Plant in Paducah, Kentucky. This version of the EBS addresses comments received from the U.S. Environmental Protection Agency (EPA) on January 15, 2025. In addition, revisions have been incorporated from discussions held among the Federal Facility Agreement (FFA) parties on February 27, 2025. This version of the EBS also reflects the newly delineated parcel boundary based on preliminary results from the independent verification. A Comment Response Summary (CRS) for EPA comments and a CRS for Other Changes also are enclosed.

The EBS was prepared pursuant to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h) for the transfer of real property from the federal government. DOE has identified the property to have some chemical and radiological constituents at concentrations that exceed background, but do not require future remediation; however, DOE has elected to transfer the parcel pursuant to CERCLA 120(h)(3). This determination is based on DOE's investigation of the real property to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." The investigation included information gathering and review, visual and physical inspections, interviews with individuals familiar with past and present operations on the property, and previous site evaluations.

Section 120(h)(3) of CERCLA requires that a federal agency transferring real property to a nonfederal entity include a covenant in the deed of transfer warranting that all remedial action necessary to protect human health and the environment has been taken prior to the date of transfer with respect to any hazardous substances remaining on the property. DOE has determined that all remedial action necessary to protect human health and the environment is complete and that the transfer is protective for the future intended use of the real property. DOE is seeking EPA concurrence, as well as Commonwealth of Kentucky concurrence, with the DOE determination delineated above for a CERCLA 120(h)(3) real property transfer taking into consideration the contents and findings contained within the EBS.

In accordance with Section XLII of the FFA, in the event that DOE determines to enter into any contract for the sale or transfer of any of the site, DOE shall notify EPA and the Kentucky Energy and Environment Cabinet of any such sale or transfer at least ninety (90) days prior to such sale or transfer. DOE provided such notice with the transmittal of the document in November 2024. In addition, no change in ownership of the site or any portion thereof shall be consummated by DOE without provision for the continuation of any response action implemented pursuant to the FFA. Lastly, such provision does not relieve DOE of its obligation under the Resource Conservation and Recovery Act, as amended, and its regulations, or *KRS* Chapter 224, Subchapter 46, and 401 *KAR* Chapter 39.

DOE PPPO is requesting an expeditious review and acceptance of the EBS so that DOE PPPO can continue to advance the transfer process.

The transfer of DOE property for economic development is consistent with the views of Paducah Site stakeholders. We look forward to working with you on this important revitalization project for the Commonwealth of Kentucky, and in particular for western Kentucky.

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

Sincerely,

APRIL LADD

Digitally signed by APRIL LADD
Date: 2025.05.27 15:27:20 -05'00'

April Ladd
Federal Facility Agreement Manager
Portsmouth/Paducah Project Office

Enclosures:

1. *Environmental Baseline Survey Report for the Title Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2506&D2—Clean
2. Appendix B–*Environmental Baseline Survey Report for the Title Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2506&D2
3. *Environmental Baseline Survey Report for the Title Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-2506&D2—Redline
4. Comment Response Summary for EPA Comments
5. Comment Response Summary for Other Changes

cc w/enclosures:
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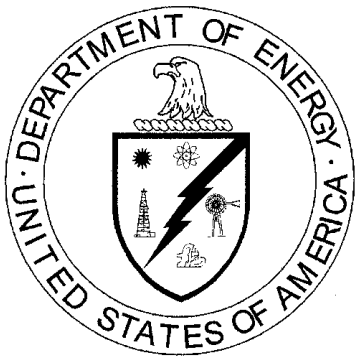
DOE/LX/07-2506&D2

# Environmental Baseline Survey Report for the Title Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky




**CLEARED FOR PUBLIC RELEASE**

DOE/LX/07-2506&D2

# Environmental Baseline Survey Report for the Title Transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—May 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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# CONTENTS

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# FIGURES



# TABLES

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# ACRONYMS

| | |
|---|---|
| AOC | area of concern |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| *CFR* | *Code of Federal Regulations* |
| DOE | U.S. Department of Energy |
| $DUF_6$ | depleted uranium hexafluoride |
| EBS | environmental baseline survey |
| EPA | U.S. Environmental Protection Agency |
| FFA | Federal Facility Agreement |
| FS | feasibility study |
| *KAR* | *Kentucky Administrative Regulation* |
| KOW | Kentucky Ordnance Works |
| KPDES | Kentucky Pollutant Discharge Elimination System |
| *KRS* | *Kentucky Revised Statute* |
| MW | monitoring well |
| mgd | million gallons per day |
| mya | million years ago |
| NPL | National Priorities List |
| OU | operable unit |
| PGDP | Paducah Gaseous Diffusion Plant |
| PPPO | Portsmouth/Paducah Project Office |
| RCRA | Resource Conservation and Recovery Act |
| RGA | Regional Gravel Aquifer |
| SWMU | solid waste management unit |
| TLD | thermoluminescent dosimeter |
| TNT | trinitrotoluene |
| TVA | Tennessee Valley Authority |
| UCRS | Upper Continental Recharge System |
| *U.S.C.* | *United States Code* |
| USEC | United States Enrichment Corporation |
| VOC | volatile organic compound |
| WAG | waste area grouping |
| WKWMA | West Kentucky Wildlife Management Area |
| XRF | x-ray fluorescence |

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# CONCLUSIONS

Based on the U.S. Department of Energy's (DOE's) review of the existing information, Parcel 1 meets the statutory criteria for transfer under Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, Section 120(h), *Property Transferred by Federal Agencies*. The information consisted of records searches, which included adjacent property; site history of the entire Parcel 1 area, which has been licensed for recreational use to the West Kentucky Wildlife Management Area since September 1953; and the conclusions of the *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/0-7256&D2/R1 (DOE 2015b). DOE reviewed the existing information concerning the current and previous use of the real property and determined the information compiled contains no evidence that hazardous substances and petroleum products or their derivatives, which includes aviation fuel and motor oil, were stored, released or disposed of on Parcel 1; however, Parcel 1 is located within a Water Policy affected area that was developed as the outer perimeter boundary for a CERCLA non-time critical removal action. The removal action for the Water Policy currently protects human health and the environment by institutional controls, which includes administrative controls. The removal action for the Water Policy continues to be effective for the purpose for which it was intended (DOE 2024a). The transfer of Parcel 1 is protective for the future intended use of the real property. Parcel 1 property will be transferred pursuant to CERCLA 120(h)(3)(A).

The quitclaim deed for the Parcel 1 transfer, which will be recorded at the McCracken County Clerk's Office, Commonwealth of Kentucky, will contain the following restrictions, covenants, notifications, and acknowledgements:

- A groundwater restriction that shall run with the land, subject to amendment or termination as allowed by law. The groundwater restriction prohibits groundwater use and the installation of supply wells, as well as mandates that the hydrology of the groundwater shall not be altered in any way.

- An industrial land use restriction that shall run with the land, subject to amendment or termination as allowed by law.

- Per CERCLA 120(h)(3)(A), a covenant warranting that all remedial action necessary to protect human health and the environment with respect to any hazardous substance remaining on the property has been taken before the date of transfer.

- Per CERCLA 120(h)(3)(A), a covenant that any remedial action found to be necessary on Parcel 1 after the date of transfer shall be conducted by DOE.

- Per CERCLA 120(h)(3)(A), a covenant reserving DOE a right of access to Parcel 1 in any case in which a remedial action, response action, or corrective action is found to be necessary after the date of transfer on Parcel 1, or such access is necessary to carry out a remedial action, response action, or corrective action on adjoining property.

- A notification that the Paducah Gaseous Diffusion Plant site was added on the National Priorities List (NPL) on May 31, 1994, and that no change in ownership of the Paducah Site, or any portion thereof, or notice pursuant to Section 120(h)(3)(B) of CERCLA relieves DOE of its obligation to perform pursuant to the Federal Facility Agreement executed as a result of the Paducah Site's addition to the NPL.

- An acknowledgement by the nonfederal entity grantee (grantee) of Parcel 1 that it has received and reviewed the Environmental Baseline Survey for Parcel 1.

- A covenant by the grantee of Parcel 1 that it is aware of Parcel 1's listed, or eligible to be listed, historical, cultural, or archaeological resources, and mitigation measures to prevent an adverse effect to such resources, if applicable.

- Per 50 *U.S.C.* § 2811 and 10 *CFR* § 770.4, an indemnification clause for the benefit of the grantee in the case of harm from release or threatened release of a hazardous substance or pollutant or contaminant as a result of prior DOE activities.

The existing recreational use license agreement with the West Kentucky Wildlife Management Area, which encompasses Parcel 1, has been amended to exclude Parcel 1.

# 1. PROPERTY IDENTIFICATION/REAL PROPERTY SUMMARY

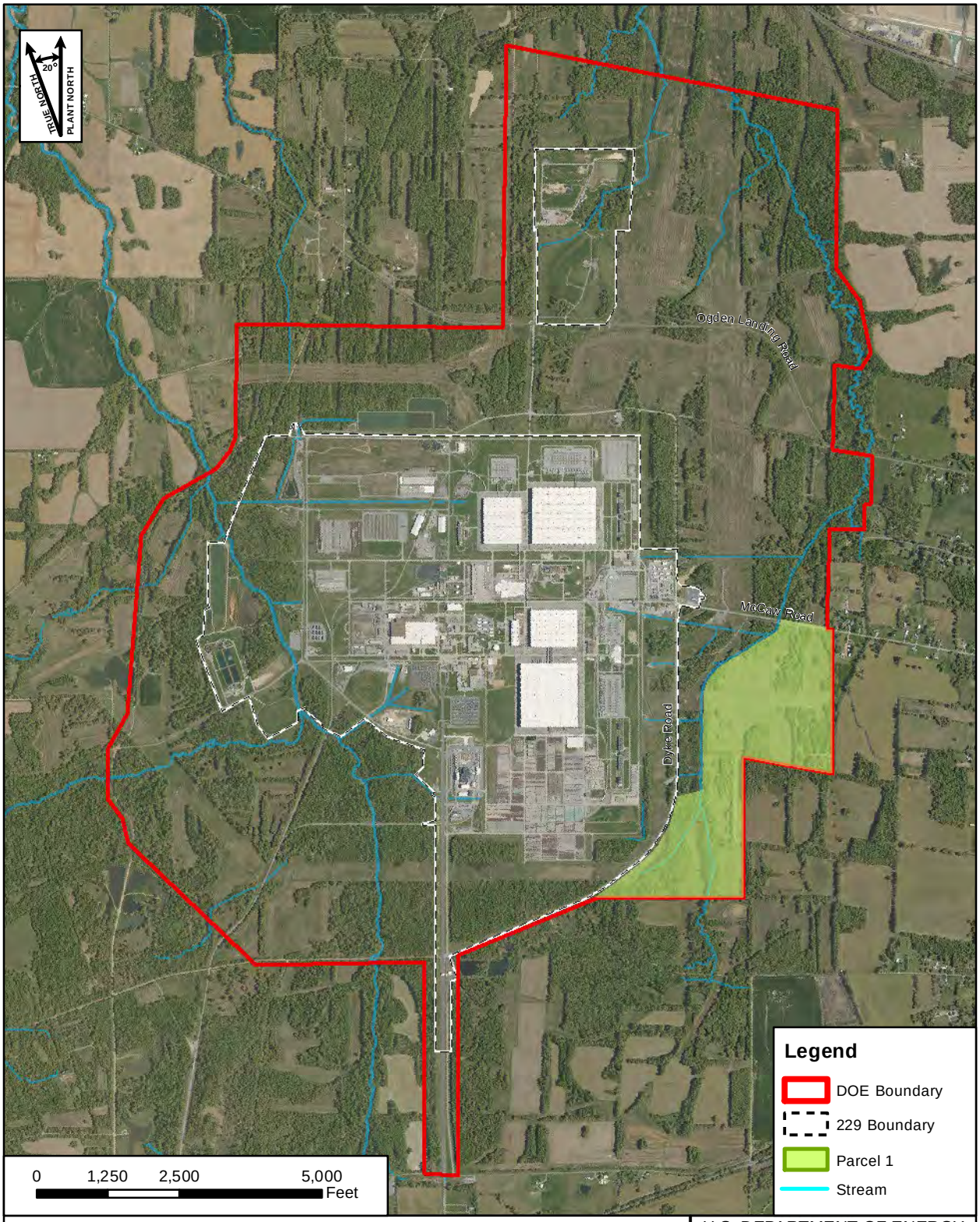
The authority for the U.S. Department of Energy (DOE) to transfer title to real property at the Paducah Site is found in the Atomic Energy Act of 1954. Section 161(g) of the Atomic Energy Act authorizes DOE to "sell, lease, grant, and dispose of such real and personal property as provided by the Act." There also are several statutes with which DOE must comply when transferring real property, including but not limited to, 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, (CERCLA), as amended, and the National Environmental Policy Act of 1969. In addition, the process outlined in 10 *CFR* Part 770*, Transfer of Real Property at Defense Nuclear Facilities for Economic Development*, is anticipated to be the primary vehicle for transfer of real property at the Paducah Site. An environmental assessment, the *Paducah Gaseous Diffusion Plant Final Environmental Assessment for Potential Land and Facilities Transfers, McCracken County, Kentucky*, DOE/EA-1927, evaluated the potential transfer of DOE Paducah Site real property for future uses including industrial use (DOE 2015a).

DOE has prepared this environmental baseline survey (EBS) report to support the transfer of approximately 188 acres of land (hereafter referred to as "Parcel 1") at the Paducah Site (Figure 1). Prior to World War II, this parcel of land was used for agricultural purposes. Numerous small farms produced various grain crops, provided pasture for livestock, and included large fruit orchards. The current Paducah Site, including Parcel 1, was acquired by the U.S. Department of the Army in 1942 for development of the Kentucky Ordnance Works (KOW). During World War II, the former KOW plant produced trinitrotoluene (TNT) from December 1942 through August 1945 (BJC 2006). The KOW process areas were located west of the Paducah Site industrial area, outside the Parcel 1 boundary. A former KOW storage bunker area was located northwest of Parcel 1 (Appendix B, Figure B.1). The former plant was closed in 1946 at which time portions of the land were transferred to the General Services Administration or deeded to private ownership. The Parcel 1 area was deeded to private ownership and was used for agricultural purposes. The land was acquired by the Atomic Energy Commission[1] in 1951 for future development and operation of the former Paducah Gaseous Diffusion Plant (PGDP). Construction of the former PGDP began in January 1951. From 1952 until 2013, the former PGDP enriched uranium in facilities located northwest of Parcel 1. DOE licensed land, including the Parcel 1 area, to the Commonwealth of Kentucky (Kentucky) as part of the West Kentucky Wildlife Management Area (WKWMA). The entire Parcel 1 area has been licensed for WKWMA use since September 1953. The land is currently licensed to WKWMA for recreational purposes, including hunting and horseback trail riding.

According to the local National Weather Service office, which is less than four miles southeast of Parcel 1, prevailing wind direction during a 10-year period from 1991 to 2020 was from south-southwest (WRCC 2021). Typical wind direction in the area is southwest to northeast. The PGDP industrial area is located northwest of Parcel 1. Site evaluations including visual and physical walkovers have been conducted in the Parcel 1 area. No indications of impacts or release of hazardous substances from PGDP operations were found; therefore, no remedial actions were conducted. No further investigation is warranted for Parcel 1 (see Section 4 for further discussion).

The estimated 188 acres includes utility rights-of-way maintained by the Tennessee Valley Authority (TVA) and Kentucky Utilities Company. Figure 1 delineates the security 229 Boundary, referred to as the fenced property protection area. In addition to information evaluated for this report, other site factors (e.g., security considerations, safety analyses related to materials handled or processed at the Paducah Site)

[1] The Energy Research and Development Administration assumed the function of the Atomic Energy Commission in 1974. DOE assumed the function of the Energy Research and Development Administration in 1977.

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

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

**Figure 1. Location of Parcel 1 at the Paducah Site**

contribute to the configuration or delineation of the real property at Parcel 1. DOE initially evaluated 752 acres of the eastern/southeastern property of the Paducah Site and selected the Parcel 1 area as suitable for transfer.

The documentation of due diligence for the property to determine if hazardous substances and petroleum products were known to have been released or dispositioned includes the review of government records, title documents, current and historical aerial photographs, visual and physical inspections of the property and adjacent properties, and interviews with current and former employees.

When developing this EBS report, the Portsmouth/Paducah Project Office (PPPO) followed guidance in CERCLA 120(h), *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites VOLUME 1: CERCLA 120(h)(4) – Uncontaminated Property*, PPPO-3329827 (DOE 2024b), and *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites VOLUME 2: CERCLA 120(h)(3) – Remediated Property*, PPPO-4609975 (DOE 2024c). These real property transfer protocols incorporate DOE real property transfer policy and guidance using *CERCLA Requirements Associated with Real Property Transfers* (DOE 1998), require following data gathering and reporting requirements, and include real property transfer lessons learned from PPPO and around the DOE Complex. Consistent with these protocols, the sources of information included in the EBS, and their location in this report, include the following:

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

## 1.1 DESCRIPTION AND HISTORY OF THE PROPERTY

The Paducah Site includes the former PGDP, which is an inactive uranium enrichment facility owned by DOE. The Paducah Site is on a 3,556-acre federal reservation in a rural area of McCracken County, Kentucky, approximately 10 miles west of Paducah, and 3.5 miles south of the Ohio River (Figure 2). The former PGDP occupies approximately 615 acres within a fenced industrial area (referred to as the "Limited Area") at the Paducah Site. From 1952 until 2013, PGDP enriched uranium for DOE and DOE predecessor

agencies, the military, and commercial customers. The Energy Policy Act of 1992 (42 *U.S.C.* § 13201) privatized uranium enrichment, and operational responsibility for PGDP was transferred to the United States Enrichment Corporation (USEC) in 1993. The Paducah Site was added to the National Priorities List (NPL) in May 1994. USEC ceased operations in May 2013 and returned the leased facilities to DOE in October 2014. With the cessation of enrichment operations, DOE is interested in reducing the size of the site footprint, reducing the costs of maintaining the site, and facilitating beneficial reuse of the DOE property by the community to support economic development, including Parcel 1. Parcel 1 will be the first of such transfers to the community.

Parcel 1 consists of approximately 188 acres on the eastern/southeastern side of the DOE property. The parcel is currently licensed to the Kentucky and is managed as part of the WKWMA. The property has been licensed for WKWMA use since September 1953 and the license is renewed every five years. Parcel 1 includes woodlands, meadows, and cultivated fields and is used for recreational purposes, including hunting and horseback trail riding. Little Bayou Creek, an intermittent to perennial stream, traverses Parcel 1, flowing northward to its confluence with Bayou Creek near the Ohio River. The contaminated stretches of Little Bayou Creek are not part of Parcel 1. The distance between the Parcel 1 boundary and the Little Bayou Creek Solid Waste Management Unit (SWMU) 64 boundary is 15 ft or more.

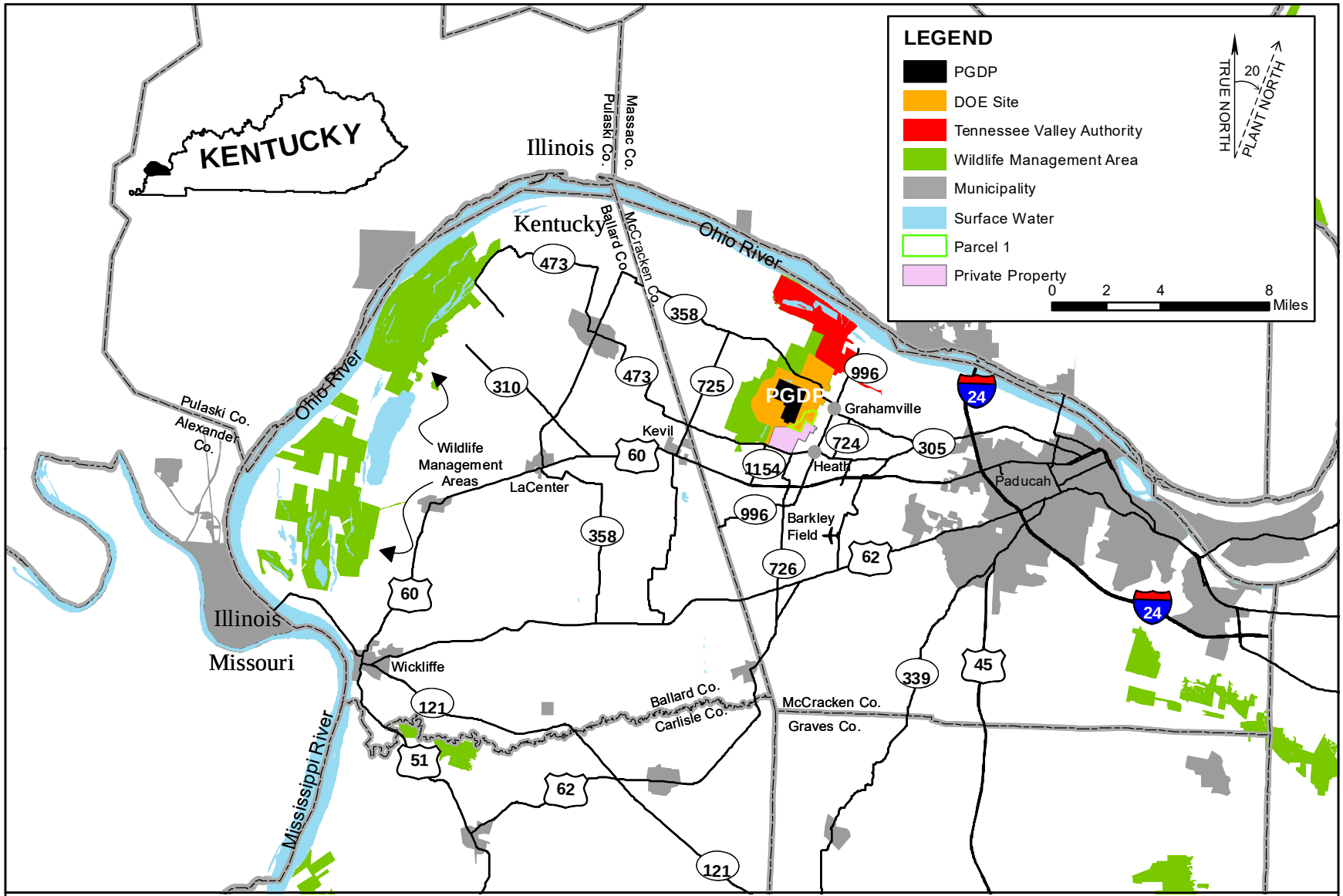
Parcel 1 has improved road access and includes the utility rights-of-way or easements that cross the property; however, these easements would not interfere with future use. Numerous transmission towers carry power lines within the rights-of-way. Two public warning system sirens are located within Parcel 1. McCaw Road, a paved road, enters the northern portion of Parcel 1. A bridge over Little Bayou Creek on McCaw Road was removed in August 2013. Kelley Road, a gravel road, runs generally north-south through the eastern portion of Parcel 1.

There is one piezometer, PZ101, in Parcel 1 near the intersection of McCaw Road and Kelley Road. The piezometer is screened in the Terrace Gravel formation. Samples are not collected from this piezometer; however, water level measurements are collected quarterly. The geologic/hydrogeologic environment for the Parcel 1 area is presented in Section 1.3. The piezometer will be abandoned prior to property transfer.

The Paducah Site's climate is humid-continental. According to the National Weather Service, for the period from 1991 to 2020, the average monthly precipitation was 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 mean annual temperature for the Paducah area from 1991 to 2020 was 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 (NWS 2021). Information on wind direction and speed was obtained from the National Weather Service office located at Barkley Regional Airport, which is less than four miles southeast of Parcel 1 (WRCC 2021). The prevailing wind direction during this 10-year period was from the south to southwest (33% of the time period evaluated) with mean speeds mostly ranging from 5–15 mph (the mean speed from all observations was 6.5 mph).

## 1.2 DESCRIPTION AND HISTORY OF ADJACENT PROPERTY

Parcel 1 lies to the south and east of the Limited Area. Although uranium enrichment has ceased, DOE maintains several missions at the Paducah Site. These missions include environmental monitoring and surveillance to ensure protection of site personnel, the environment, and the community; conversion of depleted uranium hexafluoride ($DUF_6$) to an oxide; and deactivation of uranium enrichment facilities to prepare for decontamination, decommissioning, and/or demolition.




**MAP SOURCE INFORMATION**

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**Figure 2. Location of the Paducah Site**

The property south and southeast of Parcel 1 is privately owned for heavy industrial use. Property to the east of Parcel 1 is privately owned and used primarily for farming.

The area to the north and west of Parcel 1 includes several SWMUs and/or areas of concern (AOCs). A portion of Little Bayou Creek that lies adjacent to Parcel 1 has been historically contaminated and is designated as SWMU 64. The portion of Little Bayou Creek that traverses Parcel 1 is upgradient of the PGDP effluent ditches and is not designated as a SWMU. The adjacent SWMUs are further discussed in Section 6. The distance between the Parcel 1 boundary and a SWMU boundary is 15 ft or more.

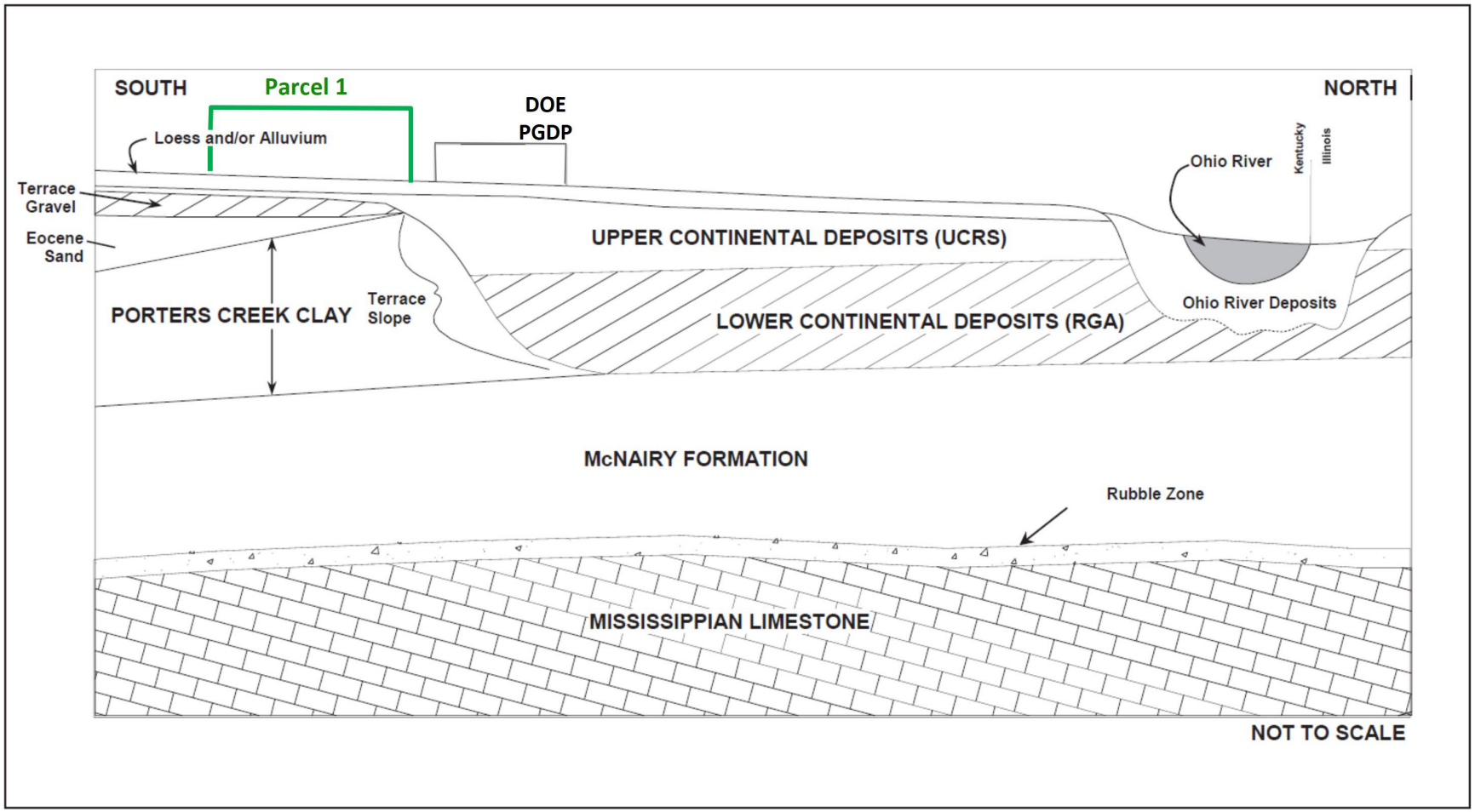
During World War II, much of the Paducah Site property was part of the KOW, which included more than 25 square miles. The KOW process areas were located south-southwest of the Limited Area, most of which now is part of WKWMA property located west and southwest of Parcel 1.

Two small communities, Grahamville and Heath, lie within 2 miles east of the Paducah Site. Individual homesteads are sparsely located along rural roads in the vicinity of Parcel 1 to the east and south. Historically, groundwater in the Regional Gravel Aquifer (RGA) was the primary source of drinking water for residents and businesses in the vicinity of the Paducah Site. In areas where the groundwater either is known to be contaminated or has the potential to become contaminated, DOE has provided water hookups to the municipal water supply and pays water bills for affected residences and businesses. An educational mailer has been mailed to residents annually since 2016 in an effort to ensure public awareness of the groundwater contamination. Residential wells have been capped and locked per license agreements between DOE and residents (renewed every five years) (DOE 2024a). The Paducah Site uses surface water from the Ohio River for potable water. No municipalities downstream of the Paducah Site on the Ohio River use surface water for drinking water.

## 1.3 GEOLOGIC/HYDROGEOLOGIC ENVIRONMENT

Parcel 1 at the Paducah Site is located in the Jackson Purchase region of western Kentucky, which represents the northern tip of the Mississippi Embayment portion of the Coastal Plain. The Jackson Purchase region is an area of land that includes all of Kentucky west of the Tennessee River. 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 in the Jackson Purchase region). The unconsolidated sediments above the Paleozoic limestone bedrock are grouped into four major stratigraphic units (loess, Continental Deposits, Porters Creek Clay, and the McNairy Formation) as shown in Figure 3. Some of the stratigraphic units shown in Figure 3, such as the Eocene (54.8–33.7 mya) sands, occur in the southwestern portions of the Paducah Site and do not underlie Parcel 1. The Porters Creek Clay subcrop is formed by a buried terrace slope that extends generally east–west across the site. This subcrop is the northern limit of the Porters Creek Clay and the southern limit of the Plio-Pleistocene (2.5 mya to 11,000 years ago) Lower Continental Deposits that underlie most of the industrialized portion of the Paducah Site.

The Paducah Site is situated near the New Madrid Seismic Zone, which is a seismically-active region. Geophysical investigations of the Paducah Site have identified the southern 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. The Barnes Creek Fault Zone has been identified in southern Illinois approximately 7.5 miles northeast of the site. If this fault zone is projected southward below the Mississippi Embayment, it may extend under or near the east side of the plant. The Massac Creek Structure, part of the southern Illinois Hobbs Creek Fault Zone located approximately 8 miles northeast of the Paducah Site, could extend under or near the site.




Modified from FRNP 2021

**Figure 3. Cross Section Showing Geologic Relationships at the Paducah Site**

Relative to the shallow groundwater flow system in the vicinity of the Paducah Site, the Continental Deposits and the overlying loess and alluvium are of key importance. The Continental Deposits consist of an older alluvial fan gravel deposit, underlying Parcel 1; and buried river valley fill, north of Parcel 1. The buried river valley fill locally consists of an upper silt member, with lesser sand and gravel interbeds, and a thick, basal sand and gravel member. The subcrop of the Porters Creek Clay, sometimes referred to as the Porters Creek Terrace, marks the southern extent of this buried river valley. Fine sand and clay of the McNairy Formation directly underlie the Continental Deposits. The local groundwater flow systems in the vicinity of Parcel 1 include the following (from shallowest to deepest): (1) Terrace Gravel flow system, (2) Upper Continental Recharge System (UCRS), (3) RGA, and (4) McNairy Formation (DOE 2015a). These components are illustrated on Figure 3. The RGA is continuous from the Porters Creek Terrace northward beyond the present course of the Ohio River. The southern extent of the RGA occurs near the northern boundary of Parcel 1 as illustrated in Figure 4, with Parcel 1 overlying the Terrace Gravel flow system (the Eocene Sands are not present in Parcel 1). In areas north of Parcel 1, groundwater flows through the UCRS, recharging the underlying RGA. Groundwater generally flows northward in the RGA toward the Ohio River, which is the local base level for the groundwater system. The Northeast Plume, a contaminant plume containing volatile organic compounds (VOCs) and very low levels of technetium-99, flows in the RGA northwest of Parcel 1 in a general northeast direction. Flow in the McNairy Formation in the vicinity of Parcel 1 also is northward toward the Ohio River Valley. Groundwater within the Terrace Gravel near the terrace slope in the Porters Creek Clay in the vicinity of Parcel 1 also recharges the RGA and discharges to local streams.

The general soil map for Ballard and McCracken counties indicates three soil associations are found within the vicinity of the Paducah Site: the Rosebloom-Wheeling-Dubbs association, the Grenada-Calloway association, and the Calloway-Henry association (USDA 1976). The predominant soil association in the vicinity of the Paducah Site is the Calloway-Henry association, which consists of nearly level, somewhat poorly drained, medium-textured soils on upland positions. Many of the characteristics of the original soil have been lost due to industrial activity that has occurred over the past 70-plus years and previous agricultural practices. Activities that have disrupted the original soil classifications include filling, mixing, and grading. The soil type present in these disturbed areas is characterized as urban.

The Paducah Site is in the western portion of the Ohio River drainage basin, approximately 15 miles downstream of the confluence of the Ohio River with the Tennessee River and approximately 35 miles upstream of the confluence of the Ohio River with the Mississippi River. The Paducah Site is situated on the watershed divide between Bayou Creek and Little Bayou Creek (Figure 5). Surface flow is east-northeast toward Little Bayou Creek and west-northwest toward Bayou Creek. Locally, Parcel 1 is within the drainage area of Little Bayou Creek.

Little Bayou Creek originates approximately 0.4 miles south of PGDP and extends northward and joins Bayou Creek near the Ohio River along an approximately 7-mile course within a 6,000-acre drainage basin. Little Bayou Creek may receive surface drainage from Parcel 1 and numerous swales that drain residential and industrial properties, including the PGDP industrialized area and the TVA Shawnee Fossil Plant. There is little flow in the headwaters south of PGDP and Little Bayou Creek becomes a perennial stream in the vicinity of Parcel 1 due to discharges from the eastern outfalls of PGDP. Little Bayou Creek has been used to discharge wastewater and storm water from PGDP to the Ohio River since operation of the plant began. Discharges to Little Bayou Creek occur through permitted Kentucky Pollutant Discharge Elimination System (KPDES) Outfalls 002, 010, 011, 012, and 013 and CERCLA Outfall C001. Contaminants in the process effluents of PGDP are believed to be a source of the contamination in Little Bayou Creek. Subsequent to the uranium enrichment operations, the discharge of the Paducah Site groundwater pump-and-treat system is a significant component of the flow in the creek.

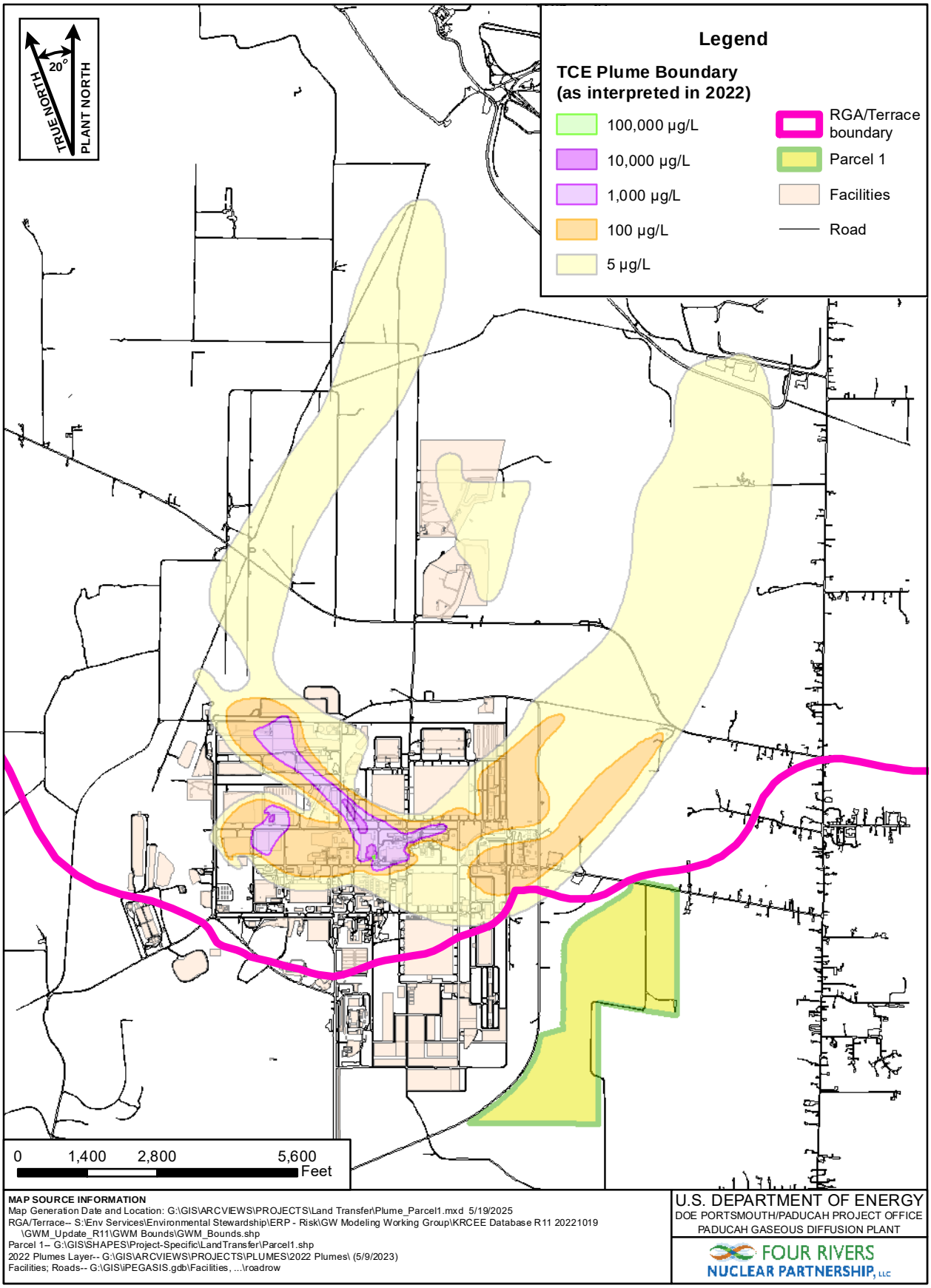
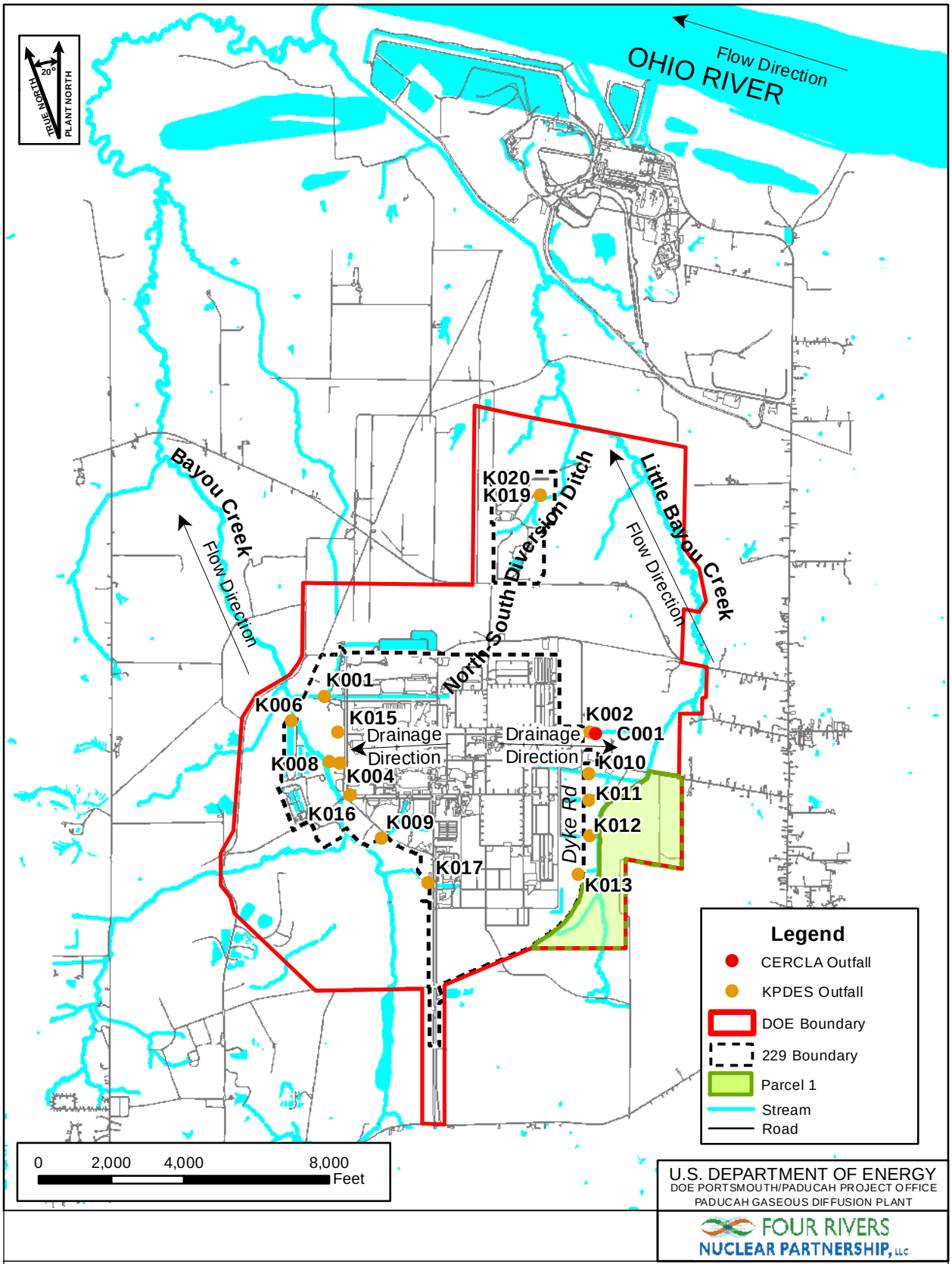



**Figure 4. Location of Terrace Gravel and RGA Flow Systems in Relation to Parcel 1**




MAP SOURCE INFORMATION
Map Generation Date and Location: 5/19/2025 G:\GIS\ARCVIEWS\PROJECTS\Land Transfer\SWFeat_20250519.mxd
229 Boundary: G:\GIS\iPEGASIS.gdb\security_229; DOE Boundary: G:\GIS\iPEGASIS.gdb\doebnd;
Parcel 1: G:\GIS\SHAPES\Project-Specific\LandTransfer\Parcel1.shp; Roads: G:\GIS\iPEGASIS.gdb\Roads;
Surface Water: G:\GIS\iPEGASIS.gdb\Streams and G:\gis\iPEGASIS.gdb\fe_2022_21145_areawater (for water bodies shown);
Outfalls: G:\gis\iPEGASIS.gdb\Locations (for those shown)

**Figure 5. Surface Water Features in the Vicinity of the Paducah Site**

The portion of Little Bayou Creek designated as a SWMU is planned to be investigated as part of the Surface Water Operable Unit (OU) (DOE 2012). The nonimpacted portion of Little Bayou Creek upgradient of the PGDP effluent ditches traverses Parcel 1. Any discharges to waters of the United States are regulated through the Clean Water Act. KPDES regulations require a permit for the discharge of pollutants from any point source into waters of the United States.

Figure 6 shows potential wetlands in the vicinity of Parcel 1 based on DOE's PPPO Environmental Geographic Analytical Spatial Information System. The National Wetlands Inventory identifies few potential wetlands at the Paducah Site. For the most part, the wetlands are limited to ponds the plant has used in its operations. The U.S. Fish and Wildlife Service has identified these wetlands as palustrine (PUBH classification) in nature (that is, a marsh or marshy wetland, generally without flowing water) with unconsolidated bottoms and are permanently flooded. The only other type of wetlands in the area are the Freshwater Forested/Shrub Wetlands, in areas to the west, south, and east of the plant. The U.S. Fish and Wildlife Service has also designated these freshwater wetlands as palustrine in nature, but forested with broadleaved deciduous trees, and temporarily flooded (PF01A classification) (DOE 2015a). The streams/effluent ditches are also identified as potential wetlands on the National Wetlands Inventory.

Although the National Wetlands Inventory shows a relatively minor number of potential wetlands at the Paducah Site, more detailed studies have determined there are scattered areas of jurisdictional wetlands in drainage ditches within the Limited Area and large numbers of wetlands throughout the entire Paducah Site (ANL 2004). There are an estimated 400 acres of wetlands on the Paducah Site (ANL 2004; USACE 1994a; USACE 1994b). These wetland areas were characterized as including forested wetlands, ponds, wet meadows, vernal pools, and wetlands converted to agriculture (ANL 2004). The effort by the U.S. Army Corps of Engineers was considered a planning level delineation because wetland identification extended only to the nearest elevation contour interval; the locations do not represent definitive jurisdictional boundaries (USACE 1994b).

Prior to TVA's construction of a 161kV substation and additional transmission lines for the Paducah Site, in May 2018, a wetland survey was conducted. This wetland survey identified six wetlands in the vicinity of the planned construction area, which is approximately 1,250 ft northwest of Parcel 1. All of the wetlands were classified as palustrine in nature and included four emergent wetlands and two forested wetlands. Under the U.S. Fish and Wildlife classification system, the emergent wetlands are classified as palustrine emergent (PEM classification), and the forested wetlands are classified as palustrine forested (PFO classification) (DOE 2019).

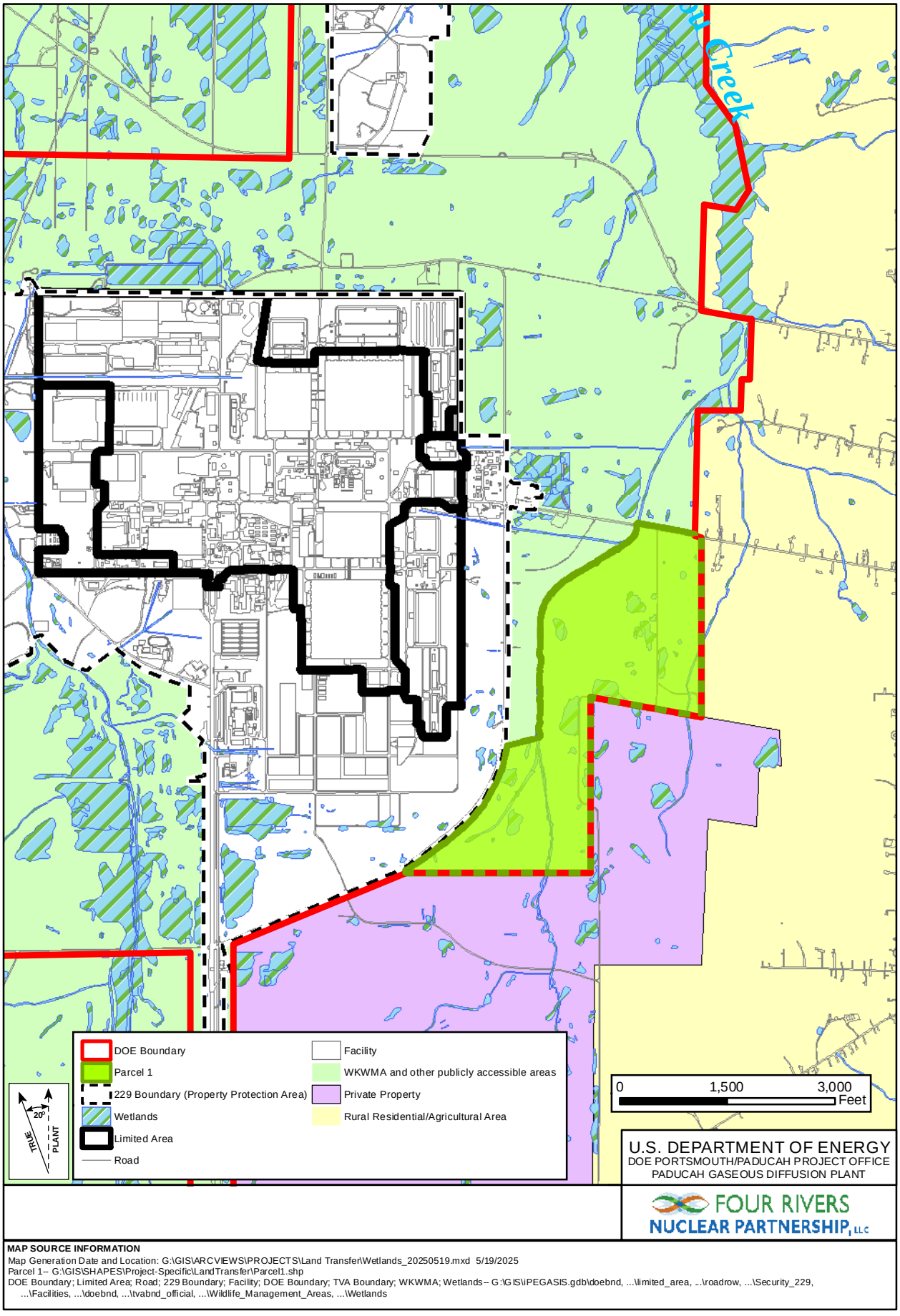



**Figure 6. Wetlands Identified in the Vicinity of Parcel 1**

# 2. FEDERAL RECORDS SEARCH

A review of reasonably obtainable records regarding past and present information about Parcel 1 was performed in accordance with CERCLA 120(h) and DOE guidance and protocols (DOE 2024b; DOE 2024c; DOE 1998). In addition to extensive DOE records and documentation, the following records and databases were queried. Environmental radius report queries of the federal records identified below were performed on March 5, 2024, using the *Nationwide Environmental Title Research Online* website (https://www.netronline.com).

- Federal NPL Sites
  - PGDP is an NPL site.
- Federal Delisted NPL Sites
- Federal sites subject to CERCLA removal and CERCLA orders
- Federal CERCLA sites with No Further Remedial Action Planned
- Federal Resource Conservation and Recovery Act of 1976 (RCRA) facilities undergoing Corrective Action
- Federal RCRA Treatment, Storage, and Disposal facilities
- Federal RCRA Generators
- Federal institutional control/engineering control registries
- Federal Emergency Response Notification System list
- State and tribal Superfund-equivalent sites
- State and tribal hazardous waste facilities
- State and tribal landfills and solid waste disposal facilities
- State and tribal leaking storage tanks
- State and tribal registered storage tanks
- State and tribal institutional control/engineering control registries
- State and tribal voluntary cleanup sites
- State and tribal brownfields sites
- State and/or tribal lists of sites requiring further investigation/remediation
- State list of Significant Environmental Hazards

- State and tribal mine sites requiring further investigation and/or remediation
- State and/or tribal lists of spills and spill responses
- State and/or tribal lists of emergency responses
- State and/or tribal lists of dry cleaners
- State and/or tribal lists of clandestine laboratory cleanup
- State and/or tribal lists of scrap/used tire processing facilities
- State and/or tribal lists of underground injection control sites
- State and/or tribal listings of permitted drywells
- State and/or tribal lists of registered aboveground storage tanks
- State and/or tribal lists of permitted facilities
- Automobile salvage yards
- Livestock Waste Control sites
- Controlled Animal Feeding Operations
- Clean Air Act Permitted Facilities (PGDP and the $DUF_6$ Conversion Facility have permits issued under Title V of the Clean Air Act)
- U.S. National Pollutant Discharge Elimination System Permitted Facilities (several outfalls are included in a KPDES permit)
- On-site Wastewater Treatment sites
- U.S. Environmental Protection Agency (EPA) Underground Storage Tanks
- RCRA Information database (RCRAInfo)
- EPA Enforcement, Compliance History Online
- EPA Toxic Substances Control Act database

Records and interviews with employees or former employees address the potential for nonfederally permitted releases of hazardous substances from past operations near Parcel 1 (see Section 7).

There were no results identified for the Parcel 1 area from any of the queries other than PGDP being listed as an NPL Site. No records were found indicating hazardous substances were stored on Parcel 1 for one year or more in quantities greater than or equal to 1,000 kg or their respective CERCLA reportable quantities. No records were found reporting a release or disposal of hazardous substances or petroleum products in excess of the substances' reportable quantities on the property evaluated for transfer.

In addition to DOE records, Nuclear Regulatory Commission inspection reports dating back to 2000 were reviewed. Based on the inspection reports reviewed, there were no releases that impacted the Parcel 1 area.

# 3. TITLE SEARCH

A detailed title search in accordance with CERCLA 120(h) and DOE guidance and protocols was performed (DOE 2024b; DOE 2024c; DOE 1998). A draft letter from the DOE Realty Specialist, included as Appendix A of this document, verifies that DOE real estate records do not reflect that release or disposal of hazardous substances or petroleum products, or their derivatives, took place on the property prior to the time it was owned by the U.S. government. There were no title transfers associated with Parcel 1 after the acquisition of the parcels that comprise Parcel 1 by the U.S. government in the 1950s.

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# 4. AERIAL AND OTHER PHOTOGRAPHS AND DRAWINGS

Aerial photographs were evaluated in accordance with CERCLA 120(h) and DOE guidance and protocols (DOE 2024b; DOE 2024c; DOE 1998). The review of aerial photographs for Parcel 1 focused on selected photographs from PGDP photography archives. Photographs were selected that were representative of Parcel 1 and the surrounding areas. Aerial photographs from 1943, 1952, 1959, 1974, 1975, 1981, 1983, 1988, 1994, 1998, 2009, 2010, and 2017 were available for review. Other sources were also used to supplement PGDP archive photographs such as the Kentucky Division of Geographic Information website and Google Earth, which contained photographs as recent as 2023. All aerial photographs referenced in this section and reviewed for Parcel 1 are included in Appendix B, with the exception of the Google Earth images, which must be accessed through the Google Earth application.

The photographs were informative in showing the evolution of Parcel 1, beginning from 1943 prior to the construction of PGDP to 2023. Construction of new features, changes in existing features, and expansion of areas were observed through the evaluation of these photographs. No evidence or indications of releases of hazardous substances or activities on Parcel 1 that would have negative environmental impacts were observed in the photographs.

The former KOW plant, which occupied a site southwest of what is now PGDP, produced TNT during its operations from December 1942 through August 1945 (BJC 2006). Aerial photograph CSE-142A-7 (File name 43PGD007) (Appendix B, Figure B.1) taken June 20, 1943, shows the former KOW storage bunker area that lies northwest of Parcel 1 prior to construction of PGDP, which began in January 1951. The main KOW processing area was southwest of PGDP, outside the Parcel 1 boundary. No unusual or unexpected features related to Parcel 1 are observed in this photograph.

The KOW site storage bunkers appear along a series of parallel roads that run generally north-south across an area north of the current site of PGDP. The lines are longer on the eastern portion of the site than on the western portion. There appear to be bunkers or structures placed at equal distances along the parallel lines. There is no visual evidence of releases from the bunkers in the photographs, nor is there documentation that would indicate KOW would have had an environmental impact on Parcel 1. There are nine parallel lines and what appear to be over 50 structures evenly placed along the lines.

The area that comprises Parcel 1 lies to the east of the former KOW processing area. The Parcel 1 area in the 1943 photograph appears to be farmland with roads crossing the property. One of the roads crossing Parcel 1 appears to lead to the water treatment plant that currently resides to the west of PGDP. No evidence of commercial or industrial activity appears on Parcel 1.

An aerial photograph from February 21, 1952, (1-6 GS = SW, File 52PGDP66) (Appendix B, Figure B.2) shows significant construction of PGDP in progress, with one of the enrichment process buildings appearing complete. There also is some apparent land surface disturbance or construction occurring just to the east of PGDP in what is now Parcel 1, from approximately the current location of McCaw Road to the south, including some realignment of the Little Bayou Creek stream channel.

In photograph 52PGDSBBe (Appendix B, Figure B.3) there is significant evidence of land disturbance related to construction on the south side of the plant extending to Parcel 1, going beyond the current cylinder storage yard in the south. This area of disturbance extends to what is now Dyke Road. There is also evidence of land disturbance along the eastern side of PGDP related to construction on the east, extending to Little Bayou Creek, and north of McCaw Road. Portions of Parcel 1 south of McCaw Road are slightly impacted by these construction activities.

Photographs from 1955 were reviewed, but there were no images of the area comprising Parcel 1 contained in the set of available images. Aerial photographs from 1959 and 1964 blacked-out the images of PGDP and the nearby surrounding areas. Although PGDP is blacked out in photograph 59PGD136 (Appendix B, Figure B.4), this photograph shows there is no apparent activity on the visible portion of Parcel 1.

Parcel 1 can be viewed in photographs from 1971 as follows:

- Photograph 71PGD007 (Appendix B, Figure B.5) shows the eastern portion of PGDP and includes Parcel 1. There is no apparent activity on Parcel 1.

- Photograph 71PGD008 (Appendix B, Figure B.6) shows only the southeastern portion of PGDP and the southeastern portion of Parcel 1.

The only activity on Parcel 1 evident from the 1971 photographs is farming, likely related to the wildlife management area activities. The patchwork of mown areas and tilled food plots is consistent with WKWMA practices. No land disturbance or industrial/commercial activity is visible. Photographs 74PG152E (Appendix B, Figure B.7) and 75PGD074 (Appendix B, Figure B.8) show both PGDP and Parcel 1 in their entirety. The land uses on Parcel 1 evident from these photographs are farming/mowing related to wildlife management, and woodlands growth. No land disturbance or industrial/commercial activity is visible.

Sparse aerial photographs of Parcel 1 are available for the period 1981 through 1998. Photograph 81pgd100e (Appendix B, Figure B.9) shows both PGDP and Parcel 1 in their entirety. The primary land uses on Parcel 1 evident from this photograph are wildlife management activities (e.g., mowing, cultivating food plots) and woodlands.

Photograph 83PGD124E (Appendix B, Figure B.10) shows both PGDP and Parcel 1 in their entirety. The primary land uses on Parcel 1 evident from this photograph are wildlife management activities and woodlands.

Photograph 88PGD050 (Appendix B, Figure B.11) shows PGDP and Parcel 1 in their entirety. The only land uses on Parcel 1 evident from this photograph are wildlife management activities and woodlands.

Photograph 94PGD103 (Appendix B, Figure B. 12) shows PGDP and Parcel 1 in their entirety. The primary land uses on Parcel 1 evident from this photograph are wildlife management activities and woodlands.

Photograph 98PGD054 (Appendix B, Figure B. 13) shows PGDP and Parcel 1 in their entirety. The primary land uses on Parcel 1 evident from this photograph are wildlife management activities and woodlands.

Available photographic records from 2005 forward are taken from an oblique angle rather than from a vertical perspective. This change in perspective makes it more challenging to compare and observe differences in the land surface in Parcel 1 relative to the vertical photographs taken for years prior to 2005.

Photographs taken between 2009 and 2017 do not all include Parcel 1 in its entirety. Observations made from selected photographs during this time frame include:

- 2009—Photograph 11-03-09-42 (Appendix B, Figure B.14)—Offers a view looking west and north across PGDP that includes much of Parcel 1 and includes the first appearance of two small ponds on the southeast side of PGDP. No unusual activity is observed in this photograph.

- 2009—Photograph 11-3-09-53 (Appendix B, Figure B.15)—An oblique angle looking west across PGDP that includes most of Parcel 1. No apparent activity is indicated in this photograph.

- 2009—Half_Ft_Plant_Aerials_2009 (Appendix B, Figure B.16)—Vertical angle photograph of PGDP and surrounding area, including some of Parcel 1. No apparent activity is indicated in this photograph.

- 2017—Photograph 06-9-17-6 (Appendix B, Figure B.17)—Oblique angle looking west across PGDP and Parcel 1. No apparent activity is indicated in this photograph.

In addition to the photographs provided by DOE's contractors, aerial photography dated 2022 from the Kentucky Division of Geographic Information was also reviewed (Appendix B, Figure B.18). Nothing unusual was observed in the available high-resolution imagery.

A review of available historical aerial photographs on Google Earth was performed to see if any supplemental information could be obtained regarding the history of Parcel 1. Historical maps spanning a time frame from 1985 to 2023 were available on Google Earth, although not all years were represented. No observations documented in this EBS are based solely on information obtained from Google Earth.

Reviewing aerial photographs between April 1998 and November 1998, it is evident the C-745-T Cylinder Storage Yard was expanded southward in 1998. This observation is based on the proximity of the cylinder storage yard to the mown area for the power transmission line right-of-way.

Another Google Earth observation related to Parcel 1, from an August 2010 image, includes two small ponds constructed adjacent to each other along the eastern Limited Area boundary to the south, east of the cooling towers. These ponds remain.

Google Earth also provides an overlay of the current Limited Area boundary over the aerial photographs, which allows for better observations of changes and expansions over time.

There are no indications, based on an evaluation of the available aerial photographs spanning the years 1943 to 2017, that any activity occurred within or around Parcel 1 that would impact the condition of the parcel or result in the release or disposal of hazardous substances within the parcel.

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# 5. RESULTS OF VISUAL AND PHYSICAL INSPECTIONS

## 5.1 VISUAL AND PHYSICAL INSPECTIONS OF THE PROPERTY PROPOSED FOR TRANSFER

The *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1256&D2/R1, documents visual and physical inspections that were performed as part of the Soils OU during two field efforts (DOE 2015b). The first occurred in 2009–2010 and was conducted to identify previously unknown contaminated areas originating from PGDP.[2] The second effort occurred in 2014–2015 and was a focused radiological survey and judgmental sampling effort planned for 25 selected anomalies to validate the conclusions from the previous 2009–2010 field effort. These visual and physical inspections included the area being evaluated as Parcel 1.

This sitewide evaluation report presents the results of the comprehensive effort completed for areas outside the Limited Area and that surround PGDP on DOE-owned property, which includes property licensed to Kentucky and managed by WKWMA; and areas formerly owned by Kentucky and managed by WKWMA (DOE 2015b). The overall project objectives were to find areas impacted by PGDP hazardous substances that may require CERCLA evaluation and to develop information for determining environmental indicators used for measuring the RCRA corrective action process.

### 5.1.1 2009–2010 Field Effort

Four types of surveys were performed during the 2009–2010 field effort to identify anomalies. Anomalies for these surveys were defined in the *Sitewide Evaluation Work Plan at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0228&D2, as any area that exhibits two times instrument radiological background and/or were piles, depressions, debris, or other potential man-made disturbances (DOE 2011). On DOE-owned property outside the Limited Area (including property licensed to Kentucky), anomalies were identified by radiological and visual walkover surveys, with anomalies determined to be PGDP-related by any of the following:

- Radiological readings,
- A release was visually identified, or
- Process knowledge.

In addition to the portion of WKWMA property that is licensed to Kentucky, the portion of WKWMA property formerly owned by Kentucky was subjected to radiological and aerial photographic flyover surveys. Based upon the evaluation of the aerial surveys of property formerly owned by Kentucky, a visual walkover survey of this area was not needed (DOE 2015b).

Descriptions of the aerial photographic and visual walkover surveys are discussed in this section.

#### 5.1.1.1 Aerial photographic survey

The aerial photographic survey, which included aerial photography, topographic mapping, digital orthophotos, and light detection and ranging, was conducted over PGDP and the surrounding area. The purpose of the survey was to acquire high-resolution aerial photographs and surface contours that would

[2] PGDP origin was determined by the presence of metals, polychlorinated biphenyls (PCBs), and radionuclides. It was noted that metals and PCBs may be present from other sources. Radiological contamination was considered present if the radiological signature was greater than twice instrument background (DOE 2015b).

aid in the identification of anomalies. A survey firm was used to provide survey data for photograph control. This included targets that did not move for the duration of the photographic survey. The aerial photographic survey was performed on April 8, 2009.

The aerial photographic survey produced a topographic map with 2 ft surface model contours and planimetric detail and a Digital Elevation Model that provided delineation of current surface features, including watersheds, drainage pathways, roads, and land cover. The aerial photographic survey also produced a topographic map with 2 ft surface model contours and all planimetric detail appropriate for that map scale.

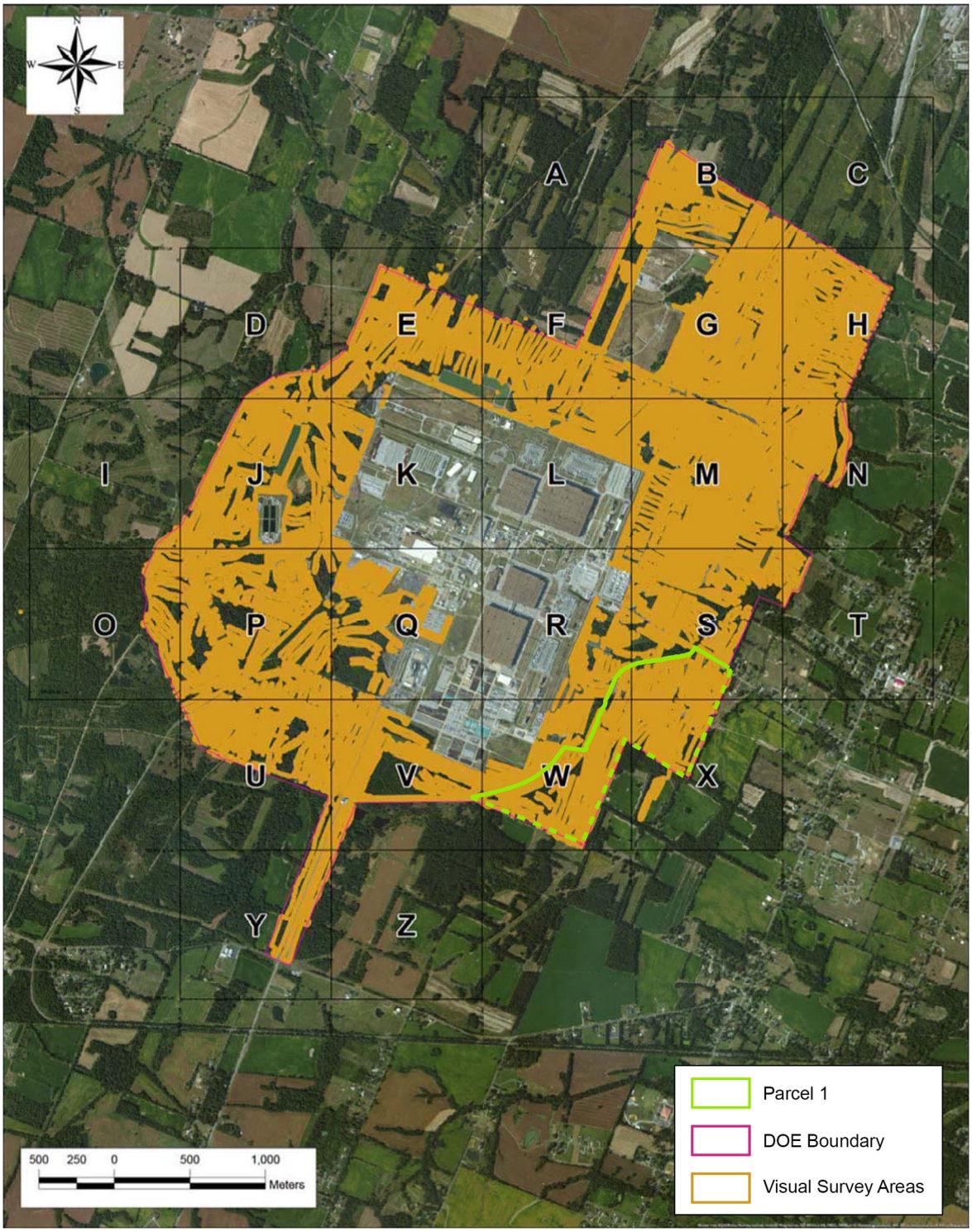
No new AOCs were identified in Parcel 1 as a result of the aerial photographic survey.

#### 5.1.1.2 Visual survey

The visual survey of the 2,676 acres (see Figure 7) was accomplished by visually observing and physically locating an anomaly and recording the location, size, type of anomaly, and any other pertinent information. This included all DOE-owned property outside the Limited Area (including property licensed to Kentucky).

There were 633 anomalies visually identified (DOE 2015b). After crosswalking the anomalies with previously identified anomalies, 99 were found to be part of previous or ongoing evaluations/investigations [i.e., Soil Piles Addendum 2, Rubble Piles Site Evaluation Report, Waste Area Grouping (WAG) 17, existing SWMUs] or part of anthropogenic structures (i.e., construction of rail/road beds, KOW bunkers) and were removed from further evaluation in this effort. The remaining 534 anomalies were subjected to a radiological survey. No anomalies were found to be greater than twice instrument background established for the survey, meaning there were no areas identified that represented a radiological concern.

The 2009–2010 surveys completed by DOE indicated no contaminated areas were identified (i.e., no areas were found to have radiological readings greater than twice instrument background), no releases were visually identified, and no removal action was required based on criteria established in the *Sitewide Evaluation Work Plan at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0228&D2 (DOE 2011). Consistent with Federal Facility Agreement (FFA) and the approaches set forth in the National Contingency Plan, the results of this evaluation determined no removal or remedial actions are required for the 534 anomalies identified, and there is no need to establish SWMU assessment reports. This conclusion is documented in the *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1256&D2/R1 (DOE 2015b).




Modified from DOE 2015b

**Figure 7. Visual Survey Areas**

Table 1 lists and describes anomalies that are within Parcel 1 per the grid areas shown in Figure 7. Locations of anomalies in each of the grid areas are shown in Figures 8 through 10. Anomalies are not related to any known KOW or PGDP activities (DOE 2015b).

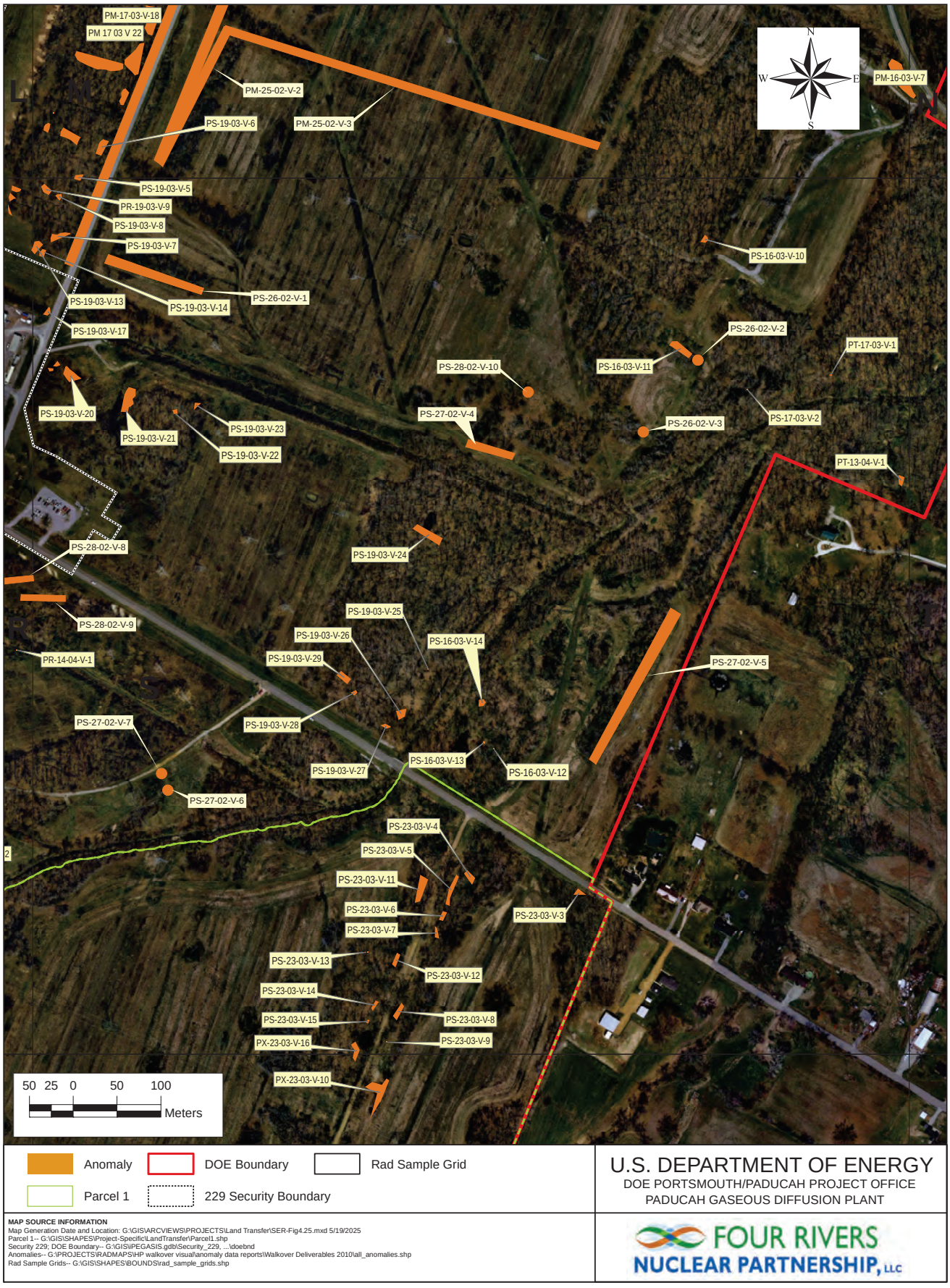
**Table 1. Visual Anomalies Identified within Parcel 1**

| Anomaly Name | Description |
|---|---|
| **Anomalies within Grid Area S** | |
| PS-23-03-V-11 | depression |
| PS-23-03-V-12 | dirt mound |
| PS-23-03-V-13 | trash, plastic |
| PS-23-03-V-14 | dirt mound |
| PS-23-03-V-15 | dirt mound |
| PS-23-03-V-3 | trash, paper, plastic |
| PS-23-03-V-4 | dirt mound, concrete slab approximately 2 ft × 3 ft |
| PS-23-03-V-5 | concrete,* telephone poles* |
| PS-23-03-V-6 | dirt mound |
| PS-23-03-V-7 | dirt mound |
| PS-23-03-V-8 | concrete |
| PS-23-03-V-9 | trash, paper, plastic |
| PX-23-03-V-16 | dirt mound, limbs, tree debris |
| **Anomalies within Grid Area W** | |
| PW-13-04-V-1 | three reinforced concrete culvert pipes approximately 3 ft diameter by 4 ft in length |
| PW-13-04-V-2 | dirt mound |
| PW-13-04-V-3 | soil, 2-inch metal strips* |
| PW-13-04-V-4 | concrete block survey marker with four metal pipe bollards used for protective barrier and visual markers |
| PW-24-03-V-11 | dirt mound |
| PW-24-03-V-12 | dirt mound |
| PW-24-03-V-13 | concrete block survey marker with four metal pipe bollards used for protective barrier and visual markers |
| PW-24-03-V-14 | soil, limbs, tree debris |
| PW-24-03-V-15 | soil, limbs, tree debris |
| PW-24-03-V-16 | soil, limbs, tree debris (concrete slab with steps later determined to be located in anomaly area) |
| PW-26-03-V-1 | soil, limbs, tree debris |
| PW-26-03-V-2 | soil, limbs, tree debris |
| PW-26-03-V-3 | soil, limbs, tree debris |
| PW-26-03-V-4 | soil, limbs, tree debris |
| PW-26-03-V-5 | soil, limbs, tree debris |
| PW-28-02-V-1 | slope-flared, corrugated metal end treatment approximately 24 inch × 24 inch; metal pipe approximately 12 inch × 18 ft × ¼ inch; corrugated metal pipe approximately 8 ft × 24 inch |
| PW-28-02-V-2 | concrete cistern approximately 3½ ft × 3½ ft; approximately 36 inches above ground surface |
| PW-28-02-V-3 | concrete rubble that varies in size, dirt mounds |
| PW-28-02-V-4 | dirt mound |
| **Anomalies within Grid Area X** | |
| PS-28-02-V-1 | dirt mound |
| PX-23-03-V-10 | dirt mound, limbs, tree debris |
| PX-23-03-V-17 | concrete* |
| PX-23-03-V-17A | concrete* |
| PX-23-03-V-18 | dirt mound |
| PX-23-03-V-19 | dirt mound |
| PX-24-03-V-1 | dirt mound |

**Table 1. Visual Anomalies Identified within Parcel 1 (Continued)**

| Anomaly Name | Description |
|---|---|
| PX-24-03-V-10 | dirt mound |
| PX-24-03-V-2 | dirt mound |
| PX-24-03-V-3 | dirt mound |
| PX-24-03-V-4 | dirt mound |
| PX-24-03-V-5 | 20-gal galvanized trash can |
| PX-24-03-V-6 | dirt mound |
| PX-24-03-V-7 | dirt mound |
| PX-24-03-V-8 | dirt mound |
| PX-24-03-V-9 | dirt mound |

*Item not visible during 2024 walkdown.




Modified from DOE 2015b

**Figure 8. Visual Anomaly Grid Area S**

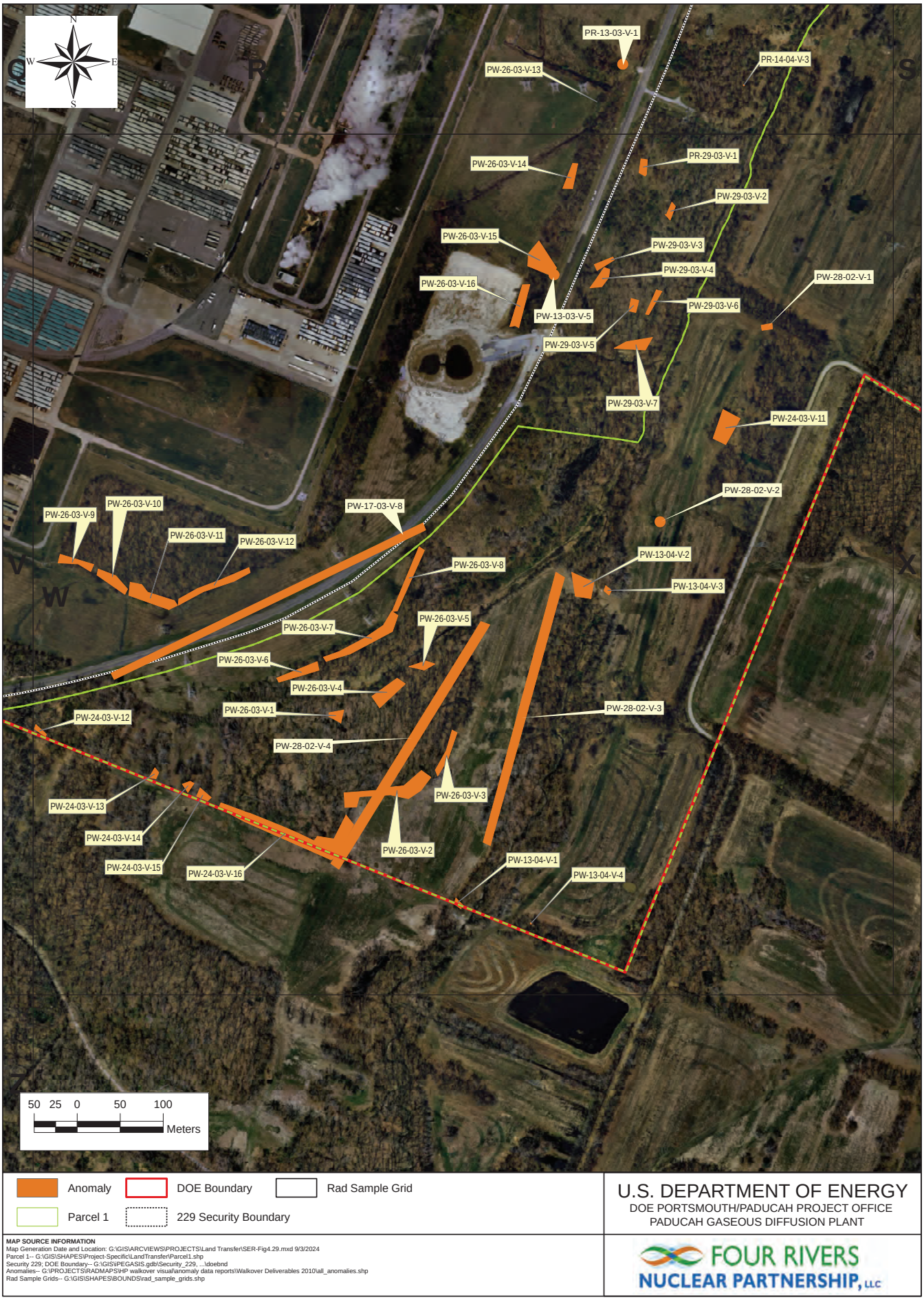
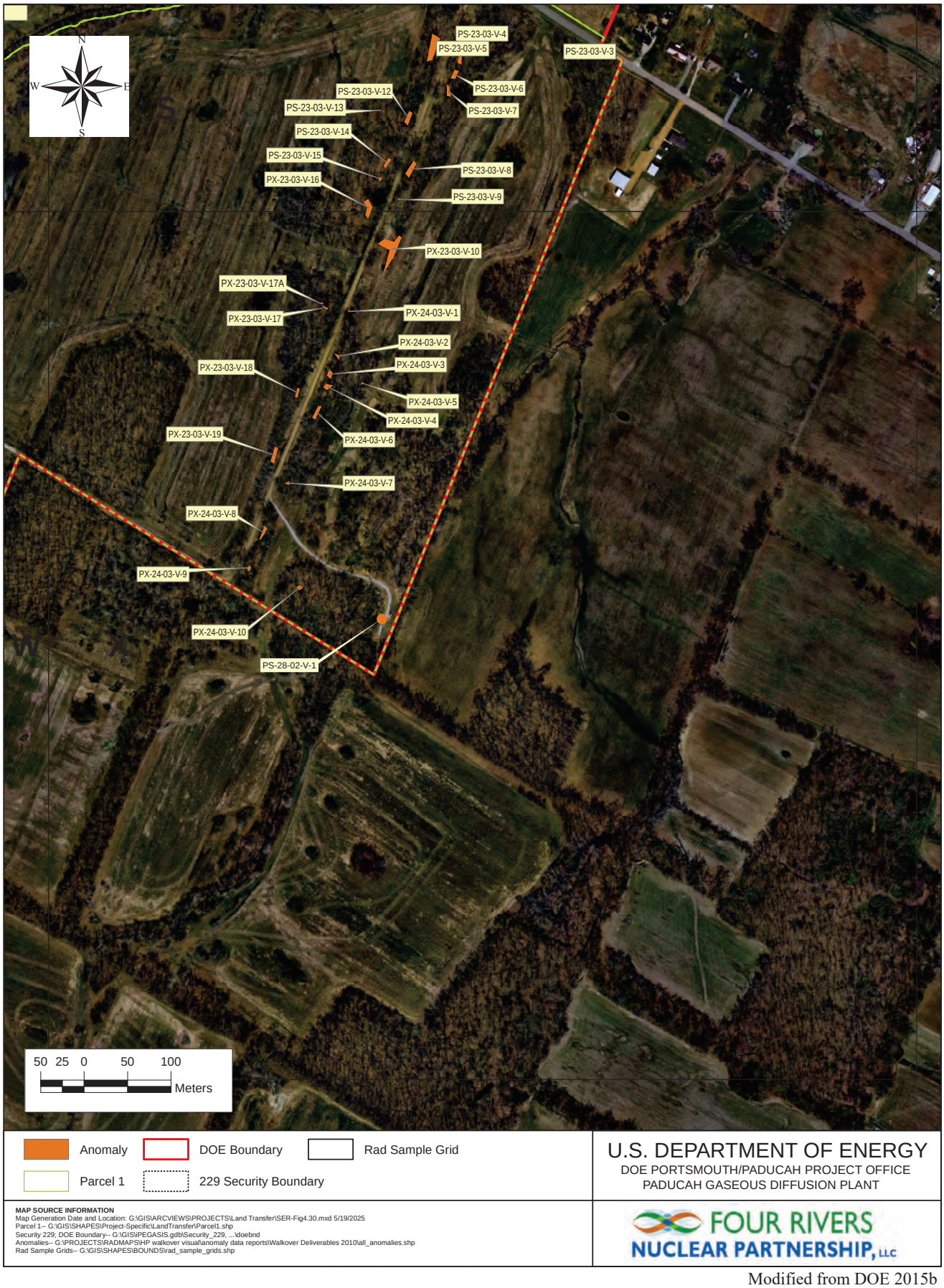



**Figure 9. Visual Anomaly Grid Area W**

Modified from DOE 2015b




Modified from DOE 2015b

**Figure 10. Visual Anomaly Grid Area X**

Anomalies identified during the 2009–2010 visual survey that are located in the Parcel 1 area are shown in Figures 11 through 17 and include, but are not limited to, the following:

- PW-28-02-V-2: historical homestead water well (Figure 11)
- PW-28-02-V-3: concrete, dirt mounds (Figure 12)
- PW-26-03-V-5: soil, tree debris (Figure 13)
- PS-23-03-V-4: dirt mound, concrete (Figure 14)
- PW-13-04-V-1: concrete (Figure 15)
- PW-13-04-V-2: dirt mound (Figure 16)
- PW-13-04-V-4: metal pipes (Figure 17)

These anomalies were selected as examples of the types of anomalies encountered in the Parcel 1 area.


**Figure 11. Anomaly PW-28-02-V-2**


**Figure 12. Anomaly PW-28-02-V-3**


**Figure 13. Anomaly PW-26-03-V-5**


**Figure 14. Anomaly PS-23-03-V-4**


**Figure 15. Anomaly PW-13-04-V-1**


**Figure 16. Anomaly PW-13-04-V-2**


**Figure 17. Anomaly PW-13-04-V-4**

### 5.1.2 2014–2015 Field Effort

A confirmatory field effort was executed from October 2014 to January 2015 that included a focused radiological survey and judgmental sampling effort for 25 of the previously identified 534 anomalies to validate the conclusions of the previous 2009–2010 field effort. The 25 selected anomalies served as proxies for the remaining 509 identified anomalies. None of the 25 selected anomalies are located within the Parcel 1 area. Soil samples were collected and analyzed using the field x-ray fluorescence (XRF) method to measure total uranium concentration associated with the selected anomalies. An evaluation of XRF data with fixed-base laboratory data was provided in a data quality assessment to the Soils OU remedial investigation report, which indicated that the use of XRF results for uranium had good correlation and, therefore, are reliable for use in determining nature, extent, and risk evaluation (DOE 2013). The 2014–2015 field effort was completed in accordance with the *Sitewide Evaluation Work Plan for Anomalies Located Outside the Limited Area at the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, DOE/LX/07-1288&D2 (DOE 2014). The conclusion from the evaluation of the results of the surveys and their associated analyses of the 25 anomalies was that no areas were identified that required either further CERCLA evaluation under the PGDP FFA or designation as SWMUs or AOCs.

### 5.1.3 Other Features in Parcel 1

The locations of other features identified in Parcel 1 in addition to the anomalies are shown in Figure 18. A surveillance network of environmental thermoluminescent dosimeters (TLDs) are established at monitoring locations at the perimeter of the Paducah Site to provide data on external radiation exposure from DOE operations to members of the public. Two of the TLD monitoring locations, TLD-76 and TLD-77, are located on the boundary of Parcel 1.

An additional walkover of Parcel 1 was performed by a survey team during June 2024, and easements from deed gathering were noted. During the walkover, additional survey markers (including the metal pipe bollards used for protective barrier and visual markers) were found (see Figure 17 for similar feature).

## 5.2 VISUAL AND PHYSICAL INSPECTIONS OF ADJACENT PROPERTY

The visual and physical inspections addressed in Section 5.1 extended beyond Parcel 1 into adjacent property (DOE-owned property). The associated anomalies on the adjacent property were located and investigated; based on these activities, it was determined no additional actions were required (DOE 2015b). The parcel is bordered to the south and east by private property.

## 5.3 PARCEL 1 SUMMARY

The conclusions of the visual and radiological walkover surveys, along with judgmental sampling of selected anomalies, were that no areas were identified that required either further CERCLA evaluation or designation as AOCs. The results demonstrated that identified anomalies did not represent unknown areas of contamination that pose a threat to the public or environment. The results of the radiological surveys, along with the radiological analytical results, meet the requirements of DOE Order 458.1, *Radiation Protection of the Public and the Environment*. Non-naturally occurring material (e.g., metal, concrete) is under consideration for removal prior to property transfer.

Based on the visual inspection of Parcel 1, there are no indications of impacts or release or disposal of hazardous substances or petroleum products within the parcel. It should be noted, however, there is documented contamination associated with several SWMUs on property adjacent to the northern and western borders of Parcel 1 (see discussion in Section 6).

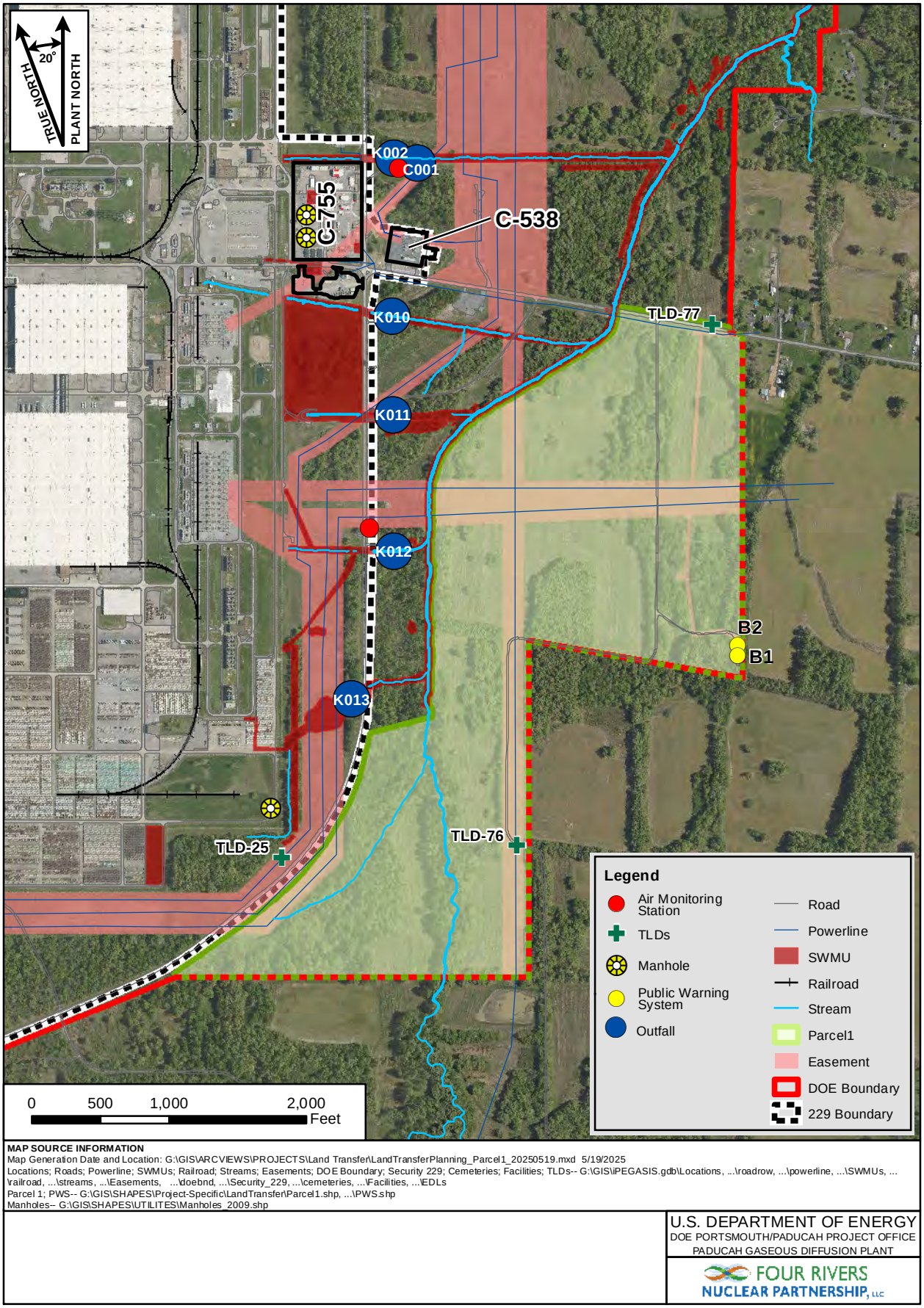



**Figure 18. Parcel 1 Features**

# 6. RECORDS SEARCH OF ADJACENT FACILITIES

A review of reasonably obtainable federal, state, and local records regarding past and present information about the property adjacent to Parcel 1 was performed in accordance with CERCLA 120(h) and DOE guidance and protocols (DOE 2024b; DOE 2024c; DOE 1998). As stated in the CERCLA regulations, the purpose of this review was to identify the following:

> …reasonably obtainable federal, state, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, and which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil on the real property proposed for transfer.

The adjacent property north and west of the property proposed for transfer is owned by DOE, while the adjacent property to the south and east is privately owned. Some adjacent property east of Parcel 1 is privately owned. Table 2 lists active SWMUs and AOCs adjacent to the Parcel 1 footprint. Remedial actions for the active surface SWMUs (e.g., soil piles, effluent ditches, Little Bayou Creek) will be addressed in accordance with their respective OUs in the future.[3]

**Table 2. SWMUs and AOCs Adjacent to the Parcel 1 Footprint**

| SWMU/AOC No. | OU | Description | Status/Current Subproject |
|---|---|---|---|
| 202 | Groundwater OU | Northeast Groundwater Plume | Dissolved-Phase Plumes |
| 60 | Surface Water OU | C-375-E2 Effluent Ditch (KPDES 002) | Surface Water OU Removal Action[a] |
| 61 | Surface Water OU | C-375-E5 Effluent Ditch (KPDES 013) | Surface Water OU Removal Action[b] |
| 64 | Surface Water OU | Little Bayou Creek | Surface Water OU Remedial Action |
| 66 | Surface Water OU | C-375-E3 Effluent Ditch (KPDES 010) | Surface Water OU Removal Action |
| 67 | Surface Water OU | C-375-E4 Effluent Ditch (C-340 Ditch) (KPDES 011) | Surface Water OU Removal Action |
| 93 | Surface Water OU | Concrete Disposal Area East of Plant Security Area | Surface Water OU Remedial Action |
| 108 | Surface Water OU | Rubble Pile (6) | Surface Water OU Remedial Action |
| 168 | Surface Water OU | KPDES Outfall Ditch 012 | Surface Water OU Removal Action[a] |
| 492 | Soils OU | Contaminated Soil Area Near Outfall 010 | Soils Remedial Action |
| 541 | Soils OU | Contaminated Soil Area South of Outfall 011 | Soils Remedial Action |
| 561 | Soils OU | Soil Pile I | Soils Remedial Action |
| 562 | Soils OU | 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 | Soils OU Feasibility Study (FS) |

[3] The 2024 Site Management Plan proposes an Environmental Media OU that will combine cleanup actions for multiple environmental media areas (e.g., soils, surface water, groundwater, slabs, lagoons) into a single final decision (DOE 2023).

**Table 2. SWMUs and AOCs Adjacent to the Parcel 1 Footprint (Continued)**

| SWMU/AOC No. | OU | Description | Status/Current Subproject |
|---|---|---|---|
| 563 | Soils OU | Soil Piles 20, CC, and BW in Subunit 4 north of Outfall 012, west of Little Bayou Creek | Soils Remedial Action |
| 179 | Soils and Slabs OU | Plant Sanitary Sewer System | Not applicable |

[a] As a result of the Surface Water OU (on-site) site investigation, it was determined there were no unacceptable levels of risk to current and anticipated future receptors that warranted the inclusion of SWMUs 60 and 168. No action will be taken as originally planned, and these SWMUs will be evaluated further as part of the Surface Water OU remedial action.
[b] Outfall 013 was evaluated during the development of the sampling and analysis plan for Surface Water OUs and was determined to not require an early action. It will be addressed during the Comprehensive Site OU and as part of the Surface Water OU remedial action.

The Parcel 1 boundary was established to exclude the portion of Little Bayou Creek (SWMU 64) designated as a SWMU. See Figure 19 for the locations of the SWMUs near or adjacent to Parcel 1. The site management plan for the Paducah Site tracks the status of the SWMUs and whether no further action (NFA) determinations have been reached (DOE 2023).

SWMUs 60, 61, 66, 67, and 168 are outfall ditches under the KPDES permit. Monthly and quarterly monitoring reports are required to indicate the effects of discharges from PGDP to Little Bayou Creek. Descriptions of the outfall ditches and potential contamination are provided in *Surface Water Operable Unit (On-Site) Site Investigation and Baseline Risk Assessment Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0001&D2/R1 (DOE 2008a) and *Work Plan for the Surface Water Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0361&D2/R1 (DOE 2012).

KPDES Outfall 002 (SWMU 60) receives drainage from the northeastern portion of PGDP via the internal plant drainage ditches. Drainage from approximately 55 acres of the plant feeds into Outfall 002 which previously fed into Outfall 010 (SWMU 66) through a lift-station (DOE 2008a); however, with the cessation of enrichment operations, minor discharges and storm-water runoff are no longer lifted for treatment but instead are discharged directly to Outfall 002, which then discharges to Little Bayou Creek. No previous investigations have been conducted for Outfall 002; however, downgradient sampling locations provide information about the contamination present in Outfall 002. Historically, Outfall 002 has received runoff carrying elevated levels of chromates, PCBs, and radionuclides. CERCLA Outfall C001 is located downstream of KPDES Outfall 002 along the same effluent ditch (see Figure 5). CERCLA Outfall C001 discharges treated groundwater from the Northeast Plume Containment System.

KPDES Outfall 013 (SWMU 61) was evaluated during the development of the sampling and analysis plan for the Surface Water OU removal action and was determined to not require any early action. Further assessment of Outfall 013 will be addressed during the Comprehensive Site OU and as a part of the Surface Water OU remedial action.

KPDES Outfall 010 (SWMU 66) receives drainage from approximately 22 acres on the eastern portion of PGDP via the internal plant drainage ditches. The average monthly flow rate for Outfall 010 is now 0.001 million gallons per day (mgd), and Outfall 010 is equipped with a containment dam that can be used if necessary. Discharge from Outfall 010 was previously sent to the C-617-B Effluent Control Lagoon, where it was treated for residual chlorine and pH. With the cessation of enrichment operations, minor discharges and storm-water runoff are no longer lifted for treatment at the C-617-B Effluent Control

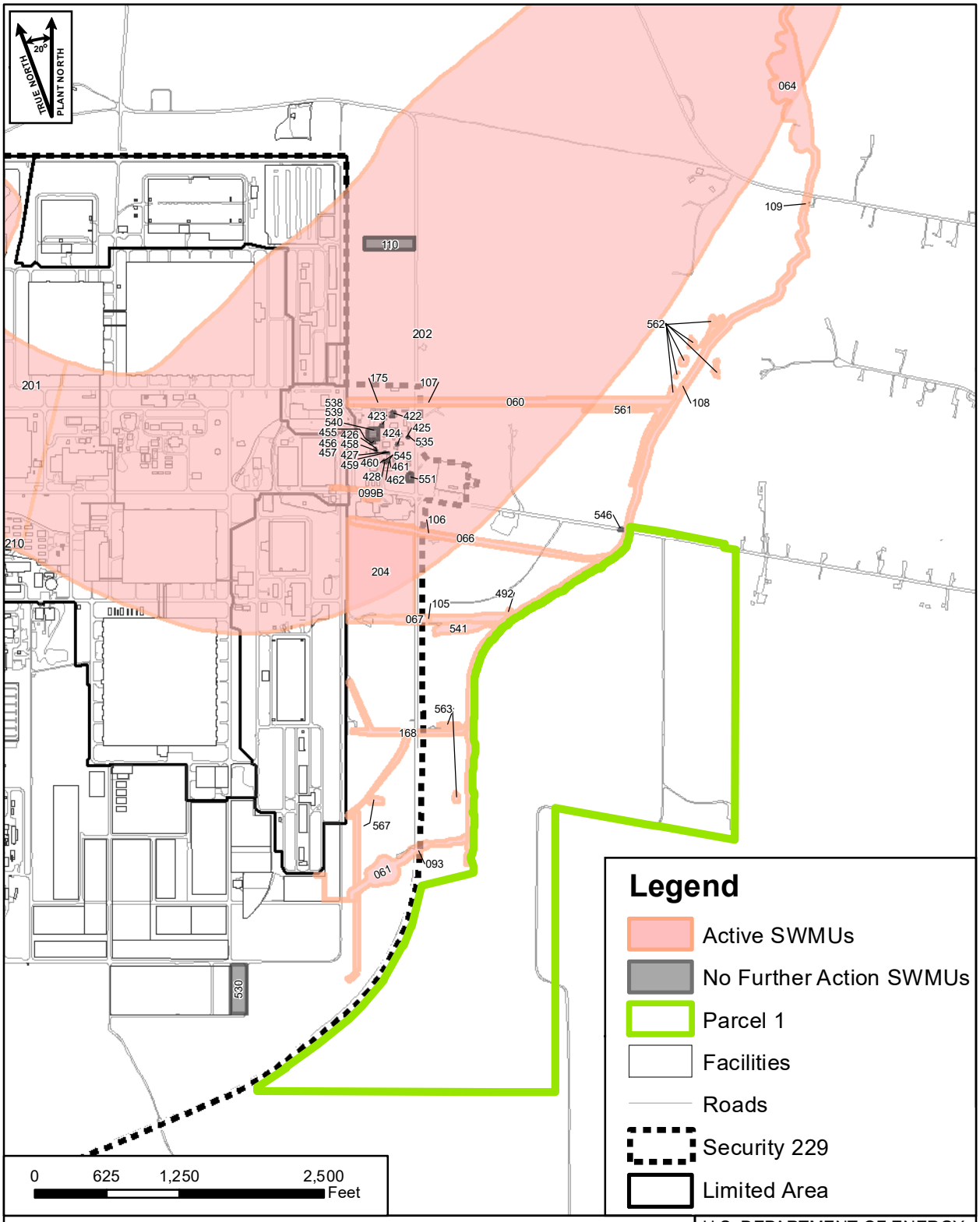



**Figure 19. Location of SWMUs Near Parcel 1**

Lagoon, but instead are directly discharged to Outfall 010, which then discharges to Little Bayou Creek. The C-331 Process Building drains to Outfall 010 via the storm sewer system, and contamination from the C-531 Switchyard area, the C-746-D Classified Scrap Yard, and the C-746-E Contaminated Scrap Yard (North) may have been carried into Outfall 010 via surface water and sediments. During the Phase I and Phase II CERCLA site investigation sampling conducted at Outfall 010, contaminants in surface water included radionuclides and trichloroethene (TCE) (CH2M Hill 1991; CH2M Hill 1992). The primary sediment contaminants included dioxins, PCBs, and metals (DOE 2008a). Water quality is tested regularly as required by the KPDES permit, and the results have shown the quality of the discharge is within the KPDES limits; however, PCBs have been detected sporadically.

KPDES Outfall 011 (SWMU 67) receives drainage from approximately 31 acres on the eastern portion of PGDP via the internal plant drainage ditches. The average monthly flow rate for Outfall 011 is now 0.001 mgd. Discharge from Outfall 011 was previously collected in a sump and sent to the C-617-B Effluent Control Lagoon via a lift station where it discharged to Little Bayou Creek. With the cessation of enrichment operations, minor discharges and storm-water runoff are no longer lifted for treatment at the C-617-B Effluent Control Lagoon, but instead are directly discharged to Outfall 011, which then discharges to Little Bayou Creek. The C-315 Surge and Waste Building, C-331 and C-333 Process Buildings, C-340 Metals Reduction Plant, C-532 Relay House, and C-533-1 Switch House and appurtenant structures as well as SWMUs 56 and 80 of WAG 23 are all contained within the Outfall 011 drainage area. During the Phase I and Phase II CERCLA site investigation sediment sampling, radionuclides, metals, polycyclic aromatic hydrocarbons (PAHs), and organic contaminants were present in sediment samples collected from Outfall 011 (CH2M Hill 1991; CH2M Hill 1992). Additional contaminants present in soil or sediment collected from Outfall 011 were TCE and PCBs (DOE 2008a). A non-time-critical removal action was issued for Outfall 010 and Outfall 011 in 2009 requiring removal of hazardous substances associated with sediment in and around these outfalls, which was completed in 2010.

KPDES Outfall 012 (SWMU 168) receives drainage from the southeastern portion of PGDP via the internal plant drainage ditches. Drainage from approximately 61 acres previously fed into Outfall 012 where it then flowed through a catchment and then to a lift station where it was fed to the C-617-B Effluent Control Lagoon to be treated for residual chlorine and pH for discharge to Outfall 010. With the cessation of enrichment operations, minor discharges and storm-water runoff are no longer lifted for treatment at the C-617-B Effluent Control Lagoon, but instead are directly discharged to Outfall 012, which then discharges to Little Bayou Creek. The C-533-3D Fire Valve House No. 4 switch house and appurtenant structures and a portion of the C-340 Metals Reduction Plant building are contained within the Outfall 012 drainage area by way of the internal plant drainage ditches. The C-333 Process Building and the C-633-1 Pump House and appurtenant structures drain to Outfall 012 through the storm sewer system. Radionuclides were detected in surface water samples collected from Outfall 012 during the Phase I CERCLA site investigation (CH2M Hill 1991). Additionally, xylenes and PCBs were detected in soil and TCE was detected in sediment (DOE 2008a). Several interviewees indicated potential for chromate contamination in Outfall 012 due to a leak in the C-633 cooling tower. A large amount of chromate-containing recirculating cooling water was discharged into Outfall 012 and Little Bayou Creek in the late 1980s or early 1990s according to one interviewee; however, remedial efforts were immediately employed to mitigate any ecological impact.[4] Also, in January 2018, 2,500 gal of mineral oil leaked from out-of-service electrical equipment located at the C-533 switchyard. The leaks from the equipment were isolated, the drainage exiting the switchyard was sandbagged and plugged, and the oil was skimmed from the Outfall 012 effluent ditch. No oil was released beyond the Paducah Site boundary.

Little Bayou Creek (SWMU 64) is a stream that flows north and converges with Bayou Creek north of the Paducah Site. The portion of Little Bayou Creek within the DOE Boundary downstream of the KPDES

[4] See Section 7 for interviews.

Outfall 013 effluent ditch has been designated as a SWMU. Minimal flow originates in the headwaters of Little Bayou Creek south of PGDP. Most of the flow in the creek is derived from PGDP effluent streams. Little Bayou Creek has been used to discharge wastewater and storm water from the plant site to the Ohio River. Discharges to Little Bayou Creek occur through KPDES Outfalls 002, 010, 011, 012, and 013. Little Bayou Creek has received the effluent of PGDP's east side processes since operation of the plant began. The east side of the plant contains most of the heavily industrialized area of the plant, which includes the main uranium processing buildings. Contaminants in the process effluents of PGDP are believed to be a source of the contamination in Little Bayou Creek (DOE 2012).

In November 2006, a number of soil piles outside of PGDP were identified as showing elevated radioactivity levels. Soil Pile I (SWMU 561) is defined as an area of systematic berm-like formations beginning at the confluence of Little Bayou Creek and Outfall 002, and extending approximately 700 ft west along Outfall 002 and 700 ft south along Little Bayou Creek. The width varies from 12–30 ft and the height varies from 2–12 ft. The total volume of Soil Pile I is estimated to be 10,000 $yd^3$ (DOE 2008b). The origin of Soil Pile I remains unknown; however, available information indicates many of the PGDP-related soil piles originated from excavations associated with the creation, periodic dredging, and cleanout of outfalls, ditches, and creeks (DOE 2008b).

SWMUs 562 and 563 were investigated as part of the *Site Evaluation Report for Addendum 1-B Soil Piles at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0225&D2/R2, where SWMU 562 is evaluated under subunit 1 and SWMU 563 under subunit 4 (DOE 2010). SWMU 562 consists of nine soil piles—C, D, E, F, G, H, J, K, and P—and is located to the north of McCaw Road, primarily on the west bank of Little Bayou Creek. SWMU 563 consists of Soil Piles 20, CC, and BW surrounding Outfall 012 (SWMU 168) on the west bank of Little Bayou Creek. SWMU 567, or Soil Pile K013, consists of five different soil piles that are approximately 3 ft high and cover a cumulative area of approximately 74,800 $ft^2$. All soil piles comprising SWMUs 562 and 563 will be addressed as part of the Soils OU.

SWMU 202 (Northeast Groundwater Plume) contains dissolved-phase VOC contamination such as TCE and the radionuclide technetium-99 in groundwater that flows northeastward in the RGA north-northwestward of Parcel 1 (the RGA extends to the northern boundary of the Parcel 1 area; see Figure 20). The Northeast Plume is being addressed by a groundwater extraction and treatment system (i.e., "pump-and-treat") to address the higher concentration portions of the VOCs and technetium-99 emanating from source areas in the plant (e.g., C-400 Cleaning Building). DOE established a Water Policy to mitigate exposure to groundwater by nearby residents. The Northeast Plume extraction and treatment system was installed as part of a selected interim remedy under the *Record of Decision for Interim Remedial Action at the Northeast Plume, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1356&D2 (DOE 1995). An Explanation of Significant Differences was developed to document modifications to the interim remedial action (DOE 2015c).

The Water Policy is a removal action that originally was implemented and currently is being maintained to eliminate potential exposure to contaminated groundwater from the Paducah Site. DOE developed the Paducah Site Water Policy in accordance with the *Engineering Evaluation/Cost Analysis for the Water Policy at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1142&D3, (DOE 1993), and the *Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1201&D2 (DOE 1994).

The Paducah Site Water Policy states, "It is the intent of the PGDP Environmental Restoration Program to offer municipal water service in accordance with this Policy to all existing private residences and businesses within the projected migration area of the contaminated groundwater originating at PGDP (affected area)." DOE is not responsible for paying water for new residents or new businesses. With the adoption of the

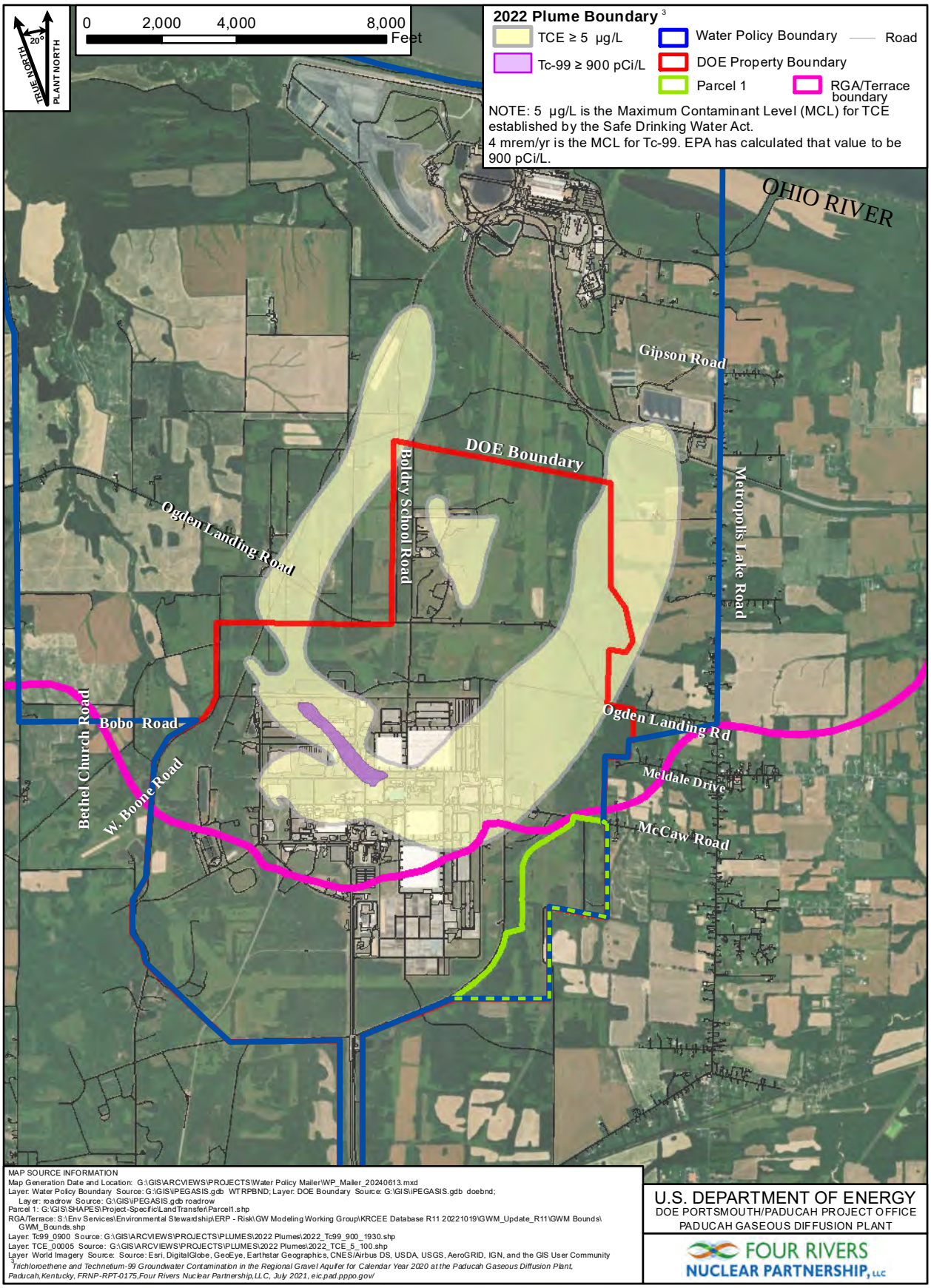



**Figure 20. Location of the Water Policy Boundary and TCE/Technetium-99 Plumes**

Water Policy, DOE focused its groundwater monitoring program on the Water Policy boundary and adjacent areas that might be affected if and when the plume migrates or expands. Figure 20 shows the 5 μg/L TCE groundwater plume boundaries and the Water Policy boundary as of 2022 (DOE 2024a).

The Action Memorandum contains the following regarding the purpose of the Water Policy:

> The purpose of long-term remedial action is to eliminate, reduce, or control risks to human health and the environment. Implementation of this removal action is consistent with that purpose. Potential threats to public health require attention prior to initiation of long-term remediation. This action prohibits exposure to contaminated water from residential wells until a permanent remedy has been successfully completed, or other actions have formally been deemed appropriate.

DOE samples existing residential water supply wells and monitoring wells (MWs) to track the effectiveness of groundwater remediation efforts on reducing the size and concentration of the contaminant plumes. Additional MWs are installed as needed for other environmental programs. The monitoring of groundwater in and around the Water Policy boundary confirms the groundwater plumes with contaminant concentrations exceeding their maximum contaminant levels have not migrated beyond the current Water Policy boundary. The Water Policy eliminates potential pathways of exposure to the public by providing municipal water to potentially affected residents and businesses within the Water Policy boundary. The removal action for the Water Policy currently protects human health and the environment by institutional controls, which includes administrative controls. The removal action for the Water Policy continues to be effective for the purpose for which it was intended (DOE 2024a). The continued effectiveness of the Water Policy action is evaluated by the monthly review of Water Policy-affected area water bills of licensed parcels for downward trends in water usage, the annual review of the Kentucky Geological Survey water well database to ensure no new wells have been installed, the review of the Kentucky Division of Water well notification report for newly submitted drill logs, visual assessments of licensed parcels, and the semiannual review of the McCracken County Property Valuation Administrator website for verification of land ownership (DOE 2024b).

In establishing the affected area for the Water Policy to address contamination in the RGA, the affected area's southern boundary was made coincident with the DOE property boundary, and did not follow the southern extent of the RGA. While Parcel 1 is within the Water Policy boundary, as noted in Section 1.3, the northern boundary of Parcel 1 lies close to the southern extent of the RGA with most of the parcel overlying the Terrace Gravel flow system. Potential exposure to contaminated groundwater will be further minimized through a deed restriction on groundwater use.

The adjacent areas include several SWMUs/AOCs that will be further evaluated in future CERCLA projects to determine if remedial actions are necessary.[5] The identified SWMUs/AOCs are not expected to impact Parcel 1.

[5] See Note 2.

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# 7. INTERVIEWS

In accordance with CERCLA 120(h) and DOE guidance and protocols, interviews were conducted with previous and current employees associated with operations on the property regarding their knowledge of potential historical operations or activities in the Parcel 1 area (DOE 2024b; DOE 2024c; DOE 1998). The purpose of the interviews was to potentially identify areas on and adjacent to the parcel where hazardous substances and petroleum products, or their derivatives, and acutely hazardous wastes may have been released or disposed of. This section summarizes the interviews conducted for Parcel 1. When interviewed, the personnel were provided with a figure that showed a larger 750-acre area that was being evaluated. Parcel 1 is located in the southeastern portion of that larger area.

Personnel representing various disciplines and with operations-related experience were contacted and interviewed from May 2024 to June 2024. Appendix C includes copies of the completed interview forms.

DOE Prime Contractor—Employee 1

DOE Prime Contractor Employee 1 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual has been involved with the Paducah Site since 2014 and is currently responsible for completing inspections of the outfalls on a weekly and monthly basis. The interviewee reported oil had been detected at KPDES Outfall 012 in 2018, which was determined to have migrated from the C-533 switchyard. The individual explained after the oil was detected, preventative measures were taken to mitigate any spread, including the installation of booms and pads that were periodically replaced to prevent oversaturation and increased inspections in the following months.

DOE Prime Contractor—Employee 2

DOE Prime Contractor Employee 2 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual was involved with the Paducah Site from 2006 through 2017. The interviewee was responsible for sampling the soil piles west of Little Bayou Creek (SWMUs 561, 562, and 567) and the MWs located along Dyke Road. The interviewee stated he/she was aware of former contamination as the soil piles exhibited elevated radioactivity (as seen in Section 6); however, the interviewee was not aware of any additional contamination that occurred during his involvement with the facility.

DOE Prime Contractor—Employee 3

DOE Prime Contractor Employee 3 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual had provided support to PGDP working with chemical operations and waste management from 1974 through 2022. Both organizations were involved with cleaning and packaging spill sites. This individual was not aware of any release of hazardous substances or petroleum products associated with Parcel 1.

DOE Prime Contractor—Employee 4

DOE Prime Contractor Employee 4 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. The interviewee provided support to PGDP during the early to mid-1990s by performing environmental oversight duties. This individual mentioned a release of recirculating cooling water from the south end of the C-633 cooling tower that occurred during their time

at the plant. This water, which contained zinc and chromates in the form of a corrosion inhibitor, was discharged to the internal plant drainage ditches, then to KPDES Outfall 013 and Little Bayou Creek.

DOE Prime Contractor—Employee 5

DOE Prime Contractor Employee 5 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual provided support to PGDP as a chemical operations supervisor from the late 1980s to the early 1990s. This individual indicated a potential release of chromate to KPDES Outfall 010 near Dyke Road had occurred before his/her involvement with the property. The individual also mentioned a potential release of chromate to the effluent ditches due to a cooling tower leak that had occurred in the late 1980s or early 1990s.

DOE Prime Contractor—Employee 6

DOE Prime Contractor Employee 6 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual has been involved with PGDP since 1992 and has provided support through environmental sampling and inspections. This individual mentioned other on-site personnel would discuss historical releases of oil from electrical equipment that potentially migrated to Little Bayou Creek. The individual also made note of a release that occurred in January 2018. Approximately 1,200 gal of mineral oil from the C-533 switchyard was discharged to KPDES Outfall 012 and subsequently cleaned up by contractor personnel. Note that this was reported as a 2,500 gal mineral oil spill.

DOE Prime Contractor—Employee 7

DOE Prime Contractor Employee 7 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual was involved with surveillance and maintenance of the outfalls adjacent to PGDP and later the installation of the switchyard. This individual provided support to the facility from 1976 to 1994 and again in 2021. This interviewee indicated there were potential releases of mineral oil and hydraulic oil from the C-333-A Feed Vaporization Facility that occurred throughout the individual's time at the facility. The individual also said the releases were mostly contained to the outfall ditches but could have migrated to Little Bayou Creek.

DOE Oversight Contractor—Employee 1

DOE Oversight Contractor Employee 1 completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. This individual has been providing support to PGDP since 1974 and continues to provide technical assistance, contractor review, and research. The individual made note of several previous releases of hazardous substances and petroleum derivatives.

The interviewee discussed a previous discharge that occurred in the early 1990s in which the C-633 cooling tower leaked a large amount of recirculating cooling water into KPDES Outfall 012 and Little Bayou Creek, possibly carrying hazardous materials with it. This individual stated a plywood and sandbag dam was installed, and water was pumped upstream, where it was then vacuumed. The individual stated activities occurred around the clock for several days, and the emergency squad responded to mitigate the release of process gas (interviewee did not specify the nature of the process gas) as much as possible.

The interviewee also made mention of various oil leaks that have occurred previously in the switchyards, stating some were potentially PCB-contaminated. This individual noted these leaks may have been washed from the rock base into the surrounding ditches. Additionally, he/she stated process purging from the building jets (C-337-A Feed Vaporization Facility, C-310 Purge and Product Building, and C-315 Surge

and Waste Building) may have resulted in the settling of process gas in the surrounding area, which could potentially have been washed away into the area ditches. The individual also said demolition of the C-340 Metals Reduction Plant could have resulted in dust being carried by the wind into the surrounding area.

WKWMA Biologist and Manager for the Kentucky Department of Fish and Wildlife Resources at the WKWMA

The wildlife biologist/manager for WKWMA completed an interview questionnaire and provided information regarding the current and historical use of Parcel 1. He has been active in this position since 1998. He expressed concern about the presence of radionuclides and metals within the outfall ditches and Little Bayou Creek, the previous release of PCBs from the transformer field, and the area of the Northeast Plume that is contained within the property proposed for transfer. He stated these potential concerns originated before his time at WKWMA, and the ditches and streams are still posted indicating hazardous materials. These concerns have all been investigated previously and all necessary locations have been designated as SWMUs.[6] He stated trained personnel provide support in this area by monitoring and sampling whenever beavers build dams in the area.

The interviewee made clear his concerns with these prior issues (i.e., issues associated with the identified SWMUs) that could potentially affect the property transfer. He stated he was concerned about what may happen if there was a lack of interest in the property after disclosing the present hazards and history, and the interested parties may not be aware of the preexisting issues.

Summary of Interviews

In summary, one interviewee was not aware of any past operations that would have released or disposed of hazardous substances and petroleum products, their derivatives, or acutely hazardous wastes to or from Parcel 1. Three interviewees indicated a past release had occurred when the C-633 cooling tower released a large amount of recirculating cooling water, which discharged into KPDES Outfall 012 and Little Bayou Creek; however, one interviewee gave details as to the remedial efforts that were carried out to mitigate the release of any hazardous substances. Three interviewees indicated a large volume of mineral oil was discharged in 2018; however, preventative measures were taken immediately to mitigate the release. Note that the releases discussed by the interviewees were related to spills impacting the effluent ditches and, potentially, Little Bayou Creek. There were no concerns or PGDP-related activities discussed specific to Parcel 1. One interviewee expressed concerns with prior issues potentially affecting interest in the property; however, the local community has already expressed interest for Parcel 1 (Clymer and Jones 2024).

[6] See Section 6 for information regarding the current state of any SWMUs adjacent to Parcel 1.

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# 8. REFERENCES


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# APPENDIX A

# REAL ESTATE ACQUISITION LETTER (DRAFT)

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# PROPOSED REAL ESTATE ACTION
# PADUCAH GASEOUS DIFFUSION PLANT, KENTUCKY
# FILES RESEARCH FOR HAZARDOUS SUBSTANCE ACTIVITY

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

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

Lands affected by this action are identified as portions of the following original acquisition tracts in which the United States of America acquired title (having been acquired for the Atomic Energy Commission as a forerunner of the Department of Energy).

A portion of Parcel 1 is located on Tract A-02. The Deed of Conveyance for this land was made to the United States of America filed for public record on February 19, 1951, in Deed Book 296, Page 207 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-03. The Deed of Conveyance for this land was made to the United States of America filed for public record on February 27, 1951, in Deed Book 296, Page 402 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-25. The Deed of Conveyance for this land was made to the United States of America filed for public record on February 19, 1951, in Deed Book 296, Page 215 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-30. The Deed of Conveyance for this land was made to the United States of America filed for public record on February 27, 1951, in Deed Book 296, Page 394 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-32. The Deed of Conveyance for this land was made to the United States of America filed for public record on March 20, 1951, in Deed Book 297, Page 351 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-33. The Deed of Conveyance for this land was made to the United States of America filed for public record on March 20, 1951, in Deed Book 297, Page 336 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-34. The Deed of Conveyance for this land was made to the United States of America filed for public record on May 15, 1951, in Deed Book 301, Page 50 in the McCracken County Register's Office, Commonwealth of Kentucky.

A portion of Parcel 1 is located on Tract A-35. The Deed of Conveyance for this land was made to the United States of America filed for public record on February 27, 1951, in Deed Book 296, Page 406 in the McCracken County Register's Office, Commonwealth of Kentucky.

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

_____

Matthew Reardon, Real Estate Contracting Officer
U.S. Department of Energy
Office of Environmental Management Consolidated Business Center

Attachment: Plat Exhibit

# ATTACHMENT A1

# PLAT EXHIBIT

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# County Clerk Office,
# McCracken County, Kentucky

| TRACT | DEED BOOK | PAGE NUMBER | DATE |
|---|---|---|---|
| A-02 | 296 | 207 | February 19, 1951 |
| A-03 | 296 | 402 | February 27, 1951 |
| A-25 | 296 | 215 | February 19, 1951 |
| A-30 | 296 | 394 | February 27, 1951 |
| A-32 | 297 | 351 | March 20, 1951 |
| A-33 | 297 | 336 | March 20, 1951 |
| A-34 | 301 | 50 | May 15, 1951 |
| A-35 | 296 | 406 | February 27, 1951 |

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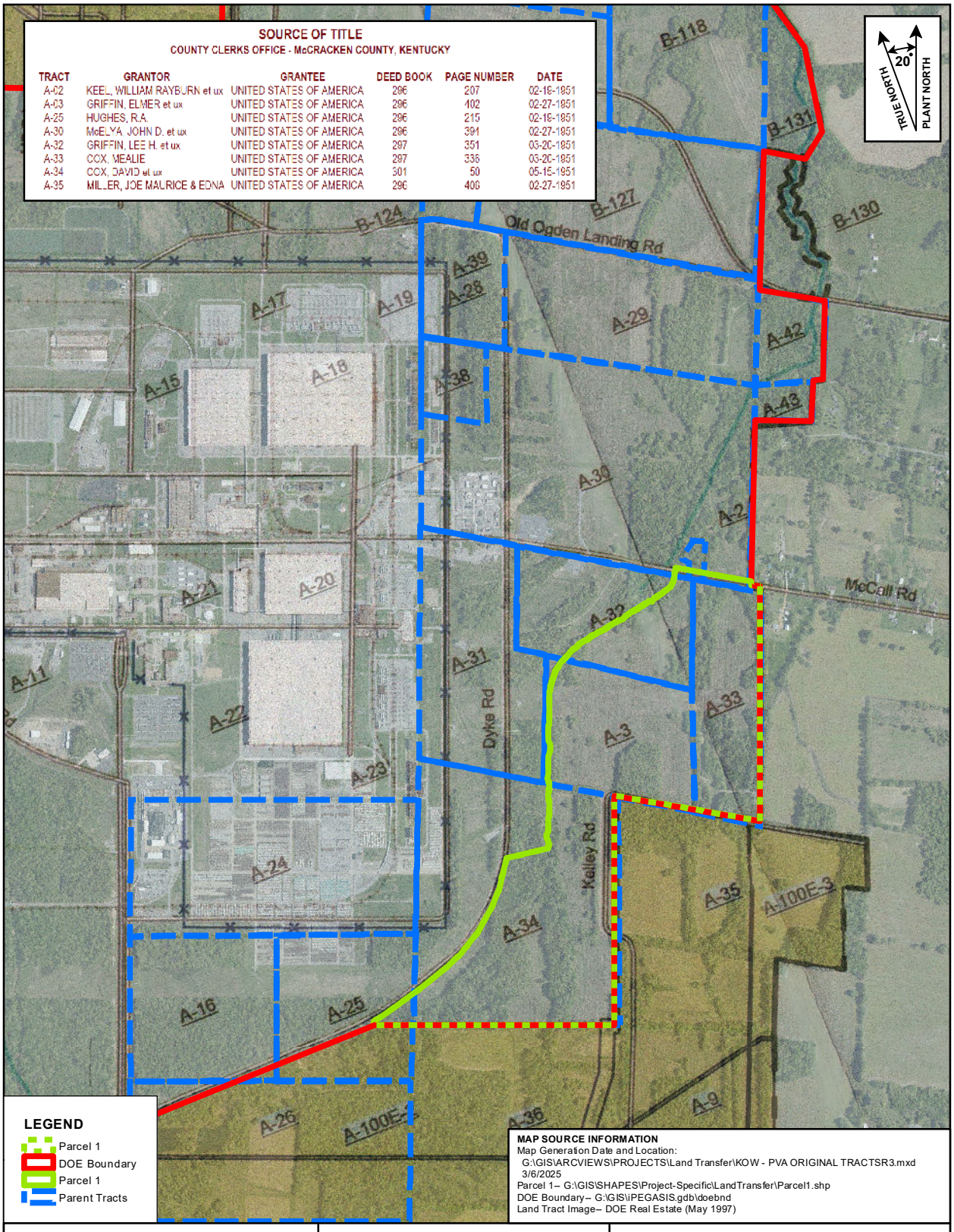
SOURCE OF TITLE
COUNTY CLERKS OFFICE - McCRACKEN COUNTY, KENTUCKY
TRACT | GRANTOR | GRANTEE | DEED BOOK | PAGE NUMBER | DATE
A-02 | KEEL, WILLIAM RAYBURN et ux | UNITED STATES OF AMERICA | 296 | 207 | 02-19-1951
A-03 | GRIFFIN, ELMER et ux | UNITED STATES OF AMERICA | 296 | 402 | 02-27-1951
A-25 | HUGHES, R.A. | UNITED STATES OF AMERICA | 296 | 215 | 02-19-1951
A-30 | McELYA, JOHN D. et ux | UNITED STATES OF AMERICA | 296 | 391 | 02-27-1951
A-32 | GRIFFIN, LEE H. et ux | UNITED STATES OF AMERICA | 297 | 351 | 03-20-1951
A-33 | COX, MEALIE | UNITED STATES OF AMERICA | 297 | 336 | 03-20-1951
A-34 | COX, DAVID et ux | UNITED STATES OF AMERICA | 301 | 50 | 05-15-1951
A-35 | MILLER, JOE MAURICE & EDNA | UNITED STATES OF AMERICA | 296 | 406 | 02-27-1951
TRUE NORTH
20°
PLANT NORTH
B-118
B-131
B-127
B-130
B-124
Old Ogden Landing Rd
A-39
A-28
A-17
A-19
A-29
A-42
A-15
A-18
A-38
A-43
A-30
A-2
A-21
A-20
McCall Rd
A-32
A-11
A-31
Dyke Rd
A-33
A-22
A-3
A-23
Kelley Rd
A-24
A-35
A-100E-3
A-34
A-16
A-25
A-26
A-100E-1
A-36
A-9
LEGEND
Parcel 1
DOE Boundary
Parcel 1
Parent Tracts
MAP SOURCE INFORMATION
Map Generation Date and Location:
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3/6/2025
Parcel 1-- G:\GIS\SHAPES\Project-Specific\LandTransfer\Parcel1.shp
DOE Boundary-- G:\GIS\iPEGASIS.gdb\doebnd
Land Tract Image-- DOE Real Estate (May 1997)
0 475 950 1,425 1,900
Feet
US DOE
PARCEL OVERLAY
U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH / PADUCAH PROJECT OPERATIONS
PADUCAH GASEOUS DIFFUSION PLANT

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# APPENDIX B

# AERIAL PHOTOGRAPHS

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# TABLE



# FIGURES

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The aerial photographs listed in Table B.1 are included in this appendix and are also provided in electronic format.

**Table B.1. Index of Aerial Photographs**

| Photograph Number | File Name | Date of Photograph | Description | Comments |
|---|---|---|---|---|
| 1 | 43PGD007 | June 20, 1943 | CSE-142A-7 | Former Kentucky Ordnance Works and Parcel 1 before Paducah Gaseous Diffusion Plant (PGDP) construction. |
| 2 | 52PGDP66 | February 21, 1952 | 1-66 GS=SW | Construction of PGDP is apparent in this photograph. Shows some activity in Parcel 1. |
| 3 | 52PGDSBBe | 1952 | None | Evidence of land disturbance all along the eastern side of PGDP and into Parcel 1, which is related to construction. |
| 4 | 59PGD136 | October 19, 1959 | ADZ 4W | PGDP is blacked out. There is no apparent activity on the visible portion of Parcel 1. |
| 5 | 71PGD007 | May 14, 1971 | ADZ-4LL-7 | The only apparent activity east of the PGDP boundary in Parcel 1 is farming |
| 6 | 71PGD008 | May 14, 1971 | ADZ-4LL-8 | The only activity on the visible portion of Parcel 1 evident from this photo is farming. |
| 7 | 74PG152E | 1974 | None | The only activity on Parcel 1 evident from this photo is farming and woodlands. |
| 8 | 75PGD074 | 1975 | GS-VDJE | The only activity on Parcel 1 evident from this photo is farming and woodlands |
| 9 | 81pgd100e | 1981 | None | Evidence of land disturbance related to construction to the east of the PGDP boundary and immediately north of McCaw Road in Parcel 1. |
| 10 | 83PGD124E | 1983 | None | The primary activities on Parcel 1 evident from this photo are farming and woodlands. Minor land disturbance. |
| 11 | 88PGD050 | 1988 | 630 050 | The primary activity on Parcel 1 evident from this photo is farming and woodlands. There is a slight disturbance on the south side of PGDP, which may be related to the cylinder yard expansion into Parcel 1. |
| 12 | 94PGD103 | March 06, 1994 | NAPP 11:58<br>6091-103<br>40 | There is some minor evidence of land disturbance related to construction to the east of the PGDP boundary and immediately north of McCaw Road in Parcel 1, at what is now the C-755 Trailer Complex. |

**Table B.1. Index of Aerial Photographs (Continued)**

| Photograph Number | File Name | Date of Photograph | Description | Comments |
|---|---|---|---|---|
| 13 | 98PGD054 | November 22, 1998 | NAPP 11412-54 | There are about a dozen structures visible in what is now the C-755 Trailer Complex. The cylinder storage yard extending into Parcel 1 is complete in this photograph. |
| 14 | Photos 11-03-09-42 | 2009 | None | Offer views looking west and north across PGDP that include large portions of Parcel 1. |
| 15 | 11-3-09-53 | 2009 | None | An oblique angle looking west across PGDP. Shows the five Kentucky Pollutant Discharge Elimination System outfall ditches present in Parcel 1. First appearance of two small ponds on southeast side of PGDP. |
| 16 | Half_Ft_Plant_Aerials_2009 | 2009 | None | A vertical angle photograph of PGDP and the surrounding area, which includes most of Parcel 1. Shows new parking area off McCaw Road where the Tennessee Valley Authority substation will be built. |
| 17 | 06-9-17-6 | June 09, 2017 | Cardinal Aviation Services.com | Oblique angle that looks west across PGDP and Parcel 1. |
| 18 | KY Division of Geographic Information (DGI) | 2022 | DGI Environmental Systems Research Institute, Inc. (ESRI) (see link below) https://kygeonet.maps.arcgis.com/apps/mapviewer/index.html?webmap=ba05e691cf3a4acd9583b12ccf09856e | High-resolution vertical angle imagery shows PGDP and Parcel 1 area. |


**Figure B.1. 43PGD007 (June 20, 1943)**

Description: CSE-142A-7

Note: Viewing southwest to northeast.


**Figure B.2. 52PGDP66 (February 21, 1952)**

Description: 1-66 GS=SW

Note: Viewing southwest to northeast.

**Figure B.3. 52PGDSBBe (1952)**

Note: Viewing southwest to northeast.


**Figure B.4. 59PGD136 (October 19, 1959)**

Description: ADZ 4W

Note: Viewing southwest to northeast.


**Figure B.5. 71PGD007 (May 14, 1971)**

Description: ADZ-4LL-7

Note: Viewing southwest to northeast.


**Figure B.6. 71PGD008 (May 14, 1971)**

Description: ADZ-4LL-8

Note: Viewing southwest to northeast.

**Figure B.7. 74PG152E (1974)**

Note: Viewing southwest to northeast.

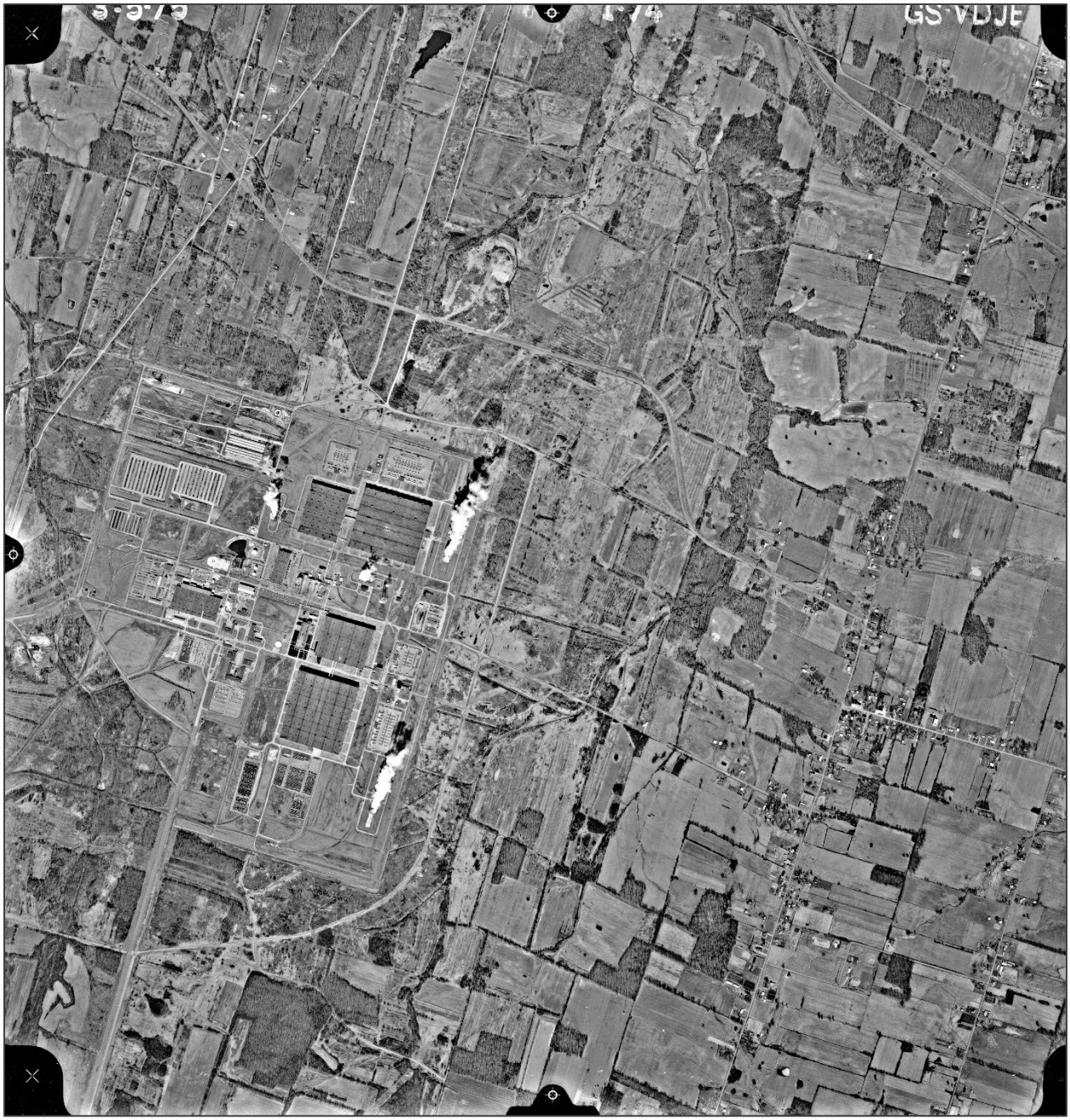


**Figure B.8. 75PGD074 (1975)**

Description: GS-VDJE

Note: Viewing southwest to northeast.

**Figure B.9. 81PGD100E (1981)**

Note: Viewing southwest to northeast.

**Figure B.10. 83PGD124E (1983)**

Note: Viewing southwest to northeast.


**Figure B.11. 88PGD050 (1988)**

Description: 630 050

Note: Viewing southwest to northeast.


**Figure B.12. 94PGD103 (March 6, 1994)**

Description: NAPP 11:58 6091-10340

Note: Viewing southwest to northeast.


**Figure B.13. 98PGD054 (November 22, 1998)**

Description: NAPP 11412-54

Note: Viewing southwest to northeast.

**Figure B.14. 11-03-09-42 (2009)**

Note: Viewing southeast to northwest.

**Figure B.15. 11-3-09-53 (2009)**

Note: Viewing east to west.

**Figure B.16. Half_Ft_Plant_Aerials_2009 (2009)**

Note: Viewing south to north.


**Figure B.17. 06-9-17-6 (June 9, 2017)**

Description: Cardinal Aviation Services.com

Note: Viewing east to west.


**Figure B.18. KY Division of Geographic Information (DGI) (2022)**

Description: DGI ESRI
https://kygeonet.maps.arcgis.com/apps/mapviewer/index.html?webmap=ba05e691cf3a4acd9583b12ccf09856e

Note: Viewing southwest to northeast.

# ATTACHMENT B1

# PARCEL 1 HISTORICAL TOPOGRAPHIC MAPS

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# FIGURES

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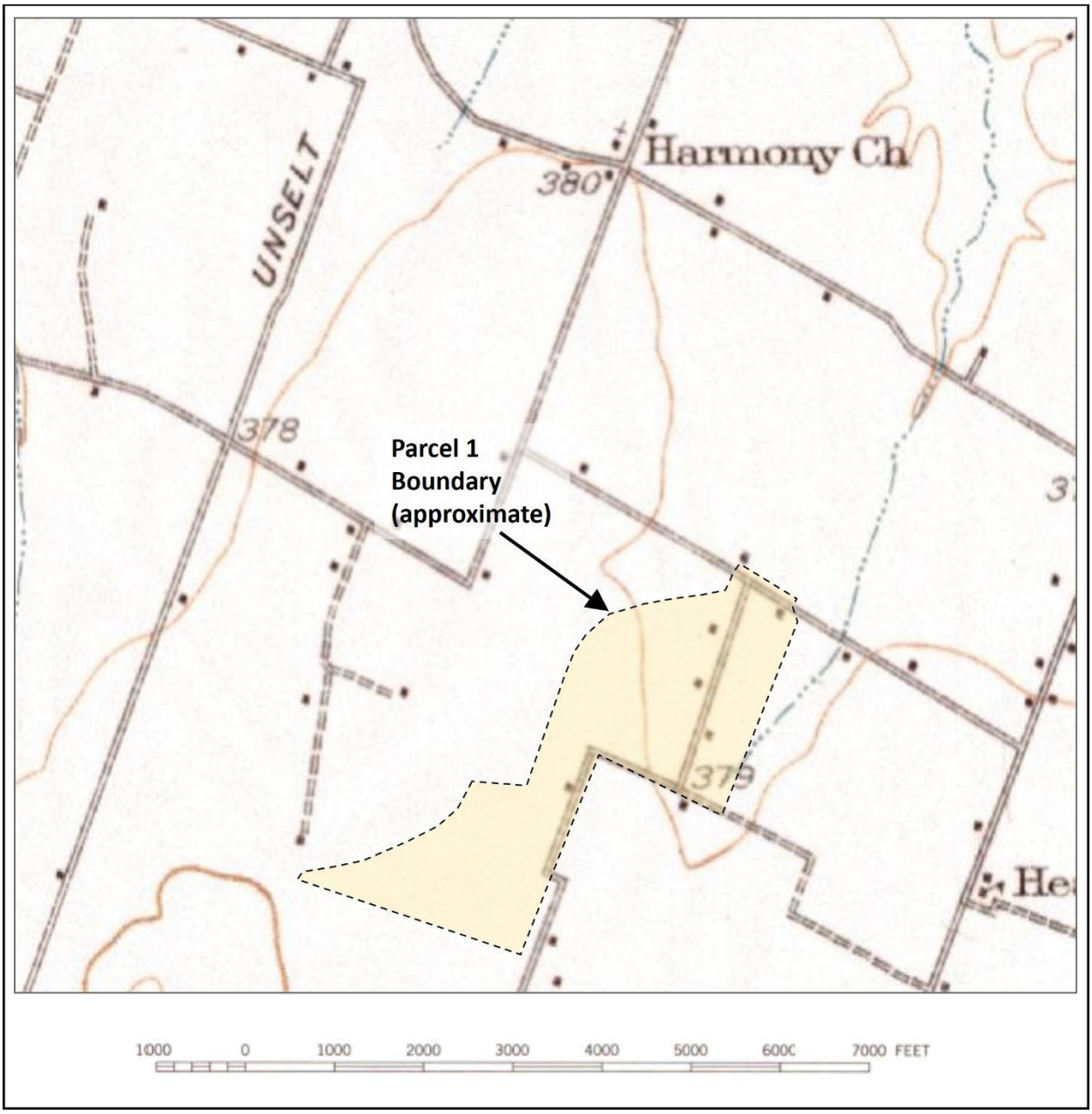


**Figure B1.1. Portion of 1932 U.S. Geological Survey Topographic Map Showing Parcel 1**

Note: The Parcel 1 boundary is approximately located. Viewing southwest to northeast.

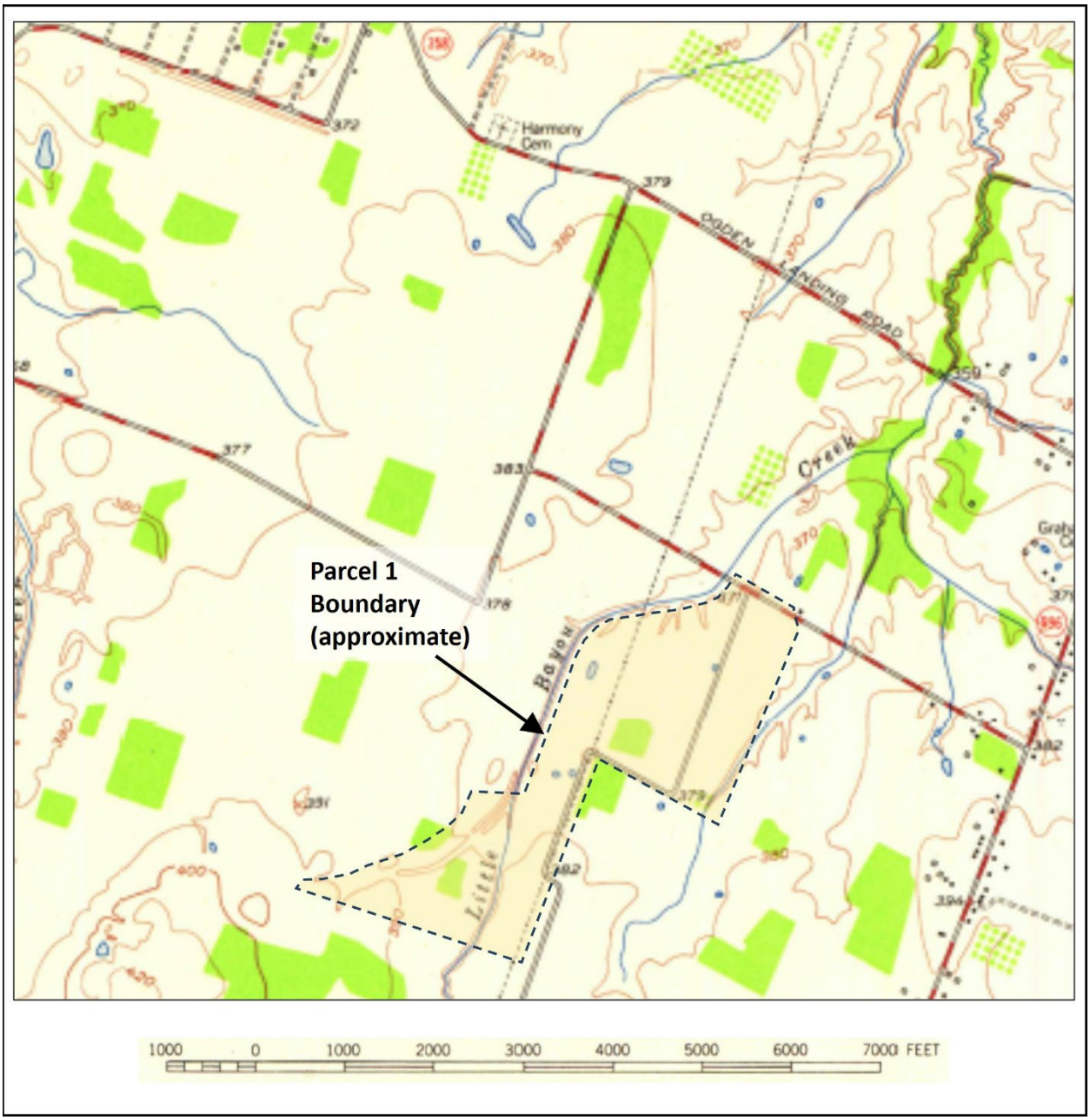


**Figure B1.2. Portion of 1954 U.S. Geological Survey Topographic Map Showing Parcel 1**

Note: The Parcel 1 boundary is approximately located. Viewing southwest to northeast.

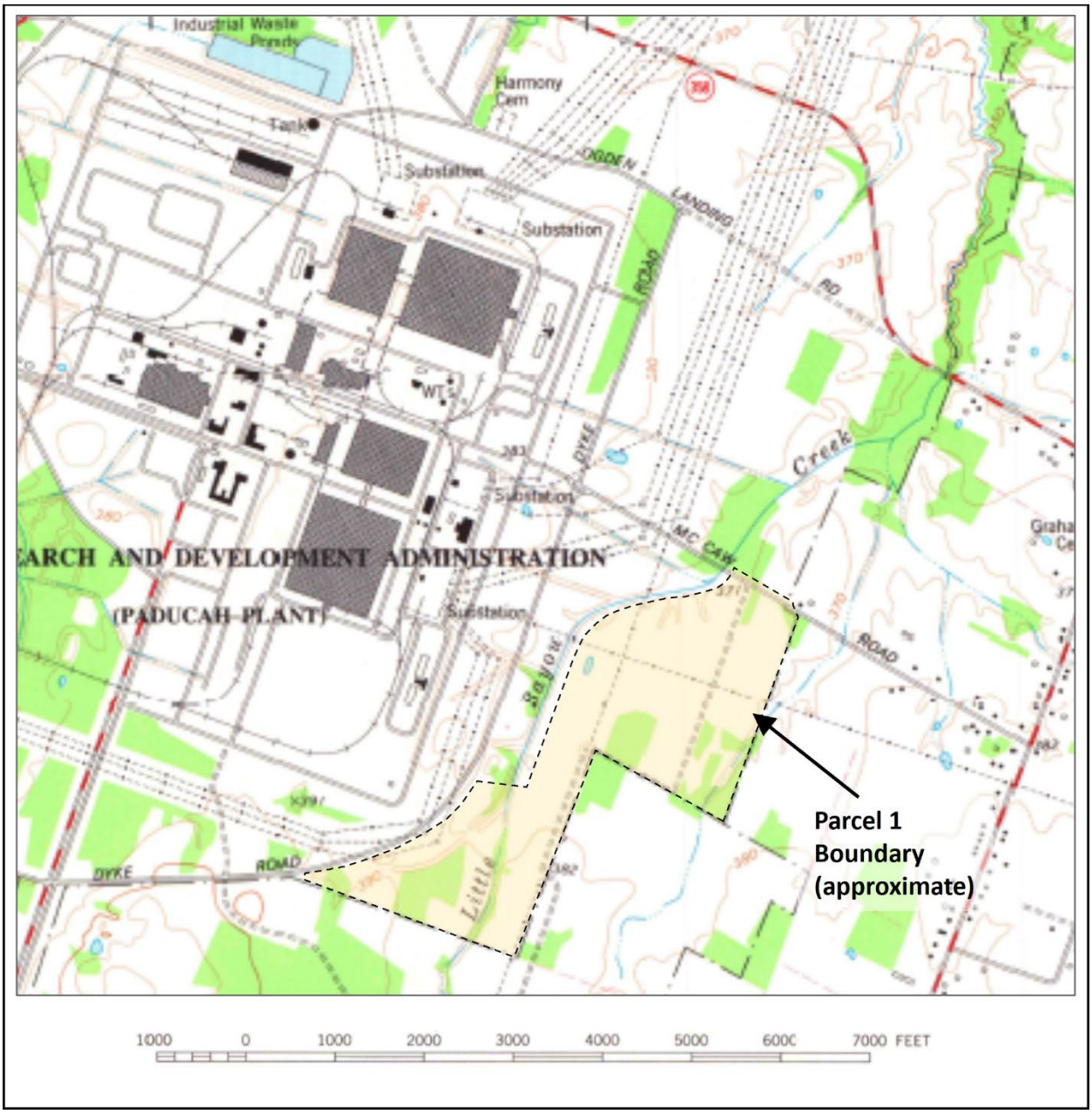


**Figure B1.3. Portion of 1978 U.S. Geological Survey Topographic Map Showing Parcel 1**

Note: The Parcel 1 boundary is approximately located. Viewing southwest to northeast.

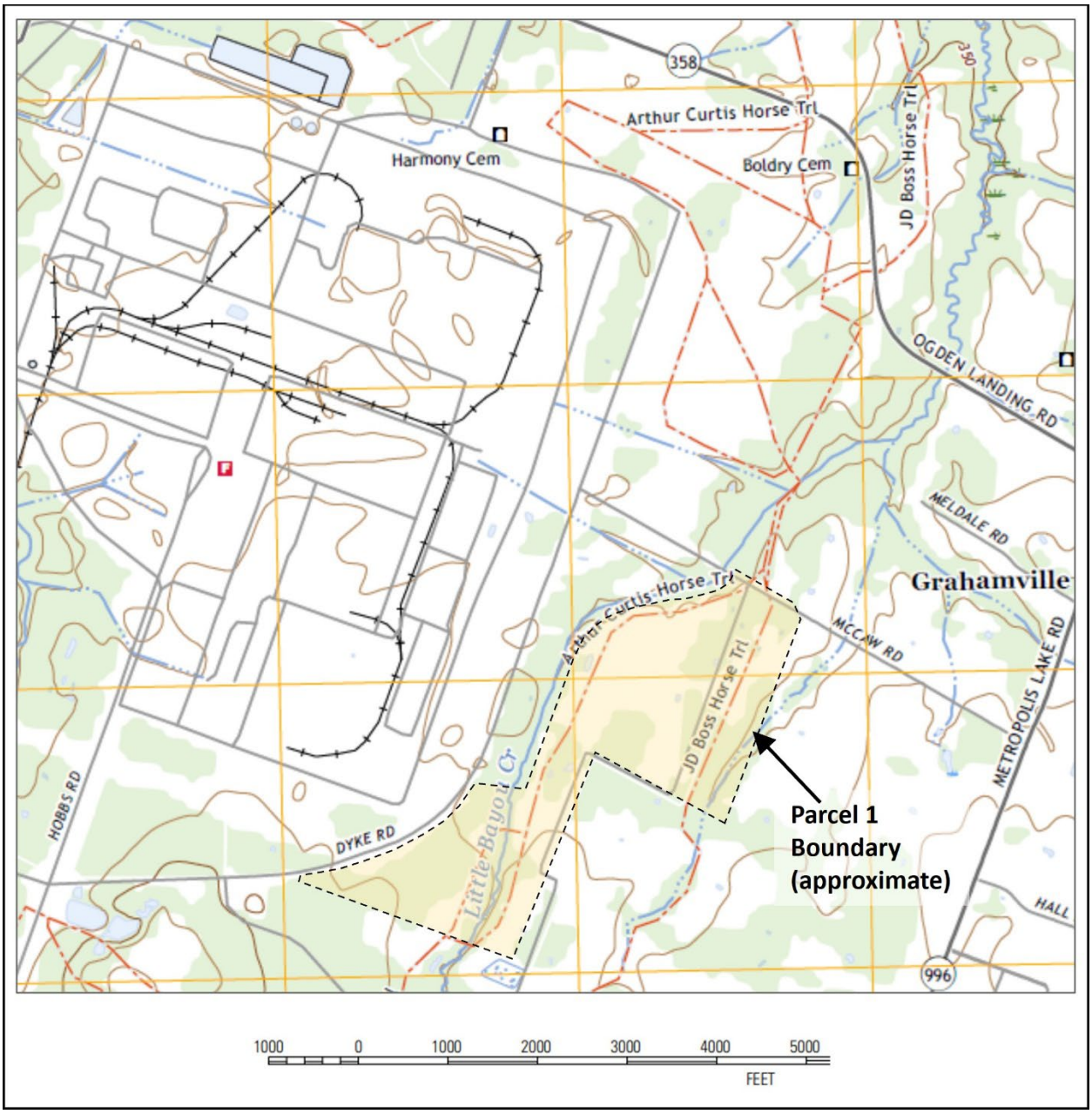


**Figure B1.4. Portion of 2022 U.S. Geological Survey Topographic Map Showing Parcel 1**

Note: The Parcel 1 boundary is approximately located. Viewing southwest to northeast.

# APPENDIX C

# INTERVIEWS

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# CONTENTS

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# INTERVIEWEE 1—DOE CONTRACTOR, EMPLOYEE 1

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name: [redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>I am involved in completing inspections on the outfalls on a weekly and monthly basis. I'm also the FM for the Little Bayou Creek. |
| 4. Is your involvement past or present? Past and present. |
| 5. During what years were you involved with the property proposed for transfer? 2014 thru present. |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Yes |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?<br>There was oil detected at Outfall 012 in 2018.It was determined that the oil came from C-533 switchyard and flowed to Outfall 012. |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible.<br>[redacted] |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?<br>See comments above. |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? Yes |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.<br>After becoming aware of the oil in the ditch leading to Outfall 012, booms and pads were installed to prevent the oil from moving past the outfall. Booms and pads were changed out regularly to prevent the controls from being saturated and releasing oil downstream. Frequent inspections were completed to monitor progress and conditions over the next few months. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

| | |
|---|---|
| Name: [redacted] | Phone number: [redacted] |
| Name: | Phone number: |
| Additional Comments: | |

# INTERVIEWEE 2—DOE CONTRACTOR, EMPLOYEE 2

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name: [redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer: I sampled the soil piles located on the west side of Little Bayou Creek. I also sampled the monitoring wells located along Dyke Road. |
| 4. Is your involvement past or present? Past |
| 5. During what years were you involved with the property proposed for transfer? 2006-2017 |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Yes |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of? The soil piles on the west side of Little Bayou Creek are rad contaminated and are posted as a CA. |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible. [redacted] |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. NO |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. NO |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

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|---|---|
| Name: | Phone number: |
| Name: | Phone number: |
| Additional Comments: | |

# INTERVIEWEE 3—DOE CONTRACTOR, EMPLOYEE 3

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name: [redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>I worked with Chemical Operations and Waste Management During my time at PGDP. Both Organizations Dealt with Cleaning of and Packaging spill sites. |
| 4. Is your involvement past or present?<br>Past |
| 5. During what years were you involved with the property proposed for transfer?<br>1974 – 2022 |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. NO |

| |
|---|
| 6(c). What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of? |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible. |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. NO |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. NO |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions. |
| 8(d). Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. NO |

| | |
|---|---|
| Name: | Phone number: |
| Name: | Phone number: |
| Additional Comments: | |

# INTERVIEWEE 4—DOE CONTRACTOR, EMPLOYEE 4

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name: [redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer: Environmental oversight duties working for Martin Marrietta. |
| 4. Is your involvement past or present? Past. |
| 5. During what years were you involved with the property proposed for transfer?<br>Early to mid 1990's |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? No |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of? |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible. |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. Yes |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release. A large release of Recirculating Cooling Water (RCW) from the C-633, Cooling Tower. The water contained a zinc and chromate corrosion inhibitor. The release occurred on the south end of the tower entered the ditch to Outfall 013 then Little Bayou Creek. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? No |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. Yes |

| | |
|---|---|
| Name: [redacted] | Phone number: [redacted] |
| Name: | Phone number: |
| Additional Comments: | |

# INTERVIEWEE 5—DOE CONTRACTOR, EMPLOYEE 5

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name:<br>[redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>Chemical Operations Supervisor |
| 4. Is your involvement past or present?<br>Past |
| 5. During what years were you involved with the property proposed for transfer?<br>Late 1980's into early 1990's |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Possibly chromate |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?<br>Possibly chromate. |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire).Around Outfall #10 along Dyke Road |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible.<br>N/A |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?<br>Possibly chromate. |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release.<br>I responded to a cooling tower water leak that potentially had chromate involved on that part of the property in the late 1980's or early 1990's. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? No |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.<br>Potential sampling. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? [redacted] |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

| | |
|---|---|
| Name: | Phone number: |
| Name: | Phone number: |

Additional Comments:
The occurrence report for this incident can provide more insight into this event.

# INTERVIEWEE 6—DOE CONTRACTOR, EMPLOYEE 6

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name: [redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>I have worked at the plant for 32 years which has included environmental sampling & inspections. |
| 4. Is your involvement past or present? Both |
| 5. During what years were you involved with the property proposed for transfer?<br>1992 - Present |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Yes |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c). What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of? Utilities and Power Operations personnel would discuss historical spills of oil from electrical equipment. |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). Released to Little Bayou Creek |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible. [redacted] |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Yes |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release. ~ January 2018<br>~1200 gallons of mineral oil from a reactor in C-533 Switchyard. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? Yes |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions. Oil spill exited the plant through outfall 012. Oil was cleaned up by contractor personnel. |
| 8(d). Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? See Above 6(e). |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

| | |
|---|---|
| Name: [redacted] | Phone number: [redacted] |
| Name: [redacted] | Phone number: [redacted] |

Additional Comments:

NONE

# INTERVIEWEE 7—DOE CONTRACTOR, EMPLOYEE 7

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name:<br>[redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>The area has outfalls that are sourced from the PGDP. I was involved in the project to install the equipment for managing the outfalls and later manager over the responsibility of surveillance and maintenance. I was also responsible for the new switch yard installation and mange right of way / easement for DOE provided to power provider. |
| 4. Is your involvement past or present?<br>Past and present. |
| 5. During what years were you involved with the property proposed for transfer?<br>Somewhat from 1976 to 1994. In 1994, the outfall lift station and flames were installed. Pump and treat in that area was setup to return to C-637 cooling tower. Worked on power line casements - 2021. |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? There were spills of oil, they were contained in the ditches in most cases. Oil spill went into Little Bayou Creek. |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?<br>Mineral oil, hydraulic oil from C-333A out 012 |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). In the ditches. |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible.<br>N/A |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?<br>Same. |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release.<br>N/A |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? Nothing outside of the ditch. |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.<br>N/A |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? N/A |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |
| Name: [redacted] Phone number: [redacted] |
| Name: Phone number: |
| Additional Comments: |

# INTERVIEWEE 8—DOE OVERSIGHT CONTRACTOR, EMPLOYEE 1

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# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name:<br>[redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>Technical Support Contractor review and research in support of DOE. |
| 4. Is your involvement past or present?<br>Present |
| 5. During what years were you involved with the property proposed for transfer?<br><br>2024 |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? No |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?<br><br>None |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible. |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?<br>Yes |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release.<br>In the early 1990s a leak developed on the C-633 cooling tower that leaked a large amount recirculating cooling water into outfall 012 and Little Bayou creek. Check ORPS and problem reports and the PSS logs. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? Emergency spill response |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.<br>A plywood and sandbag dam was constructed and water was pumped from the upstream side of the temporary dam. Some of the water was vacuumed using the "Super Sucker" truck. Activities occurred around the clock for a few days. For process gas releases the Emergency Squad responded to mitigate the release as much as possible. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? yes |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

| | |
|---|---|
| Name: [redacted] | Phone number: [redacted] |
| Name: | Phone number: |

Additional Comments:
Various oil leaks (some PCB contaminated) have occurred in the switchyards that may may have been washed from the rock base into the surrounding ditches. During process purging from the building jets and some of the legacy releases (C-337A, C-310, C-315), process gases have settled in the surrounding area and have potentially been washed into the area ditches. During demolition of the C-340 UF4 facility, the wind could have blown some contamination into the surrounding area.

# INTERVIEWEE 9—WEST KENTUCKY WILDLIFE MANAGEMENT AREA EMPLOYEE

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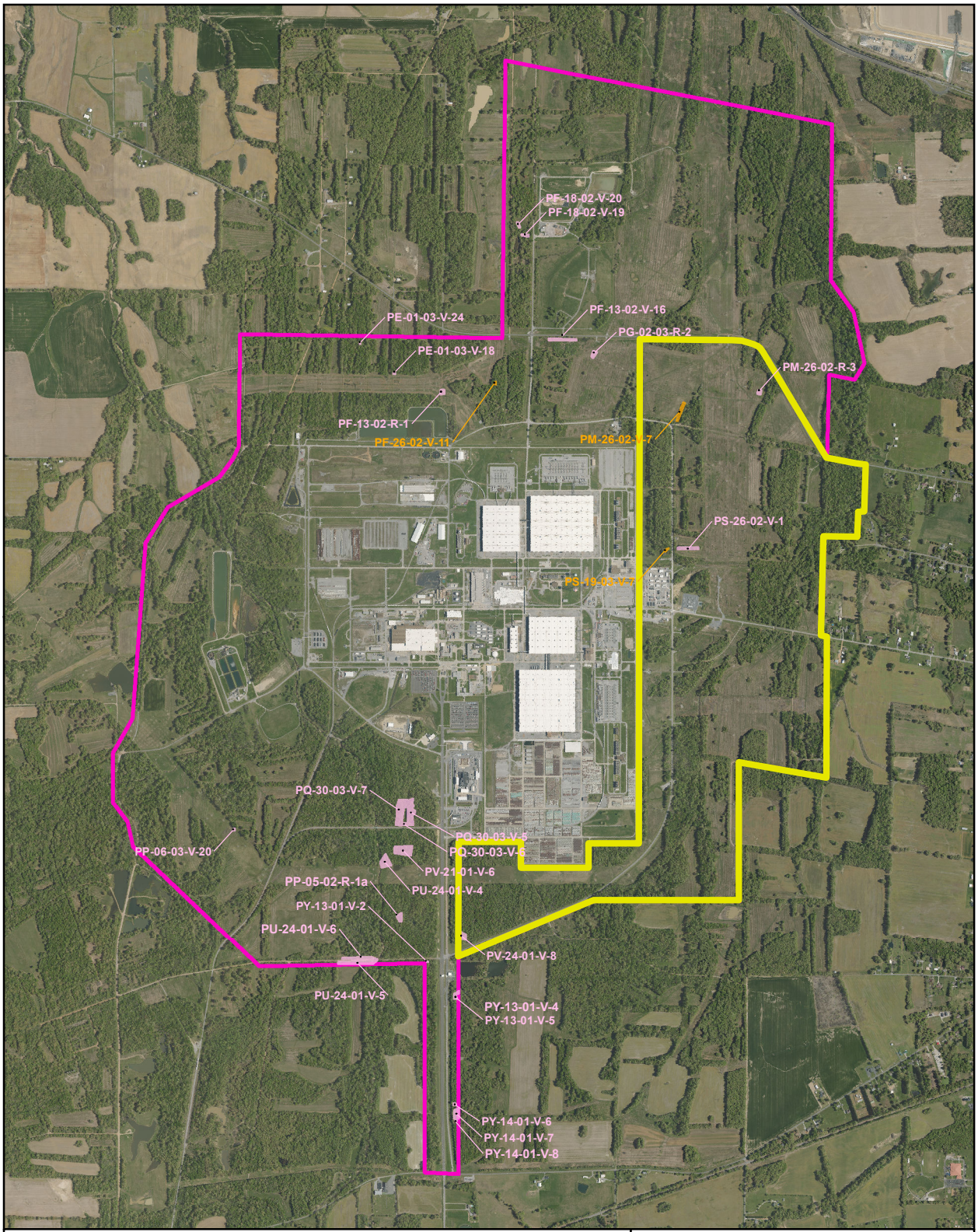
# APPENDIX K – ENVIRONMENTAL BASELINE SURVEY REPORT INTERVIEW FORM

| Environmental Baseline Survey Report (EBS) Interview Form |
|---|
| The purpose of an EBS conducted under CERCLA 120(h) is to identify and document the environmental conditions of property proposed for transfer. The information obtained is used in an Environmental Baseline Survey report that is sent for regulatory review and ultimately acceptance. A final EBS is used to support the review of the proposed transfer by DOE HQ and is part of the "transfer package" that provides information on a property proposed for transfer. The EBS is also provided to the lessee or new owner for informational purposes.<br><br>The objective of this questionnaire is to be able to "determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property." Part of the research done to make that determination is, per CERCLA 120(h)(4)(A)(vii) "interviews with current or former employees familiar with operations on the property" (proposed for transfer). In addition, interviews will also be conducted with others familiar with the operations or conditions of the property proposed for transfer. Although not all properties being evaluated for transfer will be determined to be uncontaminated, the questionnaire will be useful for environmental due diligence purposes for all types of transfers. This interview form will be provided to each individual subject to the interview, whether conducted individually or in a group.<br><br>*You are being interviewed/asked to complete the form because you are a current or former employee familiar with operations on the property proposed for transfer or someone familiar with the operations on or conditions of the property proposed for transfer. A figure showing the property proposed for transfer is attached to this questionnaire.* |
| Property Proposed for Transfer:<br>Parcel 1, as shown in figure attached. |
| 1. Name:<br>[redacted] |
| 2. Work Phone Number: [redacted] |
| 3. Your involvement with the property proposed for transfer:<br>I have been the on-site WKWMA biologist and property manager since 1998. |
| 4. Is your involvement past or present?<br>Both. |
| 5. During what years were you involved with the property proposed for transfer?<br>1998-current. |
| **Questions about prior releases on the property proposed for transfer** |
| 6(a). During your involvement with the property, did you become aware of any prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property? Yes. |
| 6(b). If no, please indicate no. If yes, please proceed to the next question. |

| |
|---|
| 6(c).What prior releases of hazardous substances or petroleum products (including aviation fuel and motor oil) were you informed of?<br>Radionuclides and metals in the outfall ditches originating from the Little Bayou Creek. PCB's coming off of the transformer yards. The Northeast Plume is in the figure outlined for transfer. |
| 6(d). Approximately where on the property did the prior releases occur? (please mark information on the map of the proposed property provided with the questionnaire). Outfall ditches, soil piles along LBC, creeks |
| 6(e). Who should we contact to find out about the prior releases that occurred on the property? Please provide a name and phone number, if possible.<br>[redacted] |
| **Questions about releases during your involvement with the property proposed for transfer** |
| 7(a). During your involvement with the property, are you aware of any releases of hazardous substances or petroleum products (including aviation fuel and motor oil) that occurred on the property?<br>Yes. |
| 7(b). If no, please indicate no, if yes, please proceed to the next question. |
| 7(c). Describe the release or releases that occurred that you are aware of. Note the date or dates of the releases(s) with as much specificity as you can (month/date/year, if known). Provide as much detail as possible including copies of Plant Shift Superintendent (PSS) logs if available/applicable. Indicate on a map the approximate location of the release.<br>The same information as prior releases. There are still signs on parts or all ditches that are marked as containing hazardous materials. |
| **Questions about response actions during (or after) your involvement with the property proposed for transfer** |
| 8(a). Are you aware of any follow-up response action that was taken on the property? Yes. |
| 8(b). If no, please indicate no. If yes, please proceed to the next question. |
| 8(c). Provide any details that you have about the response to the release including copies of reports, or titles of reports, on the response actions.<br>Trained personnel monitor and sample when beavers build dams in the area. |
| 8(d).Are there other individuals that should be contacted to potentially provide additional information about the release and/or the response to the release? |
| 8(e). If no, please indicate no. If yes, please provide the names and phone numbers of the people to be contacted so more information may be sought. |

| | |
|---|---|
| Name: [redacted] | Phone number: |
| Name: [redacted] | Phone number: [redacted] |

Additional Comments: I have concerns with prior issues that could affect the potential property transfer and what will happen if there is a lack of interest after disclosing the property's hazards and history. I also have concerns that the interested parties may not be aware of the preexisting issues on the property.




Parcel 1
Sitewide Evaluation Anomaly Selected for Sampling
Sitewide Evaluation Anomaly Alternate for Sampling
DOE Boundary

0 1,250 2,500 5,000 Feet

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

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

**MAP SOURCE INFORMATION**
Map Generation Date and Location: G:\GIS\ARCVIEWS\PROJECTS\Land Transfer\Selected_SE_UnitsR2.mxd 5/6/2024
Parcel 1; Anomalies-- G:\GIS\ARCVIEWS\PROJECTS\Land Transfer\Parcel1-Complete.shp, ...\Anomalies.shp
DOE Boundary-- G:\GIS\iPEGASIS.gdb\doebnd

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# APPENDIX D

# DATA QUALITY OBJECTIVES

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# Paducah Real Property Transfer

## *Parcel 1 – Data Quality Objectives*

March 25, 2024

1

## Overall Objective

- Develop data quality objectives (DQOs) for environmental due diligence to support the real property transfer of Parcel 1 at the Paducah Gaseous Diffusion Plant.
- DQOs to meet requirements of Comprehensive Environmental Resource Compensation and Liability Act (CERCLA) 120(h)(4) and U.S. Department of Energy (DOE) Order (O) 458.1.
- If additional data collection is needed, additional DQOs may need to be developed.
- DQOs to be sufficient to support the preparation of an Environmental Baseline Survey (EBS) report that concludes (and is accepted) that the property is suitable for transfer as uncontaminated.

2

## Uncontaminated Property Transfer Process

- **Proposed Parcel Status.** Once real property suitable for transfer is identified, the environmental due diligence process commences to determine if the identified parcel is eligible for transfer as uncontaminated per CERCLA 120(h)(4) and DOE O 458.1.
- **Process.** The process is designed to identify if there has been a release and includes:
  - a review of relevant records,
  - walkdown and photography of the property,
  - interviews with people knowledgeable of the property and operations that may have occurred on it and immediately adjacent to it,
  - a review of historical data and comparison to background and/or risk-based levels, and
  - the evaluation may also be based on new sampling/analysis, if needed.
  - The process follows the PPPO transfer protocols and procedure
    - *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites, Volume 1: CERCLA 120(h)(4) - Uncontaminated Property*, PPPO-3329827, Rev. 5
    - *Protocol for the Environmental Regulatory Processes for the Transfer of Real Property at the U.S. Department of Energy Portsmouth and Paducah Sites, Volume 2: CERCLA 120(h)(3) - Remediated Property*, PPPO-4609975, Rev. 3
    - Procedure - *Planning and Due Diligence for Real Property Transfer*, PPPO-3463195
- **Purpose.** To investigate the parcel "to determine or discover the obviousness of the presence or likely presence of the release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil", on the real property (CERCLA 120(h)(4)(A)) and confirm compliance with DOE O 458.1.

3

## Property Transfer Evaluation Documentation (EBS)

- **Environmental Baseline Survey Report (EBS).** The EBS documents the due diligence conducted on the parcel and demonstrates that the property is eligible for transfer as uncontaminated under CERCLA 120(h)(4) and non-impacted under DOE O 458.1.
- **Parcel Boundary Modification.** If evidence of a release is identified on a portion of the parcel proposed for transfer, the boundaries of the parcel may be adjusted to exclude the contaminated portion.
- **EBS Report Submittal.** The EBS report is transmitted to the state and/or federal regulators involved in the site's transfer programs for concurrence (as uncontaminated) under CERCLA 120(h)(4) and to DOE headquarters for concurrence as non-impacted under DOE 458.1.

4

## DQO Process Steps

- **Step 1. State the Problem.** Define the problem that necessitates the study; identify the planning team, examine budget, schedule
- **Step 2. Identify the Goal of the Study.** State how environmental data will be used in meeting objectives and solving the problem, identify study questions, define alternative outcomes
- **Step 3. Identify Information Inputs.** Identify data & information needed to answer study questions
- **Step 4. Define the Boundaries of the Study.** Specify the target population & characteristics of interest, define spatial & temporal limits, scale of inference
- **Step 5. Develop the Analytic Approach.** Define the parameter of interest, specify the type of inference, and develop the logic for drawing conclusions from findings
- **Step 6. Specify Performance or Acceptance Criteria.** Develop acceptance criteria for existing, or historical, data being considered for use
- **Step 7. Develop the Plan for Obtaining Data.** This step is only required if additional sampling is necessary to fill data needs, in which case Steps 1 through 6 would be revisited

5

## DQO Step 1: State the Problem

**Problem Statement: Parcel 1**

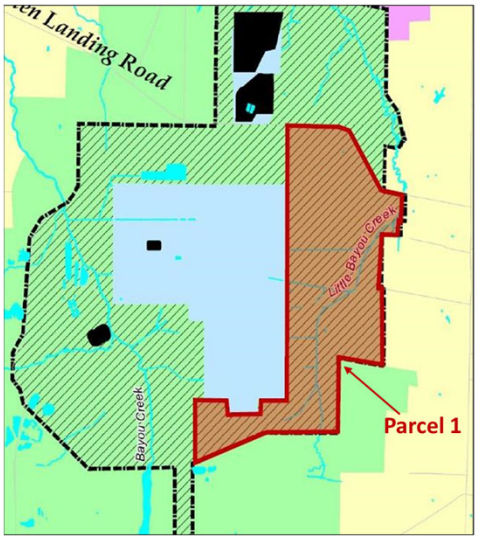
- Parcel 1 area is considered non-impacted and uncontaminated. Due diligence is needed to document Parcel 1 qualifies as uncontaminated under CERCLA 120(h)(4) and to demonstrate that at the time of transfer it is non-impacted and protective under DOE Order 458.1.
- The Parcel 1 media consists of soil, sediment, surface water, groundwater, and roadways within the area designated as Parcel 1 at the Paducah Gaseous Diffusion Plant (PGDP). Historical biological monitoring, if available, is also considered in the evaluation.
- ***Problem***: Determine what areas in Parcel 1 qualify as uncontaminated under CERCLA 120(h)(4) and non-impacted/protective under DOE O 458.1

6

## DQO Step 1: State the Problem

Parcel 1 consists of approximately 752 acres on the eastern/southeastern side of the DOE property to be evaluated for transfer.

Most of the parcel is currently licensed to the West Kentucky Wildlife Management Area (WKWMA).

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## DQO Step 1: State the Problem

**Problem Approach**

- DOE will review information and data to demonstrate the area is uncontaminated per CERCLA 120(h)(4) and non-impacted/protective under DOE Order 458.1.
- The project planning team consists of :
  - DOE Site Reuse Lead and DOE team
  - Site Contractors (primarily Four Rivers Nuclear Partnership [FRNP])
  - Additional subject matter experts as needed to support DOE real property transfer (e.g., Portsmouth Paducah Project Office [PPPO] Reuse Lead, PPPO Certified Health Physicist, Technical Support subcontractors)
- Schedule:
  - Goal is to have information/data available to support development and completion of a draft EBS report by July 29, 2024 and a final EBS report by September 25, 2024

8

## DQO Step 2: Identify the Goal of the Study

***What are the Principal Study Questions?***

- What DOE infrastructure is located on or off the parcel that data or history show could be a potential source of contamination to the Parcel 1 area?
- Do historical investigations on the parcel indicate disposal or release of hazardous substances or petroleum products or their derivatives onto or within the boundaries of Parcel 1?
- Does process history since completion of prior environmental investigations at PGDP indicate disposal or release of hazardous substances or petroleum products or their derivatives onto or within the boundaries of Parcel 1?
- What are sample quantitation limits (SQLs) for analytical data and measurement quality objectives (MQOs) for radiological data?
- What action level from the radiological scoping survey necessitates the collection of a physical sample (grab sample)?
- What are the metrics for determining "non-impacted" and "uncontaminated?" This includes storage and release of hazardous substances and presence of contamination in the media.
- Does the radiological scoping survey meet the PGDP implementation plan (DOE 2014) for DOE Order 458.1 and demonstrate attainment of Authorized Limits?

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## DQO Step 2: Identify the Goal of the Study

***What are the Principal Study Questions (cont.)?***

- What are the requirements for DOE to demonstrate the parcel is uncontaminated under CERCLA 120(h)(4)?
- If analytical results for chemical constituents are necessary to comply with the ability to demonstrate that there has not been a release or disposal of hazardous substances or petroleum products or their derivatives onto the Parcel 1 property, or where there is no indication that the release or disposal of hazardous substances or petroleum products has resulted in an environmental condition that poses a threat to human health or the environment (per CERCLA 120[h][4] criteria), how are those results obtained and evaluated?
- What are the requirements for the visual walkover/physical inspection MQOs and how will the information be evaluated?
- What regulatory requirements does the property fall under?
- Are there any Regulatory Based Action Levels that need to be considered?

10

## DQO Step 2: Identify the Goal of the Study

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

- The expected action, based upon the Problem Statement, is that the entire Parcel 1 area selected for evaluation is confirmed to be eligible for transfer as an uncontaminated parcel per CERCLA 120(h)(4), and non-impacted and protective under DOE Order 458.1.
- The alternative actions are:
  - Only portions of Parcel 1 are found to be non-impacted and uncontaminated (i.e., some portions are found to be impacted/contaminated), and the area is subdivided to allow a portion to be transferred as non-impacted/uncontaminated per CERCLA 120(h)(4).
  - All of Parcel 1 is determined to be impacted/contaminated and not eligible for transfer per CERCLA 120(h)(4).
  - Portions of Parcel 1 are found to be impacted/contaminated but do not require additional remediation and the property may be transferred pursuant to CERCLA 120(h)(3)

***What is the primary Decision Statement?***

- Determine what portions of Parcel 1 are eligible for transfer per CERCLA 120(h)(4) as uncontaminated or whether areas of contamination (chemical and/or radiological) exist that would require further evaluation or remediation.

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## DQO Step 3: Identify Information Inputs

**Data and information inputs used to evaluate Parcel 1 include the following:**

- Search of federal government records pertaining to historical land use for the real property
- Visual walkover survey (including photographs taken during the walkover survey)
- Site drawings (including utility drawings)
- Aerial photographs (including over time)
- Existing radiological survey results (photographs/maps)
- Decision documents prepared under the Federal Facility Agreement (FFA), an agreement between DOE, the U.S. Environmental Protection Agency (EPA), and Kentucky that establishes requirements for achieving site remediation in accordance with the Resource Conservation and Recovery Act (RCRA) and CERCLA at PGDP (EPA 1998)
- Interviews with current or former employees involved in operations on or near the real property
- Historical environmental data and results from previous radiological surveys, and historical biological monitoring evaluations

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## DQO Step 3: Identify Information Inputs

**Data and information inputs used to evaluate Parcel 1 include the following (cont.):**

- WKWMA operations and licensing records, plus interviews with WKWMA personnel
- List of chemicals of potential concern (COPCs) for media, including common site-related contaminants such as metals, uranium and uranium isotopes, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs).
- Existing environmental data.

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

- For purposes of CERCLA 120(h)(4), "uncontaminated" will be defined as no evidence of a release such that the level of each potential contaminant is at or below background or is within the EPA risk range.
- For purposes of DOE O 458.1, *"*non-impacted areas*"* will be defined as areas that (at the time of transfer) have no reasonable potential for residual radioactivity above release limits and otherwise comply with DOE 458.1. The level of detection for the radiological survey equipment needs to be suitable for evaluation against the PGDP Authorized Limits (without deed restrictions) (DOE 2012).

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## DQO Step 3: Identify Information Inputs

**Criteria used to evaluate data and information collected above includes the following (cont.):**

- Historical analytical data will be assessed to ensure its quality is adequate for use (DQA). If additional analytical data are needed to demonstrate areas as uncontaminated, reporting limits for fixed-base laboratories will be set at levels defined and previously approved in recent investigation documents or below target concentrations as identified for the project.
- Data first evaluated against PGDP background levels (DOE 2023). For those constituents with site-specific background exceedances, the data will be evaluated against expanded background values (e.g., Kentucky Energy and Environment Cabinet [KEEC] guidance [KEEC 2004]).
- For those COPCs that exceed background, screen data against risk-based concentrations taken from the PGDP Human Health RMD, starting with the residential land use scenario, and then the industrial worker, recreator, and outdoor worker (incl. wildlife worker) land use scenarios (at an excess lifetime cancer risk [ELCR] of $1\times10^{-6}$ and a hazard index [HI] of 0.1). For those areas that exceed the above values, evaluate the data against the entire EPA risk range and an HI of 1 to evaluate whether there is evidence of a release.
  - Soil screening levels (SSLs) for protection of groundwater taken from the PGDP Human Health RMD, starting with a DAF of 1, will be used for evaluation of potential migration of contaminants from soils to groundwater.
  - Groundwater screening levels taken from the PGDP Human Health RMD for the residential land use scenario will be used.
  - Screening levels taken from the PGDP Human Health RMD for surface water and sediment for the recreational use scenario will be used (the "recreational user" is considered a local resident with repeated visits).

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## DQO Step 3: Identify Information Inputs

**Existing Historical Data**

- **Visual walkover surveys**
- Radiological surveys
- Soil data
- Groundwater data
- Sediment data
- Surface water data

Much of Parcel 1 has been surveyed, visually and radiologically, to determine if PGDP operations have impacted the area.

Figure modified from: *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1256&D2 (DOE 2015)


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## DQO Step 3: Identify Information Inputs

**Existing Historical Data**

- **Visual walkover surveys**
- Radiological surveys
- Soil data
- Groundwater data
- Sediment data
- Surface water data

Several anomalies were identified in grids M, R, S, V, W, and X. The Soils OU Sitewide Evaluation concluded that no areas were identified that required either further CERCLA evaluation or designation as SWMUs or areas of concern. The results demonstrated that these anomalies do not represent unknown areas of contamination that pose a threat to the public or environment.

Figure modified from: *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1256&D2 (DOE 2015)


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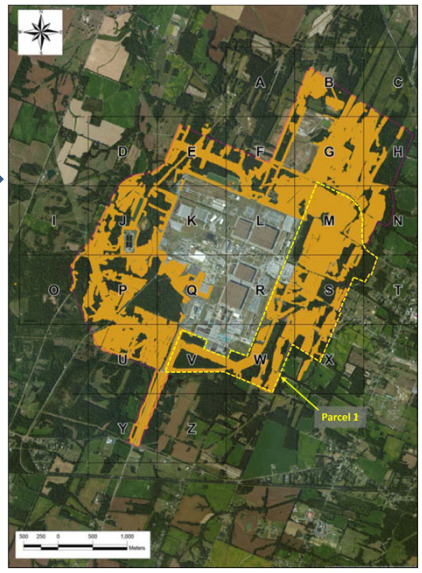
## DQO Step 3: Identify Information Inputs

**Existing Historical Data**

- Visual walkover surveys
- **Radiological surveys**
- Soil data
- Groundwater data
- Sediment data
- Surface water data

Much of Parcel 1 has been surveyed, visually and radiologically, to determine if PGDP operations have impacted the area.

Figure modified from: *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1256&D2 (DOE 2015)

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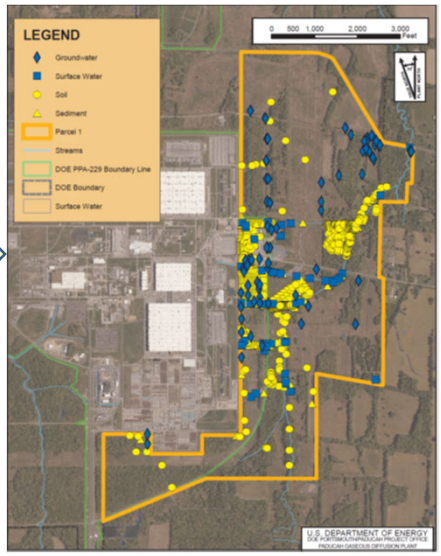
## DQO Step 3: Identify Information Inputs

**Existing Historical Data[1]**

- Visual walkover surveys
- Radiological surveys
- **Soil data**
- **Groundwater data**
- **Sediment data**
- **Surface water data**

[1] "Historical data" includes all prior data (site data collected from 1989 to present)




**All data locations collected since 1989**

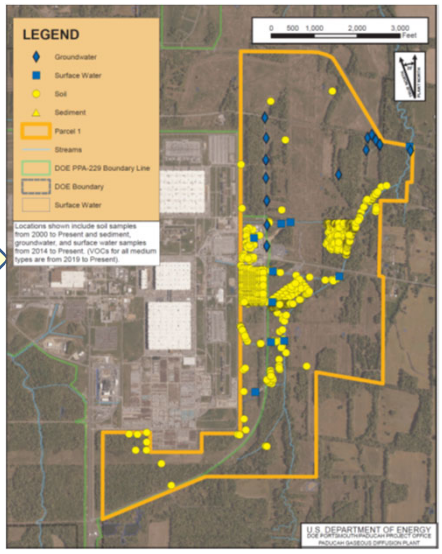
18

## DQO Step 3: Identify Information Inputs

**Existing Historical Data**

- Visual walkover surveys
- Radiological surveys
- **Soil data**
- **Groundwater data**
- **Sediment data**
- **Surface water data**

Locations show the application of the data "age" rules (i.e., soil data since 2000 used quantitatively for risk evaluation in the EBS, with exception of VOC data; VOCs in past 5 years evaluated quantitatively. Groundwater, surface water, and sediment collected since 2014 used quantitatively for risk evaluation in the EBS.)




**Locations after applying data "age" rules**

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## DQO Step 3: Identify Information Inputs

**Sources of Existing Historical Data/Information**

| Media | Project | Year(s) |
|---|---|---|
| Soil / Sediment | CERCLA Site Investigation - Phase 1 | 1989 - 1990 |
| | CERCLA Site Investigation - Phase 2 | 1991 |
| | Northeast Plume IROD | 1996 |
| | RCWC Data LMES96-28 | 1996 |
| | CERCLA Cell Preliminary Characterization of Site 3A | 2001 |
| | Soil Piles (Little Bayou Creek) | 2008 - 2010 |
| | USEC Soil Monitoring | 2009 - 2013 |
| | Surface Water OU Post Excavation Sampling | 2010 |
| | Sitewide Evaluation | 2015 |
| | Soils OU RI Report | 2016 |
| Groundwater | CERCLA Site Investigation - Phase 1 | 1990 |
| | Groundwater Monitoring Program | 1990 - 1996 |
| | CERCLA Site Investigation - Phase 2 | 1991 |
| | Groundwater Monitoring Phase IV | 1994 |
| | Outfalls 011/012 Time Critical Removal | 1995 |
| | Northeast Plume IROD | 1996 |

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## DQO Step 3: Identify Information Inputs

**Sources of Existing Historical Data/Information (cont.)**

| Media | Project | Year(s) |
|---|---|---|
| Groundwater | ACO Groundwater Monitoring | 1996 - 1998 |
| | Natural Attenuation Project | 1997 |
| | SemiAnnual Surveillance Monitoring - Revised EMP GWES01-08 | 1997 - 2004 |
| | NE Plume Monitoring | 1998 - 2010 |
| | False Claims Investigation - DOE Headquarters-Groundwater | 1999 |
| | NE Well-Rehab Project NEOPS01-13 | 2001 |
| | Geochemical Environmental Annual | 2005 - 2008 |
| | C-746-U Groundwater Assessment | 2008 |
| | Well Rehab Monitoring Well Sampling | 2009 |
| | Northeast Plume O&M Monitoring | 2010 - 2018 |
| | Geochemical Environmental Surveillance Monitoring Triennial | 2012 - 2021 |
| | NE Plume Optimization MWs Quarterly (April) | 2017 - 2023 |
| | Environmental Surveillance Monitoring | 2020 - 2023 |
| Surface Water | CERCLA Site Investigation - Phase 2 | 1991 |
| | Surface Water Monitoring Program | 1992 - 1994 |
| | SWOU On-Site RI/FS Report | 2008 |
| | SWOU Off-Site Work Plan | 2012 |

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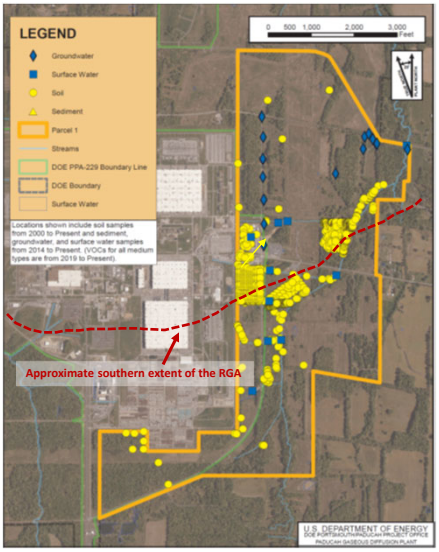
## DQO Step 3: Identify Information Inputs

**Existing Historical Data**

- Groundwater data (historical groundwater data collected since 2014 includes RGA)
- Older data includes some samples from the Terrace Gravel

Hydrogeologic cross-section provided on the next slide

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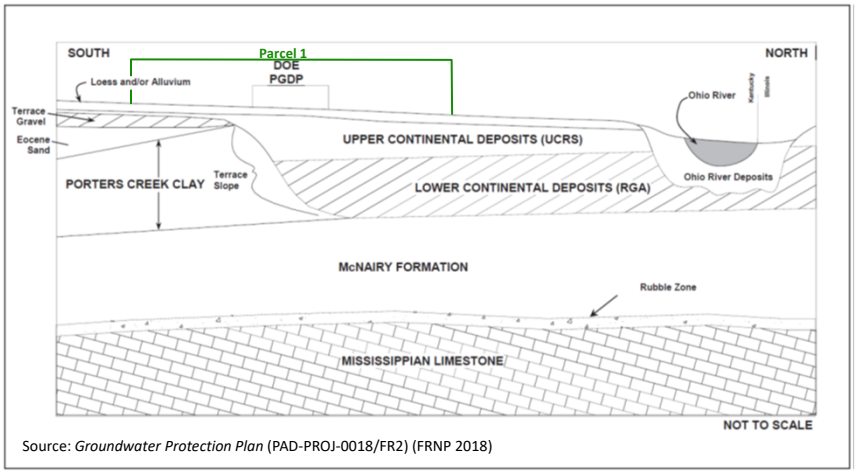
## DQO Step 3: Identify Information Inputs

**Hydrogeologic Cross-Section**




Source: *Groundwater Protection Plan* (PAD-PROJ-0018/FR2) (FRNP 2018)

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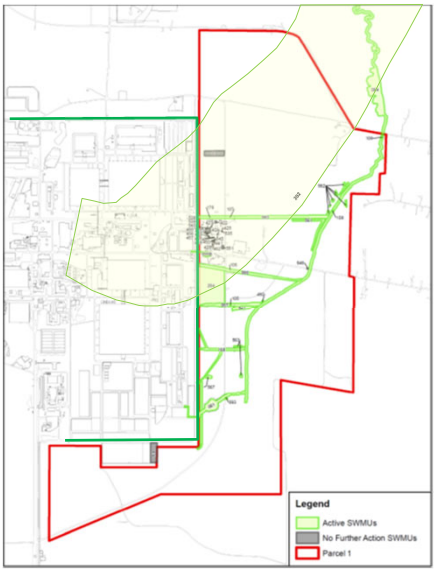
## DQO Step 3: Identify Information Inputs

**Solid Waste Management Units (SWMUs)**

There are several SWMUs located within the boundaries of the current Parcel 1 footprint. These include:

- Little Bayou Creek (SWMU 064)
- Northeast Groundwater Plume (SWMU 202)
- Soil Piles (SWMUs 492, 541, 561, 562, 563, 567)
- Ditches (SWMUs 060, 061, 066, 067, 168, 526)
- Concrete/Rubble (SWMUs 093, 105, 106, 107, 108, 109, 175)
- Historical Staging Area (SWMU 204)
- Historical Leach Field (SWMU 099B)

Plus several former storage areas are located in the C-755 Trailer Complex

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## DQO Step 4: Define the Boundaries of the Study

***What are the spatial boundaries?***

- Parcel 1 is approximately 752 acres with much of the area currently licensed to WKWMA. The eastern border of Parcel 1 is contiguous with the current DOE site boundary.
- Based upon a preliminary review, portions of Parcel 1 have been impacted by historical plant operations.
- Parcel 1 also has evidence of underlying groundwater impacts associated with the Northeast Groundwater Plume. The future use of the transferred property does not anticipate groundwater use. This area of the parcel would qualify for transfer under CERCLA 120(h)(3) if prohibition of groundwater use were implemented as a remedial measure.

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## DQO Step 4: Define the Boundaries of the Study

***What are the vertical boundaries for this project?***

- The vertical boundary for soil is 0 to 1 ft below ground surface (bgs). To account for subsurface infrastructure, the vertical boundary for subsurface soil evaluation will be 16 ft bgs. An additional vertical boundary is the groundwater table.

***What are the temporal boundaries for this project?***

- The temporal boundaries for this project are primarily related to the types of data/information. For example:
  - Historical data back to 1989
  - Aerial photography back to 1943
  - Property deeds back to 1860s.

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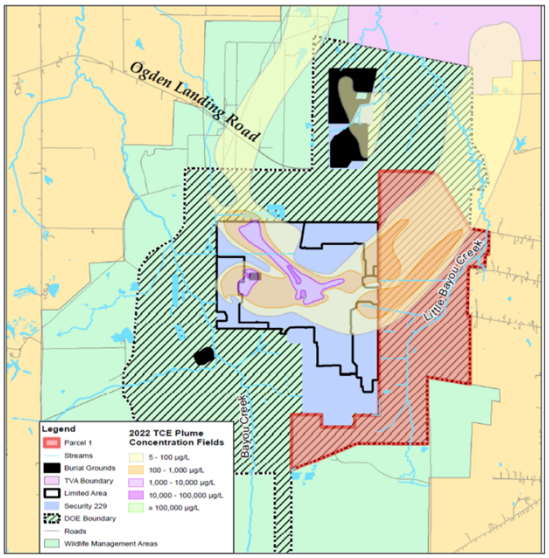
## DQO Step 4: Define the Boundaries of the Study

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## DQO Step 5: Develop the Analytic Approach

Existing or historical data and information are evaluated to determine if they are adequate and representative to support the transfer of DOE real property. If data are not adequate and representative, data gaps are identified and additional data would need to be gathered to ensure adequate, sufficient, and representative data to support the due diligence effort (additional sampling is not planned under the current scope).

Decision rules are developed to support data adequacy.

**DECISION RULES FOR SOIL**

| Decision Rule No. | If | Then | Otherwise |
|---|---|---|---|
| 1 | Visual anomalies are identified based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), etc.; | Verify radiological survey data exists for the anomaly that demonstrate that the area meets criteria outlined in DOE O 458.1; | Implement a radiological survey of the anomaly with goal of 100 percent coverage (unless area is inaccessible and 100 percent coverage is not feasible, e.g., wooded areas). |
| 2 | Visual anomalies are identified based on areas of staining, mounding, depressions, debris (e.g., concrete, metal), etc.; | Verify representative data exist for the anomaly; evaluate data against background and risk-based levels to determine if data support a finding of uncontaminated under CERCLA 120(h)(4); | Collect a grab sample of the media which shows the visual anomaly for laboratory analysis (if the anomaly is on concrete or other man-made object, sample soil media immediately adjacent to the observed anomaly). |

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# DQO Step 5: Develop the Analytic Approach

**DECISION RULES FOR SOIL (continued)**

| Decision Rule No. | If | Then | Otherwise |
|---|---|---|---|
| 3 | Areas of subsurface infrastructure that could be a potential source of contamination from DOE operations are identified; | Historical data from areas of subsurface infrastructure will be evaluated; | Determine if infrastructure should be sampled or excluded from the parcel. |
| 4 | The radiological scoping/sampling of a previously identified anomaly (from Decision Rule 1) exceeds the Authorized Limit for uranium-238(+D), or the X-ray fluorescence (XRF) result for uranium exceeds the analytical "no action" level; | Verify if adequate radiological data exist; determine if anomaly can be properly addressed as a maintenance action; | Determine the extent of the area with elevated measurements and collect a grab sample for laboratory analysis to determine if the area should be excluded from the parcel. |
| 5 | The radiological scoping survey of the open areas or traverses through the wooded areas identifies elevated areas based on comparison to background or based on inflection point analysis; | Verify if adequate radiological data exist; | Collect a grab sample from the area of elevated activity for laboratory analysis. |
| 6 | Analytical results from physical samples exceed the SSLs or Authorized Limits; | Determine if data indicate a release; I.D.locations that need further evaluation; | Exclude the portion of the parcel with exceedances. |
| 7 | Additional data are going to be collected; | Subdivide the parcel into smaller cells and randomly sample the cells that do not contain a sample location (including historical data) and conduct a radiological scoping survey to eliminate large tracts with no survey data; | Proceed with development of the Environmental Baseline Survey. |

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# DQO Step 5: Develop the Analytic Approach

**DECISION RULES FOR ROADS AND OTHER "NON-SOIL" AREAS**

| Decision Rule No. | If | Then | Otherwise |
|---|---|---|---|
| 8 | Available radiological scoping of roads or other non-soil areas exceeds 2 times the established background for comparable building materials; | Further evaluate the potential cause of the elevated radioactivity and/or perform a maintenance action to address the impacted areas; | Remove roads or other non-soil areas from the parcel, if necessary. |

**DECISION RULES FOR SURFACE WATER AND GROUNDWATER**

| Decision Rule No. | If | Then | Otherwise |
|---|---|---|---|
| 9 | Perennial streams, open-water bodies (ponds), exist within the area; | Evaluate historical data to see if evidence of a release; | Collect grab samples for further evaluation. |
| 10 | Sediment accumulation areas (such as low-lying areas, areas along streams and open-water bodies, and wetlands) exist within the area; | Evaluate historical data to see if evidence of a release; | Collect grab samples for further evaluation. |
| 11 | Concentrations of groundwater COPCs exceed background, drinking water standards (maximum contaminant levels), or risk based levels; | Further evaluate the potential cause/source(s) of the elevated levels and determine if they indicate a release from the parcel; | Collect additional samples for further evaluation. |

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## DQO Step 5: Develop the Analytic Approach

*Analytic Approach to Address Data Needs*

- Data are sufficient to proceed with development of an EBS report.
- If additional information on Parcel 1 is desired to support the uncontaminated/non-impacted determination, types of measurements/data may include:
  - Radiological scoping [e.g., sodium iodide detector measurements; high-purity germanium( HPGe) measurements]
  - Analytical data for PGDP-related COPCs from fixed-base laboratories.
- The parameters of interest for this project include the following:
  - Visual walkover anomalies
  - Areas of potential contamination based on an evaluation of historical data
  - Real-time measurements (e.g., measurements from previous radiological scoping surveys using sodium iodide detectors or HPGe detectors) and XRF results for soil
  - Individual analytical results for all COPCs from fixed-base laboratories.

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## DQO Step 6: Specify the Performance or Acceptance Criteria

With the preliminary assumption that Parcel 1 is nonimpacted and uncontaminated, the null hypothesis ($H_o$) is:

- ***$H_o$: Parcel 1 is eligible for transfer under CERCLA 120(h)(4) and is protective per DOE Order 458.1.***
- ***$H_a$: Parcel 1 is not eligible for transfer under CERCLA 120(h)(4) or is not protective per DOE Order 458.1.***

The null hypothesis will hold if the existing environmental data show results at the time of property transfer are below background, below risk-based levels, and below SSLs or results do not indicate a release from DOE operations has affected the parcel.

The null hypothesis will be rejected if there is confirmed contamination that requires additional response, remedial, or corrective action, based upon evaluation of analytical data.

Because Parcel 1 overlies a portion of the Northeast Groundwater Plume, which is being actively remediated, and several SWMUs are located on the property, the null hypothesis is rejected at this time, and Parcel 1, with current boundaries, is not eligible for transfer as an uncontaminated parcel.

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## DQO Step 7: Develop the Plan for Obtaining Data

- The goal of DQO Step 7 is to develop a resource-effective design for collecting and measuring environmental samples, or for generating other types of information needed to address the problem
- This step is only required if additional sampling is necessary to fill data needs, in which case Steps 1 through 6 would be revisited.

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