

PPPO-02-10011785-21



Department of Energy

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

July 20, 2021

Mr. Brian Begley Federal Facility Agreement Manager Division of Waste Management Kentucky Department for Environmental Protection 300 Sower Boulevard, 2nd Floor Frankfort, Kentucky 40601

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

Dear Mr. Begley and Mr. Weeks:

TRANSMITTAL OF THE SITE EVALUATION REPORT FOR THE C-360 TOLL TRANSFER AND SAMPLING BUILDING AND C-360 SLAB AND UNDERLYING SOILS (AREA OF CONCERN 572) AT THE PADUCAH GASEOUS DIFFUSION

PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2462&D1 In accordance with Appendix 4 of the approved Site Management Plan of the Paducah Federal Facility Agreement (FFA), the U.S. Department of Energy (DOE) hereby submits the D1 Site Evaluation Report for the C-360 Toll Transfer and Sampling Building and C-360 Slab and *Underlying Soils (Area of Concern 572) at the Paducah Gaseous Diffusion Plant, Paducah,* Kentucky, DOE/LX/07-2462&D1 (SE) to the U.S. Environmental Protection Agency (EPA) and the Kentucky Department for Environmental Protection (KDEP) for review and comment. A joint policy issued under the DOE and EPA Memorandum, dated May 22, 1995, Policy on Decommissioning Department of Energy Facilities Under CERCLA, establishes a framework for conducting the decommissioning of DOE facilities and provides guidance on the use of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response authority to decommission DOE facilities. This policy states that DOE is required to conduct a removal site evaluation, in accordance with the National Contingency Plan and interagency agreements (i.e., FFA), to assess site conditions and determine whether a release or substantial threat of release exists at the facility. DOE, EPA, and KDEP have agreed to conduct decontamination and decommissioning activities for those facilities that pose an environmental release threat at the Paducah Site under the existing FFA. Section IX, Site Evaluation(s), of the

FFA requires that DOE conduct integrated site evaluations that consist of the removal site evaluation, remedial site evaluation, and solid waste management unit (SWMU) assessment

reports. These integrated site evaluations are to be documented in an SE report.

The C-360 facility is listed in Appendix 4 of the Fiscal Year (FY) 2021 Site Management Plan (SMP) under the Detailed Facility Decontamination and Decommissioning Operable Unit (OU) Facilities List as pending an SE. Information was identified that warranted the designation of the C-360 slab and underlying soils as an area of concern (AOC). Submittal of the enclosed SE report serves as the notification required by Kentucky Hazardous Waste Management Facility Permit KY8-890-008-982 (Permit) Condition IV.B.1 and serves as a SWMU assessment report for the newly identified AOC in accordance with Condition IV.B.2 of the Permit. This AOC is designated as AOC number 572. DOE requests that AOC number 572 be added to Appendix A of the Permit during the next update of the Permit. Additionally, the enclosed SE report recommends a Resource Conservation and Recovery Act Facility Investigation for AOC 572 and for this AOC to be assigned to the Soils and Slabs OU in Appendix 4 of the FY 2022 SMP.

The enclosed SE report recommends that a CERCLA non-time-critical removal action for the facility is warranted. Upon approval, Appendix 4 of the SMP will be updated to indicate the facility status.

In accordance with Section XX of the FFA, EPA and KDEP have a 30-day review period to provide comments and/or approval of the document.

If you have any questions or require additional information, please contact me at (270) 441-6862.

Sincerely,

Tracey L. Digitally signed by Tracey L. Duncan
Duncan
Date: 2021.07.20
08:35:42-05'00'

Tracey Duncan
Federal Facility Agreement Manager
Portsmouth/Paducah Project Office

Enclosures:

- 1. Certification Page
- 2. Site Evaluation Report for the C-360 Toll Transfer and Sampling Building and C-360 Slab and Underlying Soils (Area of Concern 572) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2462&D1

Administrative Record File—ARF ARR

cc w/enclosures:

abigail.parish@pppo.gov, PPPO april.ladd@pppo.gov, PPPO april.webb@ky.gov, KDEP arcorrespondence@pad.pppo.gov bart.schaffer@ky.gov, KDEP brian.begley@ky.gov, KDEP bruce.ford@pad.pppo.gov, FRNP bwhatton@tva.gov, TVA christopher.travis@ky.gov, KDEP denorman0@tva.gov, TVA frnpcorrespondence@pad.pppo.gov hjlawrence@tva.gov, TVA jana.white@pad.pppo.gov, FRNP jennifer.woodard@pppo.gov, PPPO joel.bradburne@pppo.gov, PPPO leanne.garner@pad.pppo.gov, FRNP leo.williamson@ky.gov, KDEP mkbottorff@tva.gov, TVA mmcrae@TechLawInc.com, EPA myrna.redfield@pad.pppo.gov, FRNP nathan.garner@ky.gov, KYRHB pad.rmc@pad.pppo.gov robert.edwards@pppo.gov, PPPO stephaniec.brock@ky.gov, KYRHB tammi.hudson@ky.gov, KDEP tracey.duncan@pppo.gov, PPPO weeks.victor@epa.gov, EPA

CERTIFICATION

Document Identification:

Site Evaluation Report for the C-360 Toll Transfer and Sampling Building and C-360 Slab and Underlying Soils (AOC 572) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2462&D1

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

Four Rivers Nuclear Partnership, LLC

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

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

U.S. Department of Energy

Jennifer Woodard, Paducah Site Lead Portsmouth/Paducah Project Office

U.S. Department of Energy

Date Signed

Site Evaluation Report for the C-360 Toll Transfer and Sampling Building and C-360 Slab and Underlying Soils (Area of Concern 572) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky



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Site Evaluation Report for the C-360 Toll Transfer and Sampling Building and C-360 Slab and Underlying Soils (Area of Concern 572) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—July 2021

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

FIG	URES	V
ACF	RONYMS	. vii
1.	FACILITY NUMBER/NAME	1
2.	SOLID WASTE MANAGEMENT UNIT/AREA OF CONCERN NUMBER/DESCRIPTION	1
3.	DATE	1
4.	REGULATORY STATUS	1
5.	LOCATION	1
6.	APPROXIMATE DIMENSION OR CAPACITY	2
7.	FUNCTION	2
8.	BRIEF HISTORY	2
9.	OPERATIONAL STATUS	2
10.	DATES OPERATED	2
11.	SITE/PROCESS DESCRIPTION	2
12.	WASTE DESCRIPTION	2
13.	WASTE QUANTITY	3
14.	SUMMARY OF ENVIRONMENTAL SAMPLING DATA	3
15.	DESCRIPTION OF RELEASE AND MEDIA AFFECTED	3
16.	DOCUMENTATION OF NO RELEASE	4
17.	IMPACT ON OR BY OTHER SWMU/AOC	4
18.	PRELIMINARY REMEDIATION GOAL COMPARISON	4
19.	RCRA FACILITY INVESTIGATION NECESSARY	4
20.	CERCLA NTCRA NECESSARY	5
21.	OU ASSIGNMENT	5
22.	REFERENCES	5
APP	PENDIX: ENGINEERING DRAWINGS	A-1



FIGURES

1.	Aerial Photograph Showing the C-360 Toll Transfer and Sampling Building Location	6
2.	Map Showing C-360 Toll Transfer and Sampling Building Location	7
3.	Engineering Drawing A5E-14443-0001	8
4.	Engineering Drawing A5E-14443-0002	9
5.	North Side of C-360	10
6.	East Side of C-360	11
7.	South Side of C-360	12
8.	West Side of C-360	13
9.	Roof Drain Piping Painted Orange to Identify Potential Lead Joints and Green Paint on Pipe	
	Wrapping Indicating Non-asbestos Materials (9/2019)	14
10.	Equipment with Fixative Applied (9/2019)	15
11.	SWMUs and Sampling Locations near C-360	16
12.	C-360 Slab and Underlying Soils (AOC 572)	



ACRONYMS

ACM asbestos-containing material

AOC area of concern

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

D&D decontamination and decommissioning

DOE U.S. Department of Energy

EPA U.S. Environmental Protection Agency

FFA Federal Facility Agreement

LLW low-level waste

NTCRA non-time-critical removal action

OU operable unit

PGDP Paducah Gaseous Diffusion Plant

RCRA Resource Conservation and Recovery Act

RMA radioactive material area

SE site evaluation

SMP Site Management Plan SWMU solid waste management unit TSCA Toxic Substance Control Act



1. FACILITY NUMBER/NAME

C-360—Toll Transfer and Sampling Building

2. SOLID WASTE MANAGEMENT UNIT/AREA OF CONCERN NUMBER/DESCRIPTION

AOC 572—C-360 Slab and Underling Soils

3. DATE

June 2, 2021

4. REGULATORY STATUS

A joint policy issued under a U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA) Memorandum dated May 22, 1995, *Policy on Decommissioning Department of Energy Facilities Under CERCLA* (DOE 1995), establishes a framework for conducting decommissioning of DOE facilities and provides guidance on the use of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) response authority to decommission DOE facilities. The Policy states that DOE is required to conduct a removal site evaluation (SE) in accordance with the *National Contingency Plan* and interagency agreements [i.e., Federal Facility Agreement (FFA)] to assess site conditions and determine whether a release or substantial threat of release exists at the facility. At any facility for which DOE conducts a removal SE, DOE will consult with EPA and will provide, as requested, EPA with such information necessary for EPA to review such evaluation. DOE, EPA, and the Commonwealth of Kentucky have agreed to conduct decontamination and decommissioning (D&D) activities at the Paducah Gaseous Diffusion Plant (PGDP) under the existing FFA. Section IX [Site Evaluation(s)] of the FFA requires DOE to conduct integrated SEs that consist of removal SEs, remedial SEs, and solid waste management unit (SWMU) assessment reports. The integrated SEs are to be documented in a SE report consistent with the format in Appendix D of the FFA (EPA 1998).

Industrial facilities that DOE has determined to pose a potential threat of release of hazardous substances to the environment are listed as part of the facility D&D Operable Unit (OU) in Appendix 4 of the Site Management Plan (SMP) (DOE 2020). The SE report shall state whether demolition of the facility should be conducted using a CERCLA Non-Time-Critical Removal Action (NTCRA) and will serve to designate any facility, or portions thereof, that are related to any identified release as a SWMU and/or area of concern (AOC).

Based on historical information associated with past operations at C-360, including documentation of a known chromated water release, potential hydraulic oil system leaks/spills, and historical radiological contamination, the C-360 slab and underlying soils warrant designation as an AOC (AOC 572). Further, based on the historical information, a Resource Conservation and Recovery Act (RCRA) Facility Investigation is necessary for AOC 572 and a CERCLA NTCRA is recommended as necessary for the aboveground C-360 facility.

5. LOCATION

C-360 is located in the east-central portion of the Paducah Site industrialized area, southeast of the C-337 Process Building. See Figure 1, Aerial Photograph Showing the C-360 Toll Transfer and Sampling Building Location, and Figure 2, Map Showing the C-360 Location, for C-360 facility location.

6. APPROXIMATE DIMENSION OR CAPACITY

C-360 is a predominately two-story, prefabricated metal building built in 1983. A portion of the building is one story. The building has a basement. Some exterior transite panels and doors may have asbestos-containing materials (ACM). The total square footage of C-360 is approximately 17,800 ft² (see Figure 3, Engineering Drawing A5E-14443-001, First Floor Plan, and Figure 4, Engineering Drawing A5E-14443-002, Basement Plan).

Additional engineering drawings are provided in an appendix to this report.

7. FUNCTION

C-360 was used as a toll transfer and sampling building from 1983 to 2014.

8. BRIEF HISTORY

C-360 was constructed in 1983 to be used as a toll transfer and sampling building. C-360 was leased to the United States Enrichment Corporation in the early 1990s and continued to be used as a toll transfer and sampling building until the PGDP was deleased and returned to DOE in 2014. The C-360 facility was shutdown in 2014.

9. OPERATIONAL STATUS

Shutdown

10. DATES OPERATED

1983 to 2014

11. SITE/PROCESS DESCRIPTION

The C-360 Toll Transfer and Sampling Building housed the necessary equipment to receive cylinders of UF₆, weigh and sample the contents, transfer product from product cylinders into customer shipment cylinders, and prepare the cylinders of product for shipment to fulfill enriching service contracts with private industry. Figures 5 through 8 show the exterior of C-360.

C-360 is currently shutdown with no plans for future use.

The tie line that runs from C-360 to C-337 has been air gapped in C-337.

Interior floor drains have been plugged. Drains on the exterior perimeter of C-360 remain in service.

The entire facility has been designated as a Radioactive Material Area (RMA) because of contaminated equipment located in the building.

12. WASTE DESCRIPTION

The primary waste stream that would be generated during D&D of C-360 would be nonhazardous solid and low-level construction/demolition debris. This demolition debris will be comprised primarily of metal structural components, piping, equipment, and insulation. Wastes such as polychlorinated biphenyl (PCB)-containing liquids and electrical components, nonradioactive RCRA and/or mixed waste sludges or liquids, are not anticipated to be generated with exceptions noted below.

Limited infrastructure items remain in the facility (e.g., light fixtures, exit lights, instrumentation panels, alarms) that could potentially contain *de minimis* quantities of regulated items (e.g., mercury, lead, PCBs), which will be removed to the extent practicable during deactivation. Generation of any residual amounts of regulated items will be properly containerized, characterized, and dispositioned in accordance with applicable regulatory requirements.

Building materials used for construction could contain lead-based paints and ACM, including Class II nonfriable asbestos floor tiles, exterior transite panels, and exterior doors. Roof drain conductors and other pipes that may contain lead have been marked with orange spray paint to be evaluated for potential removal during demolition as shown on Figure 9. The green paint sprayed on pipe wrapping indicates non-asbestos materials.

All former generator staging areas have been closed. All potentially hazardous materials and items have been removed from the facility.

The entire facility has been designated as an RMA because of contaminated equipment located in the building. Fixatives have been applied to both the interior and exterior of radiologically-contaminated items. Examples include equipment in the C-360 basement as shown on Figure 10.

Based on historical information associated with past operations, including potential leaks and spills within the C-360 building, the C-360 slab and underlying soils may contain possible contaminants such as chromate, hydraulic oil, and radiological contamination.

13. WASTE QUANTITY

Based on the waste forecast information available in the *Remedial Investigation/Feasibility Study Report* for CERCLA Waste Disposal Alternatives Evaluation at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE 2018), the projected waste volume associated with the demolition of C-360 is approximately 8,635 yd³ of low-level waste (LLW); 193 yd³ of nonhazardous solid waste; 44 yd³ of Toxic Substance Control Act (TSCA) waste; 139 yd³ of LLW/RCRA/TSCA; and 37 yd³ of RCRA waste for a total of 9,048 yd³. The waste forecast was prepared before all potentially hazardous materials and items were removed from the facility.

A projected waste volume associated with the C-360 slab and underlying soils is uncertain and the extent of contamination and volume will be defined during a future remedial investigation/feasibility study based on sample collection.

14. SUMMARY OF ENVIRONMENTAL SAMPLING DATA

Figure 11, SWMUs and Sampling Locations Near C-360, shows no sample locations within a 50-ft boundary of C-360.

15. DESCRIPTION OF RELEASE AND MEDIA AFFECTED

Groundwater:None KnownSurface Water:YesSoil:None KnownEcology Affected (i.e., threatened/endangered species):None Known

Air: Yes

Small quantities of UF₆ were released during operations in 1988. Subsequent air sampling indicated that uranium was not present in the atmosphere in the vicinity (MMES 1989).

During the March 2021 walkdown, no areas were visually observed to have had a spill or release, and no stains were identified on the floors; however, there is history of a leak in the waste heat utilization system in the basement of the C-360 that was discovered on January 4, 1988. An estimated 190,000 L (50,000 gal) of water containing approximately 9 mg/L of hexavalent chromium was released. Approximately 95,000 L (25,000 gal) was contained within the building and 38,000 L (10,000 gal) contained in a plant drainage ditch. An estimated 57,000 L (15,000 gal) of water was released to Little Bayou Creek. The contained water was returned to the recirculating water system (MMES 1989). In addition, a DOE 1993 report included a reference to a release of approximately 100 gal of chromated water in January 1991, which may have escaped from the building through floor drains and the elevator shaft (DOE 1993).

During the March 2021 walkdown, an hydraulic oil tank located in the northeast corner of the basement was identified. Hydraulic oil may have been used in an elevator for UF₆ cylinders. The hydraulic oil tank had secondary containment. A DOE 1993 report included references to potential releases of hydraulic oil. Documents show that the volume of hydraulic oil in the leveler system may have decreased, although its disposition was not known; therefore, there may have been an oil spill/leak beneath the facility without documentation of the actual spill. If an undocumented hydraulic oil spill/leak took place, then it was removed without visible evidence on any surface (DOE 1993). No hydraulic systems in C-360 are identified in the 1992 TSCA Compliance Agreement, as modified; consequently, potential releases of hydraulic oils are not known to have contained PCBs.

On February 24, 2021, approximately one to two ounces of hydraulic oil was released onto concrete in the C-360 East Cylinder Yard which is located outside of the east roll-up doors. On April 6, 2021, less than 1 pint of hydraulic oil was released onto concrete on the west side of the C-360 Annex. Both releases were cleaned up immediately.

16. DOCUMENTATION OF NO RELEASE

The C-360 facility has not been identified as a SWMU or AOC, nor does it contain any areas designated as a SWMU or AOC; however, based on historical information associated with past operations within the building, and the equipment and materials contained therein, the building represents a potential threat of a release of contaminants into the environment due to the documentation of a known chromated water release, potential hydraulic oil system spills/leaks, and historical radiological contamination. Based on this information, it is recommended that the soil and slab beneath C-360 be designated as an AOC [AOC 572—C-360 Slab and Underlying Soils (see Figure 12)].

17. IMPACT ON OR BY OTHER SWMU/AOC

There is no evidence that this facility impacts or is being impacted by other SWMUs/AOCs. No SWMUs or AOCs are located in or near C-360.

18. PRELIMINARY REMEDIATION GOAL COMPARISON

Not applicable. No sample locations were identified within a 50-ft boundary of C-360.

19. RCRA FACILITY INVESTIGATION NECESSARY

A RCRA Facility Investigation is recommended for the C-360 slab and underlying soils due to the documentation of a known chromated water release, potential hydraulic oil system leaks/spills, and

historical radiological contamination. The RCRA Facility Investigation will define the nature and extent of contamination associated with AOC 572.

20. CERCLA NTCRA NECESSARY

A CERCLA NTCRA is recommended for demolition of the C-360 facility following completion of deactivation. Based on knowledge regarding past usage, C-360 is believed to represent a potential threat of a release of contaminants into the environment due to the nature of past operations within the building. Because no imminent dangers exists, the building infrastructure removal action would be categorized as non-time-critical. Limited infrastructure items potentially containing *de minimis* quantities of regulated items remaining in the building will be removed, to the extent practicable, during deactivation. Building materials used for construction could contain lead-based paints and ACM, both of which can be effectively verified during a pre-demolition inspection, then contained and properly managed using standard demolition and waste management practices. While measures to be implemented during D&D are not part of this SE report, the CERCLA removal action documents for demolition of the C-360 facility would identify any necessary best management practices to prevent and/or minimize contaminated storm-water runoff and any debris from pooling and collecting in the basement.

21. OU ASSIGNMENT

C-360 currently is assigned to the Facility D&D OU, Other Buildings (non-SWMUs) (SMP Appendix 4) (DOE 2020).

It is recommended that the newly-designated AOC (AOC 572) be assigned to the Soils and Slabs OU.

22. REFERENCES

- DOE (U.S. Department of Energy) 1993. Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation Appendix A Volume IV Paducah Facilities Reports, DOE/OR/1087&V5, June.
- DOE 1995. *Policy on Decommissioning of Department of Energy Facilities Under CERCLA*, Joint policy from the U.S. Department of Energy and U.S. Environmental Protection Agency, May 22, 1995.
- DOE 2018. Remedial Investigation/Feasibility Study Report for CERCLA Waste Disposal Alternatives Evaluation at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-0244&D2/R2, U.S. Department of Energy, Paducah, KY, July.
- DOE 2020. Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2021, DOE/LX/07-2450&D1, U.S. Department of Energy, Paducah, KY, November.
- EPA (U.S. Environmental Protection Agency) 1998. Federal Facility Agreement for the Paducah Gaseous Diffusion Plant, DOE/OR/07-1707, U.S. Environmental Protection Agency, Atlanta, GA, February.
- MMES (Martin Marietta Energy Systems) 1989. *Paducah Gaseous Diffusion Plant Site Environmental Report for 1988*, ES/ESH-8/V3, May.



Figure 1. Aerial Photograph Showing the C-360 Toll Transfer and Sampling Building Location

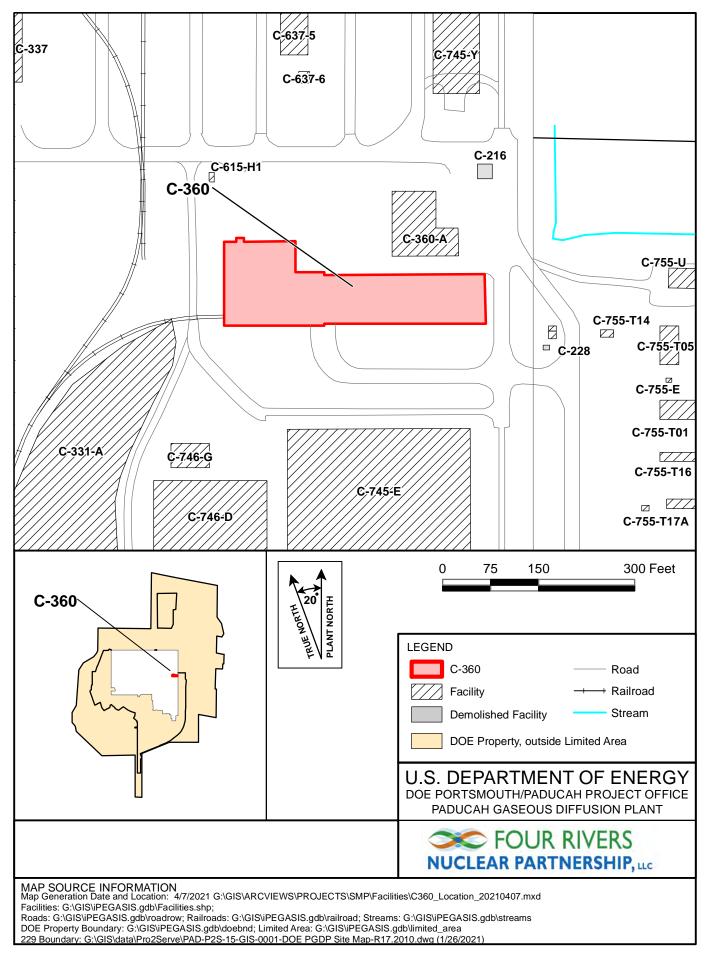


Figure 2. Map Showing C-360 Toll Transfer and Sampling Building Location

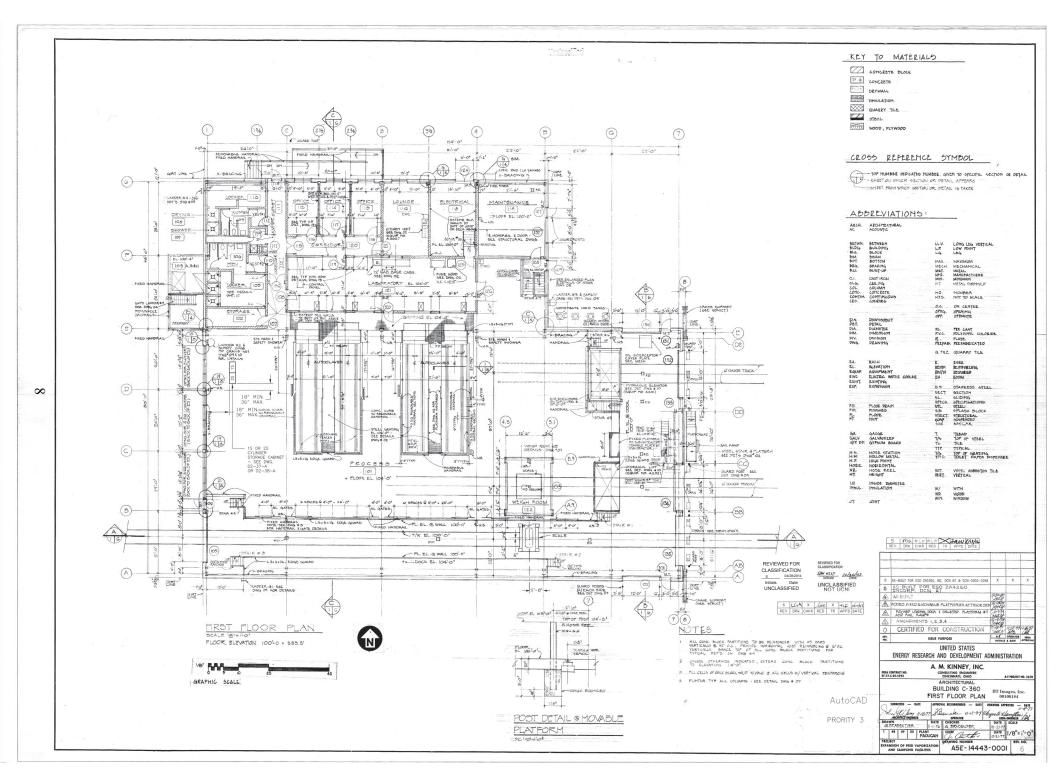


Figure 3. Engineering Drawing A5E-14443-0001

Figure 4. Engineering Drawing A5E-14443-0002

PLAN VIEW

PLATFORM #1

Unclassified

PLATFORMS AT AUTOCLAVES - PLAN VIEW

3'-0"

HOTE: PLATFORM # 2 OPPOSITE HAND

BT Images, Inc. 00018718

SECTION & DETAIL KEY

A5E-14443-0002



Figure 5. North Side of C-360



Figure 6. East Side of C-360



Figure 7. South Side of C-360



Figure 8. West Side of C-360



Figure 9. Roof Drain Piping Painted Orange to Identify Potential Lead Joints and Green Paint on Pipe Wrapping Indicating Non-asbestos Materials (9/2019)



Note: Green stain on the floor is from the fixative.

Figure 10. Equipment with Fixative Applied (9/2019)

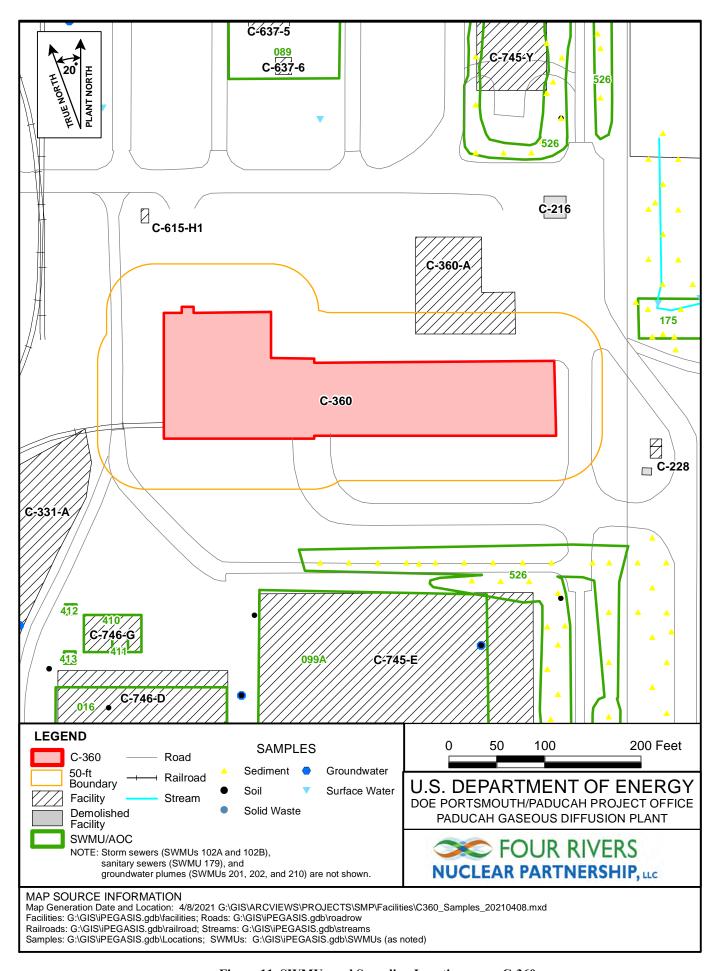


Figure 11. SWMUs and Sampling Locations near C-360

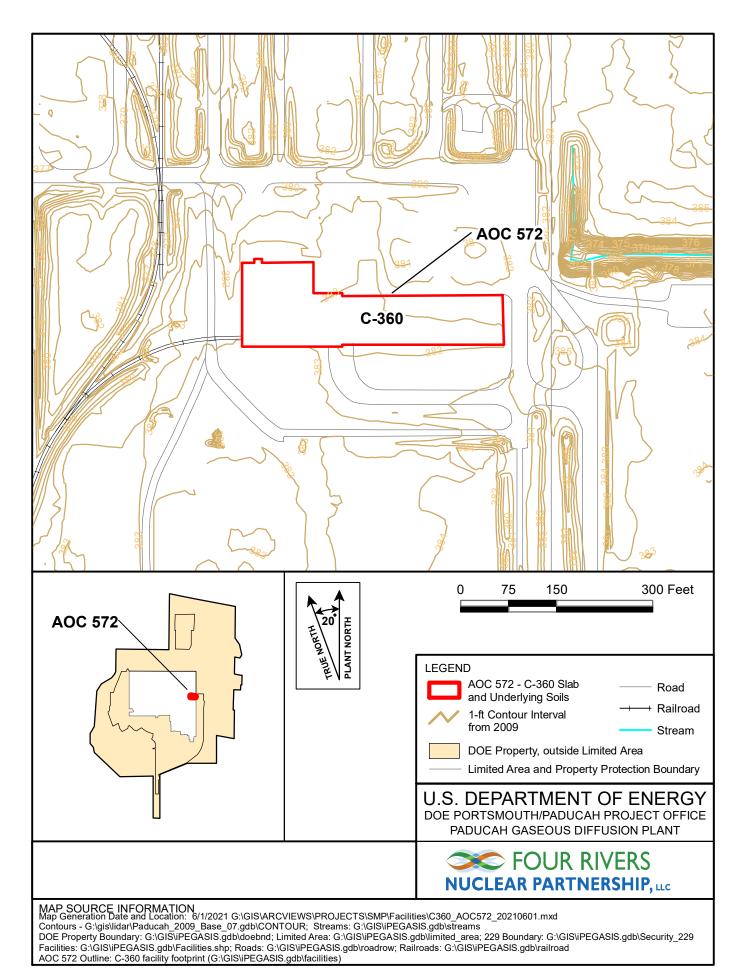


Figure 12. C-360 Slab and Underlying Soils (AOC 572)



APPENDIX ENGINEERING DRAWINGS



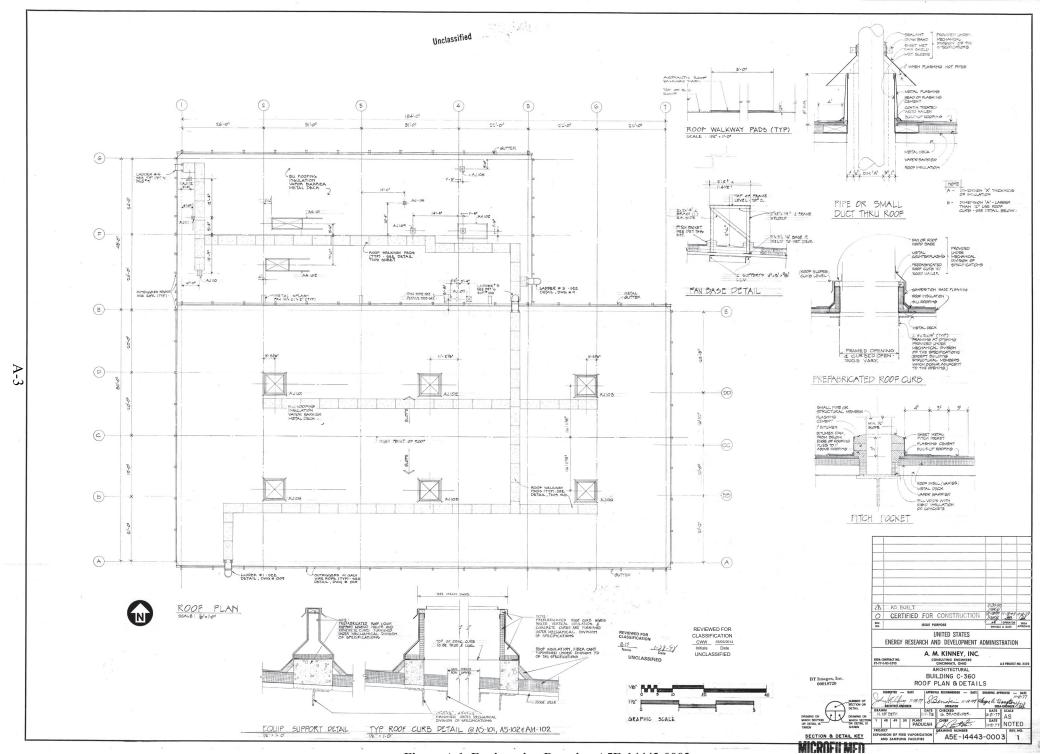


Figure A.1. Engineering Drawing A5E-14443-0003

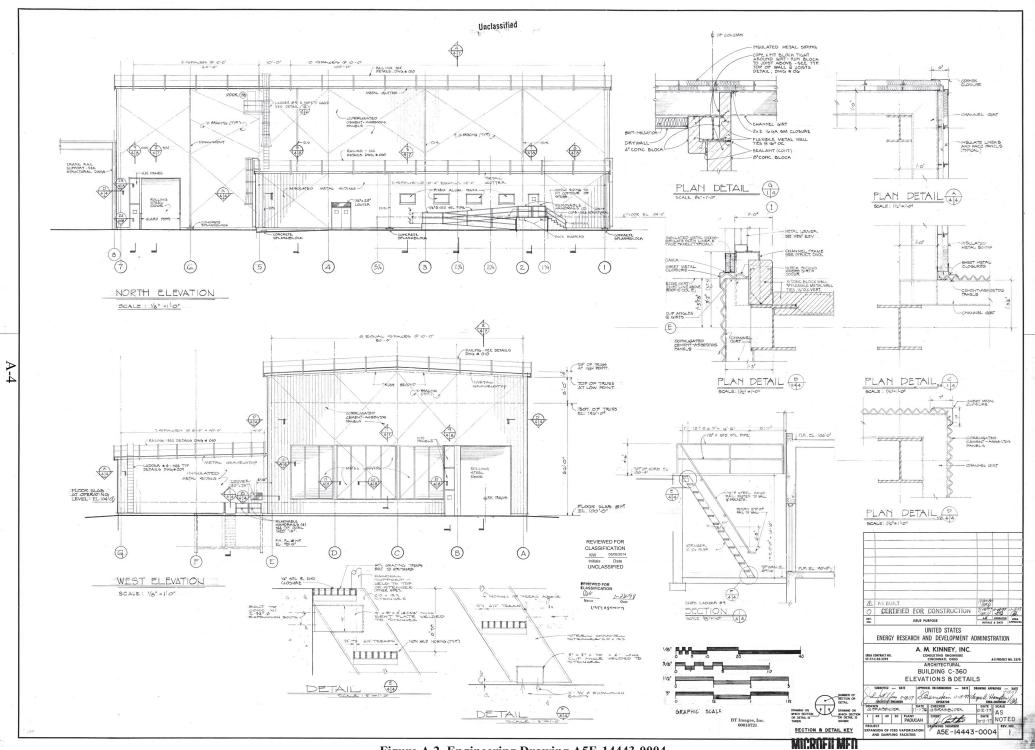


Figure A.2. Engineering Drawing A5E-14443-0004

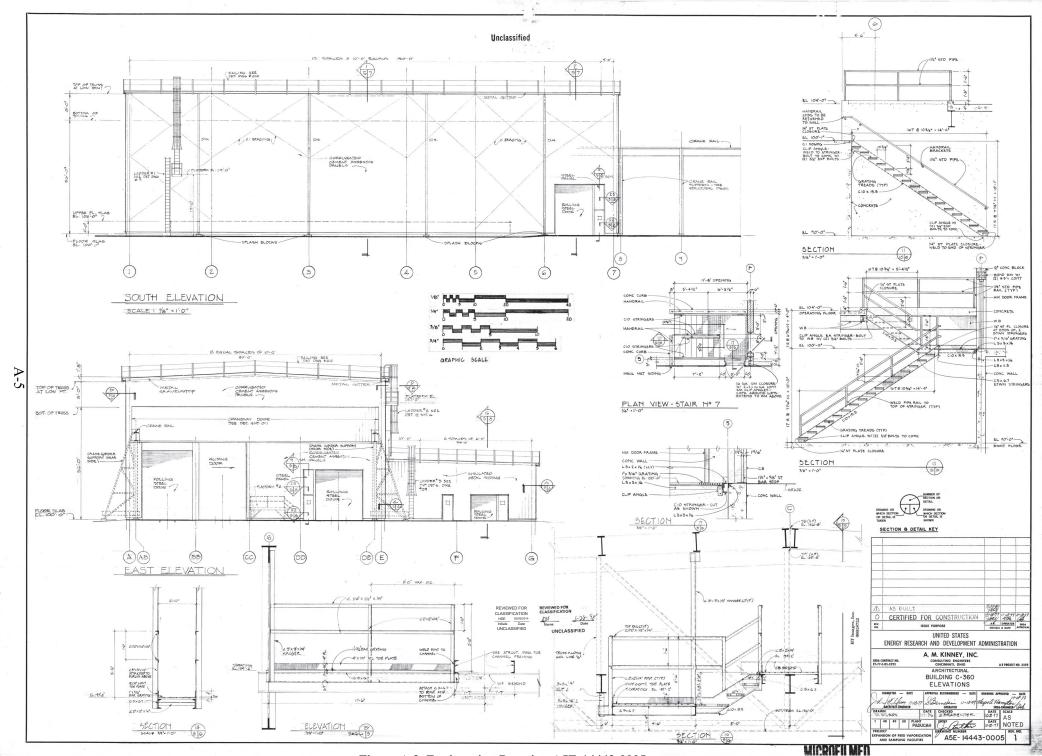


Figure A.3. Engineering Drawing A5E-14443-0005

