



Department of Energy

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

August 26, 2024

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

PPPO-02-10028774-24

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

Dear Ms. Webb and Mr. Weeks:

TRANSMITTAL OF THE SITE EVALUATION REPORT FOR THE C-611-T BOOSTER PUMP STATION PLANT WATER AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2464&D2/R1, AND SITE EVALUATION REPORT FOR THE C-611-P BUILDING—PUMP HOUSE AT THE PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KENTUCKY, DOE/LX/07-2463&D2/R1

References:

1. Email from S. Smiley to V. Weeks, L. Garner, and A. Webb, "KDEP RE: Potential Upcoming Demo at PGDP," dated May 24, 2024
2. Email from V. Weeks to L. Garner and A. Webb, "EPA RE: Potential Upcoming Demo at PGDP," dated May 24, 2024
3. Email from L. Garner to V. Weeks and A. Webb, "Potential Upcoming Demo at PGDP," dated May 23, 2024

Enclosed for your approval is the certified *Site Evaluation Report for the C-611-T Booster Pump Station Plant Water at the Paducah Gaseous Diffusion Plant, Paducah Kentucky, DOE/LX/07-2464&D2/R1*, and certified *Site Evaluation Report for the C-611-P Building—Pump House at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2463&D2/R1*.

Both of these site evaluation reports were revised to address additional information that was discovered indicating that chromated water likely did pass through the C-611-T and C-611-P facilities.

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: 2024.08.26
18:31:45 -05'00'

April Ladd
Federal Facility Agreement Manager
Portsmouth/Paducah Project Office

Enclosures:

1. Certification Page for C-611-T
2. *Site Evaluation Report for the C-611-T Booster Pump Station Plant Water at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2464&D2/R1*
3. *Site Evaluation Report for the C-611-T Booster Pump Station Plant Water at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2464&D2/R1-REDLINE*
4. Certification Page for C-611-P
5. *Site Evaluation Report for the C-611-P Building—Pump House at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2463&D2/R1*
6. *Site Evaluation Report for the C-611-P Building—Pump House at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2463&D2/R1-REDLINE*

Administrative Record File—ARF-ARR

cc w/enclosures:

abigail.parish@pppo.gov, PPPO
 angus.mackelvey@pppo.gov, PPPO
 april.ladd@pppo.gov, PPPO
 april.webb@ky.gov, KDEP
 arcorrespondence@pad.pppo.gov
 bruce.ford@pad.pppo.gov, FRNP
 bwhatton@tva.gov, TVA
 dcnorman0@tva.gov, TVA
 dennis.greene@pad.pppo.gov, FRNP
 eric@pgdpcab.org, CAB
 frnpcorrespondence@pad.pppo.gov
 joel.bradburne@pppo.gov, PPPO
 jrsewell@tva.gov, TVA
 kelly.layne@pppo.gov, PPPO
 kentuckyes@fws.gov, FWS
 mac.mcrae@TechLawInc.com, EPA
 maphillips0@tva.gov, TVA

megan.mulry@pad.pppo.gov, FRNP
 mwaplin@tva.gov, TVA
 myrna.redfield@pad.pppo.gov, FRNP
 nathan.garner@ky.gov, KYRHB
 nrepcdep-dwm-hwb-pgdp@ky.gov
 pad.rmc@pad.pppo.gov
 rebecca.goodman@ky.gov, KEEC
 reinhard.knerr@pppo.gov, PPPO
 sebenton@tva.gov, TVA
 sonja.smiley@ky.gov, KDEP
 stefanie.fountain@pad.pppo.gov, FRNP
 stephaniec.brock@ky.gov, KYRHB
 testher@tva.gov, TVA
 thhenry@tva.gov, TVA
 timothy.kreher@ky.gov, KDFWS
 tom.reed@pppo.gov, PPPO
 weeks.victor@epa.gov, EPA

CERTIFICATION

Document Identification: *Site Evaluation Report for the C-611-T Building Booster Pump Station Plant Water at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-2464&D2/R1*

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 REDFIELD
(Affiliate)



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REDFIELD (Affiliate)
Date: 2024.08.14 15:27:24
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Myrna E. Redfield, Program Manager/Date Signed
Four Rivers Nuclear Partnership, LLC

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

U.S. Department of Energy

APRIL LADD

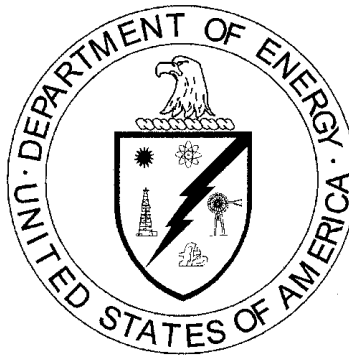


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April Ladd, Paducah Site Lead/Date Signed
Portsmouth/Paducah Project Office
U.S. Department of Energy

DOE/LX/07-2464&D2/R1
Primary Document

**Site Evaluation Report for the
C-611-T Booster Pump Station Plant Water at the
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



CLEARED FOR PUBLIC RELEASE

**Site Evaluation Report for the
C-611-T Booster Pump Station Plant Water at the
Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**

Date Issued—August 2024

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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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
KPDES	Kentucky Pollutant Discharge Elimination System
NTCRA	non-time-critical removal action
OU	operable unit
RCRA	Resource Conservation and Recovery Act
SE	site evaluation
SMP	site management plan
SWMU	solid waste management unit

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1. FACILITY/UNIT NUMBER

C-611-T

2. FACILITY/UNIT NAME

Booster Pump Station Plant Water

3. DATE OF ORIGINAL SITE EVALUATION REPORT

August 26, 2021

4. DATE OF SITE EVALUATION REPORT REVISIONS

August 13, 2024

5. 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 under the existing FFA. Section IX [Site Evaluation(s)] of the FFA requires that DOE conduct integrated SEs that consist of the removal SE, remedial SE, and solid waste management unit (SWMU) assessment reports. The integrated SEs are to be documented in an SE report consistent with the format within 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 2023). 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 the historical information associated with past operations at the C-611-T Booster Pump Station Water Plant (C-611-T), there is no evidence of a release, or threat of any release, to the environment from the building and C-611-T is not believed to pose a risk to human health or the environment. As a result, a CERCLA NTCRA action is not warranted for demolition of the C-611-T facility structure. Additionally, there is no historical information warranting the designation of C-611-T, or portions thereof, as a SWMU or AOC; therefore, a Resource Conservation and Recovery Act (RCRA) Facility Investigation is not recommended as necessary for C-611-T. As a result, the removal of the structure will be conducted outside of CERCLA.

6. LOCATION

C-611-T is located in the southcentral portion of the industrialized area of the Paducah Site, approximately 215 ft south of the C-720 Maintenance and Storage Building. Figures 1 and 2 show the location of C-611-T within the Paducah Site.

7. APPROXIMATE DIMENSION OR CAPACITY

C-611-T is a below grade, pit-type concrete structure approximately 10 ft deep (DOE 1993). The facility is constructed of reinforced concrete with an area of approximately 396 ft² on one floor. The booster station contains one 20,000 gal per minute booster pump on a 36-inch water line. Figure 3 provides a portion of Engineering Drawing E-S-11112-A showing the building floor plan. Figures 4 and 5 are photographs of the south and north exterior sides of the facility, respectively. Figure 6 is a photograph of the outer stairs leading to the booster station entrance. Figures 7 and 8 provide interior views of the plant water inlet valve and the ceiling in the southwest corner, respectively. Figure 9 shows a view of the exterior of the facility. Additional engineering drawings are provided in the appendix to this report.

8. FUNCTION

C-611-T was used to boost plant water pressure within the plant water system. C-611-T is located south of the C-720 Maintenance and Storage Building and is connected to the south loop of the plant water system. The primary purpose for C-611-T was to boost plant water pressure if the plant was operating above 1,000 megawatts. Though not confirmed, the water distributed through C-611-T might have been chromated using a corrosion inhibitor that was pumped into the 36-inch plant water line at the C-611 Water Treatment Plant as noted in a 1960s training manual (UCNC 1962). The facility is currently in standby mode.

9. BRIEF HISTORY

C-611-T was constructed in 1963 and was utilized as described above from construction until the cessation of uranium enrichment operations in 2013. C-611-T was leased to the United States Enrichment Corporation in the early 1990s until 2014 when the gaseous diffusion plant was deleased and returned to DOE. Since cessation of uranium enrichment operations, C-611-T has been in standby mode.

10. OPERATIONAL STATUS

Standby

11. DATES OPERATED

1963 to 2013

12. SITE/PROCESS DESCRIPTION

C-611-T consists of one 20,000 gal per minute booster pump on a 36-inch water line connected to the south loop of the plant water system. The purpose of this booster pump station was to boost plant water pressure when the plant was operating above 1,000 megawatts. The facility is currently in standby mode. A sump pump is located within the facility and is currently checked daily by the deactivation and remediation contractor as part of the routine surveillance and maintenance/utilities operation program.

13. WASTE DESCRIPTION

The primary waste stream that would be generated during D&D of C-611-T would be nonhazardous demolition debris. This demolition debris will be comprised primarily of concrete, metal piping, and insulation. Wastes such as polychlorinated biphenyl (PCB)-containing liquids and electrical components and/or RCRA mixed waste sludges or liquids, are not anticipated to be generated with the possible exceptions noted below.

Limited infrastructure items remain in the facility (e.g., electrical switches, motors) that could contain *de minimis* quantities of regulated items (e.g., lead, PCBs), which will be removed to the extent practicable during deactivation. Building materials used for construction could contain lead-based paints and asbestos-containing material (ACM). Generation of any residual amounts of these materials during demolition will be properly containerized, characterized, and dispositioned in accordance with applicable regulatory requirements.

14. 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 waste volume associated with C-611-T is approximately 292 yd³. Demolition waste is assumed to be nonhazardous solid waste.

15. SUMMARY OF ENVIRONMENTAL SAMPLING DATA

No sampling of environmental media has occurred near (within 50 ft) C-611-T (see Figure 10).

16. DESCRIPTION OF RELEASE AND MEDIA AFFECTED

<u>Groundwater:</u>	None Known
<u>Surface Water:</u>	None Known
<u>Soil:</u>	None Known
<u>Ecology Affected</u> (i.e., threatened/endangered species):	None Known
<u>Air:</u>	None Known

There have been no known documented spills or releases of materials reported from this facility to the environment. The facility contains a sump and collected water is discharged to a surface ditch near the facility (Figure 9) which ultimately discharges to Kentucky Pollutant Discharge Elimination System (KPDES) Outfall 009. During a March 2021 walkdown inspection, no evidence of oil leaks or visible staining on the floor was found. There was some standing water noted on the floor beneath the piping and valves. By virtue of the nature of past operations within the C-611-T building, and the equipment and materials contained therein, the building is not considered a potential risk to human health or to the environment.

17. DOCUMENTATION OF NO RELEASE

There have been no known spills or releases of materials from C-611-T to soil, groundwater, or surface water. A sump pump in the facility discharges water to a surface ditch near the facility which ultimately discharges to KPDES Outfall 009. The C-611-T facility has not been identified as a SWMU or AOC, nor does it contain any areas designated as a SWMU or AOC. No information was identified warranting the designation of the C-611-T facility or portions thereof as a SWMU or AOC.

18. IMPACT ON OR BY OTHER SWMU/AOC

There is no evidence that this facility impacts or is being impacted by other SWMUs and/or AOCs.

19. PRELIMINARY REMEDIATION GOAL COMPARISON

Not Applicable. No sampling of environmental media has occurred near C-611-T.

20. RCRA FACILITY INVESTIGATION NECESSARY

A RCRA facility investigation is not recommended as necessary for C-611-T. There is no evidence of a release, or threat of any release, to the environment from the building, and the facility is not believed to pose a risk to human health or the environment.

21. CERCLA NTCRA NECESSARY

A CERCLA NTCRA is not recommended as necessary for demolition of C-611-T. 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 verified effectively during a predemolition inspection, contained, and properly managed using standard demolition and waste management practices. Deactivation will include removal of any accessible loose items being stored (including the booster pump and associated piping), to the extent practicable, prior to demolition.

A March 2021 walkdown inspection of the facility, employee interviews, and other reviewed historical information did not identify any unusual conditions that would pose a potential threat of environmental release during future demolition of the structure; and therefore, the demolition and disposal of C-611-T can be conducted outside of the FFA/CERCLA process. While measures to be implemented during D&D are not a part of this SE, the demolition of C-611-T would identify any necessary best management practices to prevent and/or minimize contaminated storm-water runoff, and to prevent any debris from pooling and collecting in the below-grade pit-type concrete structure or any additional subgrade areas.

All applicable laws, regulations, and DOE procedures and/or protocols will be followed to ensure the demolition and disposal of the structure occurs in a safe, compliant manner, including conducting any additional radiological characterization through confirmation radiological surveys, as necessary, to support demolition and waste disposition.

22. OU ASSIGNMENT

C-611-T currently is assigned to the Facility D&D OU, Sewage System and Water Treatment Ancillary Facilities (SMP Appendix 4) (DOE 2023).

23. 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, June 1993 Appendix A Volume IV: Paducah Facilities Reports*, DOE/OR/1087&V5, U.S. Department of Energy, Oak Ridge, TN, June.

- DOE 1995. *Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, Joint policy from the U.S. Department of Energy and U.S. Environmental Protection Agency, May 22.
- 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 2023. *Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2024*, DOE/LX/07-2495&D1, U.S. Department of Energy, Paducah, KY, December.
- 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.
- UCNC (Union Carbide Nuclear Corporation) 1962. *Operations Division Training Manual Volume III: Utilities Operations*, KYD-1482, Union Carbide Corporation, Paducah Plant, Paducah, KY, July 11.

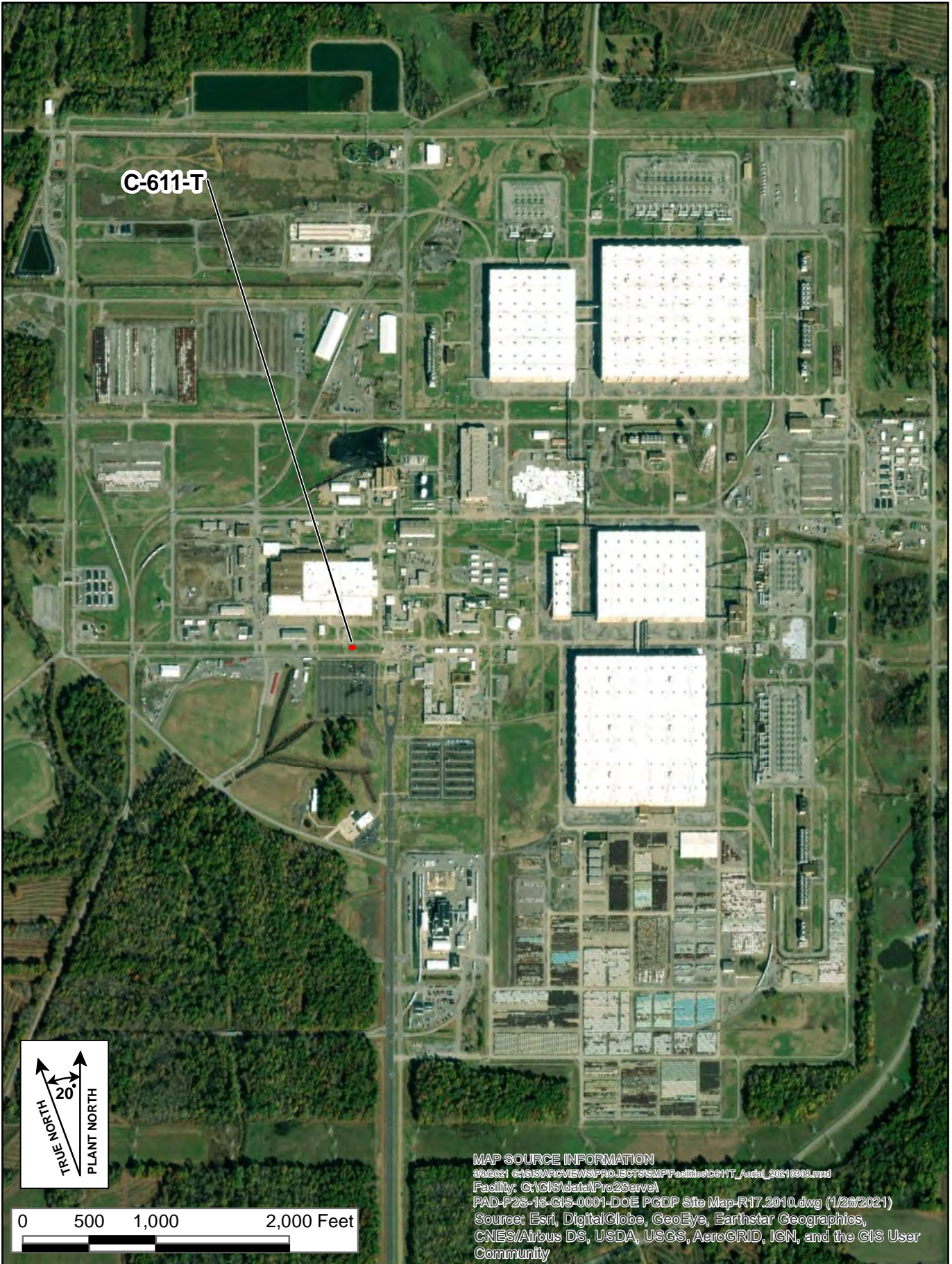


Figure 1. Aerial Photograph Showing the C-611-T Booster Pump Station Plant Water Location

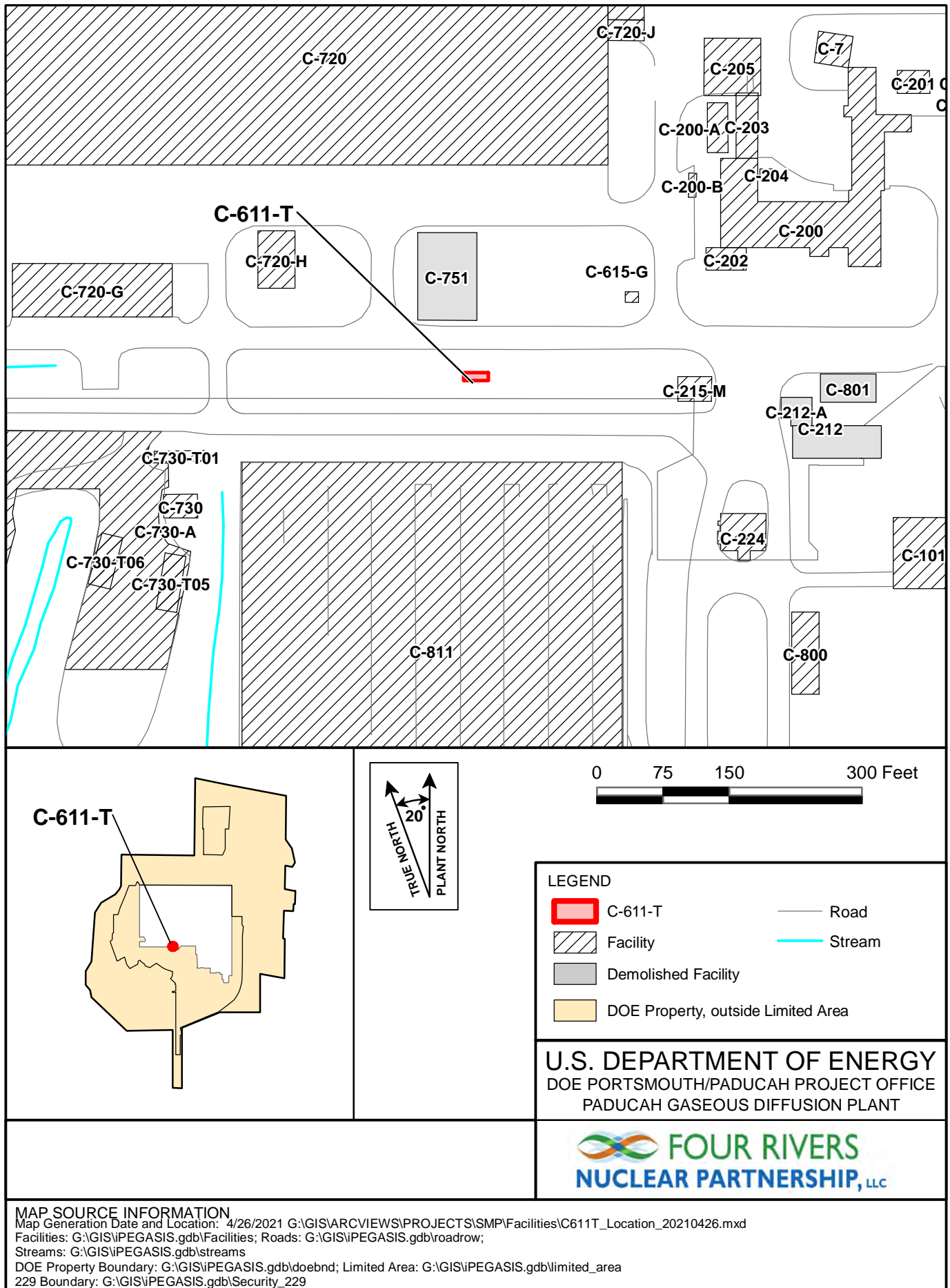


Figure 2. Map Showing the C-611-T Booster Pump Station Plant Water Location



**Figure 4. Exterior View of the C-611-T Booster Pump Station Plant Water
(Looking Northwest)**



**Figure 5. Exterior View of the C-611-T Booster Pump Station Plant Water
(Looking South)**



Figure 6. Stairs Leading to the Booster Pump Station Plant Water Entrance



Figure 7. Interior View of C-611-T Showing the Plant Water Inlet Valve



Figure 8. Interior View of the Ceiling in the Southwest Corner



Figure 9. Standing Water in the Surface Ditch near the Sump Pump Discharge

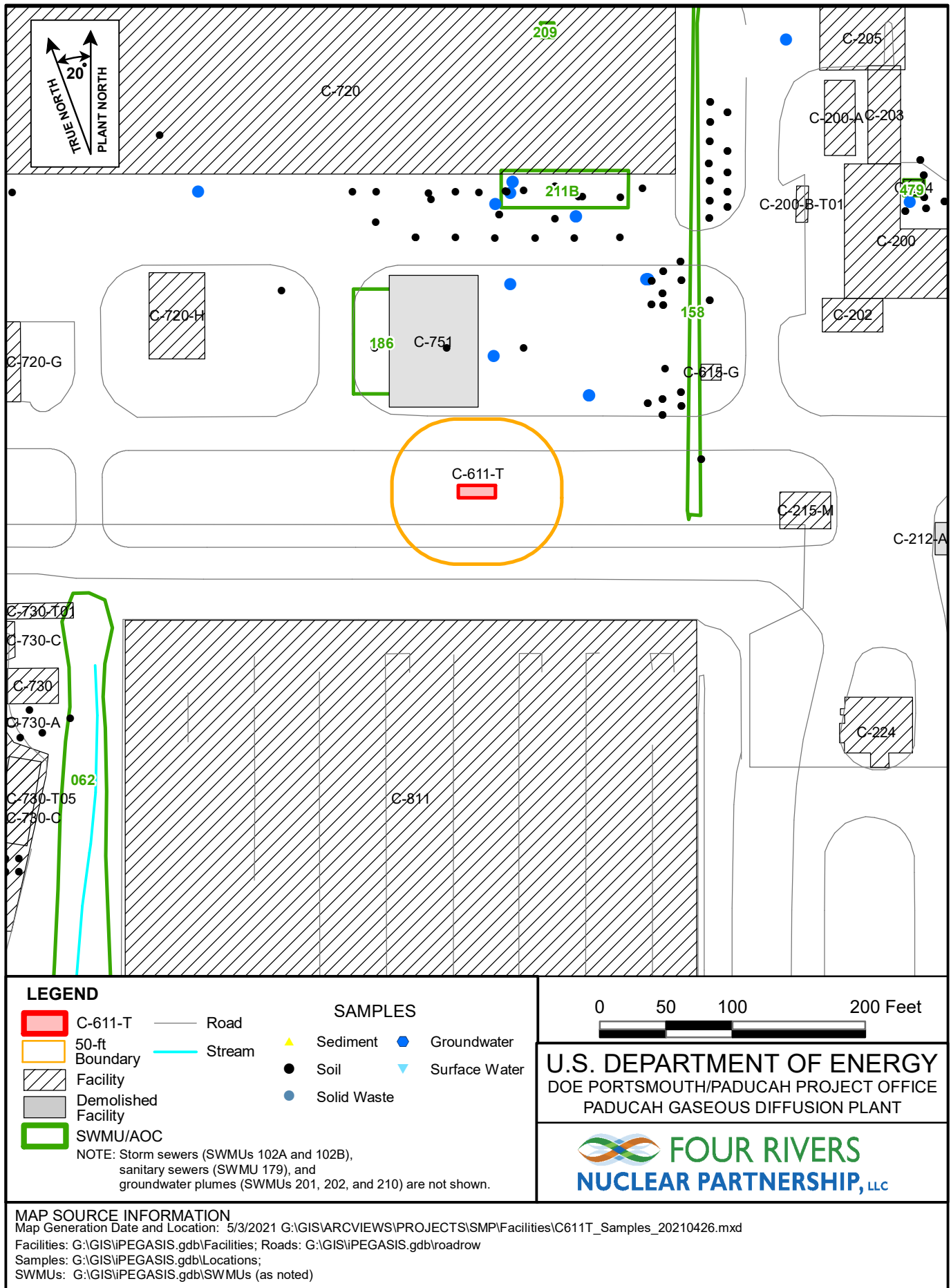


Figure 10. SWMU and Sample Locations near C-611-T

APPENDIX
ENGINEERING DRAWINGS

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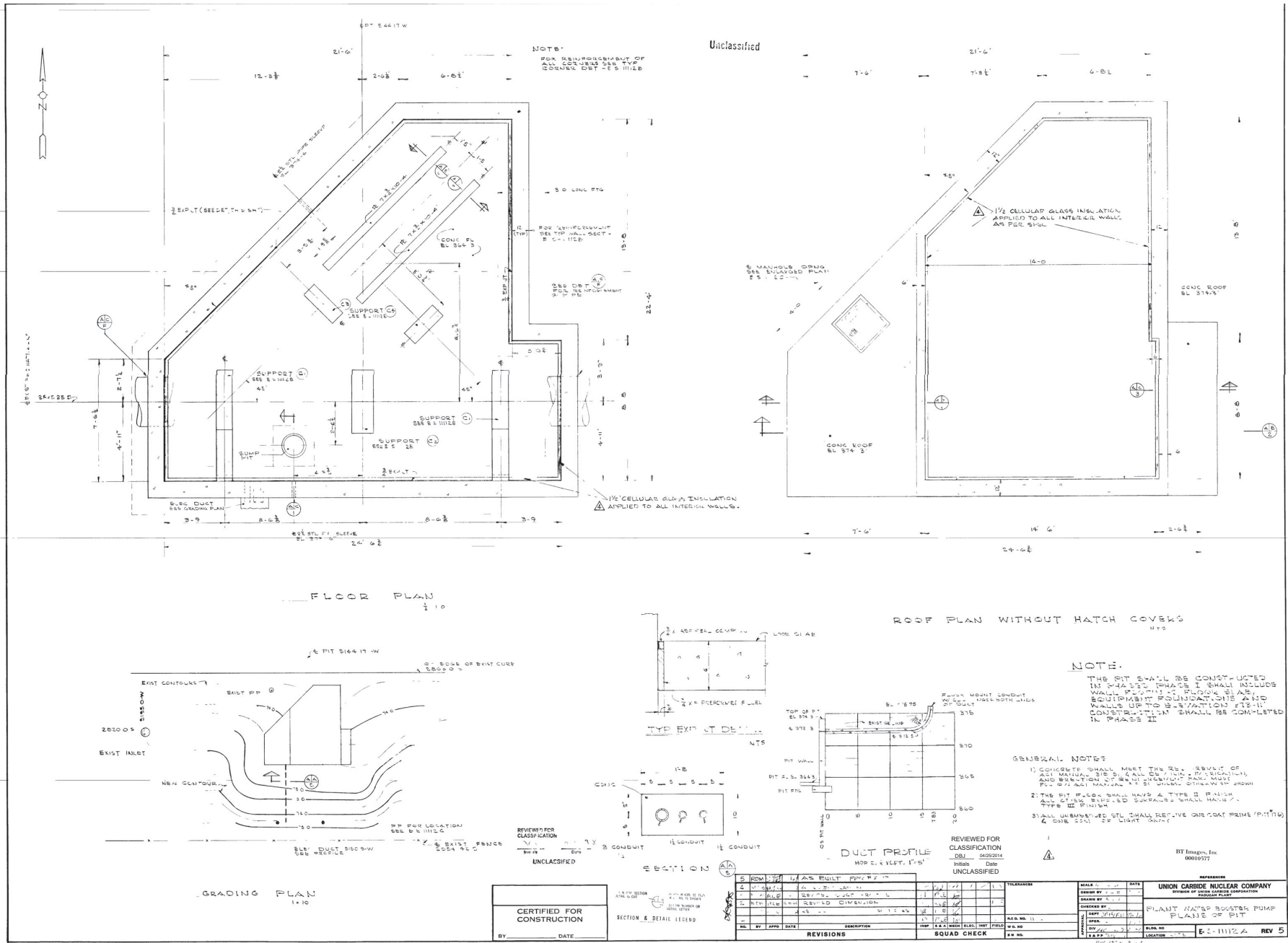
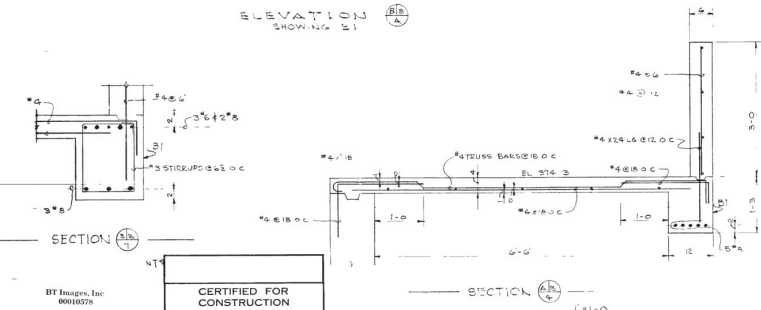
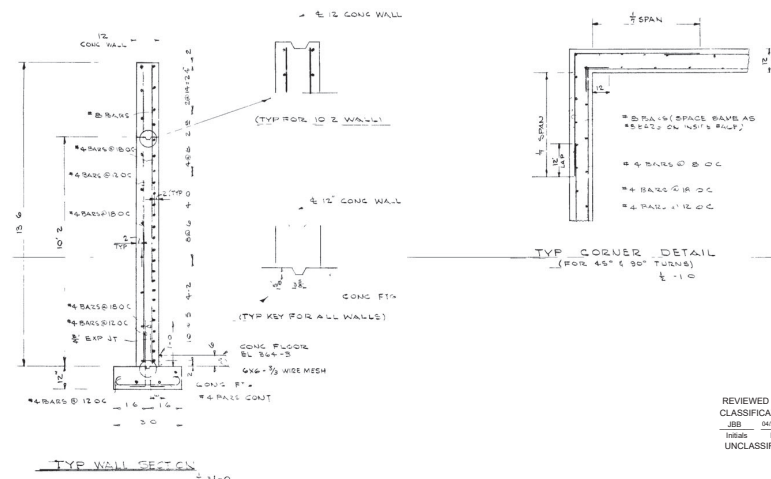
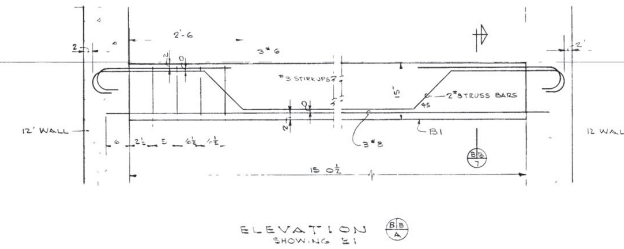
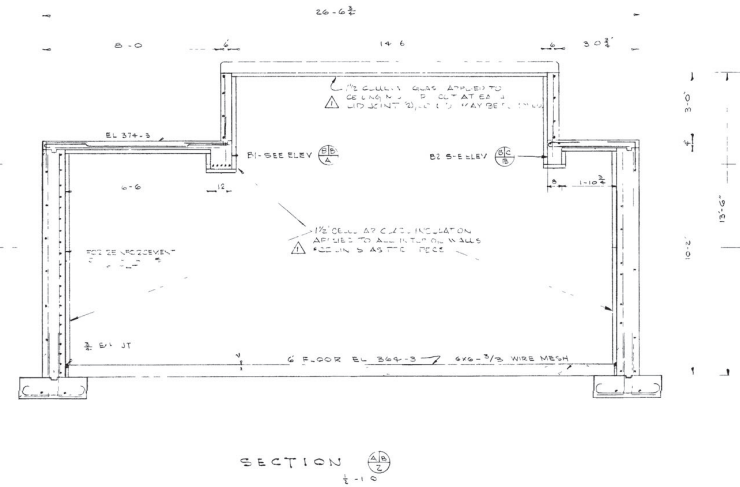
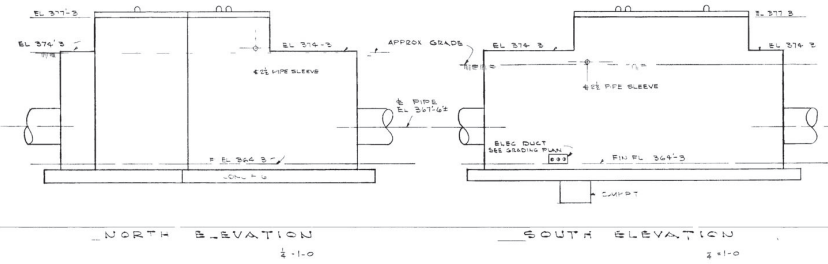
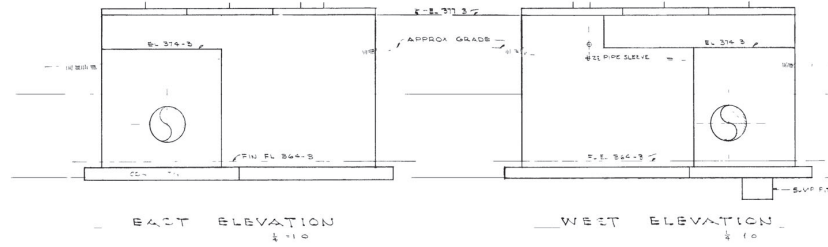


Figure A.1. Engineering Drawing E-S-1112 A

Unclassified

A-4



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DATE 3-11-84
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BT Images, Inc.
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BY: _____ DATE: _____

REVIEWED FOR CLASSIFICATION
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DATE: 3-11-84
SECTION 2 DETAIL EE-END

REVISIONS		SQUAD CHECK		TOLERANCES		REFERENCES	
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BY: _____	DATE: _____
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SCALE: AS SHOWN	DATE: _____
PROJECT: _____	LOCATION: _____
PLANT WATER BOOSTER PUMP ELEVATIONS SECTIONS & DETAILS	E-S-11112 B REV 2

Figure A.2. Engineering Drawing E-S-1112 B

