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MAR 02 1998

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Dear Mr. Jablonowski and Mr. Schneider:

IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT OF THE SEWAGE TREATMENT PLANT COMPLEX

This letter transmits the draft Sewage Treatment Plant (STP) Complex Implementation Plan for Above-grade Decontamination and Dismantlement (D&D) to the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) for review and approval. The enclosed implementation plan serves as the sole remedial design documentation being submitted for regulatory approval, pursuant to the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action Work Plan. Accordingly, this implementation plan has been prepared to document the applicable engineering design elements and strategies for project execution.

The draft implementation plan describes the applicable remedial design elements developed for the D&D of OU3 Components 25A, 25B, 25E, 28F, 39D, and various other structures and fixtures associated with the STP Complex. Although the current regulatory milestone for this submittal is March 5, 1999, this document is being submitted at this time to allow for project implementation between the months of May and October 1998 so that Area 1 Phase II excavation activities may proceed afterward without interference from above-grade structures.

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If you or your staff have any questions, please contact Art Murphy at (513) 648-3132.

Sincerely,

Johnny Reising

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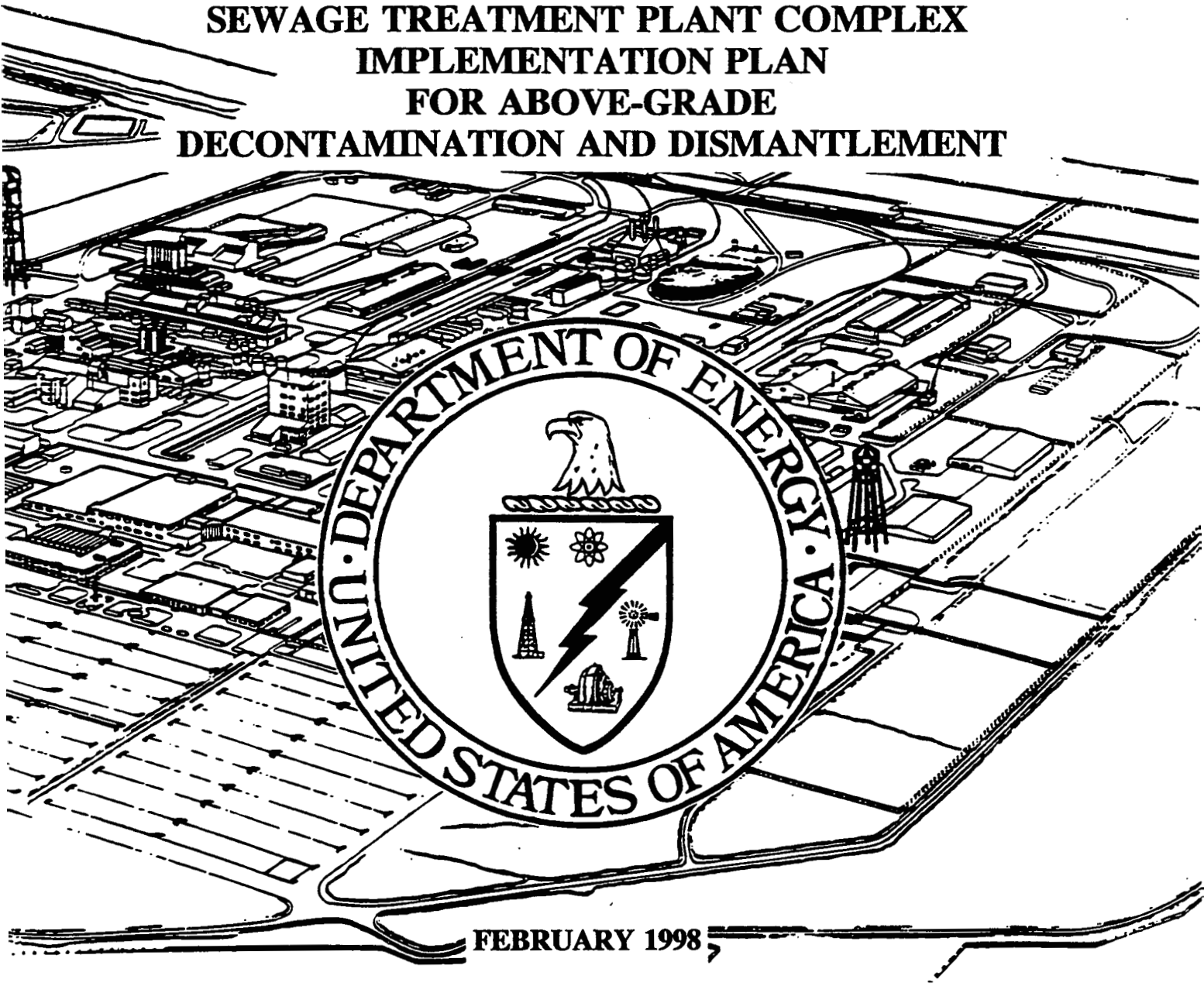
OPERABLE UNIT 3

SEWAGE TREATMENT PLANT COMPLEX IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



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OPERABLE UNIT 3

SEWAGE TREATMENT PLANT COMPLEX IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT

FEBRUARY 1998

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NOTATION

Abbreviations, Acronyms, and Initials

ACM	asbestos-containing material(s)
AMS	air monitoring station
ARP	Aquifer Restoration Project
AWWT	Advanced Waste Water Treatment System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CMU	concrete masonry unit
DOE	United States Department of Energy
D&D	decontamination and dismantlement
FEMP	Fernald Environmental Management Project
HEPA	high-efficiency particulate air [filter]
HVAC	heating, ventilating, and air conditioning
IEMP	Integrated Environmental Monitoring Plan
MEF	Material Evaluation Form
MSCC	Material Segregation and Containerization Criteria
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
NTS	Nevada Test Site
Ohio EPA	Ohio Environmental Protection Agency
OU3	Operable Unit 3
PCB(s)	polychlorinated biphenyl(s)
PCDF	permitted commercial disposal facility
PPE	personal protective equipment
PWID	Project Waste Identification and Disposition [form]
RCRA	Resource Conservation and Recovery Act, as amended
RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROB	roll-off box
ROD	Record of Decision
SAP	Sampling and Analysis Plan
STP	Sewage Treatment Plant
SWIFTS	Site-Wide Waste Information, Forecasting and Tracking System
U.S. EPA	United States Environmental Protection Agency

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Abbreviations, Acronyms, and Initials (Cont'd.)

WAC	Waste Acceptance Criteria
WWTS	waste water treatment system

Units of Measure

cm.	centimeter(s)
cm^2	square centimeter(s)
dpm	disintegration(s) per minute
ft.	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)

Chemical Symbols

U	uranium
U-235	uranium-235

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1.0 INTRODUCTION

1.1 Project Statement

This implementation plan represents the remedial design documentation for the above-grade decontamination and dismantlement (D&D) of the Sewage Treatment Plant (STP) Complex, which is located at the U.S. Department of Energy (DOE) Fernald Environmental Management Project (FEMP) in Fernald, Ohio. The STP Complex was originally defined in the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (DOE 1997a) as being one of 23 OU3 complexes at the FEMP. The purpose of this document is to summarize the STP Complex project-specific remedial design in the format and content approved by the U.S. Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (Ohio EPA) through the approval of the OU3 Integrated RD/RA Work Plan and previous above-grade D&D implementation plans.

At- and below-grade remediation is not included within the scope of this project. The remedial design of the above-grade portions of the STP Complex was integrated and performed concurrently with Soils Characterization and Excavation Project (SCEP) Area 1 - Phase II remedial design. Although the regulatory milestone for submittal of this implementation plan to the U.S. EPA and Ohio EPA is March 5, 1999, which was based on the accelerated case baseline schedule contained in the OU3 Integrated RD/RA Work Plan, the integration between STP Complex remedial design and Area 1 - Phase II remedial design identified the need to accelerate the D&D of the above-grade components to allow for excavation of Area 1 - Phase II soils sooner than originally planned.

The project implementation details contained in this document elaborate, as applicable, on programmatic strategies presented in the OU3 Integrated RD/RA Work Plan, above-grade D&D strategies developed for the Site Support Contractor's scope of work, and project work scope conditions/specifications developed for this project (contained in Appendix C of this document).

1.2 Scope of Work

The above-grade STP Complex D&D project includes the following major activities:

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- surface decontamination;
- above-grade component dismantlement; and
- material management.

The preparatory action: Safe Shutdown/Facility Shutdown is not in the scope of this D&D project, however, the performance of this action has been summarized in Sections 2 and 3. The following components are included in the STP Complex:

- Component 25A - Chlorination Building
- Component 25B - Manhole #175/Effluent Sampling Building
- Component 25E - Digester & Control Building
- Component 28F - Skeet Range Building
- Component 39D - Sewage Treatment Plant Incinerator
- Miscellaneous Structures and Fixtures

Two components that had been identified in the OU3 Integrated RD/RA Work Plan as being contained in the STP Complex — Components 25C (Sewage Lift Station) and 25D (U.V. Disinfection Building) — are not included in the scope of this above-grade D&D project. Component 25C, located within the former Production Area just north of the Electrical Station Complex, has been designated for reuse by the Aquifer Restoration Project to serve the new STP, which is currently under construction. Component 25D is not included in the above-grade D&D scope due to the fact that it is located 75 percent below-grade. The D&D of Component 25D has been included in the scope of the Area 1 - Phase II excavation project. The details regarding remediation of at- and below-grade components are described in the Area 1 - Phase II remedial design documentation (Pre-Final Design Package, November 1997).

The requirements for above-grade D&D of the STP Complex were developed using the performance specifications that were included in Appendix B of the OU3 Integrated RD/RA Work Plan. The design and Site Support Contractor work scope development for the STP Complex incorporates the applicable requirements of the performance specifications and further detail FEMP-approved methods that the Site Support Contractor will be required to use for executing activities. The project work scope conditions/specifications are included in Appendix C of this implementation plan. By basing the Site Support Contractor work requirements on established performance specifications, the strategies for STP D&D operations remain consistent with previously approved approaches for prior D&D projects at the FEMP.

DOE will provide notification to the regulatory agencies of any significant changes to the

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design prior to implementation. Should the regulatory agencies have any concerns regarding any significant design change, DOE will properly address those concerns as soon as practicable and, if necessary, perform one or more of the following: amend the implementation plan, amend the OU3 Integrated RD/RA Work Plan, present an explanation of significant difference to the OU3 Records of Decision (ROD), and/or amend the RODs. Significant changes to the design will require formal design modification and may require that affected activities be suspended until the revision has been completed and approved. This course of action adheres to the commitments made in Section 4.2.2 of the OU3 Integrated RD/RA Work Plan for design changes.

1.3 Plan Organization

This implementation plan is comprised of five sections and five appendices. Section 1 contains the remedial action project statement, scope of work, an overview of this implementation plan, and a brief description of the STP Complex. Section 2 describes the overall approach to implementing this above-grade D&D project, as applied from the OU3 Integrated RD/RA Work Plan. That approach includes the projected sequence for remediation of components, a plan for materials management, environmental monitoring activities, and the project-specific applications of implementation strategies for above-grade remediation. Section 3 presents pertinent component history and applicable component-specific details of the six remedial tasks. Section 4 presents the schedule for remediation and project reporting. Section 5 describes the subcontract strategy and FEMP project management approach.

Appendix A contains a discussion of potential environmental and occupational sampling for this project, based on the assumptions in the Sampling and Analysis Plan (SAP) contained in Appendix D of the OU3 Integrated RD/RA Work Plan, and on the remediation requirements presented in this plan. Appendix B provides a summary of the evaluation of material disposition alternatives for accessible metals and a tabulation of the cost comparison between the disposition alternatives. Appendix C provides the project work scope conditions/specifications used for developing the Site Support Contractor work scope document. Appendix D provides copies of available drawings which show floor plans and elevations of components. Appendix E contains selected photographs of notable features of, within, or around the STP Complex.

1.4 Location of the Sewage Treatment Plant Complex

The components included in the STP Complex above-grade D&D project include those located within the STP radiologically controlled area, utility poles extending west up to the FEMP north access road, and the Skeet Range Building located along the STP access road. These components are shown as a whole in Figure 1-1 (drawing) and Figure E-1 (photograph in Appendix E).

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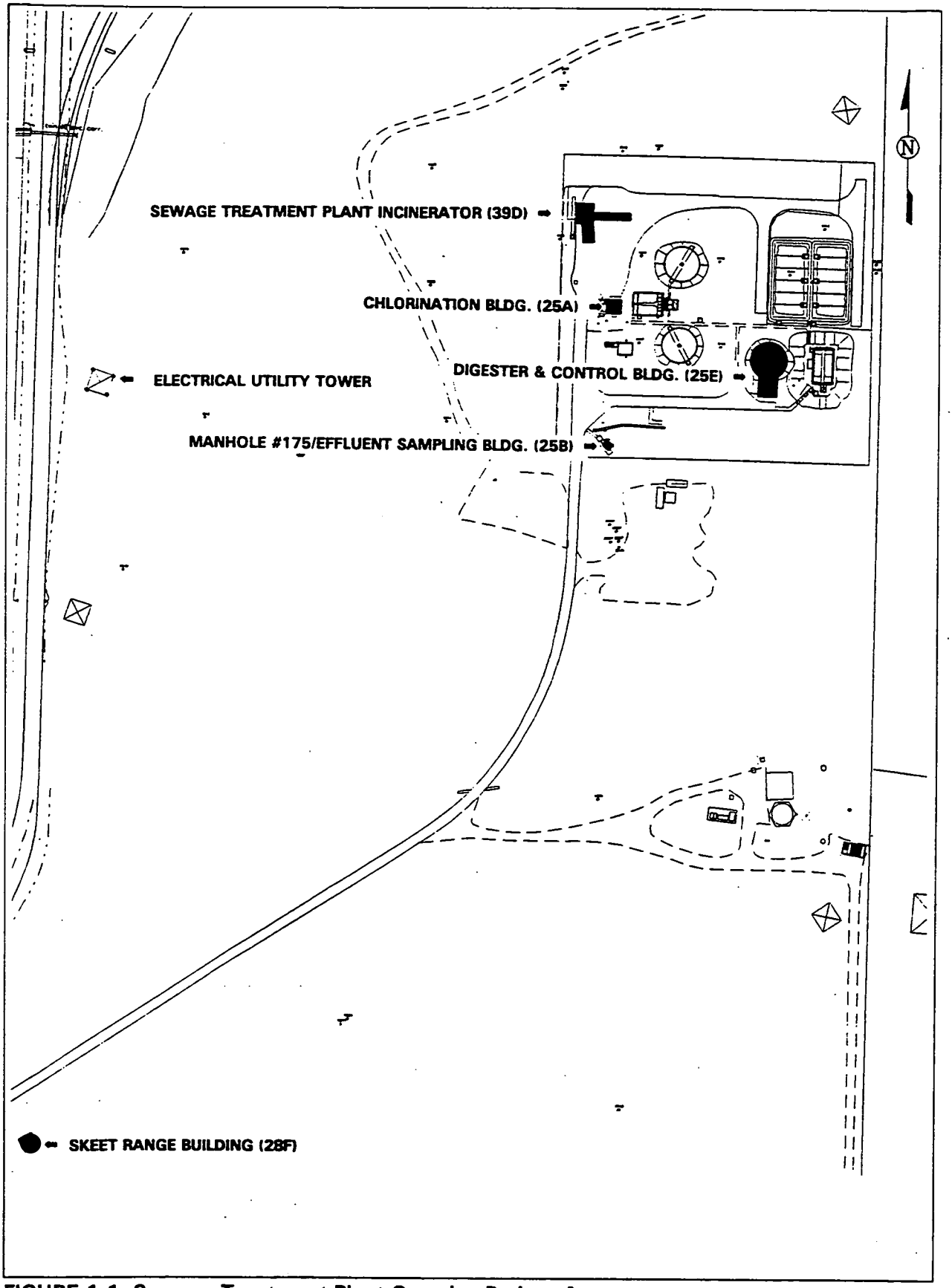

FIGURE 1-1 Sewage Treatment Plant Complex Project Area

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2.0 GENERAL PROJECT REMEDIATION APPROACH

The overall approach to the above-grade D&D of the STP Complex includes the applicable programmatic elements and tasks that were described in Section 3 of the OU3 Integrated BD/RA Work Plan. This section describes project-specific applications of those elements.

2.1 Sequencing of Remediation

The remediation sequence for components in the STP Complex D&D project includes a period of mobilization for several weeks following Notice to Proceed (NTP) to set up equipment, support facilities, and materials. Following mobilization, the Skeet Range Building (28F) and the Cincinnati Gas & Electric (CG&E) tower will be dismantled first by one work crew while D&D preparation activities for the STP Incinerator (construction of a containment structure) begin using a second work crew. The use of different work crews, one inside the radiologically controlled STP area and the other outside the controlled area, is an effort to eliminate the potential for spread of contamination from inside the STP controlled area due to movement of equipment by the Site Support Contractor. The planned sequence for D&D inside the STP radiological controlled area is: 1) 39D; 2) 25B; 3) 25A; and 4) 25E, with STP area miscellaneous structures and fixtures dismantled throughout that sequence. Wooden electric utility poles that extend outside the STP radiological controlled area to the west will be removed last since they will be used to supply electricity to the office/break trailer.

2.2 Characterization of the Sewage Treatment Plant Complex

The components that make up the actual STP (i.e., the components involved in the treatment and monitoring of FEMP sewage effluent which are designated by the component number *25*) and the Skeet Range Building (28F) were not involved in processing of radiological material, according to historical records. Historical and recent radiological surveys were obtained to substantiate this information and have been summarized in Table 2-1. The Sewage Treatment Plant Incinerator (39D) was not a component of the STP effluent treatment process but rather was used to incinerate a variety of site process wastes between 1954 and 1979. Historical and current radiological survey data show that this structure has significantly high levels of total Beta-Gamma contamination.

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TABLE 2-1 Summary of Radiological Data

Component No.	Alpha Removable (dpm/100 sq. cm.)			Beta-Gamma Removable (dpm/100 sq. cm.)			Beta-Gamma Total (dpm/100 sq. cm.)		
	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size
25A	<MDA	<MDA	36	<MDA	50	69	1,865	10,000	22
25B	N/A	N/A	N/A	<MDA	<MDA	<MDA	N/A	N/A	N/A
25E	N/A	N/A	N/A	400	600	23	2,810	7,500	8
28F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39D	N/A	N/A	N/A	2,400	8,000	18	621,000	2,400,000	18

<MDA = Less than minimum detectable activity.
N/A = Not available

A review of the relevant analytical evaluation data generated from the OU3 Remedial Investigation/Feasibility Study (RI/FS), as summarized in Section 3.3.1 of the OU3 Integrated RD/RA Work Plan, revealed that none of the components in the STP Complex contain materials that are prohibited from disposal in the On-Site Disposal Facility (OSDF). Materials to be generated from STP Complex components are considered low-level radiological waste that may be disposed in the OSDF provided that other physical OSDF Waste Acceptance Criteria (WAC) are met.

The most significant concerns arising from the review of component characterization data are the health and safety of the workers and containment of radiological contamination from the D&D of the Sewage Treatment Plant Incinerator (39D). The detection of minimal radiological contamination associated with the other STP Complex components justifies at least best available technology to prevent or minimize generation of airborne dusts. Although the STP components will be shutdown and cleaned out by the Aquifer Restoration Project as part of the decommissioning of the old STP in the spring/early summer of 1998, it is not anticipated that sanitation of surfaces in Component 25E will be performed. Therefore, it is anticipated that biological hazards may be present.

Specific uses of the characterization data presented in Table 2-1 during the remedial design includes support for the following design efforts:

- develop the safety assessment documentation to support the proposed activities;
- enhance the project-specific health and safety requirements and determine potential concerns for worker protection based on the

suggested decontamination and dismantlement techniques;

- documentation of expected contamination levels for the Site Support Contractor;
- determine personnel monitoring requirements;
- air modeling and assessment of potential radiological air emissions; and,
- identifying potential gross radiological contamination that will require isolation (enclosure) from the environment during D&D activities.

2.3 Materials Management

Project-specific material management strategies for the STP Complex D&D project are based on the overall material management strategies which were presented in Section 3.3 of the OU3 Integrated RD/RA Work Plan. Management of primary and secondary waste materials estimated to be generated during the STP Complex D&D project is discussed in this section.

Waste minimization will be accomplished, in part, by ensuring that equipment and material are unpacked prior to entering the STP radiologically controlled area whenever possible. This administrative control will limit the amount of trash that could become contaminated and limit quantities of any hazardous material brought into the project area.

2.3.1 Primary Materials Management

Primary materials refer to the debris that will be generated by the dismantlement of the components and structures in the STP Complex. During the remedial design, a Project Waste Identification and Disposition form (PWID — see Section 3.3.1 of the OU3 Integrated RD/RA Work Plan for description) was developed which identifies all debris to be generated, quantities, characterization, container requirements, and disposition location. Since all debris types have been characterized and documented in a Material Evaluation Form (MEF), supplemental characterization sampling will not be necessary. To supply the Site Support Contractor with the sizing, segregation, and containerization requirements outlined in the OU3 Integrated RD/RA Work Plan, a Material Segregation and Containerization Criteria form (MSCC — see Section 3.3.1 and Appendix A of the work plan for description and example,

respectively) was developed.

Pursuant to DOE's commitment to evaluating potential opportunities for recycle/reuse, as described in Section 3.3.6.1 of the OU3 Integrated RD/RA Work Plan, an evaluation of material disposition alternatives for accessible metals was performed and a summary of the results is presented in Appendix B.

The Site Support Contractor will follow the work scope conditions/specifications presented in Appendix C for material handling requirements. Those requirements were developed from the performance specifications presented in Appendix B of the OU3 Integrated RD/RA Work Plan, and have been incorporated into the subcontractor's scope of work.

2.3.2 Secondary Waste Management

Management of secondary wastes includes handling, sampling, storage, and disposition of secondary waste materials generated during remediation. Secondary waste includes vacuumed dust, filters, filter cake, personal protective equipment (PPE), spent consumables, and washwaters.

It is not anticipated that decontamination washwaters will be generated during the D&D of components; however, a small amount of washwater may be generated from the decontamination of equipment used by the Site Support Contractor during the D&D process. Since equipment decontamination will involve the use of high pressure, low-volume water spray, it is anticipated that less than 300 gallons will be generated. Wastewater will be managed in accordance with the strategies laid out in the OU3 Integrated RD/RA Work Plan. The wastewater collection system will include use of a portable collection device such as a polyethylene-lined containment structure over which the equipment will be washed, filtering using two stage filters (20 micron prefilter and 5 micron filter to remove entrained particulate during transfer into a 3,000 gallon holding tank), sampling and analysis of water and sludges for constituents of concern (see Section 2.4 for wastewater monitoring), discharge of approved effluent into the FEMP wastewater treatment system (Advanced Wastewater Treatment Facility), and sludge removal and containerization in 55-gallon drums. The need for washwater sampling is determined by the Wastewater Treatment System (WWTS) Manager if significant levels of constituents of concern are present, based on OU3 RI/FS analytical data.

Section 2.4 further discusses wastewater monitoring strategies. The ultimate disposition of wastewater into the WWTS is managed in accordance with existing site procedure EP-005 "Controlling Aqueous Wastewater Discharges into Wastewater Treatment Systems".

2.3.3 Estimates of Material Volumes

Materials to be generated during this project have been categorized according to the same classification system that was developed for and described in the OU3 RI/FS Report (1996a), and OU3 Integrated RD/RA Work Plan, and are estimated in Tables 2-2, 2-3, and 2-4. Tables 2-2 and 2-3 list quantities of materials in units of bulked and unbulked cubic feet, respectively. Table 2-4 lists the weights of materials in tons.

2.3.4 Material Handling, Storage, Treatment, and Disposition

Materials generated from the D&D of the STP Complex will be reduced in size, segregated, and containerized in accordance with the requirements identified in the MSCC form supplied to the Site Support Contractor (example provided in Appendix A of the OU3 Integrated RD/RA Work Plan). Quantities and disposition of specific material categories were documented in the PWID form for internal use. Table 2-2 summarizes the MSCC and PWID by identifying quantities, containerization, staging/interim storage, and disposal requirements for each category of material. Debris size requirements are described in Sections 3.3.2.1 and 3.3.6.2 of the OU3 Integrated RD/RA Work Plan.

As stated in Section 3.3.2.2 of the OU3 Integrated RD/RA Work Plan, materials will be identified according to the OU3 debris categories identified in the MSCC. The MSCC for the STP Complex allows for commingling of OU3 debris categories A, B, D, and E into a single Roll-Off Box (ROB) since each of these material types conform to OSDF Impacted Material Category 2. Commingling of OU3 debris categories A, B, D, and E is being done to conform to the OSDF impacted material categories in order to facilitate placement. By allowing the commingling of these types of debris into the same ROB, there will be more efficient use of a limited number of ROBs in the period leading up to and during the initial impacted material placement in the OSDF in the summer of 1998.

TABLE 2-2 Bulked Material Estimates (ft^3)

Component Designation	Categ. A Accessible Metals	Categ. B Inaccessible Metals	Categ. C Process Related Metals	Categ. D Painted Light-Gauge Metals	Categ. E Concrete	Categ. F Brick	Categ. G Non-Regulated ACM	Categ. H Regulated ACM	Categ. I Misc. Materials [1]	Component/ Complex Totals
25A	0	109	0	0	709	0	0	0	108	926
25B	0	139	0	0	0	0	0	0	123	262
25E	600	3,407	0	2	8,822	0	0	0	186	13,017
28F	0	146	0	0	47	0	0	0	1	194
39D	0	314	0	0	1	0	41	0	5,658	6,014
Miscellaneous[2]	520	1,333	0	0	0	0	0	0	672	2,525
Complex Total	1,120	5,448	0	2	9,579	0	41	0	6,748	22,938
Container[3]/ Quantity	ROB[4] /1	ROB/7	n/a	ROB/1	ROB/24	n/a	Pallets/4	n/a	ROB/15	
Interim Storage Config	OSDF Transfer	OSDF Transfer	n/a	OSDF Transfer	OSDF Transfer	n/a	OSDF Transfer	n/a	OSDF Transfer	
Disposition	OSDF[5]	OSDF	None[6]	OSDF	OSDF	n/a	OSDF	n/a	OSDF	

Footnotes:

(1) Excludes compactibles which will be placed in dumpster for compaction. Miscellaneous materials can be containerized with non-regulated asbestos containing material (ACM).

(2) Includes Miscellaneous Structures and Fixtures:
- a. Accessible pumps and piping, post indicator valves, and electrical panels in STP area;
- b. Three-sided fiberglass shelter at Primary Settling Basin (25G);
- c. Wiper blade apparatus for Primary Settling Basin (25G);
- d. Sprinkler arms for Trickling Filters (25H);
- e. High-tension electrical tower (one) located between RIMIA (82A) and STP area;
- f. All wooden utility poles inside the STP area and those extending west towards RIMIA; and
- g. T-107 (Rad. Control Access Trailer in southwest corner of STP area) is included but may be reused by Area 1 Phase II excavation support.

(3) Individual Roll-Off Boxes may contain commingled debris based on the following segregation groupings, which are consistent with On-Site Disposal Facility Impacted Material Categories: a) OU3 Debris Categories A, B, D, and E (OSDF Impacted Material Category 2); b) OU3 Debris Category I — except Component 39D refractory lining (predominantly OSDF Impacted Material Category 4); and c) OU3 Debris Category I — Component 39D refractory lining (OSDF Impacted Material Category 5 - due to potential health and safety hazard).

(4) ROB: Roll-Off Box holds 810 cubic feet and/or 16.95 tons of material

(5) OSDF: On-site Disposal Facility;

(6) In the event Process Related Metals are encountered, they will be dispositioned at NTS and described in the project completion report.

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TABLE 2-3 Unbulked Material Estimates (ft^3)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Concrete	Brick	Non-Regulated ACM	Regulated ACM	Misc. Materials	Component/ Complex Totals
25A	0	32	0	0	545	0	0	0	36	613
25B	0	41	0	0	0	0	0	0	41	82
25E	30	1,002	0	1	6,786	0	0	0	62	7,881
28F	0	43	0	0	36	0	0	0	1	80
39D	0	93	0	0	1	0	34	0	1,724	1,852
Miscellaneous[1]	26	392	0	0	0	0	0	0	224	642
Complex Total	56	1,603	0	1	7,368	0	34	0	2,088	11,150

Footnotes (see below Table 2-4)

TABLE 2-4 Material Weight Estimates (Tons)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Concrete	Brick	Non-Regulated ACM	Regulated ACM	Misc. Materials [1]	Component/ Complex Totals
25A	0	1.2	0	0	13.7	0	0	0	0.8	15.7
25B	0	1.5	0	0	0	0	0	0	0.9	2.4
25E	6.5	36	0	0	169.7	0	0	0	1.3	213.5
28F	0	1.5	0	0	0.9	0	0	0	0	2.4
39D	0	3.3	0	0	0	0	0.5	0	37.9	41.7
Miscellaneous[1]	1.3	14.2	0	0	0	0	0	0	4.9	20.4
Complex Total	7.8	57.7	0	0	184.3	0	0.5	0	45.8	296.1

Footnotes (Tables 2-3 and 2-4):

(1) Includes Miscellaneous Structures and Fixtures:
- a. Accessible pumps and piping, post indicator valves, and electrical panels in STP area;
- b. Three-sided fiberglass shelter at Primary Settling Basin (25G);
- c. Wiper blade apparatus for Primary Settling Basin (25G);
- d. Sprinkler arms for Trickling Filters (25H);
- e. High-tension electrical tower (one) located between RIMIA (82A) and STP area;
- f. All wooden utility poles inside the STP area and those extending west towards RIMIA; and
- g. T-107 (Rad. Control Access Trailer in southwest corner of STP area) is included but may be reused by the Area 1 Phase II excavation project.

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Materials will be containerized inside the STP controlled area on pavement located adjacent to structures being dismantled. Filled containers will be covered/sealed, screened for exterior radiological contamination, inspected, tagged, and transported directly to the OSDF transfer area.

Materials that do not meet facility release criteria (discussed in Section 2.5.2), which is anticipated for some materials generated from the STP Incinerator, will be containerized inside a load-out vestibule that will be part of an enclosure to be erected around that structure. Should any materials be encountered that do not meet the OSDF waste acceptance criteria (e.g., materials with "visible process residues" such as yellow cake, green salt, etc.), they will be containerized separately from OSDF-bound materials, follow the same load-out and transportation procedures, and be transported to the Plant 1 Storage Pad for packaging and disposal at the Nevada Test Site. Stockpiling of debris for interim storage is not currently planned due to the expected availability for placement in the OSDF and the need to remove above-grade debris for access by the Area 1 - Phase II excavation subcontractor. Due to the potential for limited ROB containers during the first few weeks of the project, there may be a need to temporarily stockpile Categories B and E debris from Building 28F on its slab and Categories A, B, and E debris from the loading dock of Component 39D on adjacent asphalt.

Material tracking and reporting will be accomplished by including a project-specific Site-Wide Waste Information, Forecasting and Tracking System (SWIFTS) summary in the Project Completion Report. Section 3.3.2.2 (Segregation, Containerization, Tracking) of the OU3 Integrated RD/RA Work Plan describes material tracking and reporting using SWIFTS. Project-specific material tracking and reporting strategies for the STP Complex project do not differ from the strategies laid out in the OU3 Integrated RD/RA Work Plan and therefore no additional details were developed during the remedial design process.

The disposition strategy for STP Complex materials is consistent with the requirements stated in the OU3 Final Action ROD (1996b) and strategies presented in the OU3 Integrated RD/RA Work Plan. Table 2-2 identifies that debris generated from this project will be placed in the OSDF. No treatment will be necessary for disposal since all chemical-based waste acceptance criteria are met based on OU3 RI/FS data.

2.3.5 Material Recycling/Reuse

Accessible metals (Category A) from the complex have been evaluated for potential recycling options and a detailed summary of that evaluation is available in Appendix B. Using the Decision Methodology for Fernald Material Disposition Alternatives (the "Decision Methodology"), 6.5 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all STP Complex components were evaluated by comparing the four leading alternatives to on-site disposal. The 1.3 tons of accessible metals that will be generated by the dismantling of the utility tower, which is located in a non-radiologically controlled area, will be size-reduced and sold as scrap by FEMP Property Management under the personal property disposition process and, therefore, were not included in the 6.5 tons considered for the evaluation. Of the three phases of the Decision Methodology (Threshold Phase, Life Cycle Analysis Phase, and Decision Phase), only the first phase was applied since the comparative evaluation of project costs for each alternative showed that the total costs for each of the recycling options greatly exceed the 25 percent total cost criteria compared to OSDF.

2.4 Environmental Monitoring

Project-specific environmental monitoring includes only wastewater monitoring. Supplemental environmental radiological air monitoring will not be performed due to negligible potential for contaminant releases from the project; however, the FEMP site-wide air monitoring data from upwind and downwind air monitors will be received to ensure that the site continues to meet applicable standards. Groundwater monitoring is not applicable to this project but may be employed if necessary as described in Section 3.6.2.3 of the OU3 Integrated RD/RA Work Plan.

Project-specific stormwater management is governed by the FEMP Stormwater Pollution Prevention Plan (DOE 1996c) and any monitoring associated with that program is managed by the Aquifer Restoration Project. Since the STP incinerator will be dismantled, reduced in size, and containerized within an enclosure, stormwater control measures will not be necessary during above-grade D&D.

<u>Surface Water (Wastewater) Monitoring</u>

As noted, it is anticipated that only a small volume of equipment decontamination washwater

will be generated. Section 2.3.2 of this implementation plan describes the wastewater management strategies. The OU3 Integrated RD/RA Work Plan describes the overall strategies to be implemented for project monitoring of wastewater. Listed below are the specific references in the work plan:

- **Section 3.2.5 Surface Decontamination:** Wastewater collection and management strategies.
- **Section 3.3.3 Management of Secondary Waste:** The overall strategy for managing wastewater, as one of the primary aspects of secondary waste, through the site wastewater treatment system.
- **Section 3.5.2 Management of Contaminated Water:** References site procedure to be used for the evaluation and management of contaminated wastewater.
- **SAP/Section 2 General Sampling and Data Collection Approach:** Focuses on wastewater sampling, among other aspects of sampling.
- **SAP/Section 3 Specific Sampling Programs:** Sampling for disposition of wastes, including wastewater. Determination of hazardous, radiological, and other waste characteristics.

The WWTS manager has been provided with a speadsheet containing OU3 R/FS analytical data from intrusive sampling of the STP Complex components to determine whether potential elevated levels of contaminants of concern may be present. Based on an estimated 300 gallons of equipment decontamination washwater, it is anticipated that two samples will be taken to determine isotopic radiological and heavy metals concentrations prior to discharge into the Advanced Wastewater Treatment Facility. Of those two samples, one will be a duplicate for quality assurance/quality control purposes. The purpose of the sampling is to ensure the adequacy of treatment capacity so that National Pollutant Discharge Elimination System (NPDES) permit requirements are met.

Project-specific reporting for wastewater (i.e., equipment decontamination washwater) collection and treatment will be provided in the project completion report, which will include a summary of the results generated during the project. For wastewater, the report will include a summary of the results from sampling and analysis prior to its discharge into the WWTS. For site-wide air monitoring, the report will identify site air monitoring stations but refer to reporting under the Integrated Environmental Monitoring Plan (IEMP)(DOE 1997b).

Radiological Air Monitoring

Occupational monitoring will be performed using personal and workplace air samplers in the work areas to ensure worker protection and will also serve as an indication of the effectiveness of engineering controls. Section 8.1 of the OU3 RD/RA Health and Safety Plan (Appendix E of the OU3 Integrated RD/RA Work Plan) describes the occupational air monitoring program. Based on process knowledge and the radiological survey of STP Complex components, it appears that only the STP Incinerator has the potential to produce elevated levels of airborne contamination outside the immediate work area. As a result, scaffolding will be erected around the stack of the STP Incinerator and reinforced polyethylene sheeting will be hung between the scaffolding and the stack to provide adequate enclosure. The remaining portions of the STP incinerator will be enclosed by structure made of metal stud framing and reinforced, fire-resistant polyethylene. High Efficiency Particulate Air (HEPA)-filtered ventilation will be used to control the air within the containment and prevent or minimize environmental airborne release of radiological contamination.

Environmental radiological air monitoring during the D&D of the STP Complex project will consist only of the Fernald Site Environmental Monitoring Program described in the site-wide IEMP, and discussed in Sections 3.5.1 and 3.6.2.1 of the OU3 Integrated RD/RA Work Plan. FEMP Air Monitoring Station #3 is located approximately 500 feet to the northeast of the STP Incinerator (i.e., immediately downwind based on historical wind rose data) and will ideally serve the environmental radiological air emissions monitoring function during D&D. AMS #3, as well as the other FEMP boundary monitors, are shown in Figure 2-1. As discussed later in this section, the need for a supplemental environmental radiological air monitoring program for this D&D project was evaluated by modeling the potential release of radiological (uranium) contaminants from the components during D&D. Due to the low concentrations of contaminants in the components, with the exception of the STP Incinerator which will have extensive engineering controls (encapsulation of the interior surfaces and enclosure with high efficiency particulate air-filtered ventilation), supplemental radiological monitoring is not warranted. Radiological surveys data summarized in Table 2-1 were used for the air emissions modeling input. Further explanation of the modeling effort is provided below. Computer modeling of potential uranium emissions from the STP Complex components used the CAP88PC method to measure potential dose impacts from the project. CAP88PC is the personal computer version of the U.S. EPA model CAP88 that is the approved method for predicting dose impacts to off-site personnel from emissions of radionuclides under the

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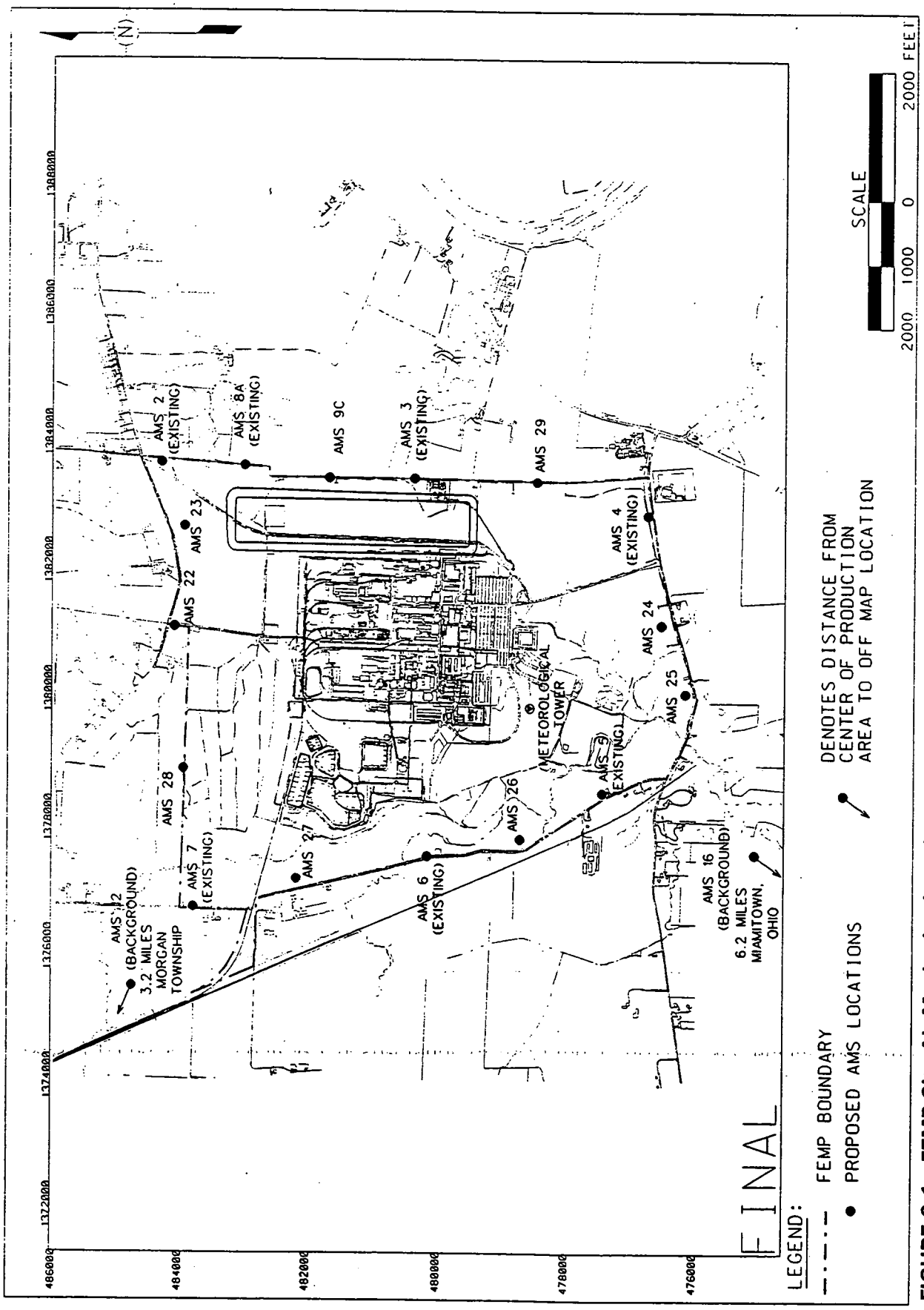

FIGURE 2-1 FEMP Site Air Monitoring Locations

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) regulations. It should be emphasized that the CAP88PC model is being used as a tool to assess potential dose to off-site personnel from radionuclide emissions from a project for the purpose of identifying potential mitigative controls and possibly the use of supplemental monitoring measures; it is not being used as a means to demonstrate compliance with NESHAPs Subpart H. The method to be used for demonstrating NESHAPs Subpart H compliance is presented in the IEMP as a collective sitewide strategy.

The CAP88PC modeling methodology is prescribed by the U.S. EPA reference manual: U.S. EPA User's Guide for CAP88, Version 1.0, 402-B-92-001. Computer modeling of potential radiological emissions from the STP Complex used radiological smear data to provide a more realistic measure of removable alpha, beta, and gamma contamination rather than fixed contamination (identified through intrusive sampling results from the OU3 RI/FS database) for estimating contaminant release. The removable contamination data obtained through smear sampling represents a model input that depicts worst case emissions since it represents removable contamination present prior to the decontamination activities that will precede dismantlement. Fixed contamination should remain fixed in place and not become airborne during D&D activities. Therefore, fixed contamination was not included in the model as potential emissions from the project.

The modeling methodology assumed no controls on emissions release, such as HEPA filters on containment ventilation systems and a percentage (of removable contamination) that would become airborne during D&D activities. Potential emissions sources were treated as being in readily dispersible forms. The results of the computer modeling indicated that the maximally exposed individual would theoretically be located approximately 715 meters south-southeast of the project area and would potentially receive a maximum Effective Dose Equivalent of 9.9 x 10^{-7} mrem/year from the D&D activities. Based on a review of the results of the computer modeling, no supplemental environmental air monitoring will be required for the STP Complex D&D activities.

Further justification for not providing project specific air monitors comes from analysis of data from the Plant 7 Dismantling - Removal Action No. 19 Final Report (DOE 1995), the Project Completion Report for Building 4A (DOE 1997c), and the Plant 1 Complex - Phase I Project Completion Report (DOE 1997d), which have shown that dismantlement activities resulted in

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negligible airborne radiological contaminant emissions. Results for airborne uranium contamination during those projects have been approximately 5 percent of the DOE maximum off-site guidelines of 0.1 pCi/m^3. The relationship between pCi/year and mrem/year may be understood by the conversion factor used to equate the two terms at the FEMP: if inhaled continuously (24 hours/day, 365 days/year), 0.1 pCi/m^3 of uranium in air will result in a dose of 100 mrem/year. It should be noted that various assumptions have been incorporated into this conversion factor. Mitigative measures that might be employed in the event of exceedence of the set criterion would include an increase in engineering and administrative controls during a particular task that has been identified as the cause or possible cause of the elevated radiological levels. Such controls could include negative pressure within an enclosed work area using additional HEPA filtration units or additional surface cleaning (wash) steps before removing material from the containment area.

2.5 Remedial Tasks

A general approach to the above-grade D&D of the STP Complex is described in the following subsections. Section 3 elaborates on this discussion by identifying component-specific interests concerning the six remedial tasks, as applicable. The remediation tasks that apply to the STP Complex are as follows:

- Preparatory Action: Safe Shutdown;
- Surface Decontamination; and
- Above-Grade Dismantlement.

Although the OU3 Integrated RD/RA Work Plan identifies three additional remedial tasks that may apply to D&D projects (i.e., preparatory action - inventory removal, asbestos removal, and hazardous waste management unit decontamination and removal), only the three identified in the bullets above apply to the STP Complex components.

Prior to actual field D&D activities, it is planned that STP D&D Complex Project Management will establish support facilities, including a trailer that has an office and break room. It is currently planned that this facility will be located immediately to the west of the STP fence boundary. The Site Support Contractor will mobilize in preparation for the D&D activities by establishing access and egress corridors and the demarcating construction zone boundaries around structures. The Site Support Contractor will also deliver equipment and materials to the STP area as needed to perform remediation activities. All equipment will be inspected by

FEMP Project Management to ensure that no contamination or items prohibited by the FEMP are brought on-site. A sign-in station will be established at the entrance to the job site for posting of permits and health and safety plans.

Throughout the remediation activities, the Site Support Contractor will be responsible for notifying FEMP Project Management of conditions in the field (e.g., chemical spills, leaking containers) that require environmental response. All conditions that necessitate a response will be dealt with immediately.

2.5.1 Preparatory Action: Safe Shutdown/Facility Shutdown

Safe shutdown/facility shutdown encompasses the scope of activities under Removal Action No. 12 (e.g., hold-up removal) and the utility isolation of structures. Section 3.2.2 of the OU3 Integrated RD/RA Work Plan discusses the overall scope of this preparatory action. The specific safe shutdown/facility shutdown activities needed for the STP Complex components consist of the following:

- removal of all salvageable equipment;
- removal of loose, gross contamination;
- removal of process/hold-up material; and
- disconnection of all utilities.

Not all of the components will require all of these preparatory activities; however, all will have utilities disconnected. The only component in the complex that required removal of process-related material through safe shutdown was the STP Incinerator. Safe shutdown of the STP Incinerator was performed in the summer of 1997 and was completed on June 23, 1997. The Aquifer Restoration Project (ARP), under the AWWT operations, is scheduled to perform safe shutdown of the Digester & Control Building (25E) between April and July 1998, whereupon it will be turned over to STP Complex D&D Project Management. Safe shutdown will include removal of sludge from the digester tank and washing interior surfaces to remove biological hazards to the extent practical. The timing for ARP safe shutdown of the Digester & Control Building is contingent upon the transfer of STP operations to the new facility located near the AWWT. ARP safe shutdown will also remove sludges and media from at- and below-grade facilities (Primary Settling Bed, Secondary Settling Bed, and Trickle Filters) prior to turnover of the STP.

Power redistribution will be performed prior to utility isolation since the electricity that is currently supplied to AMS #3 (see Figure 2-1) is routed through the STP facility. Power for AMS #3 will be provided through the utility redistribution being performed for the Dissolved Oxygen Building (18P), Outfall Line Pit (18R), and Dissolved Oxygen Facility Substation (16K).

Utility isolation for the STP Complex components includes disconnection of all water, electrical power, fire protection alarms and systems, and communication systems. These systems will be de-energized and terminated by disconnecting the respective feed lines outside of the STP area.

2.5.2 Surface Decontamination

Surface decontamination will be performed primarily for equipment surfaces that exhibit radiological contamination caused by dismantling activities. Pre-D&D radiological survey data (summarized in Table 2-1) shows that the STP Incinerator is the only facility in the STP Complex that has removable and fixed beta-gamma levels significantly in excess of the facility release criteria (i.e., the levels which project Radiological Engineers determined that exposure of those surfaces to the environment will not present a significant risk for release). The radiological facility release limits for this project are as follows:

- All <u>non-porous</u> surfaces (such as steel decking or columns) within the structure shall be below 5,000 dpm/100 cm^2 beta-gamma removable radiological contamination and all <u>porous</u> surfaces (such as concrete decking or wood) shall be below 1,000 dpm/100 cm^2 beta-gamma removable; 5,000 dpm/100 cm^2 average beta-gamma fixed plus removable; and 15,000 dpm/100 cm^2 maximum beta-gamma fixed radiological contamination. The average beta-gamma fixed plus removable radiological contamination limit is the average of the radiological contamination levels that exist within an individual 20 ft. x 20 ft. area (generally defined by plant column locations) and the maximum beta-gamma fixed radiological contamination limit is the highest permissible contamination level within the 20 ft. x 20 ft. area.

Besides the STP Incinerator, there are a few small areas in the Building 25E that could have radiological contamination above the facility release limits. Radiological surveys will be taken following completion of safe shutdown/facility shutdown of the component to identify turnover conditions. The areas of concern include inaccessible interior surfaces that are located beneath the floor grating of Component 25E. If radiological contamination levels exceed the stated limits, the affected areas would have to be cleaned to release standards or have

removable radiological contamination fixed using an encapsulant. Due to the friable condition of the internal (non-asbestos) refractory lining of the incinerator, surfaces will be thoroughly sprayed with encapsulants. The STP Incinerator will be enveloped in a HEPA-ventilated polyethylene enclosure, materials will be containerized and sealed within the enclosure thereby preventing release of contaminants to the environment during this process.

Radiological contamination survey data for the other STP Complex components show that facility release criteria for exposure to the environment have been met for the majority of materials to be generated. The exceptions, in addition to the STP Incinerator, potentially include specific inaccessible areas of Building 25A and 25E, as detected by earlier radiological survey data. If the latest radiological survey data, to be generated by the Aquifer Restoration Project as part of its facility shutdown/safe shutdown turnover process, detects radiological contamination above the facility release limits, then localized washdown, vacuuming, or encapsulation of surfaces would be necessary. Continuous radiological surveys will be taken as the D&D of the complex progresses to assess previously inaccessible areas. The Site Support Contractor and FEMP Project Management will inspect all debris for "visible process residues" (defined in the project work scope conditions/specifications provided in Appendix C).

2.5.3 Above-Grade Dismantlement

STP Complex above-grade dismantlement activities include all of the activities described in Section 3.2.6 of the OU3 Integrated RD/RA Work Plan and the following project work scope conditions/specifications were prepared specifically for this project:

1) Ventilation and Containment;
2) Equipment/Systems Dismantlement;
3) Transite Removal;
4) Structural Steel Dismantlement;
5) Concrete/Masonry Removal; and
6) Debris/Waste Handling.

These work scope conditions/specifications, among others, are included in Appendix C of this Implementation Plan. Other activities that support above-grade dismantlement include lifting and rigging are included in the subcontract work package as standard items needed for all D&D projects.

There will be two different approaches to above-grade dismantlement of STP Complex components due to the construction and conditions of the STP Incinerator versus those for the other STP Complex components. The specific dismantlement approach for the STP Incinerator is described in Section 3.4. Although the dismantlement strategy for each component is provided in Section 3, the other structural components will follow the general approach described below.

Ventilation and Containment

Ventilation and local containment will be necessary for the D&D of the STP Incinerator for radiological control purposes. The requirements for ventilation and containment are provided in the work scope conditions/specifications (Appendix C). The requirements address criteria for local containment and vestibule design, ventilation, types of containment, and type of ventilation/containment applicability.

Equipment/Systems Dismantlement

Prior to breaching any system, the Site Support Contractor and FEMP Project Management will verify that all the systems are de-energized.

Equipment within the STP Complex has been identified and classified based on size and disposition requirements. As equipment is removed, the internal building surfaces and floor area previously covered by the equipment will be visually inspected to ensure the absence of free liquids, solids, or residues. If these materials are found, an evaluation will be performed by FEMP Project Management to determine the appropriate removal and handling requirements for the material. Newly exposed surfaces will also be radiologically screened and/or surveyed for removable beta-gamma contamination.

All piping, valves, electrical components, conduit, wire, cable trays, construction debris, and heating, ventilation and air conditioning (HVAC) systems will be removed and reduced in size. During removal of HVAC ductwork, internal surfaces will be visually inspected to ensure the absence of free-liquids, solid materials, and process residues. If free liquids or solid materials are found, an evaluation will be initiated by the FEMP Project Manager to determine the requirements for material handling and removal. Systems containing visible process residues will require that they be handled as OSDF-prohibited debris unless decontamination is chosen to remove the residues. The visual evaluation will identify the contents and requirements for

containerization, storage, and disposal. Materials will be handled according to the MSCC and waste/debris handling requirements in Appendix C.

Methods such as reciprocating saws, portable band saws, and shears are the preferred methods for bulk removal. Methods that volatilize the paint and contamination can be used, provided that additional safety and health requirements for worker protection are met. These methods include the use of respiratory protection and portable air cleaning units. Periodic radioactivity screening measurements will be performed to ensure that the surfaces meet the facility release limits. Surface wiping, vacuuming, water wash, or encapsulation may be required to minimize removable contamination.

Transite Removal

The Site Support Contractor will maintain the integrity of the exterior of the STP Incinerator loading platform until the transite has been removed. Transite panels will be sprayed with an encapsulant or surfactant prior to removal. Transite panels will be detached one by one by removing fasteners while carefully avoiding the generation of transite particles and dusts. If the fasteners cannot be easily removed, the area around the fastener will be sprayed with an encapsulant, thus allowing the fastener to be pried out. If a broken panel is encountered, the area surrounding the break will be sprayed with encapsulant. Transite panels that have been removed will be entirely encapsulated with a fixative, thus eliminating the need to wet and enclose in polyethylene. HEPA vacuums will be available to collect any loose material.

Structural Steel Dismantlement

Non-load bearing steel members, windows and frames, doors, gutters and down spouts, will be removed using mechanical means. As these items are removed, the exposed component surfaces have the potential of holding debris and contamination. These areas will be radiologically surveyed and visually inspected to determine if these surfaces meet the visible process residue standard. Additional decontamination such as encapsulation of surfaces may be performed as discussed in Section 2.5.2 of this Implementation Plan.

Hydraulic shears or oxy-gas or oxy-acetylene torches may be used to dismantle and size-reduce structural steel frame members. Prior to and during dismantlement, the area surrounding the structure will be sprayed with water as necessary to reduce fugitive dust emissions in accordance with FEMP site procedure RM-0047.

Concrete/Masonry Removal

The preferred method for dismantling of concrete/masonry unit (CMU) walls, which exist in Buildings 25A and 25E, will be the use of hydraulic shears to remove small portions of the structures with each contact. Engineering controls such as water spray will be used as necessary tp minimize generation of fugitive dust.

All wire and cable will be cut away to grade level from the conduit embedded in the concrete. Conduit and other slab obstructions will be cut away to grade level, plugged, and covered with grout to grade level for positive drainage as needed.

Debris/Waste Handling

Debris/waste handling strategies are discussed in Section 2.3 of this Implementation Plan and specified, for Site Support Contractor directive purposes, in Appendix C.

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3.0 COMPONENT-SPECIFIC REMEDIATION

This section presents component-specific remediation tasks identified for the STP Complex. Background information provided in this section was obtained primarily from the OU3 RI/FS Work Plan Addendum (DOE 1993). Information regarding the remediation approach was obtained from the project work scope conditions/specifications and the OU3 Integrated RD/RA Work Plan.

3.1 Component 25A - Chlorination Building

Background

Component 25A - Chlorination Building, is a single story structure located directly adjacent to the west side of the secondary settling basins of the Trickling Filters (25H). The Chlorination Building consists of concrete/masonry block walls and a reinforced concrete floor with approximate dimensions of 10 x 15 x 8 feet high. Figures D-1 and D-2 in Appendix D show the plan and section views of this component, while a photograph is provided as Figure E-2 in Appendix E.

Process Area Description: Building 25A houses the chlorine feed water treatment system and has been used to chemically treat the Trickling Filter (25H) effluent when the ultra-violet disinfection system (25D) is off-line.

Remedial Tasks

Since the Chlorination Building was not used to support nuclear processing, no hold-up material or legacy waste (inventory) is present. Therefore, aside from utility disconnections and removal of salvageable equipment, no preparatory actions will be necessary. Asbestos removal is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM. Large scale decontamination of surfaces will not be necessary since historical radiological survey results indicate that this facility meets the facility release criteria. As equipment is removed and new areas are uncovered, additional surveys will be completed and local decontamination or encapsulation will be performed as necessary.

Above-Grade Dismantlement

Bulk and equipment removal activities will be necessary before structural dismantlement.

CMU walls will be dismantled using hydraulic shears. Dismantling will involve breaking the CMU into manageable pieces while also meeting the debris size requirements for OSDF disposal. Best Available Technology dust control measures (e.g., water spray) will be employed during dismantling as necessary.

3.2 Component 25B - Manhole #175/Effluent Line Sampling Building

Background

The above-grade portion of Component 25B - Manhole #175/Effluent Line Sampling Building consists of a fully enclosed single-level, single-piece fiberglass structure having dimensions of approximately 12 x 12 x 10 feet high, bolted onto a concrete footer foundation. Figures D-3 and D-4 show the plan and section views of this component while an exterior view is provided in the photograph shown in Figure E-3 in Appendix E.

Process Area Description: Manhole #175 stands above the junction of the effluent from the Sewage Treatment Plant through the U.V. Disinfection Building (25D) and the effluent from the Stormwater Retention Basin (18E). The actual sampling building was used to house sampling equipment which pulls samples from Manhole #175 and monitors the effluent according to NPDES permit conditions.

Remedial Tasks

Safe Shutdown of this structure will consist of electrical utility service de-energization. Legacy (inventory) wastes, hold-up materials, or asbestos are not present in this structure. Only utility disconnections and removal of salvageable equipment will be performed prior to dismantling. Large scale decontamination of surfaces will not be necessary since historical radiological survey results indicate that this facility meets the facility release criteria. As equipment is removed and new areas are uncovered, additional surveys will be completed and local decontamination or encapsulation will be performed as necessary.

Above-Grade Dismantlement

Any remaining interior equipment will be removed prior to structural dismantlement. The building will then be dismantled in-place by use of hydraulic shears. A radiological survey of the structure will be performed prior to release from the controlled area.

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3.3 Component 25E - Digester & Control Building

Background

Component 25E - Digester & Control Building, consists of a multi-level building which houses equipment (e.g., pumps, related piping) attached to a 27,000 gallon sludge digester tank. The dimensions of the two-story building and tank (together) are approximately 61 x 40 x 16 feet high. The building and tank are constructed of cement block on reinforced poured concrete footers. The two-story building also contains a flat reinforced poured concrete roof, glass windows, and a poured concrete floor on the upper level. Figures D-5 and D-6 show the plan and section views, and Figures E-4 and E-5 show photographs of this component.

Process Area Description: The Digester & Control Building served as the anaerobic digester for site sewage treatment.

Remedial Tasks

Safe Shutdown of this structure will consist of electrical utility service de-energization. Legacy (inventory) wastes and asbestos are not present in this structure. Since the ARP AWWT operations will remove sludges during safe shutdown, it is not anticipated that additional hold-up removal will be necessary. Only utility disconnections and removal of salvageable equipment will be performed prior to dismantling.

Surface Decontamination

Surface decontamination may be necessary in the few inaccessible areas that exhibited removable beta-gamma radiological readings above the facility release limits. Confirmatory surveys may be performed to determine if these areas still exceed the limits. Additional surface decontamination may be necessary if radiological surveys of previously inaccessible areas (i.e., until the removal of equipment and bulks) show radiological contamination above facility release limits. Currently exposed interior and exterior surfaces already meet facility release limits based on recent radiological survey data. Initial surface cleaning will include HEPA vacuuming and wet wiping. More aggressive decontamination methods (e.g., high pressure water spray) or application of fixatives will be used if the initial methods do not result in adequate decontamination.

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Above-Grade Dismantlement

Bulk and equipment removal activities will be necessary before structural dismantlement. Although STP residues are not truly "process-related" (which refers to the processing of nuclear materials where yellow cake, green salt, etc., are present), visual inspection and radiological surveys will be conducted to verify that the residues do not exhibit process characteristics. Following equipment/systems removal activities, the CMU walls will be dismantled using shears and ramming equipment. Dismantling will include breaking the CMU into manageable pieces by caving small portions of wall and flooring materials inward while also meeting the debris size requirements for OSDF disposal. Dust control measures (e.g., water spray) will be employed during dismantling as necessary.

3.4 Component 39D - Sewage Treatment Plant Incinerator

Background

Component 39D - Sewage Treatment Plant Incinerator consists of two steel-paneled burn chambers measuring approximately 6 x 30 x 9 feet high, a three-sided transite-paneled enclosure (loading platform) measuring approximately 6 x 20 x 9 feet high, and an exhaust stack measuring approximately 36 feet high, situated on a concrete pad in the northwest corner of the Sewage Treatment Plant area. Attached to the three-sided enclosure is a tubular steel-framed windbreak with fiberglass panels. Figures D-7, D-8, and D-9 in Appendix D show plan and section views of this component. Figure E-6 is a photograph showing the component exterior.

Process Area Description: The primary purpose of the Sewage Treatment Plant Incinerator was to incinerate a variety of site process wastes.

Remedial Tasks

An asbestos survey was conducted for the STP Incinerator prior to the safe shutdown activities. The survey revealed that no friable asbestos exists in the structure; however, there is approximately 900 square feet of non-friable transite that line the walls and roof of the loading platform. Although asbestos abatement is not applicable, transite removal will be necessary prior to demolition.

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Preparatory Action: Safe Shutdown

The electrical power and natural gas feeding the incinerator was de-energized and disconnected in 1994. Removal of process residues, ash, and loose refractory material was performed in June 1997 using Removal Action 12 procedures. The radiological survey data summary shown in Table 2-1 represents the conditions following this safe shutdown removal action.

Surface Decontamination

Due to the friable condition of the internal (non-asbestos) refractory lining of the incinerator, surface decontamination measures are not practical. Therefore, the STP Incinerator will be enveloped in a HEPA-ventilated reinforced polyethylene enclosure for dismantling. Waste materials will be containerized and the container sealed within the enclosure. This engineering control will be constructed to effectively prevent the release of contaminants to the environment. To minimize the generation of airborne radioactivity within the enclosure, all internal surfaces of the incinerator will be sprayed thoroughly with an encapsulant before dismantlement occurs. Additional encapsulant will be applied as necessary during dismantlement and after placement in the containers. By lining the containers with polyethylene and wrapping the refractory contents when filled, the handling of the waste will be made safer and potential emissions will be kept to a minimum.

Above-Grade Dismantlement

To support dismantlement and prevent release of contamination, the reinforced polyethylene sheeting will remain in place during structural dismantlement. The entire building including the stack will be enclosed. The enclosure will consist of scaffolding-supported reinforced polyethylene around the stack and a ground-level metal-framed enclosure for the remaining portions (combustion chambers). HEPA filtered ventilation will be used to control and contain any airborne contaminants. Scaffolding and frame supports will be positioned on the outside of the polyethylene enclosure to minimize contaminating the framing and make final cleaning easier. The enclosure will be big enough for a skid steer (Thomas or Bobcat type), crew and waste containers. An airlock compartment in the enclosure will be used for cleaning equipment and containers and for movement of containers in and out of the enclosure.

Following enclosure of the incinerator and encapsulation of interior surfaces, the refractory brick lining within the segmented stack will be knocked down using a prying device from the

top of each segment prior to removal. The refractory lining will be pushed inward so that a pile is created inside the secondary burn chambers. With the refractory lining removed, the four segments of the stack (see Figure E-6 in Appendix E), will be removed one section at a time, allowing for controlled dismantlement. The incinerator section will be demolished with the skid steer using a shear and ram-hoe inside the enclosure. The debris will be loaded into waste containers inside the containment.

Contamination control will include a 3-step process: 1) use a fixative on the interior surfaces prior to D&D; 2) use amended water or diluted encapsulant during D&D while maintaining the enclosure sheeting to minimize dust and minimize equipment contamination; and 3) use fixative on the slab at the completion of D&D activities.

The STP Incinerator loading platform will not be enclosed since it does not exceed facility release limits. Dismantlement of the loading platform, including the asphalt and railroad tie ramp, will take place concurrent with the assembly of scaffolding. Fugitive dust will be minimized by using water spray during dismantlement as necessary. The roof and walls of the STP Incinerator loading platform consist of transite panels and structural steel frame (channel iron). Prior to structural dismantlement, transite will be removed as described in Section 2.5.3 and according to the work scope conditions/specifications in Appendix C.

Debris will be placed into containers according to the appropriate designation identified on the MSCC form for this project.

3.5 Component 28F - Skeet Range Building

Background

Building 28F - Skeet Range Building (formerly known during the OU3 RI/FS as Component 90), is a single-story structure measuring approximately 15 x 15 x 9 feet high. It is located along the STP access road and is located outside the FEMP radiologically controlled area. Figure D-9 in Appendix D is a plot plan drawing of the Skeet Range Building. Architectural drawings do not exist for this small structure. Figures E-7 through E-8 in Appendix E provide exterior photographs of this structure.

Process Area: The Skeet Range Building was used to support security force training (i.e.,

storing clay pigeons and target launching equipment).

Remedial Tasks

The Skeet Range Building did not store or process materials. Preparatory actions or asbestos removal are not necessary prior to above-grade dismantlement.

Above-Grade Dismantlement

Building 28F is constructed of a structural steel frame with metal walls and roof and is situated on a poured reinforced concrete floor.

Building 28F will be prepared for dismantlement by removing nonstructural steel members and the doors (standard door and roll-up door) using hand tools or other mechanical cutting techniques.

Use of hydraulic shears is the preferred technique for dismantlement and size-reduction of structural steel frame members. All structural materials will be size-reduced and loaded into containers. Fugitive dust will be minimized by applying water spray when necessary.

3.6 Miscellaneous Structures and Fixtures

Remedial Tasks

The following miscellaneous structures and fixtures will also be included in this project:

- High-Tension Electrical Tower: This structure, which is the northern-most tower (of two) located between RIMIA (82A) and STP area, is to be handled as Category A (accessible metals) originating from a non-radiologically controlled area. D&D Project Planning has coordinated with FEMP Personal Property Management to sell the scrap steel from this structure to a recycling vendor. Since the steel from this tower is not be radiologically contaminated, radiological screening surveying is not necessary. Section views of this structure are provided in Figure D-11 (Appendix D). Figure E-9 provides a photograph of this structure.

  The dismantlement strategy for the utility tower includes the removal of all electrical cable by the owner electrical utility service company, Cinergy/Cincinnati Gas & Electric. Utility redistribution is being performed independent of the STP Complex D&D project in support of Area 1 Phase II SCEP. Removal of electrical cable is anticipated to be complete in April 1998. Dismantlement of the tower itself has been proposed to include an engineered fall of the structure by strategic notching of the main supports with guide cables to direct the fall to the east (away from any structures or planned activity). Hydraulic shears would then be used to

reduce the structural frame into approximately 10 foot lengths and placed into the container(s) supplied by the successful recycling bidder. Four small above-grade portions of the tower will remain in place for future Area 1 Phase II excavation by the SCEP. Per request of Area 1 Phase II SCEP integrators, approximately two feet of the above-grade steel supports (legs) will remain in place and will be painted orange with flags to aid in visibility.

- Accessible Exterior Pumps, Valves, Piping, and Electrical Panels: STP area structures which contain these fixtures (25A, 25B, 25G, and 25H) will be removed by hardware disassembly, oxy-acetylene/oxy-gas torch, or mechanical cutting.

- Three-sided Fiberglass Shelter at Primary Settling Basin (25G): This structure includes angle iron and several small fiberglass panels and measures approximately 4 ft. x 8 ft. x 8 ft. high; it will be dismantled by mechanical cutting.

- Wiperblade Apparatus for Primary Settling Basin (25G): This fixture consists of approximately 225 unbulked cubic feet of tubular steel and angle iron; it will likely be dismantled by mechanical cutting.

- Sprinkler Arms for Trickling Filters (25H): This fixture includes approximately 170 feet of five-inch diameter piping with cable supports; it will be dismantled by mechanical cutting or tool disassembly.

- Wooden Utility Poles: Twelve wooden utility poles are located either inside the STP radiologically controlled area or outside of that area extending west towards RIMIA. The several poles that extend west towards RIMIA will be used to supply power to a electrical breaker board and the support trailer until the STP Complex is essentially dismantled, whereupon those remaining poles will be removed just prior to demobilization. The poles will be cut at 2 ft. above-grade and painted orange w/ flags for future Area 1 - Phase II excavation by SCEP.

- Radiological Control Checkpoint Trailer (T-107): Currently serving as the radiological checkpoint trailer in the southwest corner of the STP radiologically controlled area, this structure may be dismantled as the last remaining structures/fixtures in the complex; however, the Area I Phase II excavation project may reuse T-107 for support of that activity, in which case the structure will remain in place.

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4.0 SCHEDULE

This section presents the planning and implementation schedules for the STP Complex D&D project. Figure 4-1 presents the schedule for implementation of field activities beginning with the Site Support Contractor's Notice To Proceed (NTP) and ending with the submittal of the Project Completion Report. Within Figure 4-1, the primary milestones of the project include NTP, project completion ("Completion of Field Activities"), and the preparation and submittal of the Project Completion Report to U.S. EPA and Ohio EPA.

The schedule shown in Figure 4-1 was developed based on the projected completion date of July 31, 1998 for the start-up of the new STP and completion of the safe shutdown/facility shutdown tasks, which will be performed for Components 25A, 25B, and 25E under the direction of the Aquifer Restoration Project. Significant delays to the start-up of the new STP facility would likely necessitate reconsideration of the STP D&D project milestones for "Completion of Field Activites" and "Submittal of the Project Completion Report".

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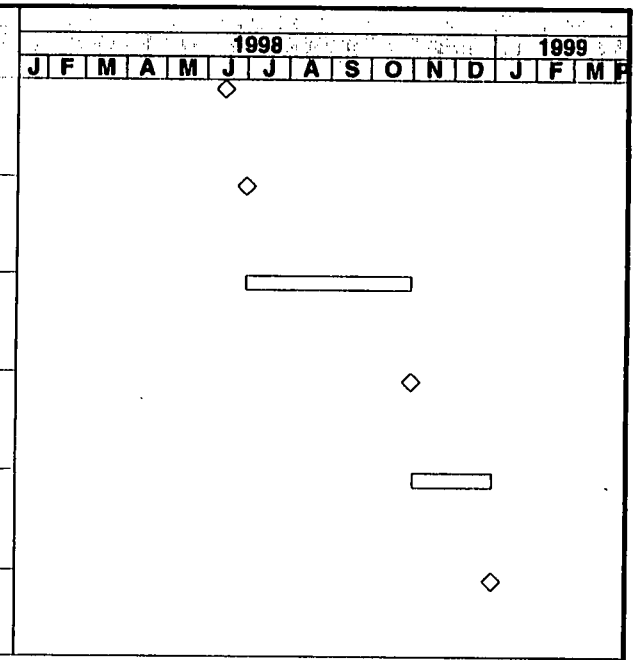
ACTIVITY DESCRIPTION	EARLY START	EARLY FINISH	ORIG. DUR.
ASSIGN TASK ORDER	15JUN98		0
NOTICE TO PROCEED	01JUL98		0
FIELD REMEDIATION OF SEWAGE TREATMENT PLANT CPLX	01JUL98	31OCT98	123
COMPLETION OF FIELD ACTIVITIES		31OCT98	0
PREPARE PROJECT COMPLETION REPORT	02NOV98	31DEC98	60
SUBMIT PROJECT COMPLETION REPORT TO USEPA / OEPA		31DEC98	0



Project Start 31DEC97
Project Finish 31DEC98
Data Date 31DEC97
Run Date 30JAN98

Early Bar
Progress Bar
Critical Activity

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STP2

Sheet 1 of 1

OU3 D&D SCHEDULE
SEWAGE TREATMENT PLANT COMPLEX

FIGURE 4-1 STP Complex D&D Schedule

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5.0 MANAGEMENT

The implementation of the STP Complex D&D project will be performed through a coordinated effort by the FEMP Site Support Contractor, FEMP Project Management and support organizations, and DOE Project Management. Section 7 of the OU3 Integrated RD/RA Work Plan provides the overall management structure applied to this remediation project. A description of project-specific management responsibilities have been highlighted for the STP Complex in this section.

DOE will provide direct project oversight in two ways, both of which become a concerted effort to ensure that remedial activities are performed according to project specifications and requirements. The DOE Office of Safety Assessment has assigned a Facility Representative to the Fernald Area Office whose responsibilities will be to perform independent field oversight of all remedial activities performed under this project. This individual will be responsible for weekly coverage of all field activities and necessary reporting to the DOE Program Manager at the Fernald Area Office. The Facilities Representative will have the authority to stop work if conditions warrant such action. DOE Fernald Area Office will also conduct field oversight in the areas of construction, engineering, quality assurance, and health and safety. The DOE Facilities Representative and others will immediately notify the DOE Project Manager of any issues or problems that arise in an effort to seek prompt resolution.

The DOE Project Manager and the environmental management contractor, Fluor Daniel Fernald, will oversee the remedial action through its project team review and approval process and by performing the following functions:

- ensuring that the Site Support Contractor(s) is provided with the proper direction and support necessary to meet the remedial action objectives for this project;
- detailing all work conditions and scope requirements;
- conducting an alignment meeting, pre-construction meetings, and weekly coordination meetings with the Site Support Contractor to address all concerns, schedule status, planning, progress, and deviations;
- performing quality assurance and quality audits of all remediation tasks to determine adherence to work scope conditions;
- verifying work is performed in compliance with approved health and safety plans; and

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- performing pre-final and final inspections.

The subcontracting strategy is to utilize the current Site Support Contractor for D&D activities. Work scope conditions/specifications have been incorporated into the task order scope of work, which provides all of the essential remediation requirements required by the OU3 Integrated RD/RA Work Plan. The Site Support Contractor will perform D&D of the components, material sizing, segregation, and loading into containers. Container transport to and from the project area will be performed by FEMP waste management personnel.

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REFERENCES

U.S. Department of Energy, 1993, *Operable Unit 3 Remedial Investigation and Feasibility Study Work Plan Addendum*, Final, prepared by Fernald Environmental Restoration Management Corporation, Cincinnati, Ohio.

U.S. Department of Energy, 1995, *Plant 7 Dismantling - Removal Action No. 19*, Final Report, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1996a, *Operable Unit 3 Remedial Investigation and Feasibility Study Report*, Final, prepared by Fernald Environmental Restoration Management Corporation, Cincinnati, Ohio.

U.S. Department of Energy, 1996b, *Operable Unit 3 Record of Decision of Final Remedial Action*, Final, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1996c, *FEMP Stormwater Pollution Prevention Plan*, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1997a, *Operable Unit 3 Integrated Remedial Design/Remedial Action Work Plan*, Final, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1997b, *Integrated Environmental Monitoring Plan*, Final, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1997c, *Building 4A Project Completion Report*, Final, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

U.S. Department of Energy, 1997d, *Plant 1 Complex - Phase I Project Completion Report*, Final, prepared by Fluor Daniel Fernald Corporation, Cincinnati, Ohio

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APPENDIX A

PROPOSED SAMPLING

Several types of sampling were identified early in the design process to support both the design itself and to support logistical planning for field remediation. The scope and requirements for potential D&D sampling were outlined in the Sampling and Analysis Plan, included as Appendix D to the OU3 Integrated RD/RA Work Plan. A project-specific summary of the sampling types are included below.

Characterization Screening

Lead screening has been conducted using X-Ray Fluorescence (XRF) screening of media for lead based paint. Radiological surveying has been conducted for fixed and removable radioactive contamination using Geiger-Mueller radiological contamination meters and will continue to be used throughout D&D activities to verify that radiological facility release criteria (i.e., release from containment) are met.

Asbestos

This category represents samples that have been collected to verify whether a certain material is considered ACM and whether the ACM is regulated or non-regulated. Asbestos surveys were conducted prior to the design of this D&D project and the results were incorporated. The only ACM present in the STP Complex is in the form of transite panels located on the STP Incinerator loading platform.

Secondary Waste (Decontamination Water)

It is expected that up to 300 gallons of decontamination washwater will be generated during equipment cleaning. Samples will be used to determine the need for treatment prior to discharge into the AWWT. It is estimated that 2 samples will be required to characterize wash water for isotopic radionuclides and heavy metals. No sampling will be required to evaluate enrichment (i.e., levels of U-235 to total Uranium) since nuclear processing did not occur in the STP Complex components.

A project-specific sampling plan for the decontamination washwater will be developed prior to commencement of sampling. An example of a typical wastewater sampling plan is attached to Appendix D of the OU3 Integrated RD/RA Work Plan.

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Nevada Test Site (NTS) Confirmatory

No sampling is anticipated for qualifying materials for NTS disposal since all STP Complex debris is expected to be dispositioned in the OSDF. Should there be a need to prepare any debris for NTS shipment (e.g., debris from the STP Incinerator that would have visible process residues), one percent of each material/waste stream going to NTS would be sampled. For each container that makes up the one percent, three samples will be taken and analyzed in accordance with the NTS Waste Acceptance Criteria (WAC).

Permitted Off-site Commercial Disposal Facility

It is not anticipated that mixed waste will be generated; however, sludge collected from the settling of decontamination washwater and associated filtercake will be sampled along with the washwater to determine disposition. Mixed waste may result from the collection of lead-based paint in the filtrate. No lead flashing is present in the STP Complex components. Sampling and analysis required for shipment certification will be as specified by the permitted facility's WAC. Section 3.2.3 of the SAP contained in Appendix D of the OU3 Integrated RD/RA Work Plan addresses analytical requirements for off-site disposal.

Asbestos Air Monitoring

Asbestos air sampling will not be necessary since friable ACM is not present in project STP Complex components. Occupational air sampling for asbestos will not be required during Component 39D transite removal due to the completion of a negative exposure assessment as required by OSHA, unless the Site Support Contractor chooses to use workers with minimal work experience to remove the transite.

Radiological Air Monitoring

Data from the IEMP site-wide routine environmental air monitoring program will be used to complement the STP Complex D&D occupational air monitoring program.

Occupational air samplers will be worn by at least twenty-five percent (25%) of the workers in each work group/crew (minimum of one worker) when entering a radiological area controlled for contamination or airborne radioactivity.

No supplemental environmental radiological air monitoring will be performed.

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APPENDIX B

EVALUATION OF MATERIAL DISPOSITION ALTERNATIVES FOR THE SEWAGE TREATMENT PLANT COMPLEX

Per the OU3 Record of Decision for Final Remedial Action, the selected disposition route for the majority of OU3 radiologically contaminated material, including accessible metals, is placement in the On-Site Disposal Facility (OSDF). However, in support of DOE's commitment to evaluate recycling on a case-by-case basis during each above-grade D&D project design (per Section 3.3.6.1 of the OU3 Integrated Remedial Design/Remedial Action Work Plan under the subheading of Unrestrictive Release Recycling/Reuse), an evaluation of disposition alternatives was performed for potentially recyclable/reusable materials estimated to be generated from the STP Complex. Using the Decision Methodology for Fernald Material Disposition Alternatives (the "Decision Methodology"), which was finalized in July 1997 following extensive stakeholder involvement, 6.5 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all STP Complex components was evaluated by comparing the four leading alternatives to on-site disposal. The 1.3 tons of accessible metals that will be generated by the dismantling of the utility tower, which is located in a non-radiologically controlled area, will be size-reduced and sold as scrap by FEMP Property Management and, therefore, is not included in the 6.5 tons considered for this evaluation.

The Decision Methodology consists of three phases: 1) Threshold Phase; 2) Life Cycle Analysis Phase; and 3) Decision Phase. The first phase, the Threshold Phase, includes a comparative evaluation of project costs for each alternative. The cost estimates which were recently established under the Plant 4 Case Study (presented during July 8, 1997 public meeting) were utilized for the 6.5 tons of structural steel from the STP Complex. Since total cost estimates for each recycling alternative are current, and other factors such as vendor and market information have not significantly changed since the Plant 4 evaluation was performed, unit rates for each of the recycling alternatives shown in the Plant 4 Case Study are considered valid for the STP Complex alternative disposition alternative evaluation. The total cost comparison of the disposition alternatives is shown in Table B-1.

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TABLE B-1 Total Cost Comparison for Disposition Alternatives

DISPOSITION ALTERNATIVE	COST PER POUND	TOTAL COST	PERCENT ABOVE LOWEST COST
On-Site Disposal Facility	$ 0.04	$520	--
FEMP Material Release Facility	$ 0.27	$3,510	675 %
Vendor Material Release facility	$ 1.10	$14,300	2,750 %
"Recycle 2000"	$ 1.20	$15,600	3,000 %
Privatized FEMP Material Release Facility	$ 0.56	$7,280	1,400%

The comparison of total costs between disposal in the OSDF and the four recycling alternatives indicates that each of the recycling alternatives greatly exceeds the 25 percent total cost criteria established for the Threshold Phase. As a result, only the lowest cost alternative (i.e., on-site disposal) meets the minimum criterion defined for the Threshold Phase. Therefore, as identified in the Decision Methodology, no further consideration of these decision alternatives is warranted and the decision for dispositioning the estimated 6.5 tons of accessible metals is disposal in the OSDF. Should vendor or market conditions change significantly prior to OSDF disposal of the structural steel, whereby the total costs of any of the recycling alternatives approach the cost threshold for further evaluation, then an re-evaluation of the disposition alternatives would be considered.

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APPENDIX C

PROJECT WORK SCOPE CONDITIONS/SPECIFICATIONS

The project work scope conditions/specifications included in this appendix have been modified from the original set of performance specifications contained in the May 1997 final version of the OU3 Integrated RD/RA Work Plan to incorporate the alternative site support subcontracting strategy chosen for the STP Complex D&D project. These conditions/specifications are substantively identical to the May 1997 performance-specifications.

1. MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS
2. TRANSITE REMOVAL
3. EQUIPMENT/SYSTEMS DISMANTLEMENT
4. VENTILATION AND CONTAINMENT
5. STRUCTURAL STEEL DISMANTLEMENT
6. CONCRETE/MASONRY REMOVAL
7. DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIALS
8. REMOVING/FIXING RADIOLOGICAL CONTAMINATION
9. DEBRIS/WASTE HANDLING CRITERIA

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MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

PART I GENERAL

1.1 SCOPE

A. This section consists of the work related to project mobilization and demobilization. The principal items included in this section are:

1. Site access.
2. Construction utilities.
3. Signs and barriers.
4. Gravel pads for access and queuing areas.
5. Establishing lay down, cutting, and storage areas.
6. Protecting adjacent facilities and components.
7. Remediation equipment.
8. Ventilation and containment.

1.2 REFERENCES, CODES AND STANDARDS

The entire work under this section shall be in compliance with the provisions of the following:

A. Code of Federal Regulations (CFR)

1. 29 CFR 1926 Occupational Safety and Health Administration, Dept. of Labor (as applicable).

2. 29 CFR 1910 Occupational Safety and Health Administration, Dept. of Labor (as applicable).

B. American Water Works Association (AWWA)

1. AWWA C506-78 Backflow Prevention Devices-Reduced Pressure Principle and Double Check Valve Types

C. Ohio State Plumbing Code

1. 4104:26:105 Backflow

PART II PRODUCTS

2.1 MATERIALS

A. Construction Zone Fencing: Shall be red or orange plastic construction fencing. Gates shall be plastic yellow chain fixed to stanchions. Stanchions shall be located on grade.

B. Ensure that granular fill, which does not exceed facility release limits established by the Soil Characterization and Excavation Project, is used to fill large openings in the base slab, including pits, large sumps, etc. Use of fine aggregate shall be natural river sand, bank sand or sand

manufactured from stone or air-cooled blast furnace slag; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; within the following limits:

Sieve Size	Percent Passing
No. 4	100
No. 50	10 - 40
No. 200	0 - 5

C. Gravel Pads for Access and Queuing Areas

1. The aggregate shall be crushed carbonate stone, crushed gravel, crushed air-cooled slag, granulated slag, or a mixture of crushed and granulated slags.

D. Backflow Prevention for Temporary Water Conditions

1. The backflow preventor shall meet Ohio State Plumbing Code 4101:26105 Backflow and the American Water Works Association (AWWA) Standard (AWWA C506-78) for Backflow Prevention Devices.

2. Acceptable products and suppliers (or equal):

a. WATTS 909 Backflow Preventor (FDF recommended product)

b. Wilkins Backflow Preventor.

c. The "or equal" products will be approved by FDF prior to use at the FEMP.

PART III EXECUTION

3.1 PREPARATION

A. Site Access

1. Vehicle, equipment and pedestrian access/egress shall be directed through the designated radiological control points.

2. Have provisions in place for emergency vehicles to enter the construction zone at all times.

B. Filling Slab Openings

1. Conduit, piping, drain openings, etc., shall be plugged/capped/covered at grade level as they become accessible with fill material per 2.1.B of this specification.

2. Fill large openings, pits, sumps, etc. with granular fill material to grade per 2.1.B of this specification. Large openings in the base slab including pits, sumps, trenches, etc., shall be free of water and loose debris prior to filling.

MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

C. Construction Utilities

1. Utilities: All electric, gas, water, steam, sewer, and/or other service lines to the building have been disconnected and/or capped. Prior to performing any D &D work, an inspection shall be performed to verify that all utilities are capped and/or controlled.

2. FDF will provide electrical power, and water, if necessary, to the project location.

3. All electrical appurtenances required for temporary power shall be in accordance with the National Electric Code.

4. All portable heaters shall be Underwriters Laboratories (UL) listed or American Gas Association (AGA) certified for their intended use, and are not modified for other applications. Ventilation for fuel-fired heaters and adequate clearance to combustible materials, surfaces, and furnishings shall be provided according to manufacturer's recommendations. All portable continuous running of gas fired heating systems require 24 hour coverage.

D. Signs and Barriers:

1. Protection from damage shall be provided for manholes, catch basins, valve pits, underground utilities, post indicator valves, power poles and drains, adjacent structures, groundwater monitoring wells, existing exterior benchmarks, and survey monuments.

2. Construction safety signs, such as "Hard Hat Area" and "Danger-Demolition Ongoing," and construction barriers shall be posted as necessary to protect the operations and adjacent structures. Signs shall be placed approximately every 25 feet around the defined construction area.

3. FDF shall supply signs, barriers, fencing, and tape indicating radiological control zones.

4. Radiological control fencing shall be installed as follows:

   a. Yellow snow fence shall be installed around radiological areas in outdoor areas to designate the following boundaries:

      - Contamination Area/Controlled Area
      - High Contamination Area
      - Adjacent Contamination Areas controlled to different isotopes

   b. When the requirements for orange construction boundary fence and yellow radiological fence overlap, the yellow radiological fence may serve as the sole boundary.

   c. When yellow fence requirements coincide with an existing barrier such as chain link fence or a building wall, the existing physical barrier may serve as the boundary.

MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

5. Fencing for short-term work may be supported with portable stanchions. Fencing for long-term activities must be supported by posts driven into the ground. Posts of stanchions shall be no more than six feet apart. Entry points shall be established such that they may be easily opened and can be held closed. These points shall be large enough to support traffic and/or movement of waste containers. For situations where personnel access is the only need, building doors or overlapping yellow fence that can be tied back and supported by the remaining fence while open (i.e., will not lie on the ground) may be utilized.

E. Gravel Pads for Access and Queuing Areas

1. Grading of site shall prevent ponding of water. Use a minimum slope of 1 percent. All grading will direct water toward the site's storm drainage system.

F. Protecting Adjacent Facilities and Components

1. The Site Support Contractor is responsible for avoiding damage to adjacent structures, material and equipment including underground utilities during decontamination and dismantlement activities.

G. Storm Water Control

1. Storm drainage systems within the construction zone shall be maintained free and clear of debris and sediments by use of control devices, such as straw bales or staked silt fences, and be maintained throughout the project.

H. Debris Chutes

1. Catch platforms, chutes and other means of handling debris shall be properly isolated by gates or barriers designed and constructed to eliminate impact hazards and to control the flow of material to its final destination.

2. Debris chutes shall meet the requirements of 29 CFR 1926.852.

3. Debris chutes shall be fully enclosed, dust-tight and ventilated.

4. FDF may prohibit the use of a debris chute if the radiological contamination levels could result in the uncontrolled generation of airborne radioactivity.

I. Remediation Equipment

1. Identify any special requirements for storing material or equipment.

2. To minimize the generation of waste products, all equipment requiring periodic oil and filter changes shall have this maintenance performed just prior to arrival on-site.

3. Additional requirements for mobilization and demobilization of remediation equipment are listed in the project Radiological Requirements Plan.

MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

J. Ventilation and Containment

1. If release cleaning requirements for structures, as specified in the Radiological Requirements Plan, is required, a vestibule on the entry/exit of the building access prior to the beginning of work shall be installed. The vestibule shall be constructed so as to prevent the escape of airborne contamination. Material used for the construction of vestibules shall be in compliance with the work scope conditions/specifications listed in Ventilation and Containment.

2. Enclose structure and ensure that all holes, gaps, openings in exterior building structure walls and roofs are sealed with duct tape, fiber-reinforced sheeting, plywood or foam material (including where doors or windows are missing). Enclosed structures shall allow for emergency exits.

3.2 DEMOBILIZATION

A. Demobilization includes the removal of all tools, equipment and materials.

END

TRANSITE REMOVAL

PART I GENERAL

1.1 SCOPE

A. The work includes:

1. Removal of all transite panels (ACM).

2. Use of encapsulants, and/or surfactants on the transite panels to prevent airborne asbestos fibers.

PART II PRODUCTS

2.1 MATERIALS

A. Encapsulant: Childer CP-240 Chil-Lock

B. Surfactant: Childers CP-225 CHIL-SORB.

C. Fiber-reinforced polyethylene or polyester sheeting approved for outdoor storage: color, yellow; minimum thickness of 6 mils; ultraviolet resistant, as manufactured by Griffolyn or Herculite.

PART III EXECUTION

3.1 APPLICATION

A. Apply encapsulant and/or surfactant to areas around fasteners of transite panels before removal of fasteners.

1. If cut, fasteners shall be cut in a manner which minimizes abrading the transite panel. A flat, sharp instrument shall be used to cut the fasteners.

2. When encapsulant and/or surfactant is applied, it shall be applied to provide visible coverage. If original application becomes dried out before or during removal or handling, apply a second application.

B. Removal of transite panels:

1. Bodily contact with the panels, as practical, shall be avoided.

2. When dust is observed between panels, collect the dust with a HEPA-filtered vacuum.

3. In the event a transite panel is broken or deteriorated, apply encapsulant and/or surfactant to the edges of deteriorated areas.

TRANSITE REMOVAL

C. Removal of transite roof panels shall be sequenced to minimize exposure of underlying surfaces.

D. Transite panels shall be stacked on pallets or as otherwise directed by the MSCC form. Stack corrugated transite panels only with other corrugated panels; all flat transite panels shall be stacked with other flat panels.

3.2 SPECIAL INSTRUCTIONS

A. The following special instructions apply to the items listed below during transite removal:

1. Gutters:

   a. Remove and collect all ACM from gutters, apply an encapsulant and/or surfactant to the gutters before their removal.

2. Insulation:

   a. Remove the mineral wool insulation between the transite panels and/or other materials.

   b. Use dust control techniques (minimum of applying amended water) to minimize airborne contaminants generated during insulation removal.

3. Doors, Windows, and Frames

   a. Remove all windows in one piece and place them in appropriate containers.

   b. Remove all doors (wood and/or steel) and place them in appropriate containers.

4. Lead Materials

   a. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers.

   b. Prior to torch cutting on a surface coated with a lead-based paint, an eight inch strip of paint shall be removed at the area of the cut.

END

EQUIPMENT/SYSTEMS DISMANTLEMENT

PART I GENERAL

1.1 SCOPE

A. This section includes the responsibility for removal or dismantlement of equipment and demolition debris from a facility and support systems within or outside a facility. Segregation of demolition debris into various waste streams and preparation for containerizing shall include, but not be limited to, the following:

1. Conduit.
2. Wire.
3. Electrical boxes (junction, switch).
4. Contactors.
5. Lighting fixtures.
6. Motor operated valves.
7. Lighting station.
8. Raceway and troughs.
9. Cable trays.
10. Piping.
11. Assorted valves, fittings, elbows, gauges, spool pieces, etc.
12. Ductwork, plenums, branches, etc.
13. Miscellaneous similar items.

PART II EXECUTION

2.1 APPLICATION

A. All equipment, piping and ductwork shall be dismantled, cut, and segregated in accordance with the requirements shown on the MSCC form.

B. Prior to equipment/interior dismantlement, take the necessary actions to preclude spillage of residual material, if encountered.

C. Sealing material for HVAC and equipment/piping shall be sufficiently durable to maintain its integrity during handling, containerization, and exposure to weather.

D. Prior to cutting into tanks, piping, or ductwork where the potential for flammable lining exists, verify that no lining exists. For lined pipes or tanks, the pipes or tanks shall be cut and removed by mechanical means and shall not be torch cut.

E. In some cases, equipment may be elevated from the ground by the means of a structural platform. In these cases, the equipment should be cut away or disconnected from the platform and lowered to the ground. The dismantlement of this equipment shall be accomplished by shearing and cutting whenever possible. If this is not possible, the equipment shall be dismantled at convenient assembly joints.

EQUIPMENT/SYSTEMS DISMANTLEMENT

F. Uncontrolled dropping of materials is not allowed.

G. Piping insulated with asbestos may be removed in its entirety.

H. Hanging light fixtures may be required to be wrapped in plastic to prevent the spread of contamination prior to being cut down.

2.2 INTERIM MATERIAL STORAGE

A. Where removed materials are staged or stored within the facility, they shall be stored in designated floor storage areas.

B. Damaged areas within facilities shall not be used for interim material storage.

2.3 SPECIAL INSTRUCTIONS

A. Lead Materials:

1. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers.

2. Prior to torch cutting on a surface coated with a lead-based paint, an eight inch strip of paint shall be removed at the area of the cut.

3. Dismantle lead flashing in a manner that will facilitate recycling. This will include minimizing inaccessible surfaces and maximizing straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

END

VENTILATION AND CONTAINMENT

PART I GENERAL

1.1 SCOPE

A. This section consists of the work related to the ventilation and local containment that is required for radiological contamination purposes. The principal items included in this section are:

1. Local containment and vestibule design requirements.
2. Ventilation requirements.
3. Types of ventilation/local containment design.
4. Guidance on type of ventilation/local containment applicability.
5. Exterior items; such as, dust collectors.

B. Definitions:

1. Local Containment - is an enclosure that is designed to maintain 0.1 inch water gauge negative pressure or six air changes per hour within its structure to prevent fugitive emissions from escaping to the outside environment.

2. Vestibule - is an enclosed entrance, a passage, or space that is between the outer door and the interior of the building. The space within the vestibule does not have to be under a negative pressure.

3. Enclosure - is the exterior wall of a sealed building.

PART II EXECUTION

2.1 EXAMINATION

A. All vestibules, equipment, and/or structure containment material shall be noncombustible, or fire resistant and corrosion resistant.

B. Local containment structures shall be designed to be leak-tight and capable of maintaining a negative pressure of at least 0.1 inches water gauge or six air changes per hour. Typical design features on various local containments should include the following standardized features, where applicable:

1. Windows and mountings.
2. Ease of cleaning.
3. Adequate interior illumination.
4. Connections for services lines, conduits, instrument leads, and ductwork.
5. 6 mil polyethylene sheeting.
6. Pressure differential readouts.
7. Attachments for interconnection of local containments.

C. Where practical, and without penetrating the local containment, all equipment components not functionally required to operate directly in the presence of radioactive materials shall be located outside the local containment.

D. The local containment or vestibule structure external to the building shall be designed to withstand the effects of normal operating conditions and the environment.

2.2 PREPARATION

A. Enclose the structure and ensure that all building exterior holes, gaps, or openings are adequately sealed to prevent exhaust of airborne radioactive particulates.

B. Ensure that all ductwork used is free of dust or dirt before installing it in the ventilation system to prevent premature impingement loading of the prefilters and HEPA filters.

C. Ensure that all vestibules are large enough to support appropriate storage containers, material handling and dismantling equipment, and debris containerizing operations.

2.3 ERECTION/INSTALLATION/APPLICATION

A. Block, tie-down, or wheel lock all portable HEPA units.

B. The following guidelines for localized ventilation and in-place cutting control measures shall be adhered to:

1. Ensure that ventilation air is provided in the quantities required to maintain OSHA air quality limits, all Permissible Exposure Limits (PELs), and all ACGIH Threshold Limit Values (TLVs) and to maintain exposures ALARA.

2. For activities outside of enclosures, nuclear grade HEPA filters with a flexible ventilation duct shall be used as follows:

a. Exhaust rate of the HEPA filters with a flexible ventilation duct shall maintain sufficient airflow capture velocity to prevent entry of fumes into the room. A minimum face velocity of 150 fpm is required.

b. Each HEPA filter with a flexible ventilation duct in the cutting area should be capable of being isolated by means of control dampers to prevent backflow through a hood when it is not in service.

C. Ensure that all local containments can maintain negative pressures. The exhaust volume rate shall be at least 10 percent of the actual containment air volume per minute. Ventilation provided must be HEPA filtered. When containments are out-of-doors or border the outdoors, or are to be used for torch-cutting in the size reduction area, containments must have an airlock for the passage of equipment, personnel, and materials, so the main body of the containment is never directly open to the atmosphere. Other containments must be maintained such that there are no undesigned holes in the containment and the entrance/exit-way closes sufficiently to meet the air exchange/negative pressure requirements.

END

STRUCTURAL STEEL DISMANTLEMENT

PART I GENERAL

1.1 SCOPE

A. Dismantling and containerization of structural steel, miscellaneous steel, and metal siding/roofing:

1. Structural steel.
2. Bar joists.
3. Floor plate/decking.
4. Grating.
5. Stairs, ladders, and handrail.
6. Metal siding and roofing, including doors, louvers, and windows.
7. All other miscellaneous steel.
8. Control of fugitive emissions.

PART II PRODUCTS

2.1 MATERIALS

A. Surfactants:

1. Childers CP-225 CHIL-SORB.
2. Certech.
3. Expert Environmental Products.
4. International Protective Coatings Corp.

PART III EXECUTION

3.1 PREPARATION

A. Ensure that adequate lay down space has been cleared and barriers have been established.

B. Steel and siding shall have contamination removed or fixed prior to exposing steel and siding to the environment in accordance with the conditions/specifications for Removing/Fixing Radiological Contamination.

3.2 APPLICATION

A. Apply mechanical means of cutting and removing the structural steel to the largest extent possible.

B. The roof deck and roofing material, panels and concrete floor decking shall also be demolished with the structure wherever possible.

C. Dismantle, shear and segregate the structural steel to maximize accessible surfaces.

STRUCTURAL STEEL DISMANTLEMENT

1. Shear the steel (beams, joists, purlins, etc.) as close to the joints (cross members, plates, decking, etc.) as practical to create long, accessible (straight) metal pieces which may be recycled.

   NOTE: Some bending of the structural steel may occur during shearing activities. Straight pieces may be difficult to obtain where main structural members are connected to plates, deck, grates, or cross members.

2. Segregate the structural steel into two categories/piles. The segregation criteria for the steel categories are defined as follows:

   Category 1 Structural Steel: Steel allowing access to surfaces for a radiological contamination survey for unrestricted release. Surfaces must be accessible to a Geiger Mueller pancake probe to allow areas to be surveyed. Category 1 steel includes steel with ends crimped due to sizing (e.g., shearing) operations. Welded and riveted joints that have been in place since original construction are not required to be made accessible. However, brackets or structural members bolted to the superstructure must be removed to allow access for survey.

   Category 2 Structural Steel: contains surfaces which cannot be radiologically surveyed.

3. Minimize bending, twisting, and smashing of the steel during segregation and bulk storage.

D. Control of fugitive emissions shall be maintained at all times during this removal work to minimize visible dust.

E. All steel columns, anchors, and other projections shall be removed flush with the floor slab or existing grade.

F. Lead-based paint chips and debris, released during structural steel dismantlement, shall be collected and managed in accordance with the Waste Management Plan.

3.3 SPECIAL INSTRUCTIONS

A. The following items are also included (where applicable) in the sequence of structural steel dismantlement:

1. a. Remove all windows in one piece and place them in appropriate containers.

   b. Remove all doors (wood and/or steel) and place them in appropriate containers.

2. Lead Materials:

   a. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers.

STRUCTURAL STEEL DISMANTLEMENT

b. Prior to torch cutting on a surface coated with a lead-based paint, an eight inch strip of paint shall be removed at the area of the cut.

c. Dismantle lead flashing in a manner that will facilitate recycling. This will include minimizing inaccessible surfaces and maximizing straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

END

CONCRETE/MASONRY REMOVAL

PART I GENERAL

1.1 SCOPE

A. Dismantling of all above-grade concrete and masonry, including:

1. Elevated floor and roof slabs.
2. Cast-in-place walls.
3. Precast concrete components.
4. Foundations, piers, and selected curbs.
5. Concrete encasement (e.g., fireproofing).
6. Built-up roofing, gypsum roof panels, and insulation.
7. Interior and exterior masonry.
8. Control of fugitive emissions.
9. Windows, doors, roof louvers and lead.

PART II PRODUCTS

2.1 MATERIALS

A. Surfactant used in amended water.

1. Childers CP-225 CHIL-SORB.
2. Certech.
3. Expert Environmental Products.
4. International Protective Coatings Corp.

PART III EXECUTION

3.1 PREPARATION

A. Ensure that adequate lay down space has been cleared and barriers have been established.

B. Take the following precautions to control fugitive emissions. A wet dust suppression system shall be used. This system will utilize the following:

1. Amended water (with surfactant).
2. Finely atomized water spray.

C. Concrete and masonry shall have contamination fixed or removed prior to dismantlement and, if applicable, prior to removing local containment or building enclosure, in accordance with the conditions/specifications provided in Removing/Fixing Radiological Contamination.

CONCRETE/MASONRY REMOVAL

3.2 APPLICATION

A. Prevent damage to adjacent structures, materials, and equipment including underground utilities, during dismantlement activities. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris.

B. Removal of At-Grade Concrete:

1. Concrete equipment, columns, and other miscellaneous foundation piers, walls, and curbs shall be sealed and may remain intact during and after structural dismantlement.

2. Cut all reinforcing and anchors (if applicable) flush with base slab. Fill in damaged areas of base slab with patching grout.

3. Any above-grade concrete/masonry remaining intact following structural dismantlement shall be removed down to grade-level except for poured concrete structures that are imbedded in soil (e.g., raised slabs, curbs on slabs, foundations, concrete tank saddles) shall remain in place.

C. Cutting:

1. All material shall be reduced in size as required for containerization.

2. Embedded steel reinforcing is considered part of concrete.

3. Because of contamination levels, some concrete may require local containment for cutting activities.

3.3 SPECIAL INSTRUCTIONS

A. The following special instructions apply to concrete/masonry removal:

1. Doors, Windows, and Frames

a. Remove all windows in one piece and place them in appropriate containers.

b. Remove all doors (wood and/or steel) and place them in appropriate containers.

2. Lead Materials

a. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers.

b. Prior to torch cutting on a surface coated with a lead-based paint, an

CONCRETE/MASONRY REMOVAL

eight inch strip of paint shall be removed at the area of the cut.

c. Dismantle lead flashing in a manner that will facilitate recycling. This will include minimizing inaccessible surfaces and maximizing straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

3. Wall and Roof Louvers

a. Ensure that louvers and roof vents are removed during exterior concrete/masonry removal and placed in appropriate containers.

END

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

PART I GENERAL

1.1 SCOPE

A. Preventative measures for and decontamination of tools, equipment (including vehicles), and material to a level that permits removal from an enclosure/work zone, restricted reuse, or unrestricted release. This Section includes, but is not limited to:

1. Preventative measures/waste minimization.
2. Decontamination area requirements.
3. Methods of decontamination activities.
4. Control of effluent and waste management activities.
5. Relocation, reuse, and release activities for tools, equipment, and material.

B. Project Conditions and Requirements:

1. All facilities, unless expressly noted, shall be considered contaminated with radioactive material.

2. Establish a holding/inspection area to allow tool and equipment radiological surveying.

   a. The holding/inspection area shall be arranged such that routine access is prevented by means of fencing and/or barrier tape with appropriate posting to identify that the items contained are being held for survey and the area is off limits to individuals other than radiological survey personnel.

   b. Only those items which meet the requirements for leaving the work zone should enter the inspection area.

PART II EXECUTION

2.1 APPLICATION

A. Prevention of or Minimizing Contamination:

1. Plan and coordinate all work to minimize exposure of equipment, tools, and vehicles to potential radioactive contamination. Equipment shall be located in the area with the least potential for contamination. For example, locate equipment outside the facility with leads, hose lines, etc. wrapped and run to the interior of the facility. Typical examples of equipment where this approach should be used include air compressors, high pressure hydroblasters, welders, generators, oxy-acetylene cylinders, and battery chargers.

   - Internal combustion equipment subject to contamination should make use of pre-filters or have a separate source of outside air on the intake.

   - High volume air handling equipment such as blowers, compressors, etc., shall have a filtered inlet to minimize the potential for internal contamination due to build up of low level radioactivity. Vents for air cooling shall be covered in a similar manner.

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

- Protective sheathing/covers, strippable coatings, or protective caps should be used to minimize the potential for contamination (e.g., coating the buckets of man lifts or other walking/standing surfaces). In addition, all openings on equipment, tools, or vehicles that may permit contamination of inaccessible or difficult to clean areas shall be covered and protected.

2. If encapsulants, sealants and/or coatings are utilized during the project, protect tools and equipment from over spray. In addition, ensure that the encapsulant, sealant and/or coating can be readily removed during decontamination activities, if necessary.

B. Decontamination Area Requirements

1. Tools and equipment utilized inside an enclosure/building may be decontaminated at an existing indoor debris cleaning location.

2. The following are examples of options for establishing outdoor decontamination areas.

- Utilize an existing concrete pad with run-on and run-off controls.
- Construct a temporary containment area.
  - Containment must have a bermed perimeter to ensure run-off control.
  - An example of acceptable containment is Herculite with sandbag underlayment perimeters on a non-penetrating grade.
  - Containment used must be adequate to maintain its integrity.

C. Methods of Decontamination Activities

1. If decontamination becomes necessary, at a minimum use the following as applicable:

- Dry cleaning.
- Steam cleaning.
- High pressure, hot water hydroblasting (may be used in conjunction with abrasive techniques and approved decontamination agents) with a minimum of 1,000 psi and HEPA vacuuming.

2. When selecting a decontamination technique other than those identified in C.1 above, consideration should be given to those technologies which minimize radiological airborne emissions, secondary wastes, and tool or equipment damage.

D. Control of Effluent and Waste Management Activities

1. Control and collect all waste and effluent generated while removing and/or fixing contamination.

E. Relocation, Reuse, and Release of Tools, Equipment, and Material

1. Perform all decontamination and surveying activities required to verify that the surface contamination limits in Table 1 (last page) are not exceeded.

2. Release of tools, equipment, and material from Contamination Areas to the Controlled Area

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

a. If removable contamination in excess of the limits is present on the tools, equipment or material, then the items must remain in the contamination area for decontamination or the item must be contained such that no contaminated surfaces of the item are accessible without disassembling the equipment or breaching the containment.

b. Examples of acceptable containment include plastic wrapping, yellow Herculite wrapping, or a sealable hard container. However, the containment used must be adequate to maintain its integrity considering the weather, conditions of storage, and the methods or conditions of transport.

c. If the removable contamination limits are met but the total (fixed plus removable) limit is exceeded, the item may be labeled or identified as radioactive material and released to the Controlled Area.

3. Unrestricted Release Criteria

a. All items are considered potentially contaminated if they have been used or stored in Controlled Areas that could contain unconfined radioactive material.

b. Tools and equipment with detectable radioactivity may be released with the approval of the attending radiological technician if all of the following have been met:

1) Both removable and total surface contamination (including contamination on and under any coating) are in compliance with the limits.

2) All areas must be readily accessible for survey for residual radioactivity including proper surface counting geometry to allow for accurate quantification. Items with inaccessible areas which are likely to be contaminated but are of such size, construction, or location as to make them inaccessible for survey shall be assumed to exceed the limits for release. The item must either be disassembled to permit an adequate survey to certify that internal contamination is at or below the limits or well documented process knowledge can be applied to provide confidence that contamination in inaccessible areas is not probable. In evaluating the potential for contamination in inaccessible areas, consideration will be given to where the item was used on site and preventative measures taken prior to its use, such as coverings, wrappings, air intake filters, etc.

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

TABLE 1 SURFACE CONTAMINATION LIMITS[a]

NUCLIDE[f]	FIXED PLUS REMOVABLE		REMOVABLE[b],[e]
	AVERAGE[b],[c]	MAXIMUM[b],[d]	
U-nat, U-235, U-238, and associated decay products, alpha emitters.	5,000 dpm /100 cm^2	15,000 dpm /100 cm^2	1,000 dpm/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm /100 cm^2	15,000 dpm /100 cm^2	1,000 dpm /100 cm^2

(a) Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

(b) As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

© Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.

(d) The maximum contamination level applies to an area of not more than 100 cm^2.

(e) The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

(f) The limits presented for transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, and Ac-227 may be adjusted on a case by case basis. Consult with Radiological Compliance when required to apply these limits for unrestricted release.

END

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

PART I GENERAL

1.1 SCOPE

A. Decontamination of dismantled equipment or structural debris to a level that permits removal of the equipment from a local containment, enclosure or permits opening the building to the environment. This section includes, but is not limited to:

1. Decontaminating low-level uranium contaminated equipment, materials, structural members, and/or buildings.

2. Decontaminating enriched uranium contaminated equipment and materials.

3. Decontaminating RCRA contaminated equipment and materials.

4. Controlling and moving effluent produced during the removal and/or fixing of contamination.

5. Fixing of contamination.

B. Project Conditions

1. Establish an inspection area for each contamination area to allow inspection of waste materials and perform radiological surveying.

   a. The inspection area shall be arranged such that routine access is prevented by means of fencing and/or barrier tape with appropriate posting to identify that the items contained are being held for survey and the area is off limits to individuals other than radiological survey personnel.

   b. Only those items which meet the requirements for leaving the local containment or building should enter the inspection area.

2. If by visual inspection, hold-up material is found (solid or liquid), the FDF Project Manager shall be notified immediately. If the volume is estimated to be less than 1 quart, remove and containerize the hold-up. If the material found is estimated to be greater than 1 quart by volume, activities will cease on that piece of demolition debris.

PART II PRODUCTS

2.1 MATERIALS

A. If encapsulating coatings are employed, they shall be Carboline D3358 or approved equal. Manufacturers may include, but are not limited to:

1. Tnemec Series 6 - Tnemec-Cryl;
2. Sherwin-Williams; or
3. International Protective Coatings.

B. If non-strippable coatings are employed, they may include, but are not limited to Polymeric Barrier System (Bartlett), or an approved equal.

C. Where encapsulation by plastic sheet wrapping is allowed, the wrapping shall be a minimum of 6-mil polyethylene sheeting.

PART III EXECUTION

3.1 APPLICATION

A. To remove equipment or debris out of a local containment or enclosure or prior to loading into containers, or to containerize outside of an enclosure, or prior to moving to the inspection area, all surfaces shall be free of visible process residues and dry. The definition of visible process residues (green salt, yellow cake, etc.) is material on the interior or exterior surfaces of debris that is obvious and that if rubbed, would be easily removed. If an item fails visual inspection, the items shall be deemed a Category C (Process-Related Metals) item and shall either be encapsulated or wrapped and containerized as stated in the Waste Management Plan. Dirt, oil, stains, rust, corrosion, and flaking do NOT qualify as visible process material. Dirt, oil, stains, rust, corrosion, and flaking will be considered for contamination control purposes. All equipment, material, building structures, and debris are still considered to be radiologically contaminated unless otherwise specifically identified.

B. Requirements common to decontamination of debris, equipment, and structural components:

1. Acceptable methods for removing contamination include, but are not limited to: Hydro-blasting or steam-cleaning with a minimum of 1,000 psi, sponge blasting, HEPA vacuuming, CO_2 blasting, etc.

2. Encapsulation of contaminants is required if contamination levels specified in the Radiological Requirements section of traveler/task order package have not been met and decontamination has been attempted at least twice. Acceptable methods for encapsulating contamination, which is not readily removed by the above identified methods include, but are not limited to, encapsulating coatings and non-strippable coatings. Take precautions to prevent the breaching of encapsulating coatings applied to equipment or structure. If an encapsulating coating is breached after application, during activities leading up to but not including structural demolition, take action to reseal the breached areas.

3. If stabilizer or non-strippable coatings are used as fixatives, they will meet the requirements of this section.

C. Requirements specific to debris and equipment decontamination and their removal from a building enclosure or local containment:

1. Debris and equipment that meet removal criteria shall be moved to the inspection area.

2. Hazardous Waste Management Unit (HWMU) equipment shall be decontaminated.

3. Equipment identified as being contaminated with uranium with an enrichment over 2 percent will be removed, wrapped, and containerized for disposition as contaminated

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

material without decontamination. These items shall not be allowed to get wet.

D. Requirements Specific to Structure Decontamination:

1. Prior to opening a building to the environment by removing the exterior siding or demolishing a building, remove and/or fix radiological contamination on all surfaces within the facility until the detected radioactivity levels are below the criteria. Perform a radiological release survey to ensure the radioactivity criteria are met.

2. If hydro-blasting or steam cleaning is employed:

   a. Seal floor cracks/seams and building cracks using sealants to protect the environment from migration of contaminants through slabs.

   b. Contain effluents to the building interior and subsequently to collection systems.

3. Utilize any existing building floor sumps for effluent collection, as long as system capacity for sludge and/or liquid does not exceed limitations determined from enriched material levels.

4. Take precautions to prevent the spread of contamination from other more-contaminated areas of the facility to less contaminated areas.

5. For HWMUs, the slab surface of the HWMU shall be cleaned with a water spray, or other approved gross decontamination methods.

E. Rinseate/Effluent Handling:

1. For rinseate/effluent generated from the cleaning of equipment/material or a structure containing uranium and/or thorium contamination, effluent storage tanks with a minimum storage capacity to allow 30 calendar days storage without impacting operations shall be used. Effluent tanks require secondary containment with a minimum of 10 percent of the overall effluent tank capacity housed and not less than the volume of one full tank, whichever is greater.

2. Enriched Equipment/Material: In addition to effluent tanks, the washing of enriched equipment/material requires the use of smaller tanks to permit safe quantities to be maintained (for nuclear criticality safety purposes). There are no mass restrictions for rinseates or sludges with a U-235 enrichment less than 1 percent.

   a. For enrichments greater than 1 percent and less than or equal to 1.25 percent, effluent storage tanks having no greater than 175 gallon capacity, in numbers sufficient to permit 15 calendar days storage without impact to operations, shall be used.

   b. For enrichments greater than 1.25 percent and less than or equal to 2 percent (no equipment/material over 2 percent enrichment is to be decontaminated), effluent storage tanks having no greater than 30 gallon capacity, in numbers sufficient to permit 15 calendar days storage without impact to Subcontractor operations shall be used.

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

c. Store sludge, resulting from enriched equipment/material cleaning, in 55-gallon drums. Filled drums may be stored no closer than 2 feet apart.

d. Equipment/material washing operations and effluents shall be maintained separate, based on enrichment and type, by the following: uranium less than or equal to 1 percent enrichment, uranium greater to 1 percent enrichment but less than or equal to 1.25 percent enrichment, uranium greater than 1.25 percent enrichment but less than or equal to 2 percent enrichment, and thorium. Wash systems can be maintained separate by campaign or by physically separate systems.

3. Effluent and sludge sampling and analysis is required. FDF Project Management approval to commingle effluents and sludges is required. Approval to transfer effluents to large effluent tanks is required.

4. Following FDF Project Management approval, empty the contents of the effluent storage tanks and transport the effluent to the Advanced Wastewater Treatment Facility.

F. Sludge Drumming

Sludge limits for individual drums from enriched cleaning operations are restricted to 104 grams of U-235 per 55-gallon drum. (Note: The weight is limited due to Department of Transportation and/or the maximum allowable weight of the drum.)

END

DEBRIS/WASTE HANDLING CRITERIA

PART I GENERAL

1.1 SCOPE

A. This section provides the requirements for handling and containerization of debris/waste generated during the dismantlement of processing and support facilities. Debris/waste will be segregated into established categories and containerized accordingly. This includes, but is not limited to, the following:

1. Segregation of debris/waste.
2. Containerization of debris/waste.
3. Movement of containers within the construction zone.
4. Weighing and tagging containers.

PART II EXECUTION

2.1 APPLICATION

A. Retrieve empty containers from the queuing area for containerization, segregating debris/waste, loading, weighing, securing containers, tagging for on-site movement, and moving containers back to the queuing area. The Material Segregation and Containerization Criteria (MSCC) form specifies the requirements for containerization of materials and has been attached to these conditions/specifications as Attachment 1. The initial step for minimizing waste generation will be accomplished by limiting the amount of material brought on site.

B. Equipment, material or debris that have to be moved outside of an enclosure to be containerized or palletized, must meet the requirements specified in the work scope condition/specification — Removing/Fixing of Radiological Contamination. If the requirements cannot be attained, the material may be encapsulated or wrapped in fiber-reinforced sheeting and sealed prior to movement to prevent the migration of radioactive contamination during movement.

Palletized equipment, material or debris shall be managed as follows:

1. Place fiber-reinforced sheeting over pallet, position material on pallet, and wrap the sheeting over material.

2. Secure fiber-reinforced sheeting over material using duct tape to prevent migration of contamination.

3. Secure material to pallet with vinyl or metal banding material.

2.2 LOADING OF CONTAINERS

1. Segregate and containerize all debris/waste according to the categories defined in the MSCC. Should a debris/waste stream be discovered that is not on the MSCC, then

work on the handling of this debris/waste will stop.

2. Upon receipt of containers, perform a visual inspection to ensure that the containers do not hold freestanding liquids. If freestanding liquids accumulate in the containers, remove the liquids by either draining the container or using absorbent material.

3. Fill containers, boxes, and drums such that the interior volume is as efficiently and compactly loaded as practical up to the maximum gross weight limit of the container. Fill void space in large piping, equipment, containers, etc., with smaller debris. Any container exceeding maximum allowable gross weight shall have contents removed, as required, to lower the weight to an acceptable range. Contents shall be prepared for containerization so as to minimize load shifting or damage to container during movement.

4. The following "Prohibited Materials List" shall be displayed in the containerization area or on each container.

PROHIBITED MATERIALS LIST

a. Compressed gases (e.g., unpunctured aerosol cans).
b. Explosives.
c. Free liquids.
d. Fine particulates (respirable fines).
e. Hazardous waste.
f. Corrosive materials.
g. Etiologic agents.

5. Install weatherproof removable tags on each debris/waste container prior to loading. Tags will be supplied by FDF Project management and shall identify container contents by debris/waste category specified in the MSCC and the debris/waste's building of origin. For Category J Debris, an exact description of the contents is required.

6. Thorium contaminated debris/waste shall be containerized separately from non-thorium contaminated debris/waste.

2.3 SECURITY AND MOVEMENT OF CONTAINERS

A. Move containers to the specific task location from the queuing area.

B. Ensure that the lid, doors, or tarps on debris/waste containers are secured when no containerization is in progress to prevent unauthorized containerization of materials or release of container contents. Containers must be weather protected when lid is not secured, to prevent entry of snow and rain or release of container contents.

C. Inspect all containers, double bagged materials, drums, boxes, or double wrapped components for exterior contamination and damage before removing them from the work area.

DEBRIS/WASTE HANDLING CRITERIA

D. Secure full containers.

1. End-loading ISO containers will be secured as follows:
   a. Close and latch doors, ensuring that all latching mechanisms are engaged.

2. Drums will be secured as follows:

   a. Place lid on drum, ensuring that gasket is seated to maintain a tight seal.
   b. Install bolt-type lock ring on lid and torque to 45 ± 5 foot-pounds.
   c. Drums shall be strapped together on pallets. .

3. Top-Loading Metal boxes (large and small) will be secured as follows:

   a. Inspect gasket for damage and repair, if required.
   b. Place gasket and lid on the box and secure with clamping device or pins.

4. Roll-Off Boxes (ROBs)

   a. Cover ROB with tarp or steel lid.
   b. Secure tarp (with straps) or steel lid (with clamping device or pins).
   c. Secure all gate chains.

5. Ensure that containers have not been damaged during loading.

6. Return full, secured containers to the queuing area.

E. Secure ACM-filled containers as follows:

1. Label all containers prior to use.

2. Inspect all containers as noted in Part 2.3.C

3. Prior to securing lid or doors on ACM containers, fold fiber-reinforced sheeting over ACM and seal with tape.

4. Return full, secured container to the queuing area.

F. Decontaminate waste containers, equipment, tools, etc., prior to exiting the construction zone or queuing area as necessary.

END

APPENDIX D

DESIGN DRAWINGS

The following drawings are copies of architectural and CAD drawings that show floor plans and/or section views of STP Complex components. A project area drawing is provided in Figure 1-1 of Section 1 of this implementation plan.

APPENDIX D DRAWINGS

FIGURE NO.	DESCRIPTION
D-1	Plan View of Chlorination Building (25A)
D-2	Section Views of Chlorination Building (25A)
D-3	Plan View of Man Hole #175/Effluent Sampling Building (25B)
D-4	Section View of Man Hole #175/Effluent Sampling Building (25B)
D-5	Plan View of Digester & Control Building (25E)
D-6	Section and Plan Views of Digester & Control Building (25E)
D-7	Plan and Section View of STP Incinerator (39D)
D-8	Plot Plan and Section Views of STP Incinerator (39D)
D-9	Foundation Plan and Section Views of STP Incinerator (39D)
D-10	Plot Plan of Skeet Range Building (28F)
D-11	Section Views of Utility Tower

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D R A F T

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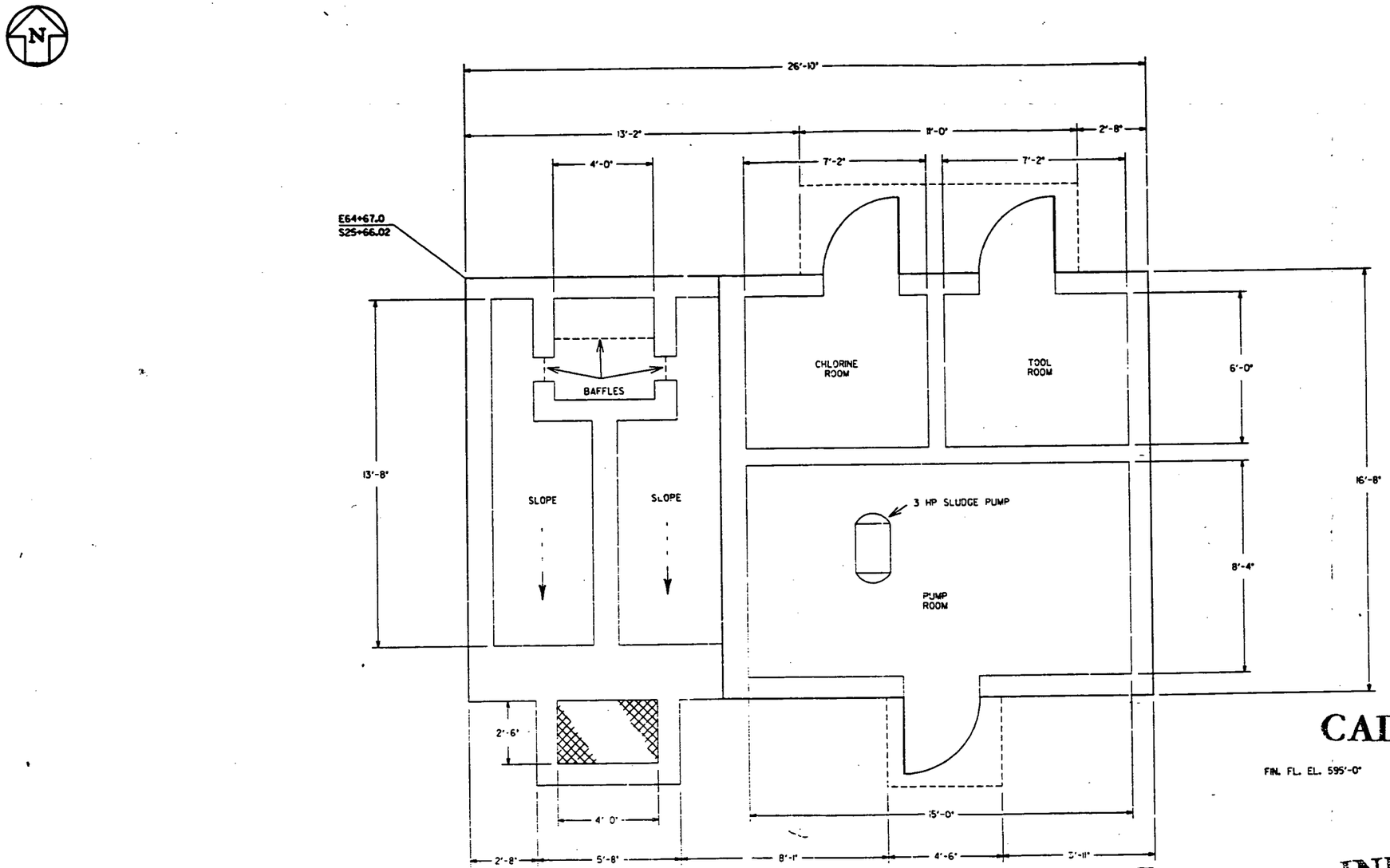


FIN. FL. EL. 595'-0"

CADD SERVICES

FOR INFORMATION ONLY

NO.	REVISIONS	DATE	DWN.	BY	APPD.	NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
												25A-1450-E-00017
												25A-1450-S-00016

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		O.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED		O.O.E.	
APPROVED		SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BUILDING 25A — FIRST FLOOR
SEWAGE TREATMENT PLANT
CHLORINE CONTACT TANK/CLDG.
FLOOR PLAN
1/2" = 1'-0"

DATE JAN. 29, 1992
25A-5500-A-00181 | 0

FILE NAME: /FLOOR/25A.DGN

DO NOT SCALE REDUCED DRAWING

FIGURE D-1 Plan View of Chlorination Building

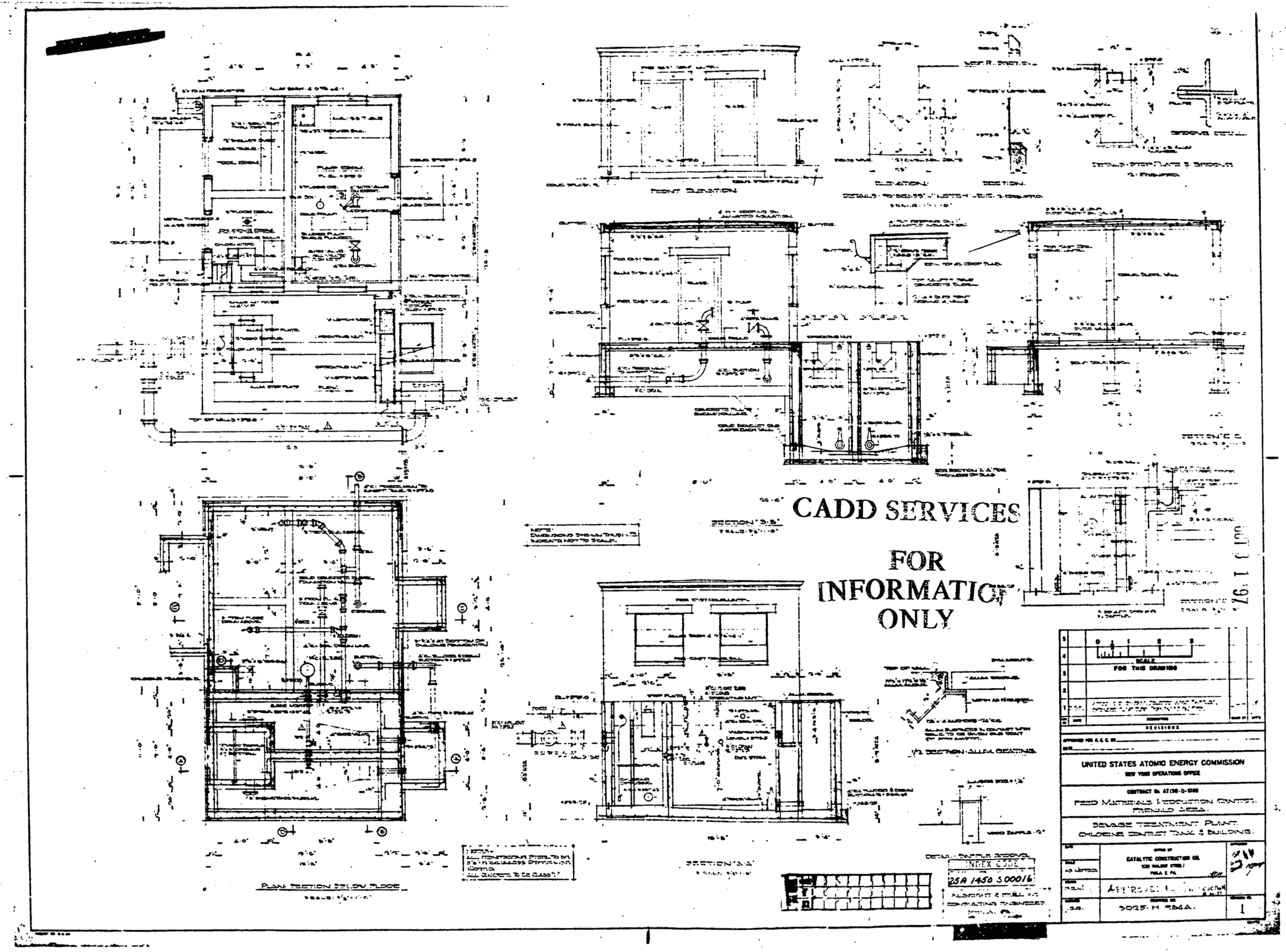
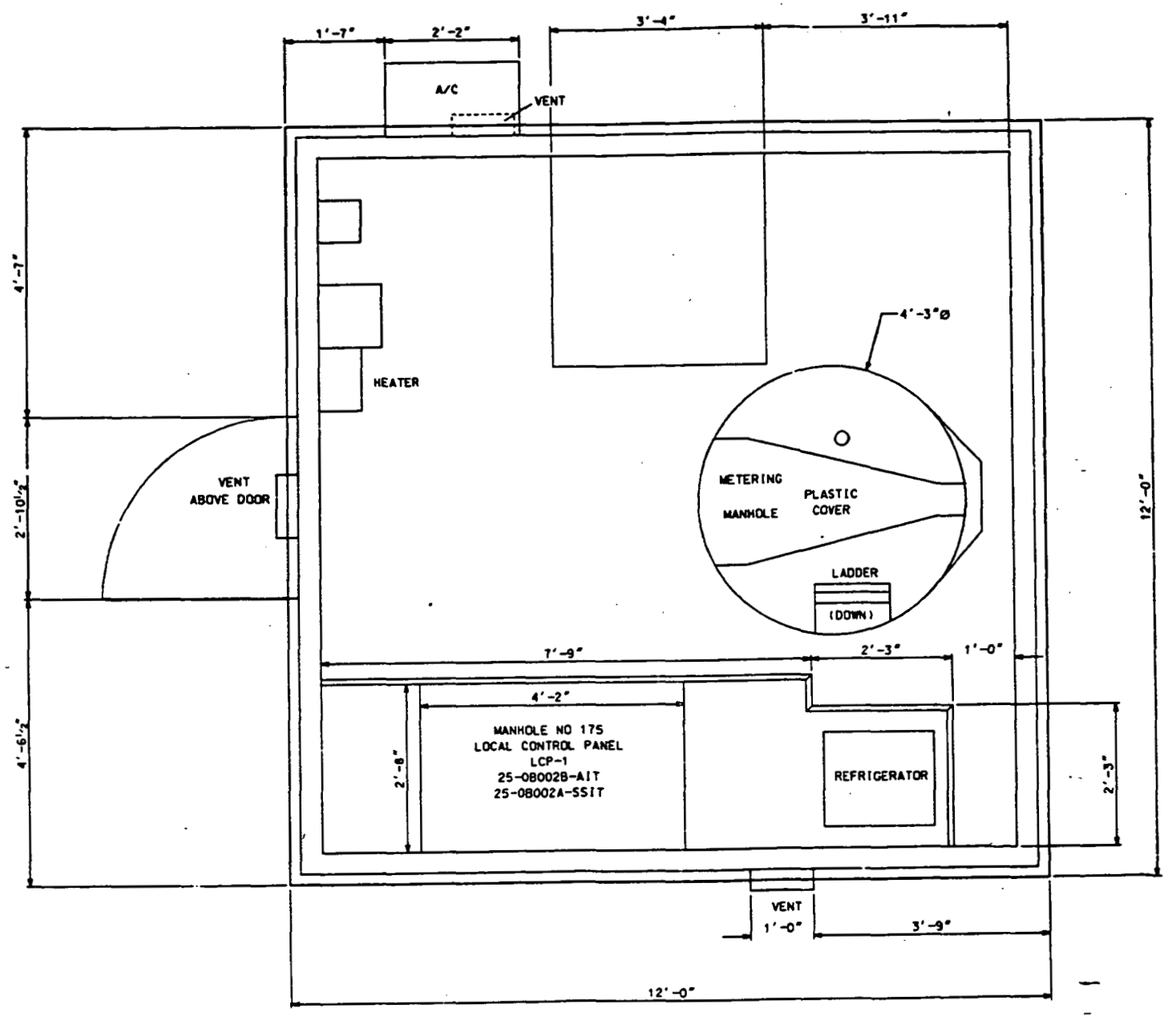


FIGURE D-2 Section Views of Chlorination Building



CADD SERVICES

FOR INFORMATION ONLY

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.

REF. DWG. NO.: 18A-5500-P-00960

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS

CIVIL & STR.		SAFETY ENG.
ELECTRICAL		MAINTENANCE
ENGINEER		O.A.
INSTRUMENT		
MECHANICAL		FIRE PROTECT.
		WASTE MANAGE.
CHECKED		D.O.E.
APPROVED	GE PAUL 12-6-92	SECURITY

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG 25B
SEWER SAMPLER STATION
FLOOR PLAN
SCALE 1"=1'-0"

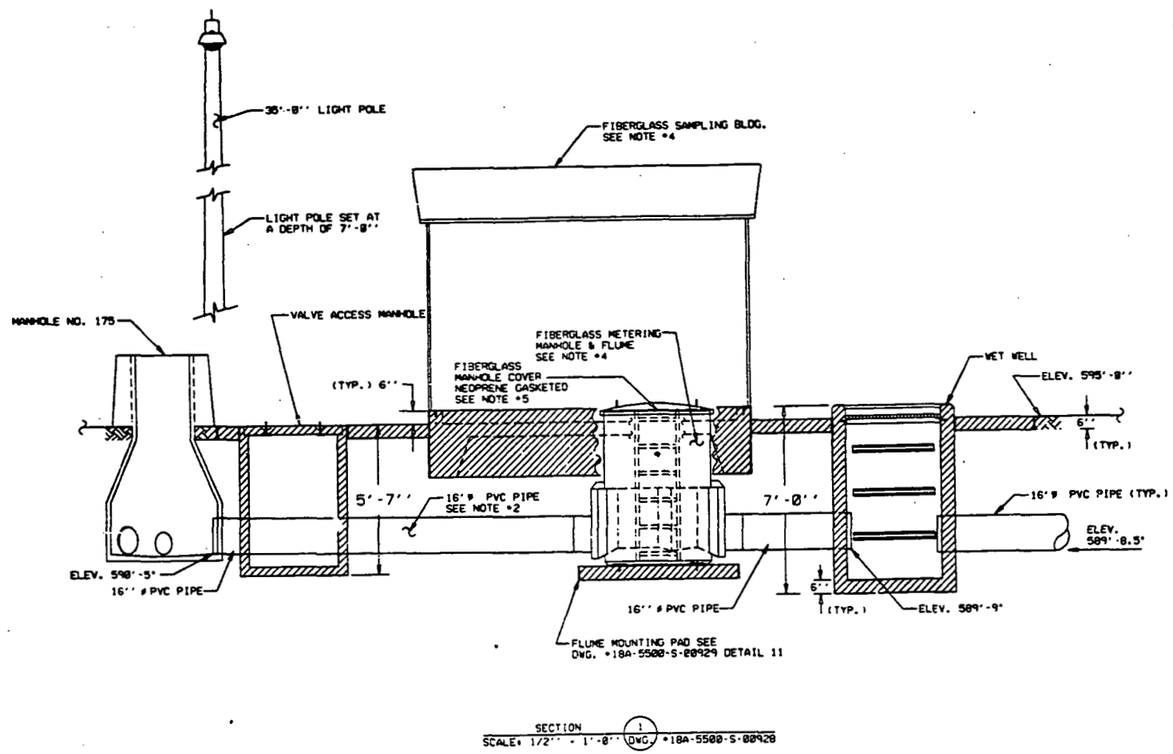
DATE 8-3-92
DRAWN M.E. LOHRE

25A-5500-A-00184 | 0

FILE NAME: /FLOOR/25B.DCN

DO NOT SCALE REDUCED DRAWINGS

FIGURE D-3 Plan View of Man Hole #175/Effluent Sampling Building



NOTES:

1. MOUNTING SHALL BE 6'' HIGH X 6'' WIDE. FIBERGLASS BLDG. BOTTOM FLANGE SHALL BE FIELD DRILLED TO SUIT.
2. NEW 16'ø PVC PIPE SHALL BE ATTACHED TO THE EXISTING PIPE BY MEANS OF RUBBER BOOTS & STAINLESS STEEL CLAMP BANDS. BOOTS SHALL BE SUPPLIED BY BLDG. MANUFACTURER.
3. INSTALL BRADY OR EQUAL SAFETY SIGN #47882 (18'' X 14'') LABELED 'CAUTION KEEP MANHOLE LID CLOSED'. SIGNS SHALL BE POSTED ON MANHOLE COVER & ONE ON THE WALL BEHIND THE COVER @ ELEV. (+) 6'-0''.
4. NEW SAMPLER BUILDING SHALL BE WEATHERTIGHT, CORROSION RESISTANT NEMA 3R MANUFACTURED OF FIBERGLASS REINFORCED PLASTIC (FRP). BUILDING SHALL BE FULLY INSULATED WITH POLYISOCYANURATE FOAM CORE, SANDWICHED BETWEEN FIBERGLASS REINFORCED POLYESTER SKINS. ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL. BUILDING SHALL BE TOTALLY ENCLOSED LESS A FLOOR. SHELTER K-FACTOR SHALL NOT BE LESS THAN 0.14 BTU/SQ. FT./INCH/HR. EXTERIOR WALLS SHALL BE RIBBED TO PROVIDE HIGH STRENGTH. INTERIOR WALLS SHALL BE SMOOTH. SHELTER SHALL BE DESIGNED TO WITHSTAND 125 MPH WINDS WITH 40 PSF SNOW LOAD. BUILDING SHALL COME EQUIPPED FROM VENDOR WITH SCREENED ADJUSTABLE VENTS. 120 VAC DUAL EXHAUST FANS (110 CFM EACH) WITH THERMOSTAT, AND 2-1000 WATT ELECTRICAL HEATERS (120 VAC). BUILDING SIZE SHALL BE 12'-0'' WIDE X 12'-0'' LONG. COLOR SHALL BE BEIGE. BUILDING SHALL BE MODEL PRODUCT BULLETIN SH-1 AS MANUFACTURED BY PLASTI-FAB, INC. OR APPROVED EQUAL. VENDOR - W.J. SVOBODA CO. CINCINNATI, OHIO (513) 851-2244.
5. METERING MANHOLE AND FLUME SHALL BE A PACKAGED UNIT. UNIT SHALL BE MANUFACTURED OF FIBERGLASS REINFORCED PLASTIC (FRP). UNIT SHALL BE CORROSION RESISTANT. UNIT SHALL COMPLY WITH ANSI/ASTM D-3753 'STANDARD SPECIFICATIONS FOR FIBER - REINFORCED MANHOLES.' COVER TO MANHOLE SHALL BE 48-INCHES, HINGED, & WITH LOCKING HASP. FRP CONSTRUCTED LADDER SHALL BE PROVIDED. FLUME SHALL BE PARSHALL TYPE WITH PERMANENT 6'' THROAT AND TEMPORARY REMOVABLE 3'' THROAT. UNIT SHALL BE SUPPLIED WITH STAINLESS STEEL BUBBLER TUBES AND A 1'' DRAIN CONNECTION LOCATED IN THE SIDE OF THE MANHOLE. UNIT SHALL COME SUPPLIED WITH RUBBER BOOTS FOR INSTALLATION TO#16'' O.D. C.I. PIPE. VENDOR SHALL SUPPLY ALL REQUIRED HARDWARE. INSTALLATION & MAINTENANCE MANUALS (8) COPIES. METERING MANHOLE, LID, & FLUME SHALL BE A MODEL BULLETIN PMM-1 AS MANUFACTURED BY PLASTI-FAB, INC. W. J. SVOBODA CO. CINCINNATI, OHIO (513) 851-2244 OR APPROVED EQUAL.
6. ALL EARTH BACKFILL SHALL BE COMPACTED 95%. BACKFILL SHALL BE INSTALLED IN LAYERS AT A MAXIMUM OF 1'-0'' IN DEPTH AND COMPACTED TO 95%.

CADD SERVICES

FOR INFORMATION ONLY

NO.	REVISION	DATE/DWN. BY/APPD.
4	GENERAL REVISIONS	1/28/91 W. R. P. G. E. P.
3	AS-BUILT	10/1/90 J. K. G. E. P.
2	ADDED AS-BUILT ELEVATION *S	4/17/90 K. P. D. K. K.
1	ISSUE FOR CONSTRUCTION	5/7/89 K. P. D. K. K.
0	ISSUE FOR REVIEW	3/30/89 K. P. D. K. K.

DO NOT SCALE REDUCED DRAWINGS

NO.	REVISION	DATE/DWN. BY/APPD.	REF. DWG. NO.	REF. DWG. TITLE	REF. DWG. NO.	REF. DWG. TITLE
			18A-5500-S-00929	M.H. 175 STRUCTURAL DETAIL		
			18A-5500-S-00928	M.H. 175 STRUCTURAL DETAIL		
			18A-5500-S-00931	M.H. 175 ACID TANK PAD STRUCT. DET.		

APPROVALS

CHEMICAL		D. S. M. H. S. & ORGANIZATION 2-24-89
CIVIL & STRUCTURAL		MAINTENANCE
ELECTRICAL		NUCLEAR SAFETY C. E. CARR 2-24-89
ENGINEERING	D. M. HARDEN 2-22-89	D. A. F. A. HOPKINS 2-21-89
INSTRUMENT		PRODUCTION L. ROBINSON 2-24-89
MECHANICAL		PROC. TECH.
		QA & EC D. K. KEIRN 2-24-89
CHECKED	J. J. MURPHY 2-22-89	
APPROVED	D. M. HARDEN 2-22-89	

WESTINGHOUSE MAT'LS. CO. OF OHIO
FERNALD, OHIO
FEED MATERIALS PRODUCTION CENTER
U.S. DEPARTMENT OF ENERGY

MANHOLE NO. 175 NEW SAMPLING BUILDING
FMPC ENVIRONMENTAL EFFLUENT FLOW MEASUREMENT AND SAMPLING UPGRADE
STRUCTURAL ELEVATION DETAIL

PROJ. NO. 00-87182
DATE 1-19-88
DRAWN M. POWELL

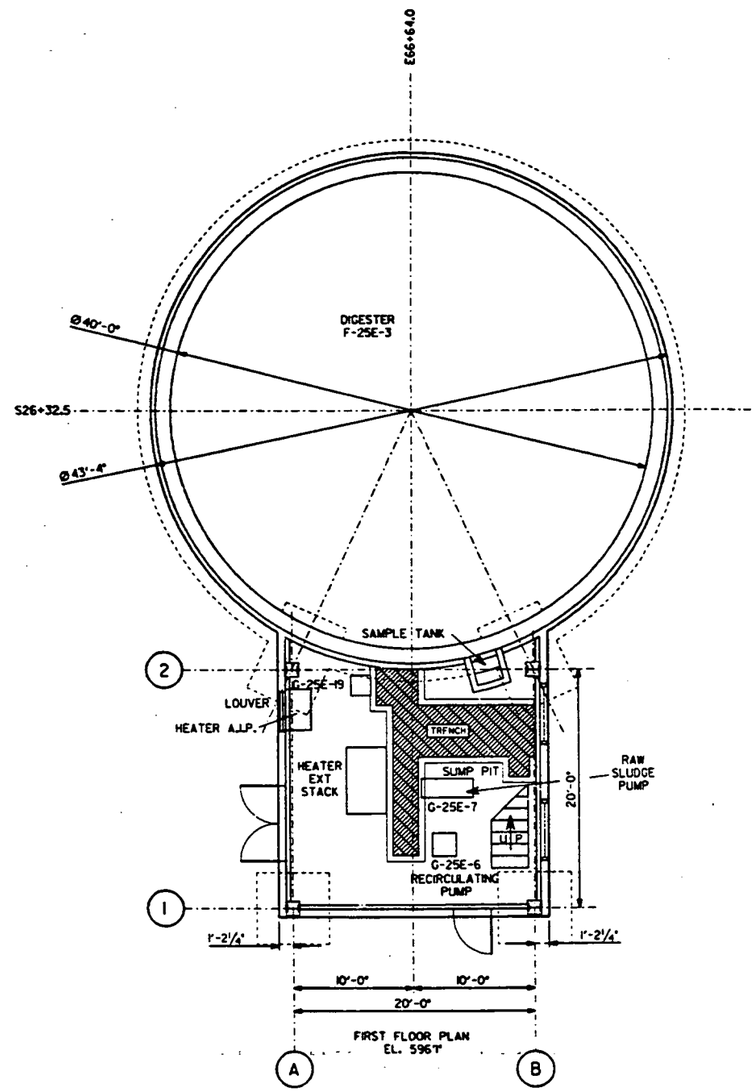
18A	5500	S	00928	4

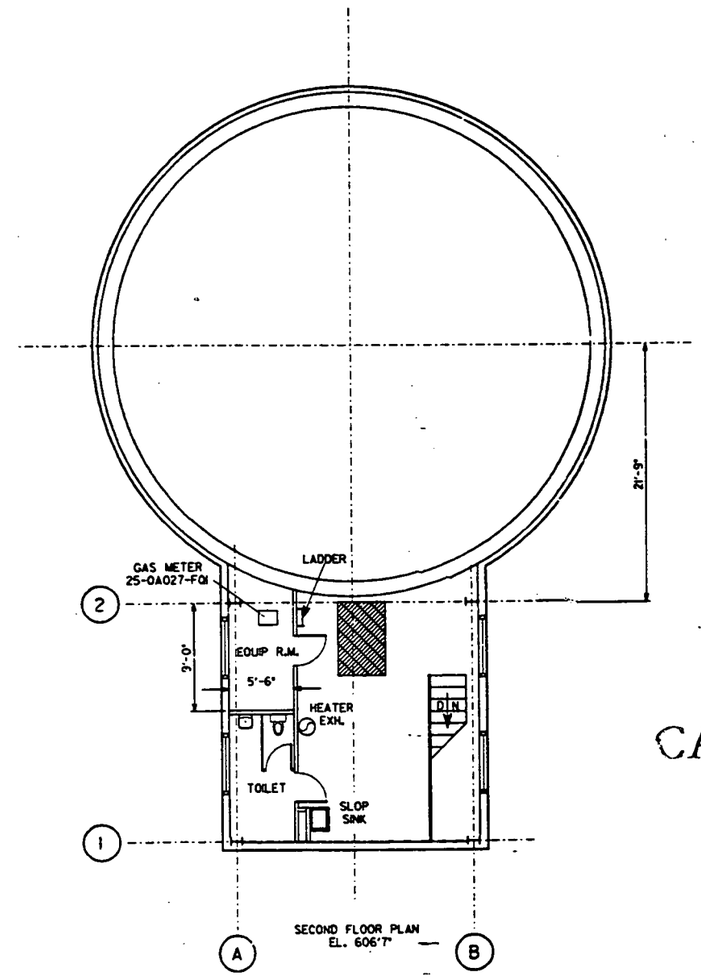
FILE NAME: /VOL28/00-87182/18A00928.DGN

INDEX CODE

PL. & SH.	DRIG.	CL.	SER. NO.	REV.
25A	5500	S	00147	4

FIGURE D-4 Section View of Man Hole #175/Effluent Sampling Building





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FOR INFORMATION ONLY

NO.	REVISIONS	DATE	DWN.	BY	APPD.	NO.	REVISIONS	DATE	DWN.	BY	APPD.

REF. DWG. NO.
25A-7000-S-00055
25A-7000-S-00054
25A-7000-S-00053
25A-7000-S-00048
25A-7000-S-00047

NOTE: FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

PERFORMANCE GRADE 1 2 3 4 5

BY: DATE:

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		Q.A.	
INSTRUMENT		FIRE PROTECT.	
MECHANICAL		WASTE MANAGE.	
		SECURITY	
		CKU	
CHECKED			
APPROVED			

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
Fernald Environmental Management Project
U.S. DEPARTMENT OF ENERGY

BUILDING 25E FIRST+SECOND FLOOR
DIGESTER & CONTROL BLDG.
FLOOR PLAN
SCALE: 3/16"=1'-0"

DATE 8-3-92
DRAWN K.E. LOHRE

25A-5500-A-00182 0

FILE NAME: /FLOOR/25E.DGN

FORMAT REVISED 6/7/93

DO NOT SCALE REDUCED DRAWING

FIGURE D-5 Plan View of Digester & Control Building

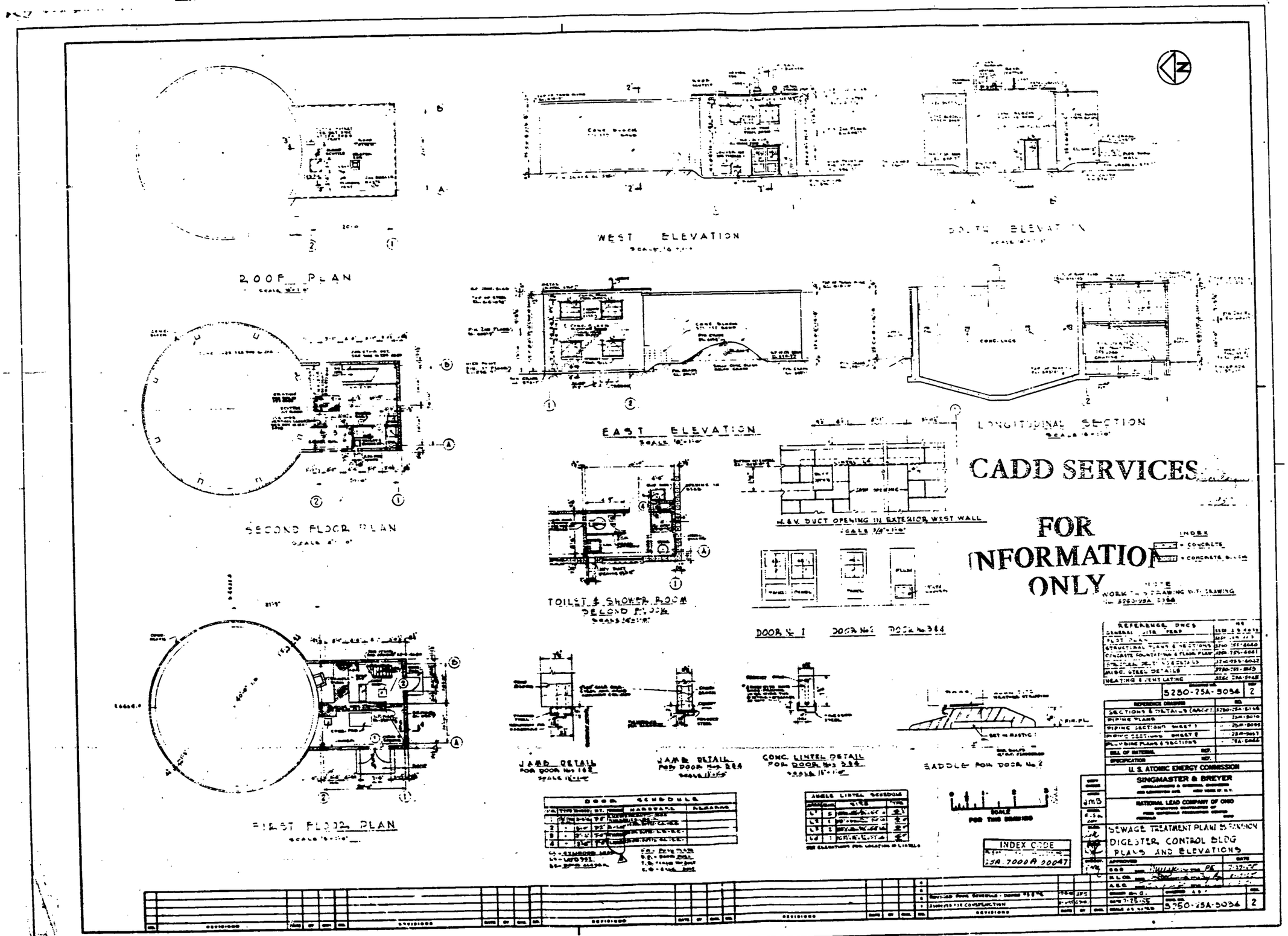

FIGURE D-6 Section and Plan Views of Digester & Control Building

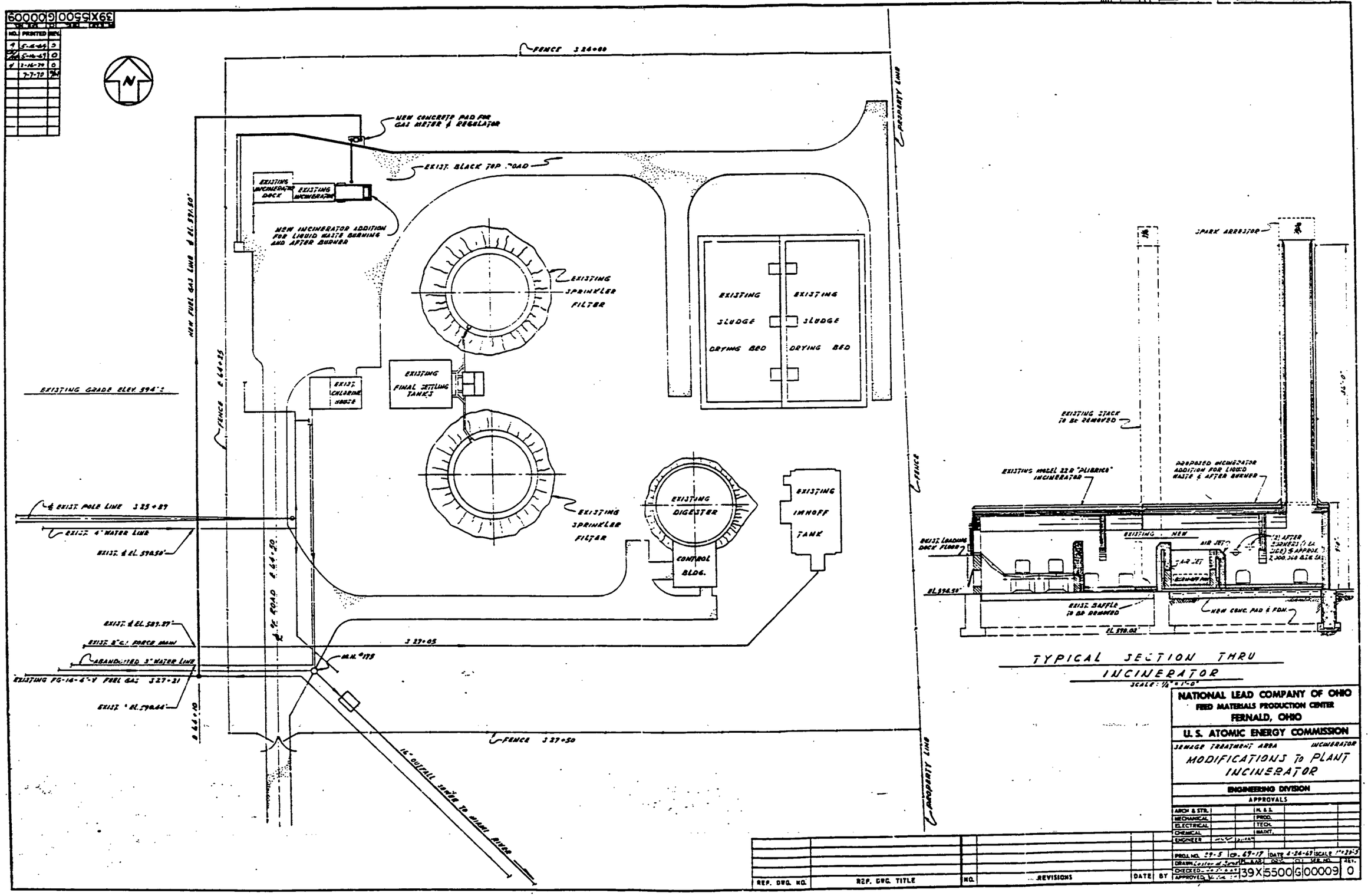

FIGURE D-7 Plan and Section View of STP Incinerator

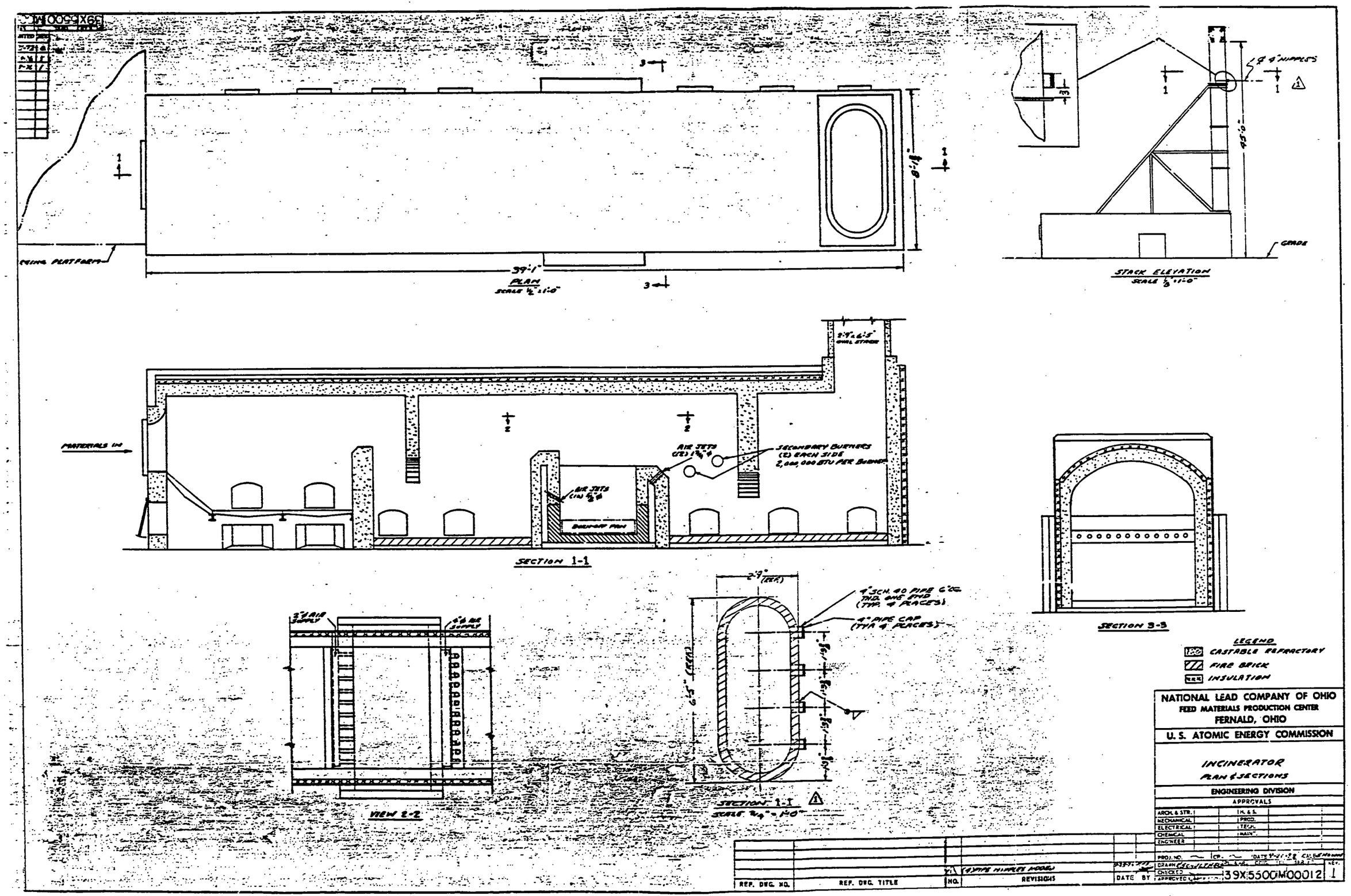

FIGURE D-8 Plot Plan and Section Views of STP Incinerator

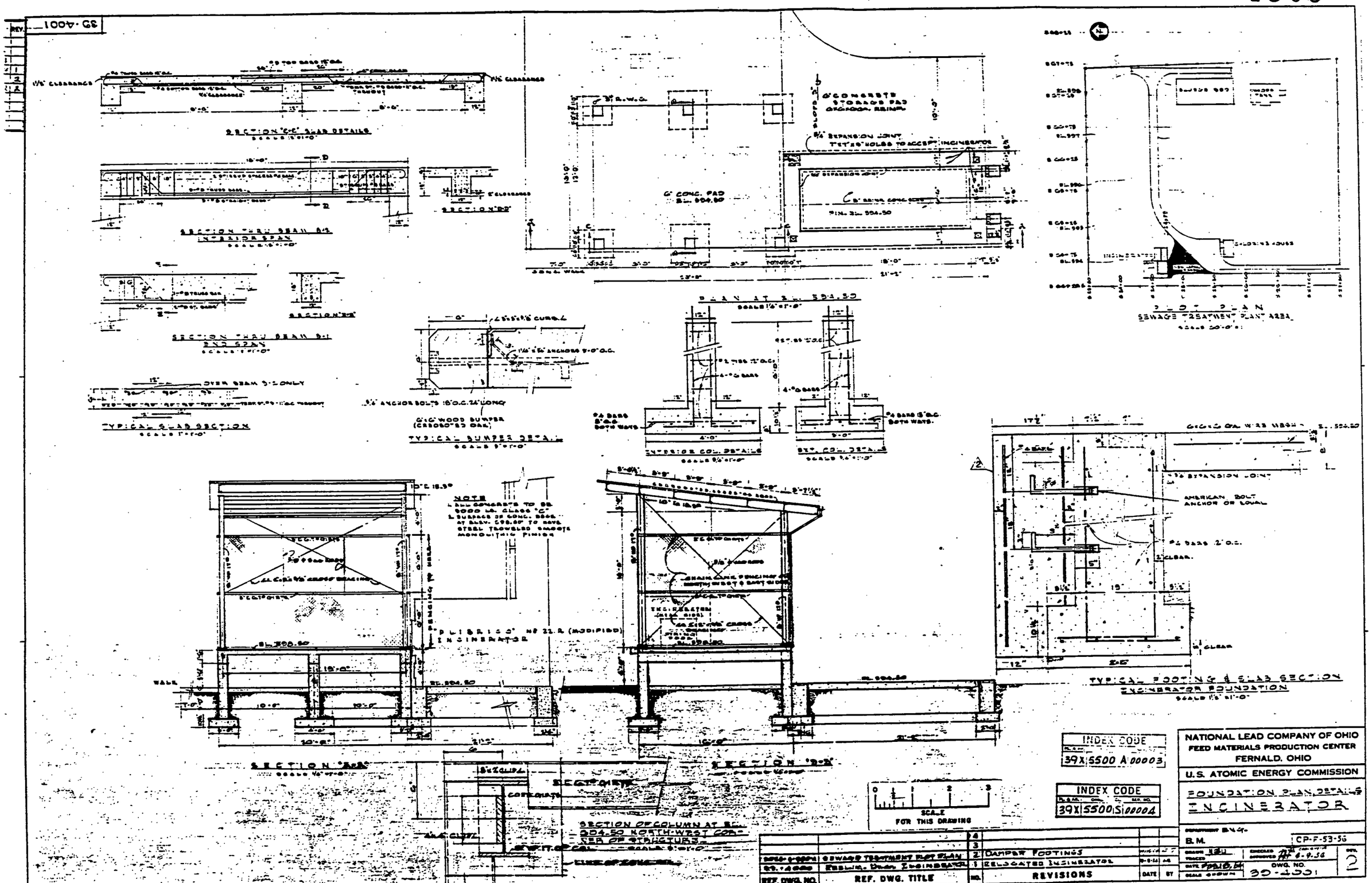

FIGURE D-9 Foundation Plan and Section Views of STP Incinerator

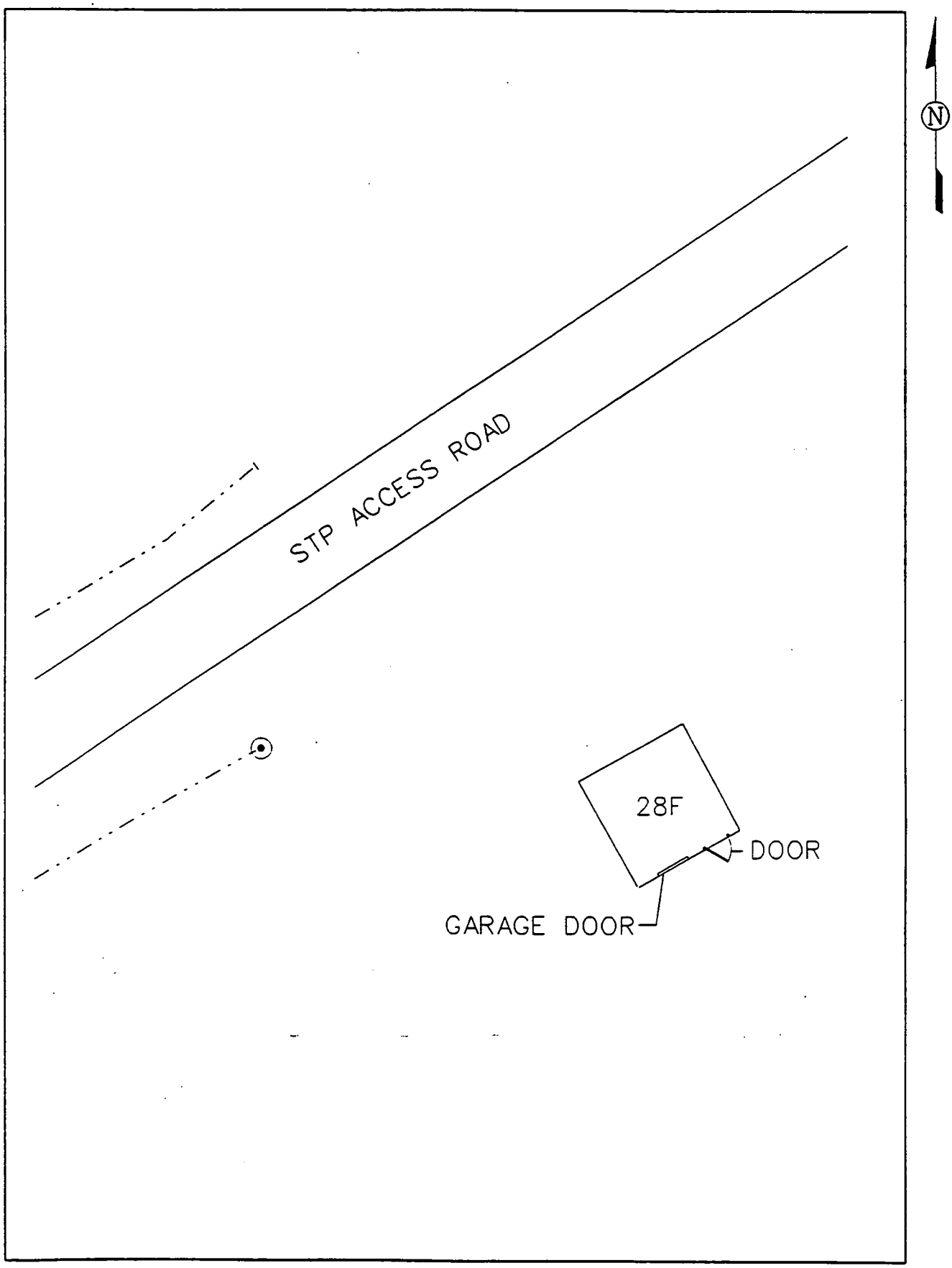

FIGURE D-10 Plot Plan of Skeet Range Building

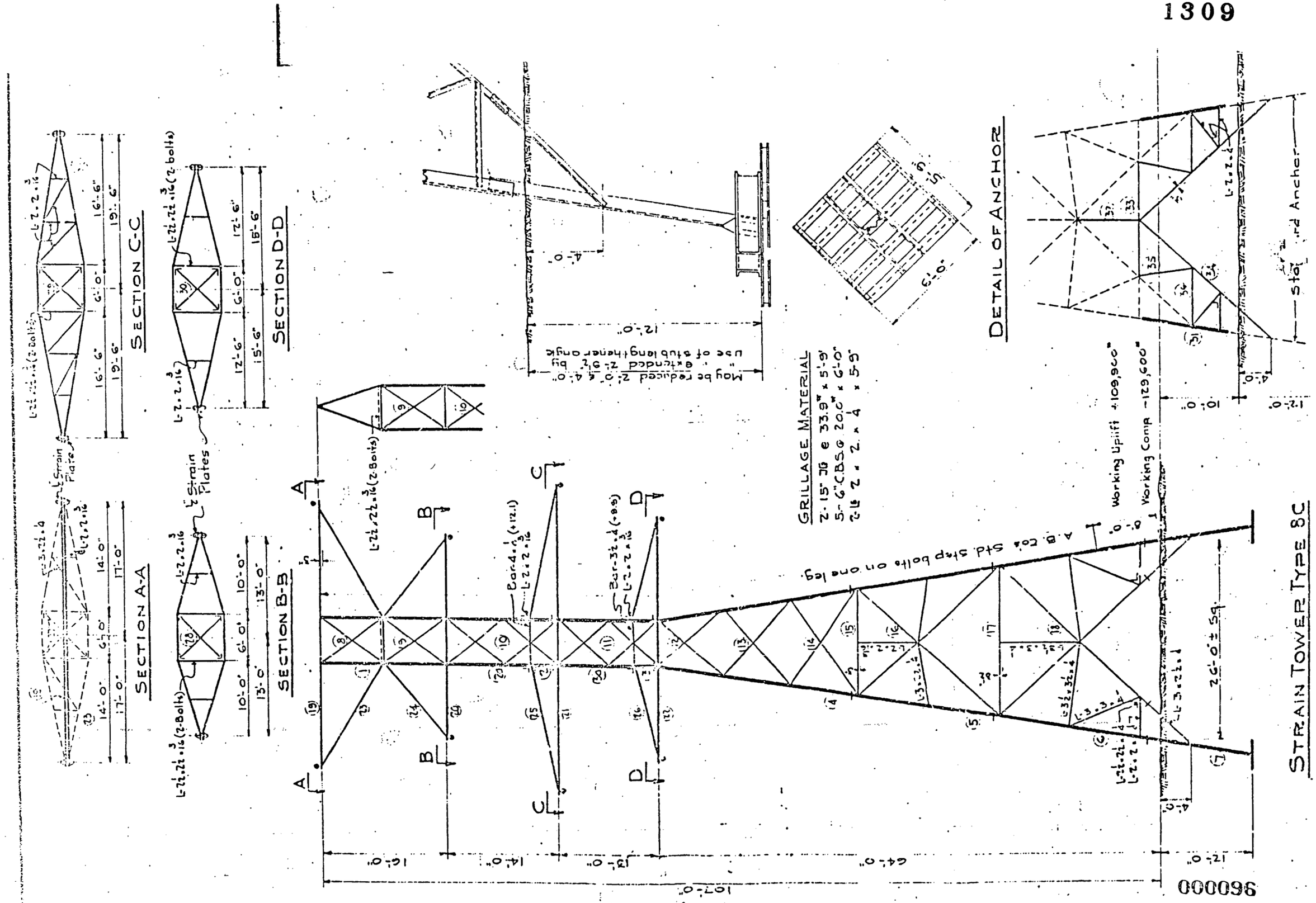

FIGURE D-11 Section Views of Utility Tower

APPENDIX E

PHOTOGRAPHS

Listed below are the photographs that were compiled for the STP Complex D&D project. Copies of photographs are provided beginning on page E-3.

APPENDIX E PHOTOGRAPHS

FIGURE NO.	NEGATIVE NO.	DESCRIPTION
E-1	5636-26	STP Complex - Aerial Oblique View from Northeast
E-2	6620-08	Chlorination Bldg. (25A) - View from South
E-3	6620-01	Man Hole #175/Effluent Line Sampling Bldg. (25B) - View from West
E-4	6620-29	Digester & Control Bldg. (25E) - View from Southwest
E-5	6620-30	Digester & Control Bldg. (25E) - View from Northwest
E-6	6556-03	STP Incinerator (39D) - View from Southeast
E-7	6620-44	Skeet Range Bldg. (28F) - View from Northeast
E-8	6620-42	Skeet Range Bldg. (28F) - View from Southwest
E-9	6620-37	Electrical Utility Tower - View from West

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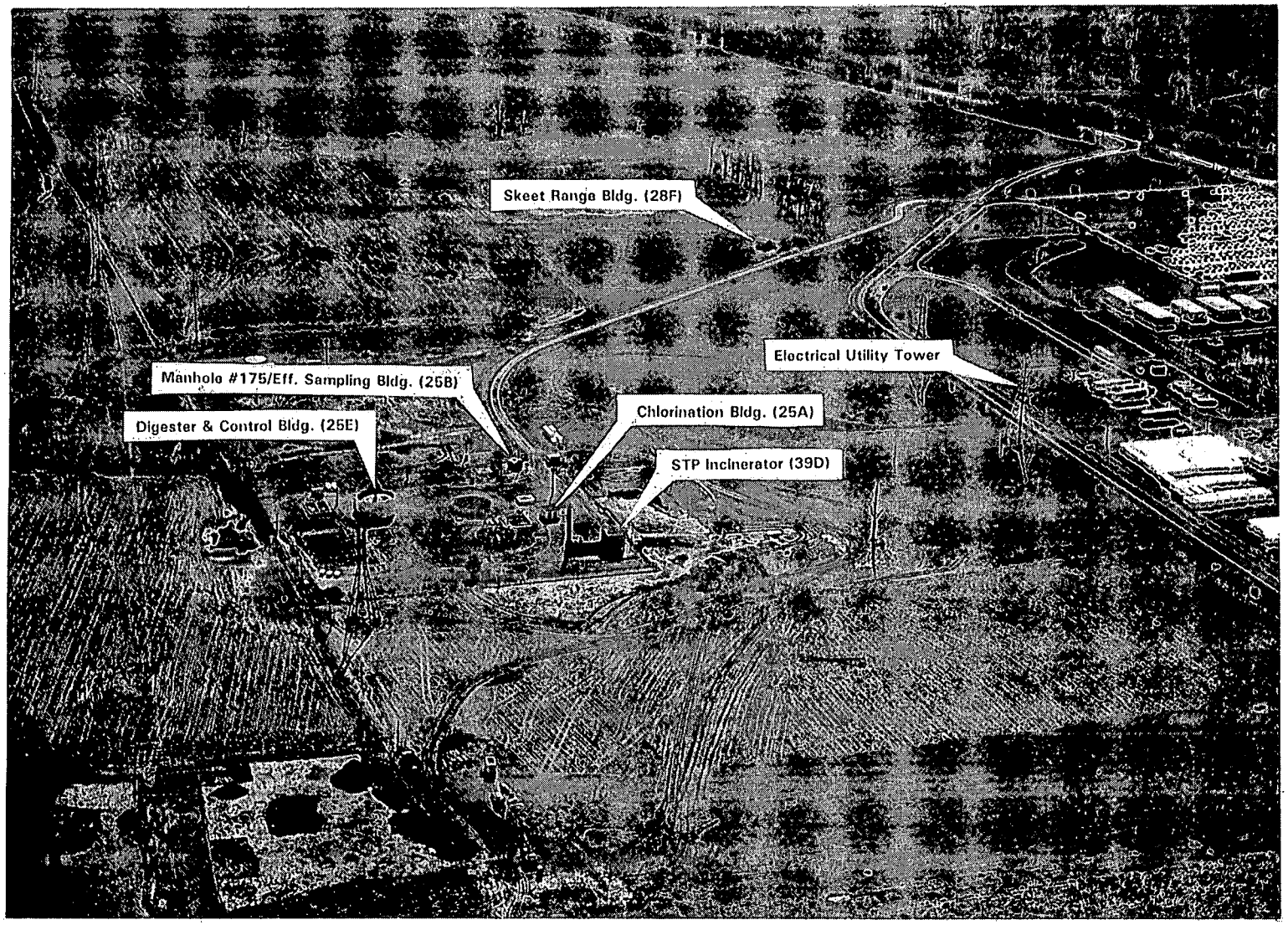

FIGURE E-1 STP Complex - Oblique View from Northeast

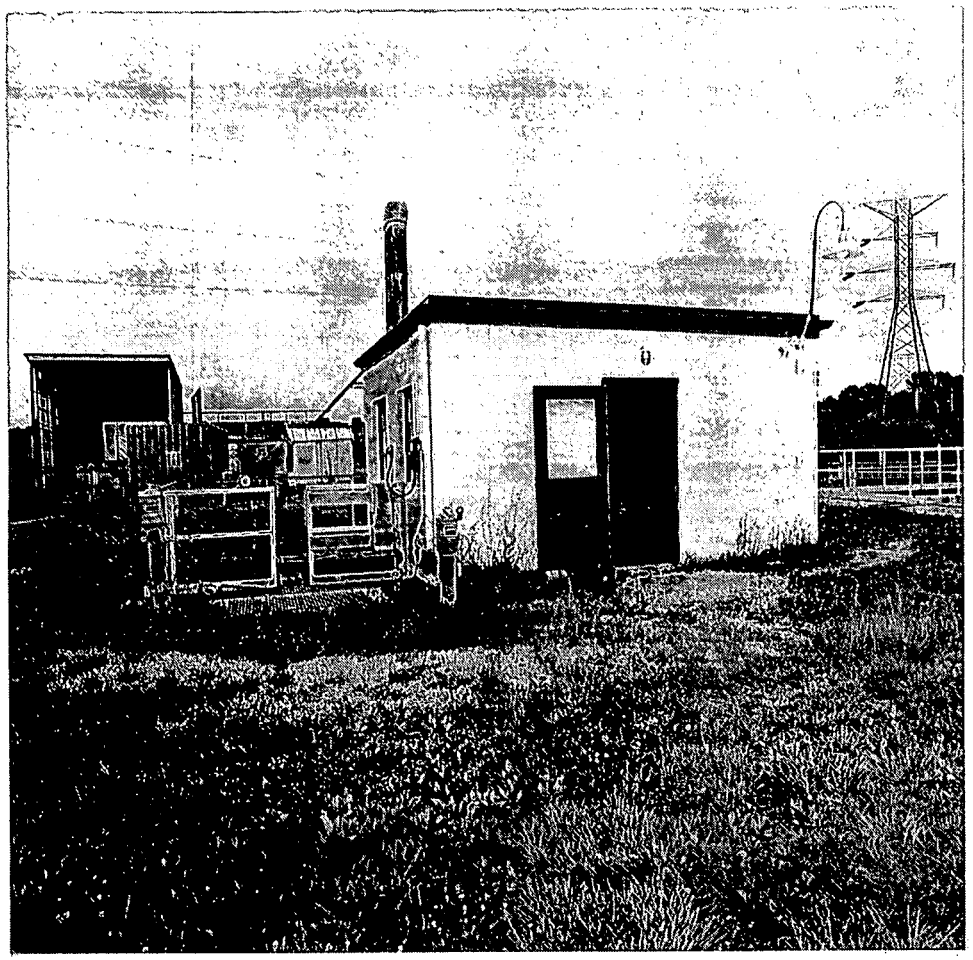

FIGURE E-2 Chlorination Bldg. (25A) - View from South

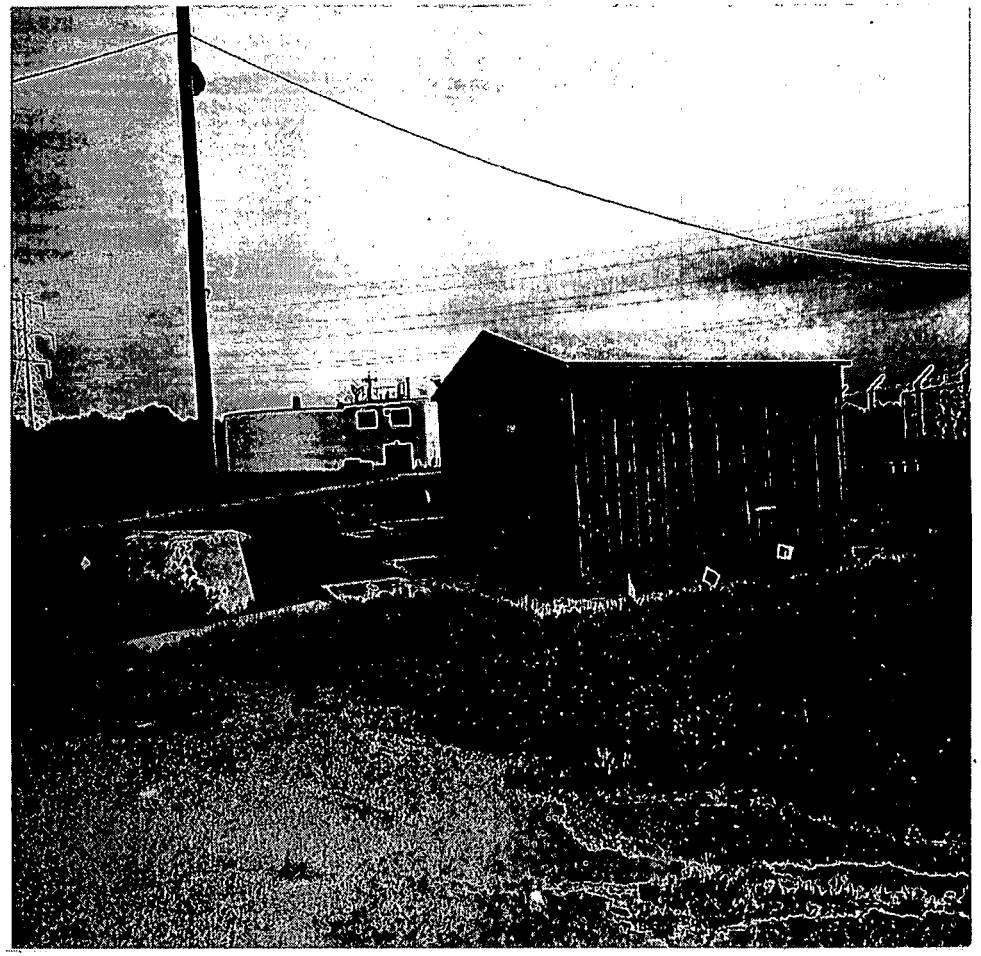

FIGURE E-3 Manhole #175/Eff. Samp. Bldg. (25B) - View from West

000100

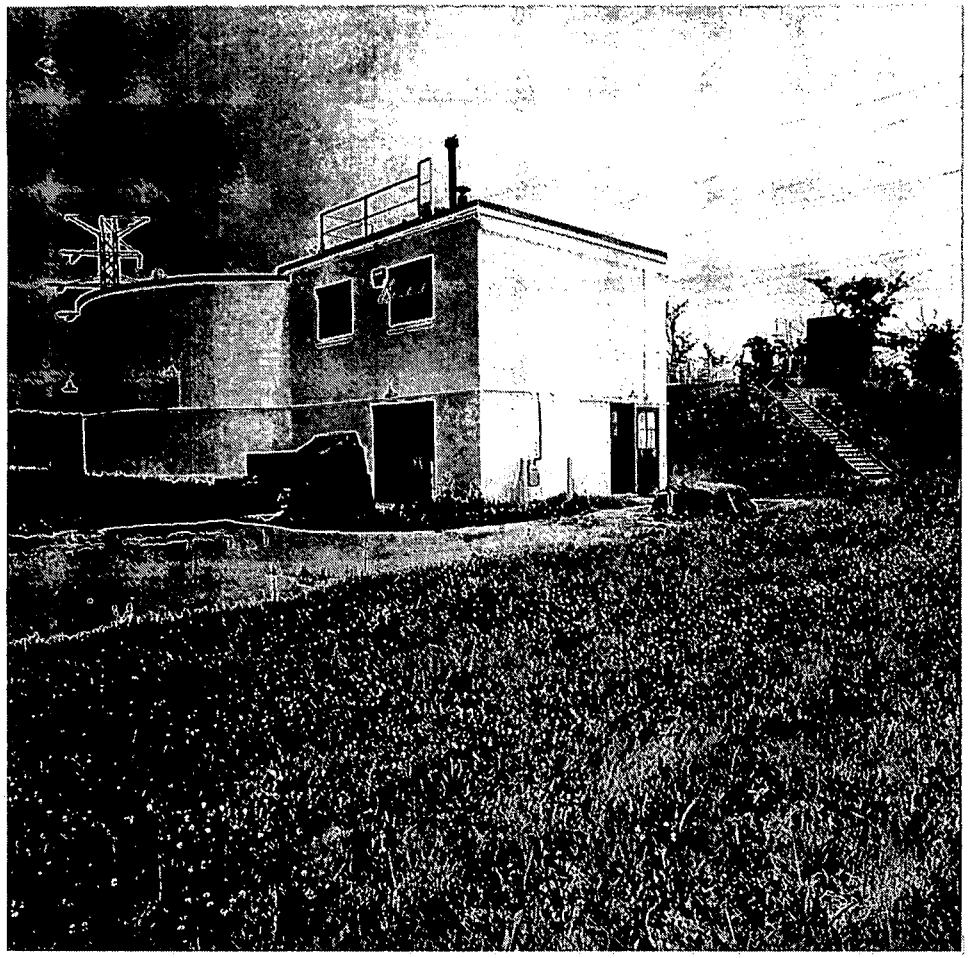

FIGURE E-4 Digester & Control Bldg. (25E) - View from Southwest

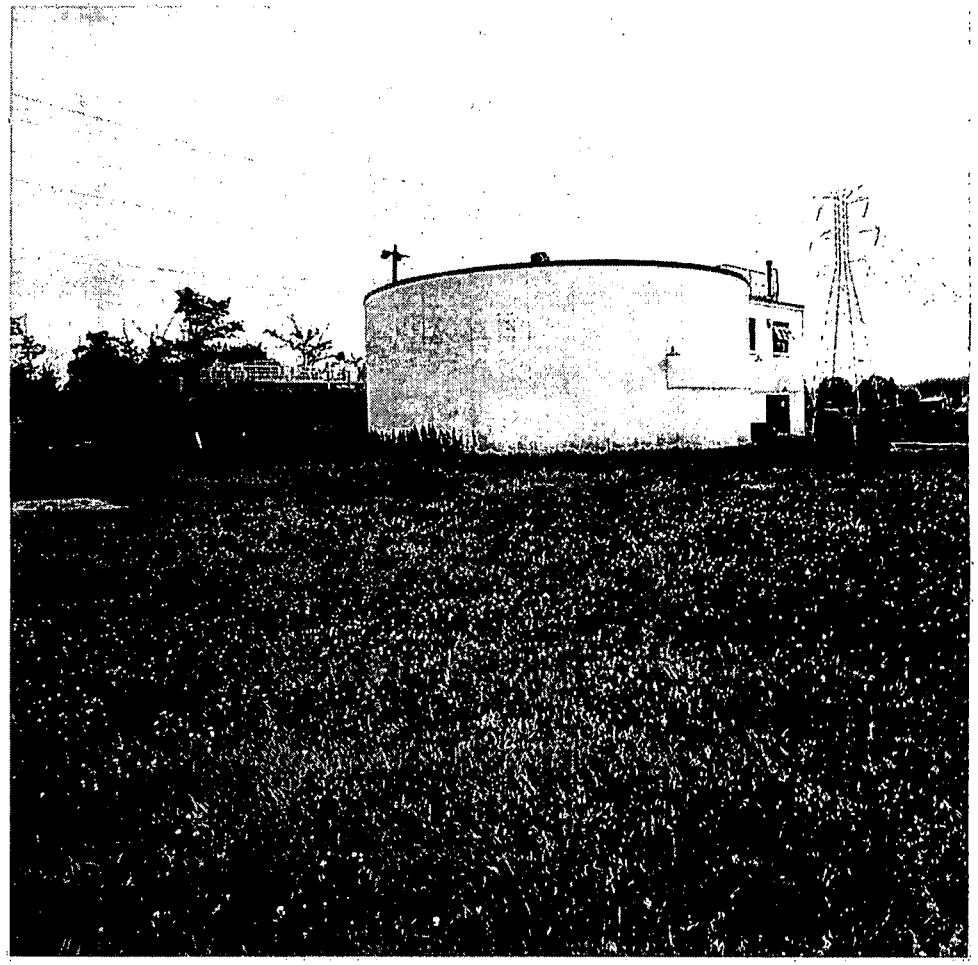

FIGURE E-5 Digester & Control Bldg. (25E) - View from Northwest

000101

FIGURE E-6 STP Incinerator (39D) - View from Southeast

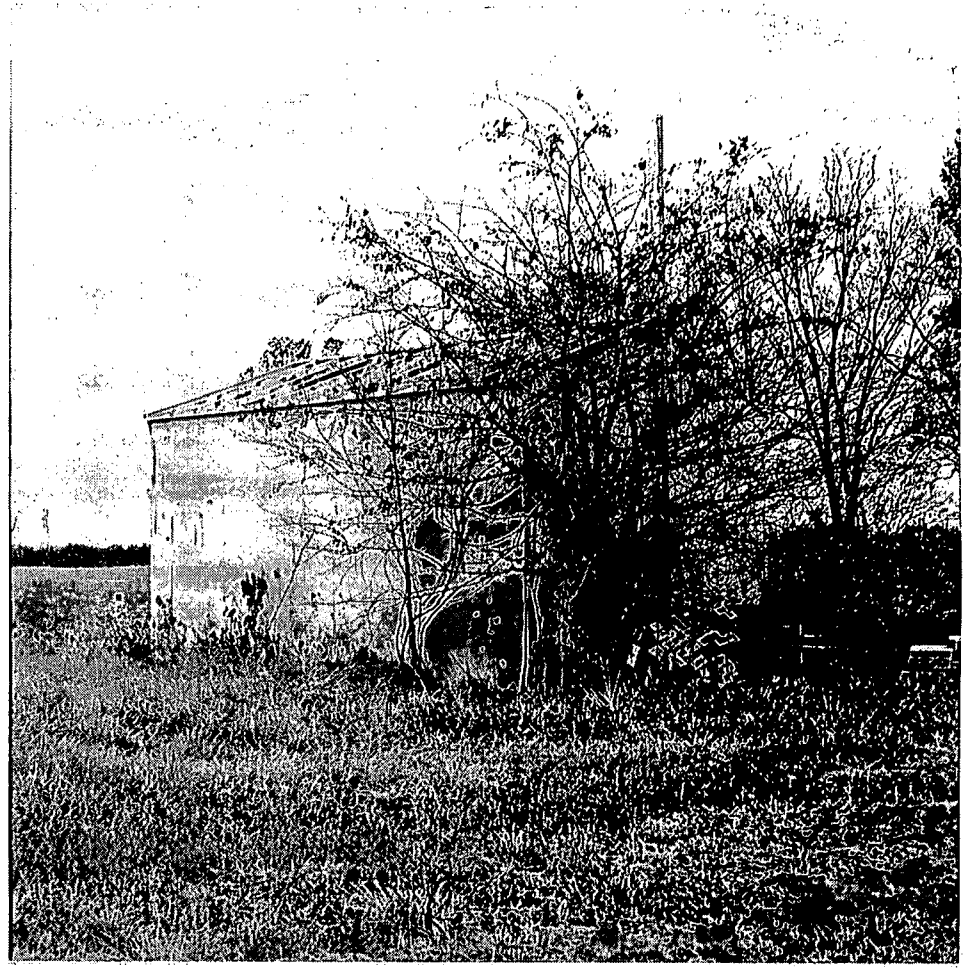

FIGURE E-7 Skeet Range Bldg. (28F) - View from Northeast

00000102

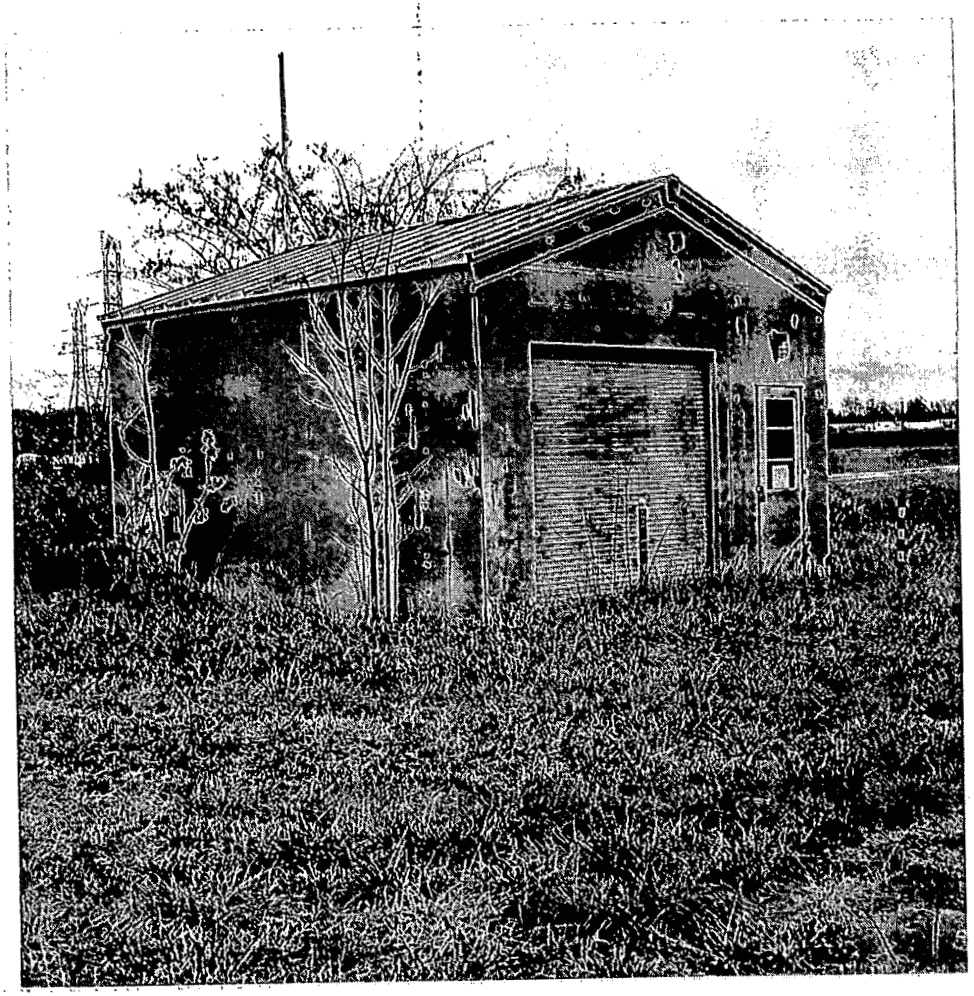

FIGURE E-8 Skeet Range Bldg. (28F) - View from Southwest

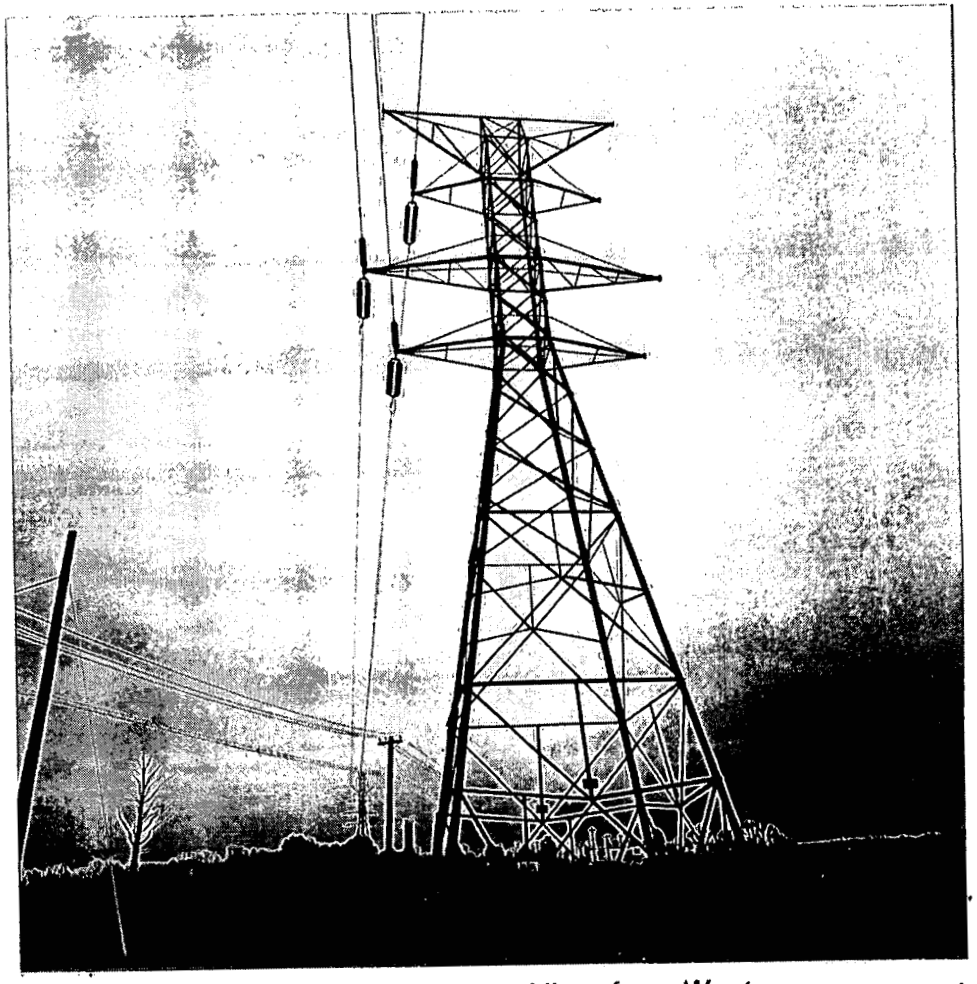

FIGURE E-9 Electrical Utility Tower - View from West

000103