OPERABLE UNIT 3
INTEGRATED REMEDIAL ACTION

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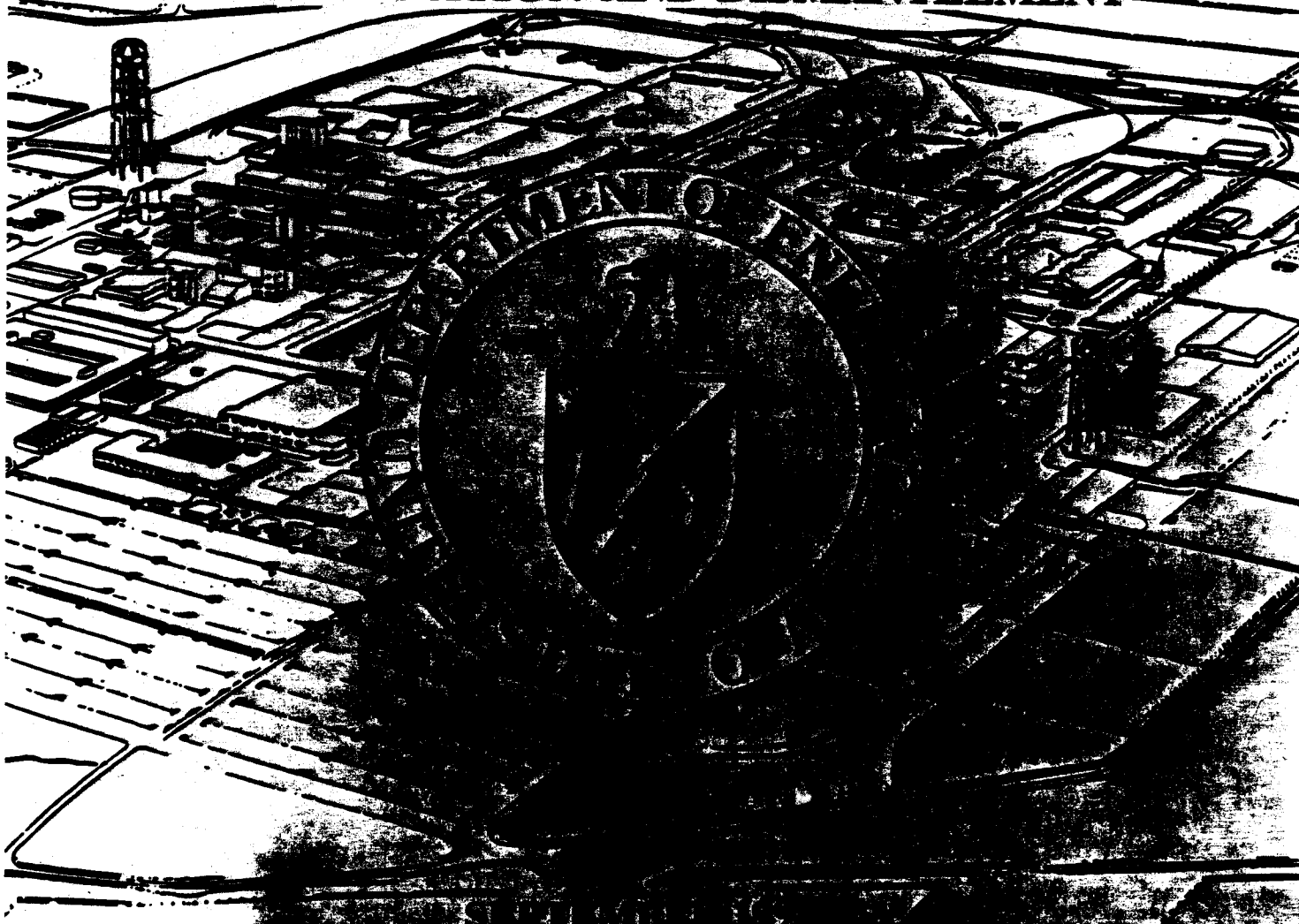
MISCELLANEOUS SMALL STRUCTURES IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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OPERABLE UNIT 3

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MISCELLANEOUS SMALL STRUCTURES IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT

SEPTEMBER 1998

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U. S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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NOTATION

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Abbreviations, Acronyms, and Initials

ACM	asbestos-containing material(s)
AWWT	Advanced Waste Water Treatment System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CFR	Code of Federal Regulations
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
HWMU	Hazardous Waste Management Unit
IEMP	Integrated Environmental Monitoring Plan
ISO	End Loading Container Sea Land Boxes
MEF	Material Evaluation Form
MSCC	Material Segregation and Containerization Criteria
MSS	Miscellaneous Small Structures
N/A	not applicable
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NTS	Nevada Test Site
Ohio EPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU3	Operable Unit 3
PCB(s)	polychlorinated biphenyl(s)
PCDF	Permitted Commercial Disposal Facility
PCR	Project Completion Report
PPE	personal protective equipment
PWID	Project Waste Identification and Disposition
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

Abbreviations, Acronyms, and Initials (Contd.)

SAP	Sampling and Analysis Plan
SCEP	Soils Characterization and Excavation Project
STP	Sewage Treatment Plant
SWIFTS	Site-Wide Waste Information, Forecasting and Tracking System
SWMB	Small White Metal Box
TSI	thermal system insulation
UNH	Uranyl Nitrate Hexahydrate
U.S. EPA	United States Environmental Protection Agency
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)
mrem	millirem(s)
pCi/m^3	picocurie(s) per cubic meter

Chemical Symbols

U	uranium
U-235	uranium-235

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1.0 INTRODUCTION

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1.1 Project Statement

This implementation plan represents the remedial design documentation for the above-grade decontamination and dismantlement (D&D) of twenty-three (23) miscellaneous small structures, which are located at the U. S. Department of Energy (DOE) Fernald Environmental Management Project (FEMP) in Fernald, Ohio. The use of implementation plans for remedial design documentation was originally defined in the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (DOE 1997a). These structures are being included in a Miscellaneous Small Structures - Decontamination & Dismantling (MSS-D&D) Project because they are small in scope, are also relatively easy to D&D, and can use available funding to expedite the cleanup of the site.

The purpose of this document is to summarize the remedial design of the MSS-D&D Project in the manner (i.e., 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 previously approved above-grade D&D implementation plans.

At- and below-grade remediation is not included within the scope of this project. The remedial design and implementation of the at- and below-grade portions of the MSS-D&D Project will be performed under the scope of the Soils Characterization and Excavation Project (SCEP).

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 subcontractor'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 MSS-D&D Project includes the following major activities:

- Preparatory Action: Inventory Removal;
- Preparatory Action: Safe Shutdown;
- Hazardous Waste Management Unit Decontamination;
- Asbestos Abatement;
- Surface Decontamination; and
- Above-Grade Dismantlement.

The following components are included in the MSS-D&D Project:

- Component 2E - Nuclear Fuel Services Storage and Pump House
- Component 2F - Cold Side Ore Conveyor
- Component 2G - Hot Side Ore Conveyor
- Component 3B - Ozone Building
- Component 3C - NAR Control House
- Component 3F - Harshaw System
- Component 3G - Refrigeration Building

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- Component 8F - Plant 8 Old Drum Washer
- Component 10D - Contaminated Oil/Graphite Burn Pad
- Component 12B - Cylinder Storage Building
- Component 12C - Lumber Storage Building
- Component 22A - Gas Meter Building
- Component 22D - Scale House
- Component 24B - Railroad Engine House
- Component 38A - Propane Storage
- Component 38B - Cylinder Filling Station
- Component 39B - Waste Oil Decant Shelter
- Component 39C - Incinerator Sprinkler Riser House
- Component 45B - Utility Shed East of Trailers
- Component 60 - Quonset Hut 1
- Component 61 - Quonset Hut 2
- Component 62 - Quonset Hut 3
- Component 63 - KC-2 Warehouse
- Electrical Utility Tower

The Electrical Utility Tower listed above was originally scheduled to be decontaminated and dismantled as a part of the Sewage Treatment Plant (STP) D&D Project. Due to a contractual delay involving the Cincinnati Gas and Electric Company, it was decided to transfer this activity to the MSS-D&D Project.

The requirements for the MSS-D&D Project were developed using the performance specifications that were included in Appendix B of the OU3 Integrated RD/RA Work Plan. Since this project is going to utilize the remediation support contract strategy (a.k.a., Site Support Contract), discussed in Section 3.1.4 of the OU3 Integrated RD/RA Work Plan, the typical set of performance specifications will not be used for this project. Rather, the design and contractor work scope development for the MSS-D&D Project incorporate the applicable requirements of the performance specifications and further details FEMP-approved methods that the contractor will be required to use for accomplishing activities. The detailed specifications which were developed as the basis for the contractor work scope are included in Appendix C of this Implementation Plan. By basing the contractor work requirements on established performance specifications, the strategies for MSS-D&D operations remain consistent with previously approved approaches.

The contractor will be authorized to commence work through the issuance of a Task Order. Based upon the actual sequencing of work as discussed in Section 2.1, a Task Order may include the D&D of more than one component (however, there are no plans for any given component to be covered by more than one Task Order).

DOE will provide notification to the regulatory agencies of any significant changes to the 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 this Implementation Plan, amend the OU3 Integrated RD/RA Work Plan, present an explanation of significant difference to the RODs, 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

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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 MSS-D&D Project. 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, the characterization of the components, a plan for materials management, environmental monitoring activities, and the project-specific applicability of the six-task approach for implementing above-grade remediation. Section 3 presents pertinent component history and applicable component-specific details of the six remedial tasks. Section 4 discusses the scheduling strategy for incremental D&D implementation and project reporting. Section 5 describes the contracting 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 implementation 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 contractor work scope document. Appendix D provides copies of available architectural drawings which show floor plans and elevation views of some of the MSS-D&D Project components. Appendix E contains selected photographs of notable features of, within, or around all the components.

1.4 Location of the MSS-D&D Projects

The MSS-D&D Project components are located throughout the site, as shown in Figure 1-1.

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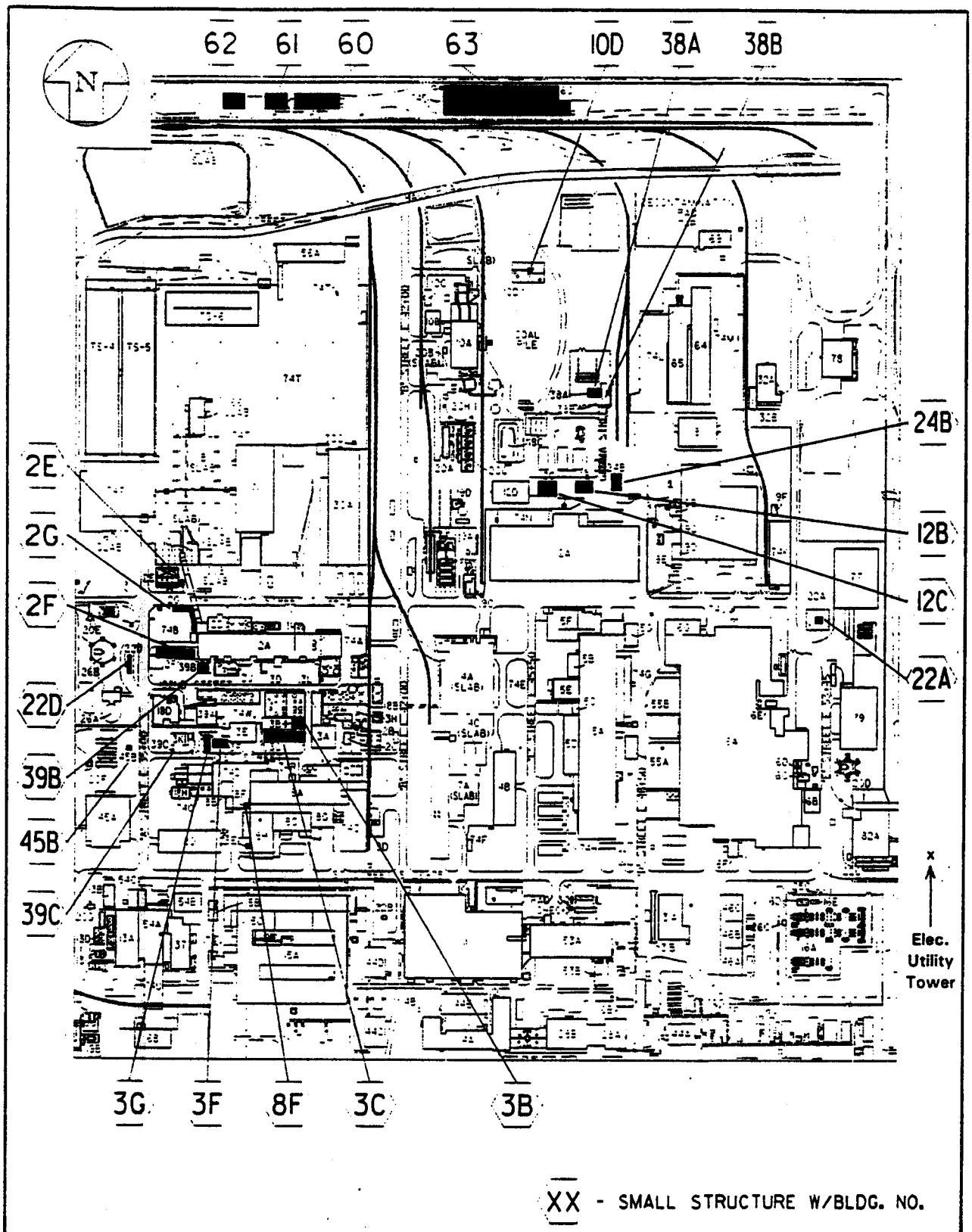

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Fernald Environmental Management Project

FLUOR DANIEL FERNALD

U.S. DEPARTMENT OF ENERGY

PRODUCTION AREA SITE MAP

FIGURE 1-1

MISC. SMALL STRUCTURES D & D PROJECT

RES #3436
DATE 4/1/97
DRAWN S.J.SMOOT

FILE NAME: /RES3436/FIGDLDGN

2.0 GENERAL PROJECT REMEDIATION APPROACH

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The overall approach to the remediation of the MSS-D&D Project components incorporates the applicable programmatic elements and tasks that were described in Section 3 of the OU3 Integrated RD/RA Work Plan. This section describes project-specific applications of those elements.

2.1 Sequencing of Remediation

The most logical sequencing of the Miscellaneous Small Structures Projects would be in accordance with the phasing of major projects, which at the FEMP proceeds generally in a northeast to southwest direction. Based on this approach, the proposed sequencing of D&D is as follows:

- Component 38A - Propane Storage - Completed under Task Order (T.O.) #384
- Component 38B - Cylinder Filling Station - Completed under T.O. #384
- Component 3F - Harshaw System - Completed under T.O. #387
- Component 3G - Refrigeration Building - Completed under T.O. #387
- Component 24B - Railroad Engine House - Completed under T.O. #387
- Component 63 - KC-2 Warehouse
- Component 60 - Quonset Hut 1
- Component 61 - Quonset Hut 2
- Component 62 - Quonset Hut 3
- Component 10D - Contaminated Oil/Graphite Burn Pad
- Component 12B - Cylinder Storage Building
- Component 12C - Lumber Storage Building
- Component 2E - Nuclear Fuel Services Storage and Pump House
- Component 2F - Cold Side Ore Conveyor
- Component 2G - Hot Side Ore Conveyor
- Component 39B - Waste Oil Decant Shelter
- Component 22D - Scale House
- Component 3B - Ozone Building
- Component 3C - NAR Control House
- Component 39C - Incinerator Sprinkler Riser House
- Component 45B - Utility Shed East of Trailers
- Component 8F - Plant 8 Old Drum Washer
- Component 22A - Gas Meter Building
- Electrical Utility Tower

The above is for general planning purposes only. There are many reasons why this sequencing could change, such as the level of funding available; the ability to clean and clear various components; etc. It is anticipated that some funding will be made available through the Technology Deployment Initiative Program.

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2.2 Characterization of the MSS-D&D Project

2.2.1 Radiological Characterization

Most of the components that make up the MSS-D&D Project housed support operations or served as storage warehouses. Several components were used in processing radiological material, including components 2E, 2F, and 2G. Additionally, 3F, 10D, and 39B were used for processing contaminated by-products. Radioactive materials found in these areas are in the form of contaminated surfaces rather than bulk material. Historical and recent radiological surveys were obtained to substantiate this information, and have been summarized in Table 2-1.

A review of the relevant analytical 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 most of the components in the MSS-D&D Project contain materials that are acceptable for disposal in the On-Site Disposal Facility (OSDF). [The two exceptions are component 3G, which has a small quantity of lead flashing per Table 3-6 in the RD/RA Work Plan; and 3F, which has 155 ft^3 of acid brick. These materials need to be handled as mixed waste, and disposed of at a Permitted Commercial Disposal Facility (PCDF) as noted in Section 2.3.4]. Materials to be generated from MSS-D&D Project 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 components. Since there are several MSS components that have elevated radiological contamination levels, as indicated in Table 2-1, there will be a need to employ effective engineering controls during the D&D of those components.

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

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TABLE 2-1 Summary of Radiological Data

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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
2E	441	1,594	10	881	5,151	10	N/A	N/A	N/A
2F	N/A	N/A	N/A	42,758	300,000	19	1,000,000	3,300,000	19
2G	52	77	27	45	126	27	N/A	N/A	N/A
3B	204	501	132	344	1,039	132	17,540	199,500	40
3C	52	273	107	93	402	119	2,650	47,400	137
3F	218	241	24	303	673	26	13,300	69,500	25
3G	167	2,300	162	270	1,200	162	55,080	900,000	19
8F	N/A	N/A	N/A	1,146	13,600	37	190,541	2,100,000	37
10D	126	1,238	15	306	2,652	15	255,400	3,000,000	15
12B	10	50	113	19	86	113	2,757	10,000	113
12C	8	24	67	14	156	67	3,246	12,000	67
22A	14	20	46	21	68	46	1,435	8,000	46
22D	250	250	11	402	402	60	1,180	2,800	60
24B	19	67	117	40	220	117	3,647	30,000	92
38A	28	119	97	60	389	97	2,284	30,000	97
38B	N/A	N/A	N/A	<400(1)	<400(1)	13	15,923	75,000	13
39B	64	800	20	3,568	40,000	37	265,865	1,500,000	37
39C	62	128	27	71	233	28	N/A	N/A	N/A
45B	14	50	15	32	98	15	<3,000	<3,000	14
60	49	49	20	40	40	20	N/A	N/A	N/A
61	1,093	32,168	34	735	21,547	34	N/A	N/A	N/A
62	39	39	25	43	155	25	N/A	N/A	N/A
63	42	115	83	48	521	85	986	1,000	22

(1) Indicates results where below detection range for that sample
N/A - Not Applicable

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2.2.2 HWMU Characterization

Within the MSS-D&D Project, there are three Hazardous Waste Management Units (HWMUs):

- The Uranyl Nitrate Hexahydrate (UNH) Storage Tanks in the NFS Area (Component 2E) were designated as a HWMU (No. 46) due to storage of RCRA hazardous waste in excess of the 90-day storage limitation for hazardous waste per OAC 3745-52-34 (B) and 40 CFR 262.34 (b).

- The Waste Oil Decant Shelter (Component 39B) is part of HWMU #28, "Trane Incinerator". The Trane Incinerator was declared a HWMU because it incinerated waste oils which contained 1,1,1 Trichloroethane (F001/F002) and exhibited the RCRA D008 (lead) characteristic. Component 39B was used for decanting water from oil prior to incineration in the Trane Incinerator.

- The KC2 Warehouse has been designated as an active HWMU because it is used to store RCRA hazardous (listed and characteristic) wastes for longer than 90 days (OAC 3745-66-70 and 40 CFR 265.170).

2.3 Materials Management

Project-specific material management strategies for the MSS-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 MSS-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 MSS-D&D Project radiologically controlled areas whenever possible. Also, whenever possible, previously contaminated tools will be used over again and again.

2.3.1 Primary Materials Management

"Primary materials" refers to the debris that will be generated by the dismantlement of the components and structures in the MSS-D&D Project areas. 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 prepared. The PWID identifies all project generated debris in terms of 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. 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 to provide the Contractor with the sizing, segregation, and containerization requirements for debris generated on this project.

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.

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The Contractor will follow the job scope requirements presented in Appendix C for material handling requirements. Those requirements serve as the project work specifications, since they were developed from the performance specifications presented in Appendix B of the OU3 Integrated RD/RA Work Plan.

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, personal protective equipment (PPE), spent consumables, and washwaters.

It is anticipated that decontamination washwaters will be generated from decontamination of limited areas of component surfaces which exceed facility release limits (discussed in Section 2.5.2) and equipment used by the Contractor during the D&D process. Using high pressure, low volume water spray, it is anticipated that up to 2,500 gallons of washwater will be generated if all of the interior surfaces of those components shown in Table 2-1, which appear to exceed facility release limits, are washed. 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 collection of washwater, 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 (AWWT), and sludge removal and containerization in 55-gallon drums. The need for washwater sampling is determined by the Waste Water 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, and the 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 estimated weight of materials in tons.

2.3.4 Material Handling, Storage, Treatment, and Disposition

Materials generated from the D&D of the MSS-D&D Project will be reduced in size, segregated, and containerized in accordance with the requirements identified in the MSCC form supplied to the Contractor (example provided in Appendix A of the OU3 Integrated RD/RA Work Plan). Table 2-2 summarizes the MSCC by identifying the 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.

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TABLE 2-2 Miscellaneous Small Structures and Facilities D&D Bulked Material Estimates (ft^3)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Concrete	Acid Brick	Non-Regulated ACM	Regulated ACM[1]	Misc Matls[2]	Lead Flashing	Component/ Complex Totals
2E	6,531	1,057	0	0	603	0	0	306	3,129	0	11,626
2F	24	224	0	0	0	0	77	14	0	0	339
2G	99	445	0	0	0	0	42	7	0	0	593
3B	581	82	0	2	0	0	108	0	84	0	857
3C	962	2,190	0	6	0	0	583	17	4,581	2	8,341
3F	1,312	6,640	0	0	0	155	0	0	0	0	8,107
3G	333	238	0	8	0	0	298	7	0	4	888
8F	0	146	0	4	0	0	0	2	0	0	152
10D	0	109	0	0	0	0	0	0	96	0	205
12B	148	394	0	46	993	0	0	0	36	0	1,615
12C	262	459	0	0	0	0	0	0	3	0	724
22A	0	136	0	6	866	0	0	41	2	0	1,051
22D	0	12	0	0	0	0	11	0	2	0	25
24B	221	167	0	16	2,392	0	47	0	333	4	3,180
38A	7,623	2,040	0	16	2,215	0	0	252	6	4	12,156
38B	0	37	0	0	0	0	7	0	6	0	50
39B	109	201	0	18	0	0	0	0	0	0	328
39C	0	241	0	0	378	0	0	0	0	0	619
45B	0	3	0	0	0	0	0	2	210	0	215
60	595	163	0	36	0	0	0	0	18	0	812
61	309	88	0	18	0	0	0	0	12	0	427
62	309	88	0	18	0	0	0	0	12	0	427
63	1,078	1,166	0	30	11,873	0	0	0	6,114	0	20,261
Elec. Tower	594	0	0	0	0	0	0	0	0	0	594
Total	21,088	16,326	0	224	19,320	155	1,173	648	14,644	14	733,592
Container[3]	ROB	ROB	0	ROB	ROB	SWMB	Pallets[4] /SWMB	ISO	ROB	Drum	-
Quantity	25	20	0	1	50[5]	2	2	1	15	2	-
Disposition	OSDF[6]	OSDF	N/A[7]	OSDF	OSDF	PCDF[8]	OSDF	OSDF	OSDF	PCDF	-

(1) Excludes gutter cleanout which will be placed in drums (volume estimated at less than one drum)
(2) Excludes compactables which will be placed in contaminated trash dumpster for compaction. Miscellaneous materials can be containerized with Non-regulated ACM.
(3) ROB: Roll Off Box, holds 810 cubic feet and/or 33,000 pounds of material; SWMB: Small White Metal Box, holds 82 cubic feet and/or 7,800 pounds of material; ISO: End Loading Container Sea Land boxes, hold up to 1,025 cubic feet and/or 42,000 pounds of material ; Drum: 7 cubic feet and/or 832 pounds of material.
(4) This category includes transite which is segregated from other nonregulated ACM; sprayed with encapsulant; banded in 18 in. bundles and palletized; and stockpiled.
(5) Container is weight restricted.
(6) OSDF: On-site Disposal Facility.
(7) In the event Process Related Metals are encountered, it will be dispositioned at NTS and described in the project completion report.
(8) PCDF: Permitted Commercial Disposal Facility

TABLE 2-3 Miscellaneous Small Structures and Facilities D&D As-Built Material Estimates (ft^3)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge	Concrete	Acid Brick	Non-Regulated	Regulated ACM	Misc Materials	Lead Flashing	Component/ Complex Totals
2E	1,921	311	0	0	464	0	0	90	1,043	0	3,829
2F	7	66	0	0	0	0	64	4	0	0	141
2G	29	131	0	0	0	0	35	2	0	0	197
3B	171	24	0	1	0	0	90	0	28	0	314
3C	283	644	0	3	0	0	486	5	1,591	1	3,013
3F	386	1,953	0	0	0	119	0	0	0	0	2,458
3G	98	70	0	4	0	0	248	2	0	2	424
8F	0	43	0	2	0	0	0	0.5	0	0	45.5
10D	0	32	0	0	0	0	0	0	32	0	64
12B	43	116	0	23	764	0	0	0	12	0	958
12C	77	135	0	0	0	0	0	0	1	0	213
22A	0	40	0	3	666	0	0	12	0.5	0	721.5
22D	0	3.5	0	0	0	0	9	0	0.5	0	13
24B	65	49	0	8	1,840	0	39	0	111	2	2,114
38A	2,242	600	0	8	1,704	0	0	74	2	2	4,632
38B	0	11	0	0	0	0	7	0	2	0	20
39B	32	59	0	9	0	0	0	0	0	0	100
39C	0	71	0	0	291	0	0	0	0	0	362
45B	0	1	0	0	0	0	0	0.5	70	0	71.5
60	175	48	0	18	0	0	0	0	6	0	247
61	91	26	0	9	0	0	0	0	4	0	130
62	91	26	0	9	0	0	0	0	4	0	130
63	317	343	0	15	9,133	0	0	0	2,038	0	11,846
Elec. Tower	243	0	0	0	0	0	0	0	0	0	243
Total	6,271	4,802.5	0	112	14,862	119	978	190	4,945	7	32,286.5

TABLE 2-4 Miscellaneous Small Structures and Facilities D&D Material Weight Estimates (Tons)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Concrete	Acid Brick	Non-Regulated ACM	Regulated ACM	Misc Materials	Lead Flashing	Component/ Complex Totals
2E	99.9	11.2	0	0	11.6	0	0	1.9	21.9	0	146.5
2F	0.5	2.5	0	0	0	0	1	0	0	0	4
2G	1.5	4.7	0	0	0	0	0.5	0	0	0	6.7
3B	8.9	0.9	0	0	0	0	1.3	0	0.6	0	11.7
3C	14.7	23.2	0	0	0	0	7	0.1	33.4	0	78.4
3F	20	70.3	0	0	0	3	0	0	0	0	93.3
3G	5	2.5	0	0	0	0	3.6	0	0	0	11.1
8F	0	1.5	0	0	0	0	0	0	0	0	1.5
10D	0	1.1	0	0	0	0	0	0	0.7	0	1.8
12B	2.2	4.1	0	0.2	19.1	0	0	0	0.2	0	25.8
12C	4	4.9	0	0	0	0	0	0	0	0	8.9
22A	0	1.4	0	0	16.7	0	0	0.3	0	0	18.4
22D	0	0.1	0	0	0	0	0.1	0	0	0	0.2
24B	3.3	1.8	0	0.1	46	0	0.5	0	2.3	0	54
38A	116.5	21.6	0	0.1	42.6	0	0	1.6	0	0	182.4
38B	0	0.4	0	0	0	0	0.1	0	0	0	0.5
39B	1.6	2.1	0	0	0	0	0	0	0	0	3.7
39C	0	2.5	0	0	7.2	0	0	0	0	0	9.7
45B	0	0	0	0	0	0	0	0	1.5	0	1.5
60	9.1	1.7	0	0.1	0	0	0	0	0.1	0	11
61	4.7	0.9	0	0.1	0	0	0	0	0.1	0	5.8
62	4.7	0.9	0	0.1	0	0	0	0	0.1	0	5.8
63	16.5	12.3	0	0.1	228.3	0	0	0	42.8	0	300
Elec. Tower	7.3	0	0	0	0	0	0	0	0	0	7.3
Total	320.4	172.6	0	0.8	371.5	3	14.1	3.9	103.7	0	990

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Materials identified for OSDF disposal will be placed in containers which will be covered or sealed, screened for exterior radiological contamination, inspected, tagged, and transported directly to either the OSDF transfer area or to a temporary holding area.

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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"), 313.1 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all MSS components were evaluated by comparing the four leading alternatives to on-site disposal. The 7.3 tons of accessible metals that will be generated by the dismantling of the electrical 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 313.1 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 exceeded the 25 percent total cost criteria compared to OSDF.

2.3.6 Material Management Reporting

As Task Orders for the components are completed, the waste data will be entered into the Site-Wide Information, Forecasting, and Tracking System (SWIFTS). This data will be provided to the EPA in the Quarterly SWIFTS Report. A final summary will be included in the Project Completion Report for the MSS-D&D Project.

Materials that do not meet facility release criteria (discussed in Section 2.5.2) will be containerized inside the structure or in a loadout vestibule that is part of an enclosure attached to 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 other OSDF-bound materials, follow the same load-out and transportation procedures, and will be transported to the Plant 1 Storage Pad for Nevada Test Site disposal. Stockpiling of debris is not currently planned due to the expected availability for placement in the OSDF.

Material tracking and reporting will be accomplished through use of SWIFTS. 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 MSS-D&D 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 materials generated during this project is consistent with the requirements stated in the OU3 Final Action ROD and strategies presented in the OU3 Integrated RD/RA Work Plan. Table 2-2 identifies the debris that will be generated from this project, which will be placed in their projected disposition locations. No treatment will be necessary for disposal since all chemical-based waste acceptance criteria are met based on OU3 RI/FS data. Accessible metals (Category A) from the complex have been evaluated for potential recycling options and a summary of that evaluation is available in Appendix B.

2.4 Environmental Monitoring

Project-specific environmental monitoring for the MSS-D&D Project includes only wastewater monitoring. Radiological air monitoring will be performed using the FEMP site-wide air monitoring system, due to negligible potential for contaminant releases from the incremental implementation of the Project, over potentially several years. 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. It is not anticipated that any stormwater control measures will be necessary during above-grade D&D.

Surface Water (Wastewater) Monitoring
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, and determination of hazardous, radiological, and other waste characteristics.

The Wastewater Treatment System (WWTS) Manager has been provided with a spreadsheet containing OU3 RI/FS data on the MSS-D&D Project components to determine whether potential elevated levels of contaminants of concern may be present. Based on an estimated 2,500 gallons of equipment decontamination washwater total for the MSS Project, it is projected that two samples may be taken from washwater generated from each Task Order. Any washwater that is generated will be placed in a 3,000 gallon container, from which 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 any sampling and analysis prior to its discharge into the FEMP 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).

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Radiological Air Monitoring

Occupational monitoring will be performed using personal and workplace air samplers in the work areas, to ensure worker protection. This will also serve as an indication of the effectiveness of engineering controls. Section 8.1 of the OU3 Integrated Remedial Action Health and Safety Plan (Appendix E of the OU3 Integrated RD/RA Work Plan) describes the occupational air monitoring program.

Environmental radiological air monitoring during the MSS-D&D 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. As discussed later in this section, the need for supplemental environmental radiological air monitoring program for this D&D project was evaluated by modeling the potential release of radiological (uranium) contaminants from each of the components during D&D (i.e., considered individually). Due to the low concentrations of contaminants in each of the components, it was determined that supplemental radiological monitoring is not warranted. Radiological survey 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 MSS-D&D Project 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 emissions of radionuclides under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) regulations. It should be emphasized that the CAP88PC model is being used as a tool for assessing potential emissions from this 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 MSS-D&D Project used radiological smear data to provide a more realistic measure of removable alpha, beta, and gamma contamination 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.

The modeling methodology assumed no controls on emission releases, such as high efficiency air particulate (HEPA) filters on containment ventilation systems, and potential emission sources were treated as being in readily dispersible forms. The results of the computer

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modeling indicated potential exposures ranging from 2.3E-08 millirems per year (mrem/yr.) to 5.3E-06 mrem/yr. for the maximally exposed individual.

Based on a review of the results of the computer modeling, no supplemental environmental air monitoring will be required for the MSS-D&D Project activities.

Further justification for not providing project specific air monitors comes from analysis of data from Plant 7 (summarized in the "Plant 7 Dismantling - Removal Action No. 19, Final Report", May 1995), Plant 4 (summarized in the "Project Completion Report, Building 4A Complex, Final, Rev 1", August 1997), and Plant 1 Complex - Phase I (summarized in the "Project Completion Report, Plant 1 Complex - Phase I", Rev. 1, December 1997) D&D projects, which have shown that dismantlement activities resulted in 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 picocuries per cubic meter (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 remediation activities of the MSS-D&D Project 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 remedial tasks that apply to the MSS-D&D Project are as follows:

- Preparatory Action: Inventory Removal;
- Preparatory Action: Safe Shutdown;
- Hazardous Waste Management Unit Decontamination;
- Asbestos Abatement;
- Surface Decontamination; and
- Above-Grade Dismantlement.

Within "Above-Grade Dismantlement", there are five discrete activities; Equipment/Systems Dismantlement, Transite Removal, Structural Steel Dismantlement, Concrete/Masonry Removal, and Debris/Waste Removal.

Table 2-5 shows which of the above activities apply to each of the components of the MSS-D&D Project.

Prior to actual field D&D activities, it is planned that MSS-D&D Project Management will establish support facilities, as appropriate. The Contractor will mobilize in preparation for the

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TABLE 2-5 Applicable Remediation/Above-Grade Dismantlement Activities for Components

Component Designation	Inventory Removal	Safe Shutdown	HWMU Decontam.	Asbestos Abatement	Surface Decontam	Eq./Sys. Dismant.	Transite Removal	Str. Steel Dismant.	Conc./Mas. Removal
2E	X	X	X	X	X	X	-	X	X
2F	X	X	-	X	X	X	X	X	-
2G	X	X	-	X	-	X	X	X	-
3B	X	X	-	-	-	X	X	X	-
3C	X	X	-	X	-	X	X	X	-
3F	-	X	-	-	-	X	-	X	-
3G	X	X	-	X	-	X	X	X	-
8F	-	X	-	X	X	X	-	X	-
10D	-	X	-	-	-	X	-	X	X
12B	X	X	-	-	-	X	-	X	X
12C	X	X	-	-	-	-	-	X	-
22A	X	X	-	-	-	X	-	X	X
22D	-	X	-	-	-	X	X	X	-
24B	X	X	-	X	-	X	-	X	X
38A	X	X	-	X	-	X	-	X	X
38B	X	X	-	X	-	X	X	X	-
39B	X	X	X	-	X	X	-	X	-
39C	-	X	-	-	-	X	X	X	X
45B	-	X	-	-	-	-	-	-	-
60	X	X	-	-	-	X	-	X	-
61	X	X	-	-	X	X	-	X	-
62	X	X	-	-	-	X	-	X	-
63	X	X	X	-	-	X	-	X	-
Elec. Tower	-	-	-	-	-	-	-	X	-

D&D activities by establishing access and egress corridors, a material handling and containerization area, and the Construction Zone Boundary around each of the structures to be dismantled. All equipment will be inspected by MSS-D&D 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 Contractor will be responsible for notifying MSS-D&D 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.

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2.5.1 Preparatory Action: Inventory Removal

Inventory removal will occur for each component before surface decontamination and dismantlement activities begin. These include removal of waste inventories and stored materials. Existing waste/product inventories from components will be removed by FEMP personnel prior to decontamination and dismantlement operations, and transported to interim storage facilities or off-site disposal facilities under the decisions and procedures adopted from Removal Action No. 9, "Removal of Inventories". Each of the MSS-D&D Project components will undergo inventory removal before OU3 remediation begins in these structures.

2.5.2 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 MSS-D&D Project 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 every preparatory activity; however, all will require utility disconnections. Utility isolation involves the disconnection of all steam, potable water, electrical power, fire protection alarms and systems, compressed air, and communication systems. The fire alarm systems will be terminated in the components to be dismantled (where this would interrupt the alarm systems in neighboring facilities, the alarm systems for those facilities will be re-routed and re-activated).

2.5.3 Hazardous Waste Management Unit Decontamination

The following MSS-D&D components contain HWMUs; 2E (No. 46, "UNH Storage Tanks, NFS Area"), 39B (No. 28, "Trane Incinerator"), and 63 (No. 34, "KC2 Warehouse"). These HWMUs will be remediated under the RCRA/CERCLA integrated process, which was described in Section 3.5.3.3 of the OU3 Integrated RD/RA Work Plan. The specific activities are described in detail in Section 3 of this implementation plan.

2.5.4 Asbestos Removal

The removal of ACM from components will be conducted by qualified Contractor personnel. This activity will involve removing all friable types of asbestos, typically consisting of thermal system insulation (TSI) on pipes and equipment. ACM removal strategies to be applied to this project were discussed in depth in Section 3.2.4 of the OU3 Integrated RD/RA Work Plan. The specific requirements for ACM removal are specified in Appendix C of this plan, "Project Work Scope Conditions/Specifications".

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2.5.5 Surface Decontamination

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Surface decontamination will be performed primarily for equipment surfaces that exhibit radiological contamination which could be released by dismantling activities. Pre-D&D radiological survey data (summarized in Table 2-1) shows that the MSS-D&D Project Components have very few areas with removable contamination levels 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).

Due to the above, large scale decontamination of surfaces will not be necessary since historical radiological survey results show that most of this facility meets the facility release criteria. However, as noted in the radiological survey results in Table 2-1, there are inaccessible areas that exceed facility release criteria and would therefore require limited decontamination or encapsulation. The procedure for interior dismantlement will be such that, as equipment is removed and new areas are uncovered, additional surveys will be completed and local decontamination or encapsulation will be performed as necessary.

The radiological facility release limits for this project are as follows:

- All non-porous 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 porous 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.

Radiological contamination survey data for the MSS-D&D Project components show that facility release criteria has currently been met for many of the areas encompassed in these components. For those structures, or portions thereof which do not meet facility release criteria, the Contractor will employ one or more of the measures prescribed by the Work Scope Conditions/Specifications: Removing/Fixing Radiological Contamination to remove material from the structure. The Contractor will use good radiological and housekeeping practices as well as ongoing contamination surveys as the D&D of the components progresses. If warranted through survey measurements, washing of components or use of some other means of securing contaminants (such as encapsulation) will be implemented as needed.

The Contractor and MSS-D&D Project Management will inspect all debris for visible process residues (defined in the Project Work Scope Conditions/Specifications provided in Appendix C) and conduct surveys to meet facility radiological release cleaning requirements.

2.5.6 Above-Grade Dismantlement

Above-grade dismantlement activities included in this D&D project include all of the activities described in Section 3.2.6 of the OU3 Integrated RD/RA Work Plan. Project work scope conditions/specifications prepared for dismantlement include the following removal activities:

- Equipment/Systems Dismantlement;
- Transite Removal;

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- Structural Steel Dismantlement;
- Concrete/Masonry Removal; and
- Debris/Waste Removal

The above activities will follow the general approach described below, and the specific dismantlement strategy for each component is provided in Section 3.

Equipment/Systems Dismantlement

Prior to breaching any system, the Contractor and OU3 Project Management will verify that all the systems are de-energized.

Equipment within the MSS-D&D Project Components 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.

All piping, pipe supports, valves, electrical components, conduit, wire, cable trays, construction debris, and Heating, Ventilating, and Air Conditioning (HVAC) systems will be removed and reduced in size to allow placement in the On-Site Disposal Facility (OSDF) (assuming that these materials meet the OSDF acceptance criteria). 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 Management 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 the Debris/Waste Handling Section of "Project Work Scope Conditions/Specifications", 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

Prior to removing the transite panels, a coating of amended water or encapsulant will be applied to lock down any loose fibers. The preferred removal methods are screw guns for interior panels, and bolt cutters for external panels. Prior to any fixation, the Contractor will demonstrate the proposed method to be utilized. After the screw is pried out, the fixative will be reapplied. If a broken panel is encountered, then the area around the break will be sprayed with amended water or encapsulated with the fixative. HEPA vacuums will be available to collect any loose material. Any mineral wool batt insulation will be removed and containerized. As the insulation is removed, a visual inspection and a radiological survey will be performed on the newly exposed surfaces. Indications of friable asbestos will require gathering the loose material and locking the remaining fibers in place. If radiological survey

results indicate the need to perform decontamination or lock down of the areas to levels consistent with surrounding building surfaces, then these activities will be performed. Fasteners and molding that hold the panels and insulation in place will also be removed as part of this operation.

Structural Steel Dismantlement

All remaining items, such as 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 or encapsulation of surfaces may be performed as discussed in Section 2.5.2 of this Implementation Plan.

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

Concrete/Masonry Removal

Concrete or Masonry walls will be radiologically surveyed prior to removal to determine the need for engineering controls, such as an enclosure with ventilation or water sprays to minimize fugitive dust. The preferred method for dismantling these walls will be use of ramming equipment to break off small portions of the structures with each contact.

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 Removal

All debris and waste from each MSS Project Component will be size-reduced to meet the debris size requirements for OSDF disposal, and then will be loaded into containers for transportation to either a temporary staging area or directly to the OSDF transfer area. Further material management details are provided in Section 2.3 of this implementation plan.

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3.0 COMPONENT-SPECIFIC REMEDIATION

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This section presents component-specific remediation tasks identified for the MSS-D&D Project components. Background information provided in this section was obtained primarily from the OU3 Remedial Investigation/Feasibility Study 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 2E - Nuclear Fuel Services Storage and Pump House

Background

The NFS Storage and Pump House consists of a pump house, four outside tanks, a steel shield located north of the tanks, a catwalk, and miscellaneous piping.

- The pump house is a cinder block building with a concrete floor and ceiling that measures approximately 15 ft. x 16 ft. x 10 ft. high.
- The four outside horizontal storage tanks (F2-605, F2-606, F2-607, and F2-608) each measure 10.5 ft. in diameter x 44 ft. long, and are located inside a concrete containment area measuring 62 ft. x 54 ft. The tanks were designated as a HWMU and are discussed later in this Section.
- A steel shield was constructed at the north end of the tank area, to protect the tanks during the dismantling and removal of the Plant 1 Ore Silos. This shield is approximately 60 ft. x 40 ft. in area.

Component 2E is located south of the area where the Plant 1 Ore Silos (1C) were located. Appendix D, Figure D-1 shows a plan view of the Pump House, and photographs of the NFS Storage area and Pump House are provided in Appendix E, Page E-4.

Process Area Description

Uranyl Nitrate Hexahydrate (UNH) was received from other DOE sites by tank truck, and was stored in the four horizontally mounted tanks. From the storage tanks, the UNH was pumped to the enriched calciner located in Building 2A. Currently, the tanks are empty.

The Nuclear Fuel Services Storage and Pump House has one inactive HWMU, as described below.

HWMU Decontamination

Purpose. The decontamination requirements needed to accomplish the remediation goals for HWMU No. 46 (UNH Storage Tanks, NFS Area), consistent with the RCRA/CERCLA Integration strategy, are discussed in Section 3.5.3.3 of the OU3 Integrated RD/RA Work Plan.

Scope. The Uranyl Nitrate Hexahydrate (UNH) Storage Tanks in the NFS Area (Component 2E) were designated as a HWMU (No. 46) due to storage of RCRA hazardous waste in excess of the 90-day storage limitation for hazardous waste per OAC 3745-52-34 (B) and 40 CFR 262.34 (b). All volumes of UNH were removed from the four tanks in this HWMU during Removal Action No. 20 (RvA 20), Uranyl Nitrate Hexahydrate Neutralization Project.
Based on an evaluation of HWMU No. 46 during remedial design, it was determined based on

process knowledge and facility records that no further decontamination of the storage tanks and piping will be required because the tanks and associated piping were rinsed clean following the removal of the UNH (RvA 20), as reported in the RvA 20 Final Report, October 1996. The rinseate analysis demonstrated compliance with the Ohio EPA Closure Plan Review Guidance, hazardous waste debris decontamination requirements. Therefore, no further decontamination of the tanks and piping associated with HWMU No. 46 will be required.

The strategy for decontamination of the concrete secondary containment area of this HWMU is as follows:

> Prior to commencement of the D&D activities for this component a sample of the rainwater contained in the sump of this unit will be collected. If rainwater is not available in the sump, the Contractor will rinse the containment area using potable water and a sample of the rinseates will be collected. The sample will be analyzed for corrosivity, barium, chromium, lead, and mercury. The analytical results of this sample will be used to demonstrate compliance with the Ohio EPA Closure Plan Review Guidance requirements.

The debris generated from the D&D of the tanks and piping of this HWMU will be eligible for disposal in the OSDF. The SCEP will dismantle the concrete tank saddles and containment area, and will determine if the debris generated from the dismantlement of the concrete meets the OSDF WAC.

Remedial Tasks

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. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement

There are approximately 205 linear feet of asbestos pipe insulation, and 53 pipe fittings associated with Component 2E. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement

The following activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement.

The concrete/masonry walls of the Pump House will be broken into manageable pieces using ramming equipment. Dust control measures (e.g., water spray) will be employed during dismantling as necessary.

Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel shield, the four tanks, the catwalk between Tanks #2 and #3, and the associated piping connected to the Tanks and the Pump House. [Note: it is being considered by the Recycling Supplemental Environmental Projects that the accessible metals

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generated from this component will be decontaminated and recycled under that effort.]

3.2 Component 2F - Cold Side Ore Conveyor

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Background

The Cold Side Ore Conveyor provided a means for uranium ores and residues to reach the digestion process in the Ore Refinery Plant (2A). Though no longer functional, the following equipment remains on the Plant 2 West Pad (74B): a drum conveyor, a conveyor roof, a Drum Dumper Building, a drum dumper, a screw conveyor, a 20 ft. deep elevator pit, and a bucket elevator. The conveyor roof is approximately 90 ft. x 18 ft., and the Drum Dumper Building is approximately 35 ft. x 10 ft. x 9 ft. high. The screw conveyor, elevator pit, and bucket elevator are not within the scope of this project. Appendix D, Figure D-2 shows a plan view and elevation views of the conveyor, and photographs of the conveyor and Drum Dumper Building are provided in Appendix E, Pages E-5 and E-6.

Process Area Description:

The system was initially designed to handle drummed ores that contained very low levels of radium (referred to as "cold"). The drummed ores or residues were loaded onto the conveyor, and were delivered to the Drum Dumper Building. Inside the building, the contents of the drums were dumped into the elevator pit, where screw conveyors transferred the material to the bucket elevator system, which carried the material to the top floor of the Ore Refinery Plant for digestion in nitric acid.

Remedial tasks

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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement

There is approximately 75 linear feet of ACM pipe insulation located outside of the Drum Dumper Building. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement

The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The transite panels from the conveyor roof and the Drum Dumper Building will be removed in accordance with the conditions/specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.3 Component 2G - Hot Side Ore Conveyor

Background

The Hot Side Ore Conveyor provided a means for uranium ores and residues to reach the digestion process in the Ore Refinery Plant (2A). Though no longer functional, the following

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equipment remains on the Plant 2 West Pad (74B): a drum conveyor, a conveyor roof, a Drum Dumper Building, two drum dumpers, two screw conveyors, a 20-ft. deep elevator pit, and two bucket elevators. The conveyor is approximately 35 ft. long, the conveyor roof is approximately 90 ft. x 10 ft., and the Drum Dumper Building is approximately 35 ft. x 10 ft. x 9 ft. high. The bucket elevators, screw conveyors, and elevator pit are not included in the scope of this project. Appendix D, Figure D-3 shows a plan view and elevation views of the conveyor, and photographs of the conveyor and conveyor roof are provided in Appendix E, Pages E-6 and E-7.

Process Area Description:
The system was initially designed to handle drummed ores that contained high levels of radium (referred to as "hot"). The drummed ores or residues were loaded onto the conveyor to be dumped into the bucket elevator system, which carried the material to the top floor of the Ore Refinery Plant for digestion in nitric acid.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
There is approximately 120 linear feet of ACM pipe insulation located outside the Drum Dumper Building. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The transite panels will be removed in accordance with the conditions/ specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.4 Component 3B - Ozone Building

Background
The Ozone Building (3B) consists of a concrete floor and a structural steel frame with transite panel walls and roof, and is approximately 28 ft. x 33 ft. x 15 ft. high. It is located north of the NAR Control House (3C). Appendix D, Figure D-4 shows the plan view for 3B, while photographs of the exterior and interior are provided in Appendix E, Pages E-8 and E-9.

Process Area Description
The Ozone Building originally housed an acid bleaching process. Ozone was generated for the bleaching of nitric acid from the NAR Towers (3D). The acid bleaching equipment was removed before 1975. The building currently stores miscellaneous tools and safety supplies.

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Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos is only present in the form of non-friable transite.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The transite panels will be removed in accordance with the conditions/ specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.5 Component 3C - NAR Control House

Background
The Nitric Acid Recovery (NAR) Control House is a single story, rectangular building located just north of 101st Street and west of the Maintenance Building (3A). The NAR Control House is constructed with a structural steel frame and transite panels on a poured concrete base, and is approximately 110 ft. x 26 ft. x 10 ft. high. Appendix D, Figure D-5 shows the plan view for this Component, and Figure D-6 shows elevation views; an exterior photograph is provided in Appendix E, Page E-9.

Process Area Description
Electrical control panels for the nitric acid recovery system (3D), a conference room, offices, and a restroom are present in this building. No process activities occurred within this building; it has been used as a control point for entry into the Hot Raffinate Building (3E), Combined Raffinate Pad (3J), the Incinerator Building (39A), and the NAR Towers.

Remedial Tasks
Safe Shutdown of this structure will consist of electrical utility service de-energization. No legacy (inventory) or hold-up materials are present in this structure. Only utility disconnections will be performed prior to dismantling. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
There are approximately 218 linear feet of asbestos pipe insulation, 41 pipe fittings, and 2,000 square feet of ACM floor tile and mastic associated with Component 3C. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

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Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

The transite panels will be removed in accordance with the conditions/specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.6 Component 3F - Harshaw System

Background
Harshaw Digestion Fume Recovery (3F) is a multilevel open-steel structure located east of the Refrigeration Building (3G). The area is approximately 21 ft. x 41 ft., and the maximum height is approximately 35 ft. Under the structure is a concrete dike covered with acid brick. Appendix D, Figures D-7 and D-8 show the plan views for the first and second floors for this Component, while photographs are provided in Appendix E, Page E-10.

Process Area Description
The building was installed in 1957 to relieve the fume load of the NAR Towers (Component 3D). Nitrogen oxide fumes from digestion processes in and around the Ore Refinery Plant (Component 2A) were collected to produce nitric acid. The process was shut down in 1960; since that time, the structure has not been used.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.7 Component 3G - Refrigeration Building

Background
The Refrigeration Building (3G) is a structural steel framed building, with a concrete floor and transite roof and wall panels, located west of the Harshaw Digestion Fume Recovery Tower (3F). It is approximately 44 ft. x 16 ft. x 15 ft. high. Appendix D, Figure D-9 shows the plan and elevation views of this Component, while photographs are provided in Appendix E, Page E-11.

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Process Area Description

The building originally housed a refrigeration process for the Harshaw nitric acid recovery process. The Harshaw process was active for only three years, from 1957 to 1960. Following the shutdown of the Harshaw process, the equipment in the building was removed. The building housed an instrument repair shop until 1991. At that time, the building was converted to a storage area. Currently, the building stores sampling equipment and supplies.

Remedial Tasks

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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement

There are approximately 24 linear feet of asbestos pipe insulation, and 5 pipe fittings associated with Component 3G. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement

The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The transite panels will be removed in accordance with the conditions/ specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.8 Component 8F - Plant 8 Old Drum Washer

Background

The Old Drum Washer is located adjacent to the west wall of the Recovery Plant on the Plant 8 West Pad. It is approximately 12 ft. x 10 ft. x 7 ft. high, and was used to wash drums from both the Recovery Plant and also site-wide, for reuse. This unit has been abandoned in place due to the fact that a new drum reconditioning unit has been installed in the Rotary Kiln/Drum Reconditioning Building to the south. Because the Old Drum Washer is located on another component, it consists of the enclosed steel equipment only, and not the concrete beneath it. Appendix D, Figure D-10 shows both plan and elevation views of this Component, and exterior photographs are provided in Appendix E, Page E-12.

Process Area Description

The Old Drum Washer area was used to wash empty drums in preparation for reconditioning at the Drum Reconditioning Building. The drums were manually placed in the unit. Sodium hydroxide (NaOH) and water were used to accomplish the washing, and the wash water was discharged to a grated concrete trench in Pad 74D that parallels the west wall of the Recovery Plant. That trench discharged into the Recovery Plant for treatment.

Remedial Tasks

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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
There is an eight foot length of asbestos insulated pipe associated with this component. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.9 Component 10D - Contaminated Oil/Graphite Burn Pad

Background
The Contaminated Oil/Graphite Burn Pad is a rectangular, reinforced concrete pad located northeast of the Boiler Plant (10A). It was constructed with berms, slopes, and grated trenches to contain any spilled liquid material and storm-water runoff. There are three structures on the Pad, which include a steel hopper approximately 10 ft. high and 6 ft. diameter; a steel flue-like structure, approximately 4 ft. x 4 ft. x 12 ft. high; and a brick structure approximately 4 ft. x 4 ft. x 8 ft. high. Drawings are unavailable for the three structures, but photographs are provided in Appendix E, Page E-13.

Process Area Description
The Contaminated Oil/Graphite Burn Pad provided storage for materials and equipment associated with contaminated oil and graphite burning. This involved three operations, described as follows:

- Graphite burning entailed using a small, open gas-fired furnace to oxidize scrap graphite crucible or molds for uranium recovery. Only the graphite burner from this process remains on the pad.

- In the oil burning process, a small refractory brick enclosure housed removable steel pots that were fed radiologically contaminated oil and solvent. Combustion was aided by an air jet into the steam-heated tank (where the oil was preheated) before going to the burner pot. Combustion was self-sustained. Ash was drummed for uranium recovery. Of this process, only the oil burner enclosure and tank remain. All other equipment was removed.

- The third operation of the pad involved a sump that decanted surface water. This water was pumped from the subgrade pit into portable tanks and sent to the Recovery Plant (8A) for wastewater treatment. The steam educator from this process was removed.

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Remedial Tasks
No hold-up material or legacy waste (inventory) is present. Also, no utility disconnections and removal of salvageable equipment will be necessary. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The brick and other masonry will be loaded into containers for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.10 Component 12B - Cylinder Storage Building

Background
The Cylinder Storage Building is a single-story structure located directly north of the Main Maintenance Building (12A). It is approximately 47 ft. x 31 ft. x 10 ft. high. The structure consists of an exterior loading and staging platform and an interior storage area. Access to the inner storage area was restricted, since both routes of entry were locked. Appendix D, Figure D-11 shows both plan and elevation views of this Component, while photographs are provided in Appendix E, Page E-14.

Process Area Description
The Cylinder Storage Building stored pressurized cylinders containing such gases as argon and chlorine, which were required for production processes.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The concrete/masonry walls will be broken into manageable pieces using ramming equipment, and dust control measures (e.g., water spray) will be employed during dismantling as necessary. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.11 Component 12C - Lumber Storage Building

Background
The Lumber Storage Building (12C) is a single story structure located directly north of the Main Maintenance Building (12A). It is approximately 50 ft. x 40 ft. x 22 ft. high. This building has concrete flooring and steel framing, roofing, and siding. The east and south walls of the structure consist of chainlink fencing. Appendix D, Figure D-12 shows both plan and elevation views of this Component, while photographs are provided in Appendix E, Page E-15.

Process Area Description
This facility was used to store lumber and plywood sheets used for on-property construction projects. Small motors and miscellaneous construction materials also were stored in the structure.

Remedial Tasks
Safe Shutdown of this structure will consist of electrical utility service de-energization. No legacy (inventory) or hold-up materials are present in this structure. Only utility disconnections will be performed prior to dismantling. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.12 Component 22A - Gas Meter Building

Background
The Gas Meter Building (22A) is a single-story structure with cinder block walls and concrete floor located southwest of the Finished Products Warehouse (77). It is approximately 16 ft. x 20 ft. x 10 ft. high. Appendix D, Figure D-13 shows both plan and elevation views of this Component, while a photograph is provided in Appendix E, Page E-16.

Process Area Description
The Gas Meter Building houses the main natural gas meter for the site and ancillary equipment. The building also contains incoming and distribution natural gas lines.

Remedial Tasks
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. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

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Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The concrete/masonry walls will be dismantled using ramming equipment, and dust control measures (e.g., water spray) will be employed during dismantling as necessary. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.13 Component 22D - Scale House

Background
The Scale House is a single-story, steel frame structure with reinforced concrete floor and transite siding located directly east of the Elevated Water Storage Tank (26B). It is approximately 8 ft. x 7 ft. x 9 ft. high. No architectural drawings are available for this component. A photograph is provided in Appendix E, Page E-16.

Process Area Description
The Scale House and Weigh Scale were used to determine the weight of incoming and outbound multi-axle vehicles prior to the installation of the Truck Scale (22C). The scale was also used to weigh outbound sea/land cargo containers. The Scale House contains a digital scale, printer, power control switches, and a grated sump.

Remedial tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos is only present in the form of non-friable transite.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The transite panels will be removed in accordance with the conditions/specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.14 Component 24B - Railroad Engine House

Background
The Railroad Engine Garage is a single-story structure located northeast of the Main Maintenance Building (12A). It is approximately 48 ft. x 28 ft. x 18 ft. high. The Railroad

Engine House is built over the end of a railroad spur track and provided a covered storage and maintenance area for the site's locomotive. It consists of cinder block walls, a reinforced poured concrete floor, and a steel frame roof structure with metal panels. The floor has a 4 ft. deep x 4 ft. wide x 35 ft. long concrete trench that facilitated locomotive maintenance. Appendix D, Figure D-14 shows the plan view of this Component, and Figure D-15 shows both the plan view and elevation views; a photograph is provided in Appendix E, Page E-17.

Process Area Description
This facility was used for locomotive storage and maintenance. The building contained maintenance fluids (ethylene glycol and lubricating oils) when the building was in use. The trench allowed maintenance personnel access to the undercarriage of the locomotive. A sump is located at the bottom of the trench for liquid collection. The main floor is equipped with drains that feed into the sump.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
There are approximately 120 linear feet of asbestos pipe insulation, and 27 pipe fittings associated with Component 24B. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The concrete/masonry walls will be dismantled using ramming equipment, which will involve breaking the debris into manageable pieces while also meeting the debris size requirements for OSDF disposal; dust control measures (e.g., water spray) will be employed during dismantling as necessary. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.15 Component 38A - Propane Storage

Background
The Propane Storage Building, which is located southeast of the Coal Pile, is a single-story structure consisting of a cinder block wall and reinforced concrete floor. It is approximately 23 ft. x 33 ft. x 10 ft. high. Appendix D, Figure D-16 shows a plan view of this Component, and exterior and interior photographs are provided in Appendix E, Pages E-18 and E-19.

Process Area Description
The Propane Storage Building is considered to have served the following two functions:

- **Propane Storage**
  Two steel vessels with a capacity of 33,000 gallons each store propane for site vehicles. Historic site photographs indicate the presence of five

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storage tanks rather than two. The time period for removal of the three tanks is not known.

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- **Propane Distribution**
  The Propane Storage structure houses monitoring and vaporization equipment. This equipment was used to distribute propane to several ancillary storage locations throughout the site.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
There is approximately 1 linear foot of asbestos pipe insulation associated with Component 38A. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The concrete/masonry walls will be dismantled using ramming equipment, and dust control measures (e.g., water spray) will be employed during dismantling as necessary. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.16 Component 38B - Cylinder Filling Station

Background
The Cylinder Filling Station is a single-story building consisting of a steel frame and reinforced concrete floor located east of the Propane Storage Building (38A). It is approximately 6 ft. x 10 ft. x 8 ft. high. Appendix D, Figure D-17 shows a plan view and elevation views of the Component, and exterior and interior photographs are provided in Appendix E, Page E-20.

Process Area Description
Within the Cylinder Filling Station, pressurized steel cylinders were filled with propane that was required throughout the site. Access to the station interior was controlled with a chain-link fence that surrounds the area. The only anticipated contaminant is propane.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

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Asbestos Abatement
There are approximately 2 linear feet of ACM pipe insulation in this building. This ACM will be abated in accordance with the Project Work Scope Condition/Specification for asbestos removal, which is consistent with Site Procedure CT-4.2.1, "Asbestos Abatement".

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. There is approximately 128 square feet of transite, which will be removed in accordance with the conditions/specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.17 Component 39B - Waste Oil Decant Shelter

Background
The Waste Oil Decant Shelter (39B) is a rectangular structure consisting of a steel roof with steel supports over a concrete pad located just south of the Ore Refinery Plant (2A). It is approximately 18 ft. x 28 ft. x 12 ft. high. The Waste Oil Decant Shelter housed the oil/water separator. No architectural drawings are available for this component. A photograph is provided in Appendix E, Page E-21.

Process Area Description
The oil-water separation process, a wet process area, was the only process performed in the facility. The oil-water separation process received radiologically contaminated waste oils from various operations site-wide. The oil and solvents were then processed through the oil-water separator. The oily mix of materials and solvents was decanted during the process to remove the water fraction before incineration of the oils in the Incinerator Building (39A).

Remedial Tasks
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. This component has been declared a HWMU, as described below. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

HWMU Decontamination
Background
Component 39B, Waste Oil Decant Shelter, consists of a corrugated metal roof supported by steel columns over a concrete pad. The dimensions of this component are 18 ft. x 28 ft. x 12 ft. high. This component was used to decant water from radiologically contaminated waste oil which was then incinerated in the Trane Incinerator, HWMU No. 28, and is considered a part of that HWMU.

The Trane Incinerator was declared a HWMU because it incinerated waste oil containing characteristic levels of lead (D008) and spent 1,1,1 trichloroethane (F001/F002). Because

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Component 39B was part of HWMU No. 28, it will undergo HWMU decontamination as part of the Miscellaneous Small Structures D&D Project. The strategies for D&D of the Trane Incinerator, which is located in Building 39A, will undergo D&D as part of the Plant 3 Complex and will be described in a separate implementation plan.

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Purpose. Component 39B, Waste Oil Decant Shelter, is part of HWMU No. 28, Trane Incinerator, and must meet the decontamination requirements needed to accomplish the remediation goals consistent with the RCRA/CERCLA Integration strategy that are discussed in Section 3.5.3.3 of the OU3 Integration RD/RA Work Plan.

Scope. The decontamination strategies described in this section of the Implementation Plan will apply only to Component 39B, Waste Oil Decant Shelter, which is a part of HWMU No. 28, Trane Incinerator. Component 39B consists of an oil/water separator, a 375 gallon oil storage tank, oil feed pump and filter, and a diked oil feed pad and sump.

During the Safe Shutdown activities for Component 39B, one drum of hold up materials was removed. The oil feed pump and filters were removed and containerized. Final decontamination of the remaining items will be as follows; the oil/water separator, the oil feed tank, and the oil feed pad and sump will be rinsed using a solution of potable water and the rinseates sampled for lead (D008) to verify decontamination in accordance with the Ohio EPA Closure Plan Guidance requirements. Since the rinseate may contain RCRA-Listed Wastes, it will be handled as potential RCRA Hazardous Waste and will be evaluated per procedure EP-0005, "Controlling Aqueous Wastewater Discharges into Wastewater Treatment System".

The debris generated from the D&D of the above-grade portions of this component will be eligible for disposal in the OSDF, as stated in Section 3.5.3.3 of the OU3 Integrated RD/RA Work Plan. The SCEP will determine if the oil feed pad meets the WAC requirements for disposal in the OSDF.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.18 Component 39C - Incinerator Sprinkler Riser House

Background
The Incinerator Sprinkler Riser House, which is located in the northeast corner of the A Street and 102nd Street intersection, is a single-level building consisting of cinder block walls and a concrete floor. It is approximately 9 ft. x 7 ft. x 8 ft. high. Appendix D, Figure D-18 shows a plan view and elevation views of the component, and a photograph is provided in Appendix E, Page E-21.

Process Area Description
This facility originally provided fire protection for the Old Cooling Water Tower (3K). The Incinerator Sprinkler Riser House houses one pump and accompanying equipment. The Riser House is now used to provide fire protection for the Incinerator Building (39A).

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Recent surveys did not reveal the presence of friable ACM; the removal of transite is described below.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The roof is made of transite panels which will be removed in accordance with the conditions/specifications in Appendix C, encapsulated, placed on pallets, and then strapped to the pallets for disposal. The concrete/masonry walls will be dismantled using ramming equipment, and dust control measures (e.g., water spray) will be employed during dismantling as necessary. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.19 Component 45B - Utility Shed East of Trailers

Background
The Utility Shed East of Rust Trailers is located along A Street, northeast of the Rust Engineering Building (45A). This facility is a single story structure consisting of a wood frame and concrete pad. It is approximately 12 ft. x 12 ft. x 10 ft. high. No architectural drawings are available for this component. Photographs are provided in Appendix E, Page E-22.

Process Area Description
The Utility Shed is used to store small tools and excess office furniture.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. The wooden walls will be dismantled using ramming equipment, and dust control measures (e.g., water spray) will be employed during dismantling as necessary.

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3.20 Component 60 - Quonset Hut 1

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Background

Quonset Hut 1 (60), is a pre-engineered facility consisting of a structural steel frame on a reinforced poured-concrete base, with reinforced poured-concrete floor, sloped steel roof panels, steel siding panels, and glass windows. It is located west of the KC-2 Warehouse (63), and is approximately 120 ft. x 41ft. x 21 ft. high. Appendix D, Figure D-19 shows both a plan and elevation views of this Component, and a photograph is provided in Appendix E, Page E-23.

Process Area Description

Originally, Quonset Hut 1 stored equipment, materials, and miscellaneous items. Currently, it stores drums containing thorium compounds from the Recovery Plant (8A). No drains or floor sumps exist at this location. A single process area is identified. Anticipated contaminants for Quonset Hut 1 are thorium oxide, thorium hydroxide, and thorium oxalate.

Remedial Tasks

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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement

Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement

The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.21 Component 61 - Quonset Hut 2

Background

Quonset Hut 2 (61) is a pre-engineered, single-level structure. It is located on the north end of the FEMP production area past Third Street, adjacent to Quonset Hut 3 (62). The facility is constructed of a structural steel frame supported on a reinforced poured-concrete base. The structural steel frame is covered by corrugated steel panels that form the walls of the building, although the base of each wall is constructed of concrete approximately 2 feet in height. Two large sliding doors are located at the east and west ends of Quonset Hut 2. It is approximately 60 ft. x 41 ft. x 21 ft. high. Appendix D, Figure D-20 shows both a plan and elevation views of this Component, and a photograph is provided in Appendix E, Page E-23.

Process Area Description

Quonset Hut 2 has functioned as a storage area for thorium-contaminated equipment from the Bettis operation.

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Remedial Tasks
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. This component has not been declared a HWMU. Removal/fixing of contamination will not be necessary since radiological survey results show that facility release levels are already attained.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.22 Component 62 - Quonset Hut 3

Background
Quonset Hut 3 (62) is a pre-engineered, single-level structure located at the north end of the FEMP production area past Third Street adjacent to Quonset Hut 2 (61). Quonset Hut 3 is constructed of a structural steel frame supported on a reinforced concrete base. The frame is covered by corrugated steel panels that form the walls of the building. The base of each wall is concrete, approximately two feet high. Two large sliding doors are located at the east and west ends of the building. It is approximately 60 ft. x 41 ft. x 21 ft. high. Appendix D, Figure D-21 shows both a plan and elevation views of this Component, and a photograph is provided in Appendix E, Page E-23.

Process Area Description
Quonset Hut 3 has functioned primarily as a maintenance storage area for spare parts and miscellaneous items. Currently the building stores archived drummed samples from the OU4 K-65 silo sampling programs and equipment for the Pilot Plant vitrification facility.

Remedial Tasks
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. This component has not been declared a HWMU. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement
Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement (utility disconnects) and equipment removal activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene

torches are the preferred methods to be used to dismantle and size-reduce the steel.

3.23 Component 63 - KC-2 Warehouse

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Background

The KC-2 Warehouse is a designated RCRA hazardous waste storage area, HWMU No. 34. It is a single-level structure located at the north end of the FEMP production area north of the Boiler Plant (10A), measuring 81 ft. x 346 ft. x 12 ft. high. The KC-2 Warehouse is constructed of concrete block and sheet metal. It has been subdivided into eight bays which are separated by eight inch load bearing walls. Each of the eight bays is surrounded with a 6 inch high by 6 inch wide berm. The floors and berms of Bays 1, 2, 3, 4, and 8 were coated with a chemically resistant sealant between November 1992 and January 1993 in order to comply with the site standards for the storage of hazardous wastes. The previously sealed floors and berms of Bays 5, 6, and 7 were re-sealed between October 1989 and January 1990. The drum equivalent storage capacities of each bay are as follows:

- Bay 1 - This bay is approximately 60 ft. X 81 ft., and has a maximum storage capacity of (584) 55-gal. drum equivalents.
- Bay 2 - This bay is approximately 60 ft. X 81 ft., and has a maximum storage capacity of (608) 55-gal. drums, but has not been used for hazardous waste storage since 1994 when an old abandoned groundwater monitoring well was discovered there.
- Bay 3 - This bay is approximately 50 ft. X 81 ft., and has a maximum storage capacity of (608) 55-gal. drums equivalents.
- Bay 4 - This bay is approximately 40 ft. X 81 ft., and has a maximum storage capacity of (464) 55-gal. drum equivalents.
- Bay 5 - This bay is approximately 40 ft. X 81 ft., and has a maximum storage capacity of (360) 55-gal. drum equivalents.
- Bay 6 - This bay is approximately 40 ft. X 81 ft., and has a maximum storage capacity of (464) 55-gal. drum equivalents.
- Bay 7 - This bay is approximately 22 ft. X 81 ft., and has a maximum storage capacity of (208) 55-gal. drum equivalents.
- Bay 8 - This bay is approximately 30 ft. X 40 ft., and has a maximum storage capacity of (96) 55-gal. drum equivalents.

Appendix D, Figure D-22 shows a plan view of this building, and Figure 21 shows elevation views; a photograph is provided in Appendix E, Page E-24.

Process Area Description

Although the warehouse mainly has functioned as a storage area, the uses of the eight bays have changed with time. During 1991, Bay 1 provided maintenance storage of materials for work order requests; Bays 2, 3, and 4 were used for stores and the inventory control storage of Equipment/Systems dismantlement items; Bays 5 and 6 stored RCRA waste; Bay 7 stored

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RCRA waste and PCB-contaminated equipment and waste oils; and Bay 8 provided maintenance storage of landscaping and snow removal equipment. Most of the bays have undergone renovation (cleaning, sealing of concrete floors, and construction of containment berms) for use as RCRA storage areas. Bay 1, which has been renovated, is a sample disposition area; RCRA drums are being stored in Bays 5, 6, and 7. PCB-contaminated equipment and oils are no longer stored at the KC-2 Warehouse. Additional roofing material has recently been added to prevent the spread of radiological contamination from the radiologically contaminated roof.

Concrete, scrap metal, and personal protective equipment (PPE) are the only materials expected to be generated by the closure of this HWMU.

Remedial Tasks

There are 640 containers of waste which exceed the Economic Discard Limit (EDL), which means that the contents of these containers are classified as nuclear material. The disposition of these containers is currently on hold, until a decision is made regarding their ultimate destination; however, these containers will be removed as an inventory removal preparatory action prior to D&D. Aside from utility disconnections and removal of salvageable equipment, no other preparatory actions will be necessary. This component has been declared a HWMU, as discussed below. Surface decontamination will proceed in accordance with Section 2.5.5 of this plan.

Asbestos Abatement

Asbestos abatement is not applicable since recent surveys did not reveal the presence of friable or non-friable ACM.

HWMU Decontamination

Purpose. The decontamination requirements needed to accomplish the remediation goals for HWMU No. 34 (KC2 Warehouse) consistent with the RCRA/CERCLA Integration strategy are discussed in Section 3.5.3.3 of the OU3 Integrated RD/RA Work Plan.

Scope. The KC2 Warehouse has been designated as an active HWMU because it is used to store RCRA hazardous (listed and characteristic) wastes for longer than 90 days (OAC 3745-66-70 and 40 CFR 265.170). Prior to turning this building over to the Contractor, all containers of waste will be removed from the building.

Based on an evaluation of HWMU No. 34 during the remedial design, it was determined based on process knowledge and facility records, that the floors of HWMU No. 34 will not require any decontamination rinse. The basis for this determination is the spill records for each of the eight bays in the KC2 Warehouse. These records indicate that although spills have occurred in the bays they occurred after the application of the sealant coatings to the floors of the bays; they were of very low volumes; and, they were promptly cleaned up. A summary of the recorded spills for each of the eight bays is as follows:

- Bay 1: One spill totaling 2 ounces and having the RCRA waste code D001.
- Bay 2: No spills have occurred in this bay.
- Bay 3: Two spills totaling 4 ounces and having the RCRA waste code

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D001.

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- Bay 4: Six spills totaling 11 ounces and having the RCRA waste codes F001; F002; F003; D001; D005; D007; D008; D010; D011; D018; D019; and, D035.

- Bay 5: Five spills totaling 10.75 gallons and having the RCRA waste codes D001, D002, D008, D009, D010, F001, F002, and F005.

- Bay 6: Two spills totaling 4 ounces and having RCRA waste codes F001, F002, and D018.

- Bay 7: Ten spills totaling 107 ounces and having the RCRA waste codes F002, D001, D002, D007, and D011.

- Bay 8: No spills have occurred in this bay.

The Well located in Bay 2 of this Component will be managed as follows:

A. The casing will be cut off flush with the floor;

B. An inflatable plug will be placed inside the well casing and inflated so that it completely fills the inside of the well casing to prevent any water or foreign matter from entering the well.

C. A steel cap will be placed over the flush cut steel casing and welded in place;

D. Final abandonment of the well will be accomplished by the Aquifer Restoration Project at a later date.

Above-Grade Dismantlement
The following dismantlement activities will occur in accordance with Section 2.5.3:

Equipment/systems dismantlement activities will be necessary before structural dismantlement. Hydraulic shears or oxy-gas/oxy-acetylene torches are the preferred methods to be used to dismantle and size-reduce the steel. The SCEP will dismantle the remaining floor slab and foundation, and make the determination as to whether the debris that is generated will meet the WAC for disposal in the OSDF.

3.24 Electrical Utility Tower

This structure, which is the northern-most tower (of two) located between RIMIA (82A) and the former 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 radiologically contaminated, radiological screening surveying is not necessary. Section views of this structure are provided in Figure D-24 (Appendix D). Figure E-40 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. 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; 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.

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4.0 PROJECT SCHEDULE AND REPORTING

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This section identifies the strategy that was agreed upon by the regulators and the DOE regarding the submittal of schedules for future Task Orders under the MSS-D&D Project.

The agreed upon strategy is to submit an implementation schedule for each Task Order, when such Task Orders are identified (a common cost-saving practice is to include more than one component to be remediated under one Task Order; however, there is very little likelihood that any component will be remediated under more than one Task Order).

DOE will notify the regulatory agencies when a Task Order has been assigned to the Site Support Contractor in the form of a telephone call prior to or concurrent with the "Notice to Proceed", and this notification will be followed-up in written form through the submittal of a letter. The verbal and written notification will identify at least the Task Order scope, components, and the start and completion dates.

Each implementation schedule will contain three regulatory milestones: 1) Notice To Proceed; 2) Start of Field Activities; and 3) Completion of Field Activities. The schedule for the first components to be remediated, 38A and 38B, is shown as Figure 4-1. Within 30 days from completion of D&D activities covered in a Task Order, DOE will provide the regulatory agencies with a Task Order Completion Report that will address the following issues:

- A summary description of the Task Order scope and components;
- The completion date of D&D activities;
- The location of the debris generated by the D&D activities; and
- Any documented lessons learned from the Task Order implementation.

All other details will be submitted in the MSS-D&D Project Completion Report.

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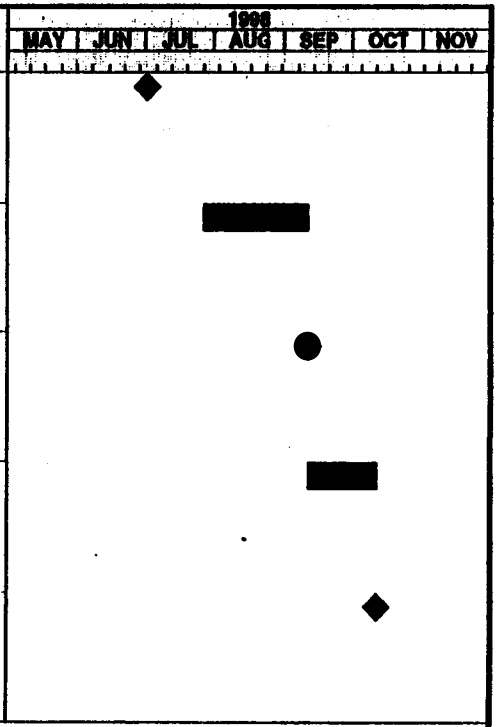
Activity Description	Early Start	Early Finish	Dur
NOTICE TO PROCEED (ISSUE TASK ORDER)	02JUL98		0
FIELD REMEDIATION OF COMPONENTS 38A & 38B	27JUL98	11SEP98	47
COMPLETION OF FIELD ACTIVITIES		11SEP98	0
PREPARE TASK ORDER COMPLETION REPORT	12SEP98	11OCT98	30
ISSUE TASK ORDER COMPLETION REPORT		11OCT98	0



OPERABLE UNIT 3 D&D SCHEDULE
MISC. SMALL STRUCTURES D&D PROJECT
COMPONENT 38A & 38B

FIGURE 4-1

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5.0 MANAGEMENT

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The implementation of the MSS-D&D Project will be performed through a coordinated effort by the 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 is highlighted for the MSS-D&D Project 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 inspections 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 through technical leads responsible for construction, engineering, quality assurance, and health and safety. The DOE Facilities Representative and technical leads 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 Contractor 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;
- performing quality assurance and quality audits of all remedial tasks to determine adherence to work scope conditions;
- verifying work is performed in compliance with approved health and safety plans; and
- performing pre-final and final inspections.

The subcontracting strategy is to utilize the current Contractor for D&D activities. Work scope conditions will be included in a document referred to as a task order, which provides all of the essential remediation requirements that are required under the OU3 Integrated RD/RA Work Plan. The Contractor will perform D&D of the components, material sizing, segregation, and loading into containers. Containers will be transported by FEMP Waste Management personnel, to and from the queuing area located adjacent to the MSS-D&D Projects.

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REFERENCES

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 Storm water 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

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APPENDIX A

PROPOSED SAMPLING

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APPENDIX A

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PROPOSED SAMPLING

The following methodologies were developed based on data needs identified in the Sampling and Analysis Plan, included as Appendix D to the OU3 Integrated RD/RA Work Plan. Project specific sampling is outlined below.

Characterization Screening

Lead screening has been conducted on-site using X-Ray Fluorescence (XRF) screening of media for lead based paint. Since it has been found that the majority of painted surfaces on-site are lead-containing, it is assumed that any painted surfaces for MSS-D&D Projects contain lead.

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. ACM is found in the components as listed in Table 2-5.

Secondary Waste (Decontamination Water)

It is expected that up to 2,500 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 MSS-D&D Project 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.

Nevada Test Site (NTS) Confirmatory

No sampling is anticipated for qualifying materials for NTS disposal since all MSS-D&D Project debris is expected to be dispositioned in the OSDF. Should there be a need to prepare any debris for NTS shipment, 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

Per Table 2-2, mixed waste that is expected to be present in the MSS-D&D Project Components consists of 155 cubic feet of acid brick, and 14 cubic feet of lead flashing. 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

Occupational air monitoring will be performed for individuals who abate asbestos, per Site Procedure CT-4.2.1.

Radiological Air Monitoring

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

Occupational air samplers will be worn by at least twenty-five per cent (25%) of the workers in each work group/crew (minimum of 1 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 MSS-D&D PROJECT

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APPENDIX B

EVALUATION OF MATERIAL DISPOSITION ALTERNATIVES FOR THE MISCELLANEOUS SMALL STRUCTURES D&D PROJECT

Per the OU3 Record of Decision for Final Remedial Action, the selected disposition route for the majority of OU3 radiologically-contaminated material, including structural steel, 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 within each design effort for above-grade dismantlement projects and pursuant to Section 3.3.6.1 of the OU3 Integrated Remedial Design/Remedial Action Work Plan under the subheading of Unrestricted Release Recycling/Reuse, an evaluation of disposition alternatives was performed for potentially recyclable/reusable materials estimated to be generated from the components that make up the Miscellaneous Small Structures (MSS) D&D project. Using the Decision Methodology For Fernald Material Disposition Alternatives (the "Decision Methodology"), which was finalized in July 1997 following extensive stakeholder involvement, an estimated 313 tons of potentially recyclable structural steel (OU3 Debris Category A) from all components was evaluated as part of the design process by comparing the four leading alternatives to on-site disposal.

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 a July 8, 1997 public meeting) were utilized for the 313 tons of structural steel from the MSS D&D project. Since total cost estimates for each recycling alternative are still 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 this alternative disposition evaluation. The total cost comparison of the disposition alternatives is shown in Table B-1.

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	$ 25 K	–
FEMP Material Release Facility	$ 0.27	$ 169 K	675 %
Vendor Material Release Facility	$ 1.10	$ 689 K	2,750 %
"Recycle 2000"	$ 1.20	$ 751 K	3,000 %
Privatized FEMP Material Release Facility	$ 0.56	$ 351 K	1,400 %

The comparison of total costs between disposal in the OSDF and the four recycling alternatives illustrates that each of the recycling alternatives greatly exceeds the 25 percent total cost criterion established for the Threshold Phase. As a result, only the lowest cost alternative (i.e., on-site disposal) meets the minimum criteria defined for the Threshold Phase. Therefore, as identified in the Decision Methodology, no further consideration of these four recycling alternatives is warranted and the decision for dispositioning the estimated 313 tons

of MSS D&D structural steel 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 a re-evaluation of disposition alternatives would be considered.

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APPENDIX C

PROJECT WORK SCOPE CONDITIONS/SPECIFICATIONS

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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 Miscellaneous Small Structures D&D Project. These conditions/specifications are substantively identical to the May 1997 performance specifications. For the overall design/planning of the Miscellaneous Small Structures D&D Project, these conditions/specifications represent a "master set" from which applicable portions or sections will be selected for the particular work scope included in a task order/traveler package.

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

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WORK SCOPE CONDITIONS/SPECIFICATIONS FOR MISCELLANEOUS SMALL STRUCTURES DECONTAMINATION AND DISMANTLEMENT PROJECTS

(PROJECT SPECIFICATIONS NO. 3-1751-TS-0001)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

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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

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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.

000071 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

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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.

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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.

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J. Ventilation and Containment

MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

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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

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ASBESTOS ABATEMENT

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PART I GENERAL

1.1 SCOPE

This section specifies the requirements for an asbestos abatement program, and methods to be used for removal, movement, and disposition of asbestos-containing material (ACM) and other materials contaminated with asbestos. This section does not cover transite.

PART II PRODUCTS

2.1 MATERIAL

A. Polyethylene sheeting shall be clear and have a minimum of 6 mils thickness as manufactured by Blueridge Films, Inc. or equal.

1. Fire retardant polyethylene shall be used.

2. All outside containments shall be constructed of reinforced polyethylene.

B. Polyethylene bags shall be clear and have a minimum of 6 mils thickness.

C. Surfactants (wetting agents), encapsulants, and lockdowns shall be mixed in a proportion specified by the manufacturer. Encapsulants shall contain a colorant to make coverage areas readily apparent. The following products identified below are preferred:

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

2. Encapsulants/Lockdown: Childers CP-240 CHIL-LOCK

2.2 EQUIPMENT

A. Negative pressure Air Filtration Device (AFD) equipped with HEPA filtration will be provided as needed and shall be operated in accordance with the requirements of 29 CFR 1926.1101.

B. All containments used for asbestos abatement operations shall be capable of maintaining a minimum of 0.02 inches water gauge (w.g.) of negative pressure, as recorded by magnahelic/capsuhelic measurements. The ventilation system for this type of operation shall provide a minimum of four air changes per hour.

C. For mini-enclosures and glovebags, a HEPA filtered vacuum system may be substituted to provide negative air pressure. Ensure that the HEPA filtered vacuum system meets the four air changes per hour capacity required for mini-containments.

D. HEPA filtered vacuum. See FDF Engineering Specification 11010.

E. A portable asbestos hygiene facility (See Figure 1 on the following page) shall be large enough to handle the asbestos workers during peak manpower periods. The facility shall meet the requirements for a hygiene facility specified by OSHA 29 CFR 1926.1101, DOE and site

ASBESTOS ABATEMENT

radiological control requirements. It shall be constructed using fire retardant material. When exiting a radiological contaminated area whole body monitoring is required prior to showering.

The requirements of the hygiene facility compliance with radiological control requirements, are as follows:

1. The asbestos hygiene facility shall be located adjacent to the radiological contamination area. The size of this facility is based on the number of employees that will be using the facility; this determines the number of showers required. The minimum number of showers required (based on number of workers) is located in 29 CFR 1910.141, Sanitation.
2. The doffing room shall be divided into two areas, the Equipment Area and the Buffer Area, and shall be maintained under negative pressure relative to the rest of the asbestos hygiene facility.

3. The Equipment Area will be considered a radiological contaminated area. The air in the dirty change area shall be exhausted through a HEPA filtered air filtration device to assist in cleaning the air in the change area. The air change requirement in the dirty changes area is 4 air changes per hour at a minimum of -0.02 inches of water pressure differential, relative to outside pressure. The dirty change area shall be large enough to accommodate four containers for segregation of asbestos contaminated waste and personal protective equipment, and an Air Filtering Device. The dirty change area should have hooks or shelves for storage of hardhats and toolbelts.

4. A step-off pad will be established in the airlock/doorway separating the radiological contaminated area from the radiological controlled area creating a boundary for control of asbestos contaminated items and radiological contamination. The second area in the doffing room (Buffer Area) will be a radiologically controlled area which should be maintained free of any asbestos or radiological contamination. FDF Project Management will determine if either a personal contamination monitor (PCM) or handheld frisker is needed. The minimum power requirements for the PCM are 120 volts AC and 1 amp. The PCM minimally requires an area of 5.5 feet by 4 feet by 8 feet in height. The buffer area shall also contain a sink for the rinsing of respirators prior to doffing.

5. Water shall be collected from the shower room and be filtered down to 5 microns for asbestos fibers prior to discharge to the site wastewater treatment facility.

6. The clean room shall contain benches, lockers for storage of workers' personal clothing, and shelves for storage of personal protective equipment.

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ASBESTOS ABATEMENT

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ASBESTOS HYGIENE FACILITY (EXAMPLE)

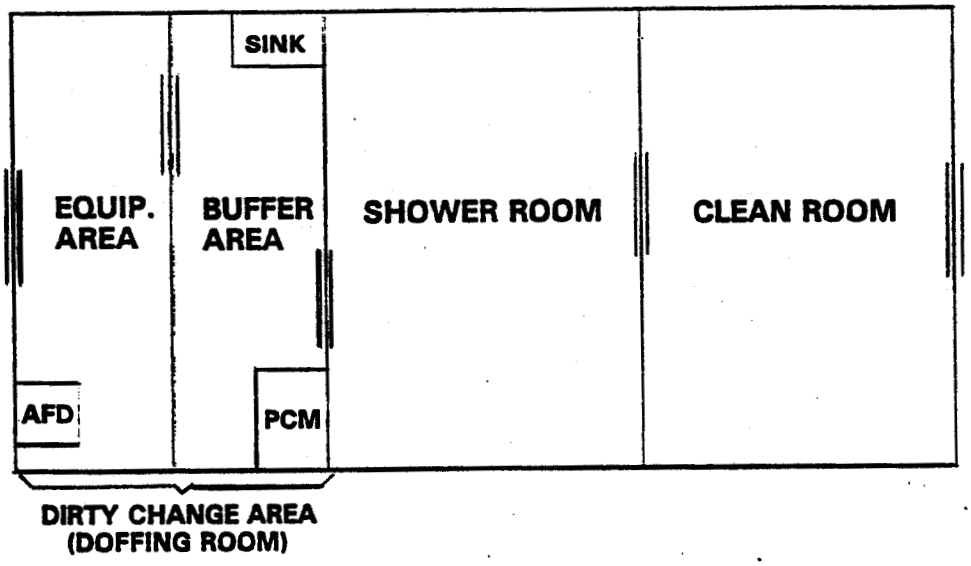

FIGURE 1

PART III EXECUTION

3.1 PREPARATION

A. Regulatory:

1. EPA and all other applicable governmental agencies shall be notified at least 10 days before start of work.

2. Work practices shall be performed in accordance with all applicable Federal, State, and local codes, regulations, and standards.

3. The Construction Engineer shall be an Ohio Asbestos Abatement Certified Project Designer.

4. Prior to performing asbestos removal, the asbestos removal workers shall have documentation showing that all personnel involved in the removal of asbestos have State of Ohio asbestos certification. Certifications and licenses shall be maintained current during asbestos removal activities.

5. Air monitoring will be performed by FDF Industrial Hygiene.

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6. Precautions shall be taken to prevent creation of friable ACM during handling.

ASBESTOS ABATEMENT

Engineering controls will generally include the following: regulated work areas, negative pressure enclosure systems, glove bags, wet methods using non-hazardous surfactant water additives and encapsulants.

7. Review the work permits and wear the appropriate PPE as described by the work permit (coveralls, head cover, respirator and applicable cartridge, etc.).

8. Prior to the start of asbestos abatement at each component, the site support subcontractor will be provided with an Asbestos Removal Work Plan proposed by an FDF Asbestos Project Designer. The work plan will provide the specific detail for asbestos abatement of the components.

B. Work Area (for containment work):

1. Isolate the work area.
2. Establish hygiene facility/equipment room.
3. Install primary containment barriers.
4. Cover the floor with two layers of 6 mil polyethylene sheeting.
5. Size plastic to minimize seams.
6. Cover walls and any contained work area with 6 mil polyethylene sheeting.
7. Provide load out facility and emergency exits.
8. Post the required asbestos hazard warning signs.

C. Work Area (for glove-bag/wrap and cut removal)

1. Isolate work area. Rope-off and post the area with asbestos hazard warning signs.
2. Establish hygiene facility/equipment room.
3. Install work area barriers.
4. Cover the floor with one layer of 6 mil polyethylene sheeting.
5. Post the required asbestos hazard warning signs.

3.2 APPLICATION

Wet methods and state of the art engineering controls/containment shall be utilized throughout abatement activities to prevent employee exposure as well as the release of visible asbestos emissions to the environment

A.. Removal procedures:

1. Wet all ACM to be removed with amended water solution.

2. Saturated ACM shall be removed in manageable sections and maintained wet until placed into disposal containers or sealed in 2 layers of clear 6-mil plastic.

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3. Material removed from building structures or components shall not be dropped or thrown to the floor or into disposal containers.

4. Large components removed intact may be wrapped in two layers of clear 6-mil

polyethylene sheeting, secured with tape and properly labeled. All piping (less than 12 inches in diameter) insulated with ACM may be removed with ACM in place. Wrap the piping with two layers of clear 6-mil polyethylene sheeting. Remove ACM from area of cut utilizing glovebags as containment. Exposed ACM ends shall be capped and the pipe shall be wrapped in clear 6-mil polyethylene sheeting. Containerize in an ISO container provided by FDF or as otherwise identified in the MSCC form.

5. Asbestos-containing material with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) which will tear the polyethylene bags and sheeting shall be placed into properly labeled containers and subsequently bagged for disposal.

6. After completion of all stripping work, surfaces from which ACM has been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible ACM residue.

B. Cleanup procedures:

1. Remove and containerize all visible accumulations of ACM and asbestos-contaminated material.

2. Wet clean all surfaces in the work area.

3. For containment work, clean the work area, wait at least 24 hours to allow fibers to settle, and HEPA vacuum and wet clean objects and surfaces in the work area again.

4. Inspect the work area for visible residue.

5. The work area shall be cleaned until visual inspection by FDF Industrial Hygiene reveals no evidence of any ACM.

6. Apply lockdown to all surfaces in the work area.

7. For containment work, aggressive clearance testing shall be performed and the acceptable limit <0.01 f/cc by Phase Contrast Microscopy shall be achieved.

8. Upon successful completion of aggressive clearance testing, remove containment and dispose of it as ACM waste.

9. Wastewater associated with asbestos abatement shall be handled in accordance with the conditions/specifications for removing/fixing radiological contamination.

C. Non-friable Asbestos Removal: remove non-friable asbestos such as floor tile, mastic and gaskets in a manner that does not allow it to become friable and also shall adhere to all applicable government, state, and local asbestos abatement regulations.

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TRANSITE REMOVAL

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PART I GENERAL

1.1 SCOPE

A. The work includes:

1. Removal of all interior and exterior transite panels (ACM).

2. Use of poly sheeting, 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.

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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.

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EQUIPMENT/SYSTEMS DISMANTLEMENT

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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/systems 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.

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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.

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VENTILATION AND CONTAINMENT

PART I GENERAL

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

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VENTILATION AND CONTAINMENT

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, 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

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VENTILATION AND CONTAINMENT

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are no undesigned holes in the containment and the entrance/exit-way closes sufficiently to meet the air exchange/negative pressure requirements.

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STRUCTURAL STEEL DISMANTLEMENT

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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. Roofing material containing ACM shall not be demolished with structural steel.

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STRUCTURAL STEEL DISMANTLEMENT

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

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.

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STRUCTURAL STEEL DISMANTLEMENT

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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 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.

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CONCRETE/MASONRY REMOVAL

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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

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

CONCRETE/MASONRY REMOVAL

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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.

3. Wall and Roof Louvers

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

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DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

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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

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

level radioactivity. Vents for air cooling shall be covered in a similar manner.

- 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

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DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

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contamination limits in Table 1 (last page) are not exceeded.

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

   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.

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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.

(c) 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.

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REMOVING/FIXING RADIOLOGICAL CONTAMINATION

PART I GENERAL

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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.

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REMOVING/FIXING RADIOLOGICAL CONTAMINATION

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.

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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 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

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

permit 15 calendar days storage without impact to Subcontractor operations shall be used.

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.)

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DEBRIS/WASTE HANDLING CRITERIA

PART I GENERAL

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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

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DEBRIS/WASTE HANDLING CRITERIA

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.

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

DEBRIS/WASTE HANDLING CRITERIA

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area.

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.

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APPENDIX D

DESIGN DRAWINGS

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APPENDIX D

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DESIGN DRAWINGS

The following figures are copies of available drawings that show either plan views or elevations of MSS-D&D Project components.

FIGURES

FIGURE D-1 Plan View of NFS Storage Pump House (2E)
FIGURE D-2 Plan and Elevation Views of Cold Side Ore Conveyor (2F)
FIGURE D-3 Plan and Elevation Views of Hot Side Ore Conveyor (2G)
FIGURE D-4 Plan View of Ozone Building (3B)
FIGURE D-5 Plan View of NAR Control Building (3C)
FIGURE D-6 Elevation Views of NAR Control Building (3C)
FIGURE D-7 Plan View of Harshaw System, 1st Floor (3F)
FIGURE D-8 Plan View of Harshaw System, 2nd Floor (3F)
FIGURE D-9 Plan and Elevation Views of Refrigerator Building (3G)
FIGURE D-10 Plan and Elevation View of Plant 8 Old Drum Washer (8F)
FIGURE D-11 Plan and Elevation Views of Cylinder Storage Building (12B)
FIGURE D-12 Plan and Elevation Views of Lumber Storage Building (12C)
FIGURE D-13 Plan and Elevation Views of Gas Meter Building (22A)
FIGURE D-14 Plan View of Railroad Engine House (24B)
FIGURE D-15 Plan and Elevation Views of Railroad Engine House (24B)
FIGURE D-16 Plan View of Propane Storage Building (38A)
FIGURE D-17 Plan and Elevation Views of Cylinder Filling Station (38B)
FIGURE D-18 Plan and Elevation View of Incinerator Sprinkler Riser House (39C)
FIGURE D-19 Plan and Elevation Views of Quonset Hut 1 (60)
FIGURE D-20 Plan and Elevation Views of Quonset Hut 2 (61)
FIGURE D-21 Plan and Elevation Views of Quonset Hut 3 (62)
FIGURE D-22 Plan View of KC-2 Warehouse (63)
FIGURE D-23 Elevation Views of KC-2 Warehouse (63)
FIGURE D-24 Elevation and Sectional Views of Electrical Utility Tower

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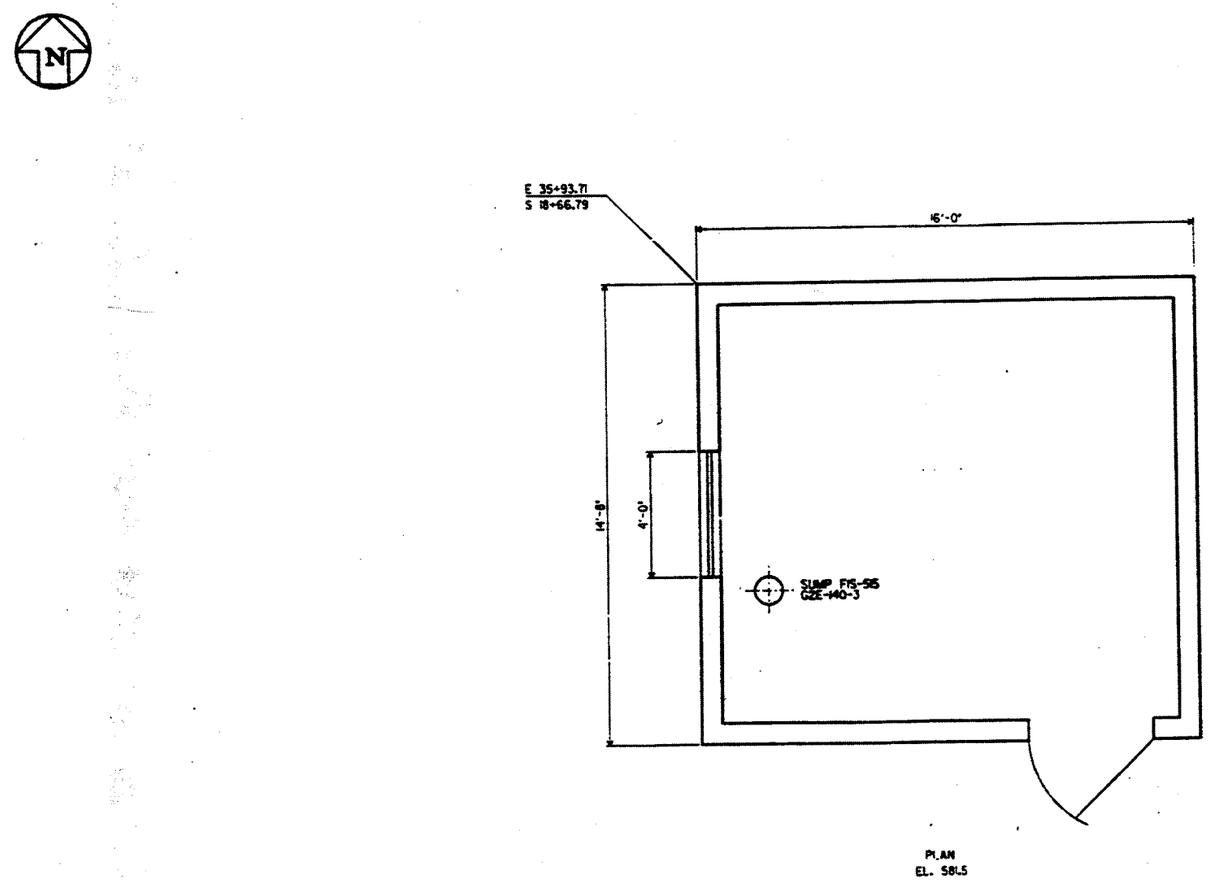

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DO NOT SCALE REDUCED DRAWINGS

NO.	REVISIONS	DATE	DWN. BY	APPD.
1	ADDED SUMP FIS-565		BHS	J.M.P. GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					02- 5500-A-02339

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

APPROVALS

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

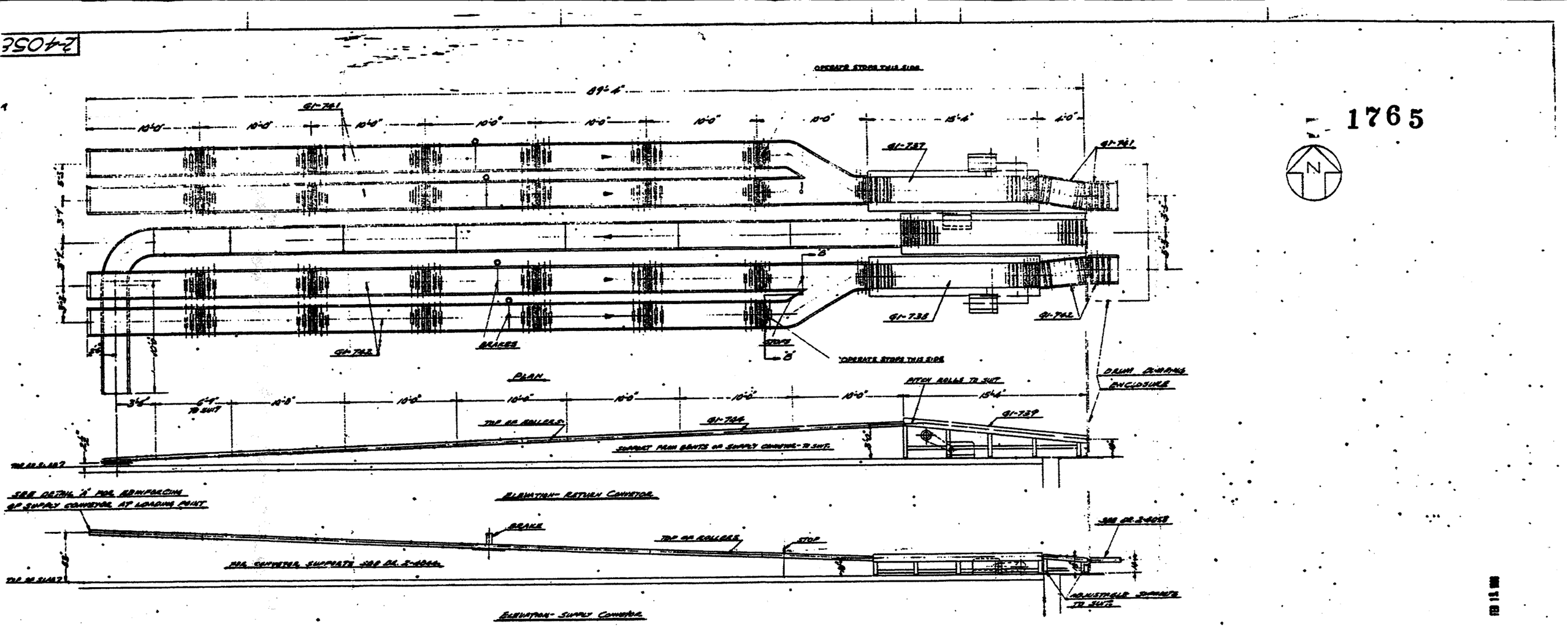
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BUILDING 2E — FIRST FLOOR
NFS STORAGE PUMP HOUSE
FLOOR PLAN
1/4" = 1'-0"

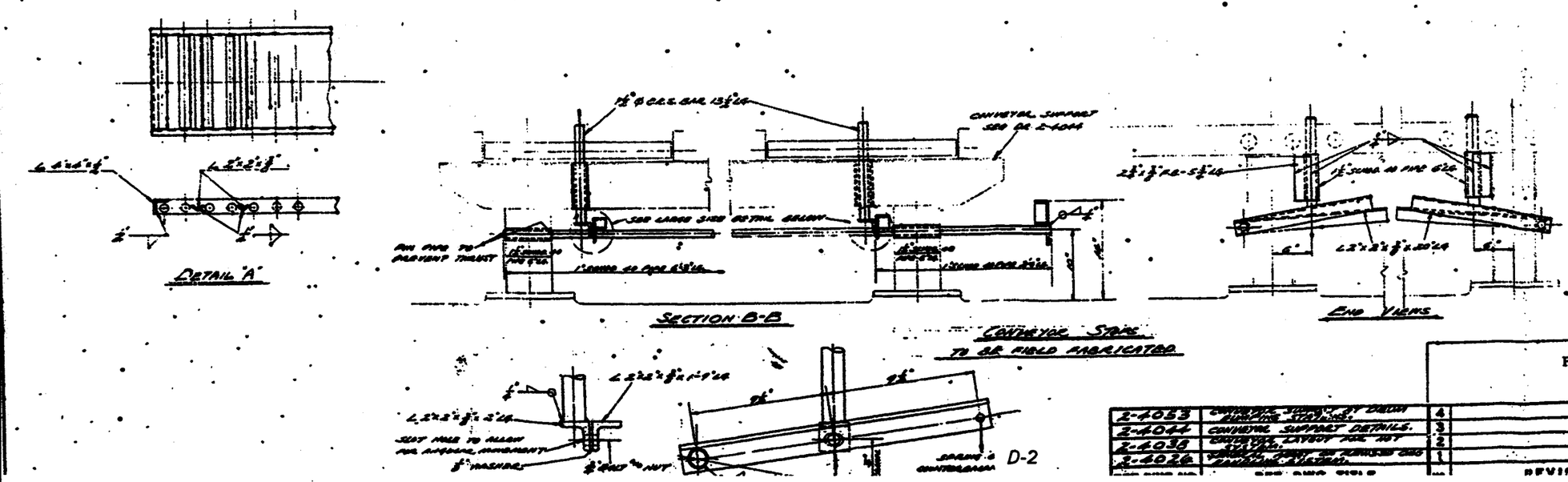
RES. ENG. 02A-5500-A-03353 | 1

FILE NAME: /FLOOR/2E.DGN

FIGURE D-1 Plan View of NFS Storage Pump House (2E)



1765



SCALE FOR THIS DRAWING

000114

INDEX CODE			
PL. & SH.	CONL	CL.	SER. NO.
02A	5500	M	01498

NATIONAL LEAD COMPANY OF OHIO
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISSION

PLANT 2 DIGESTION AREA
REVISED ORE HANDLING SYSTEM
COLD SYSTEM
CONVEYOR LAYOUT

DEPARTMENT PRODUCTION

FOR INFORMATION ONLY
CADD SERVICES

2-4053	CONVEYOR SUPPORT AT DRIVE ENCLOSURE STATIONS.	4	
2-4044	CONVEYOR SUPPORT DETAILS.	3	
2-4038	CONVEYOR LAYOUT FOR NOT BUILT.	2	
2-4026	[illegible]	1	
DWG. NO.	DESCRIPTION	NO.	REVISION

FIGURE D-2

Plan and Elevation Views of Cold Side Ore Conveyor (2F)

D-2

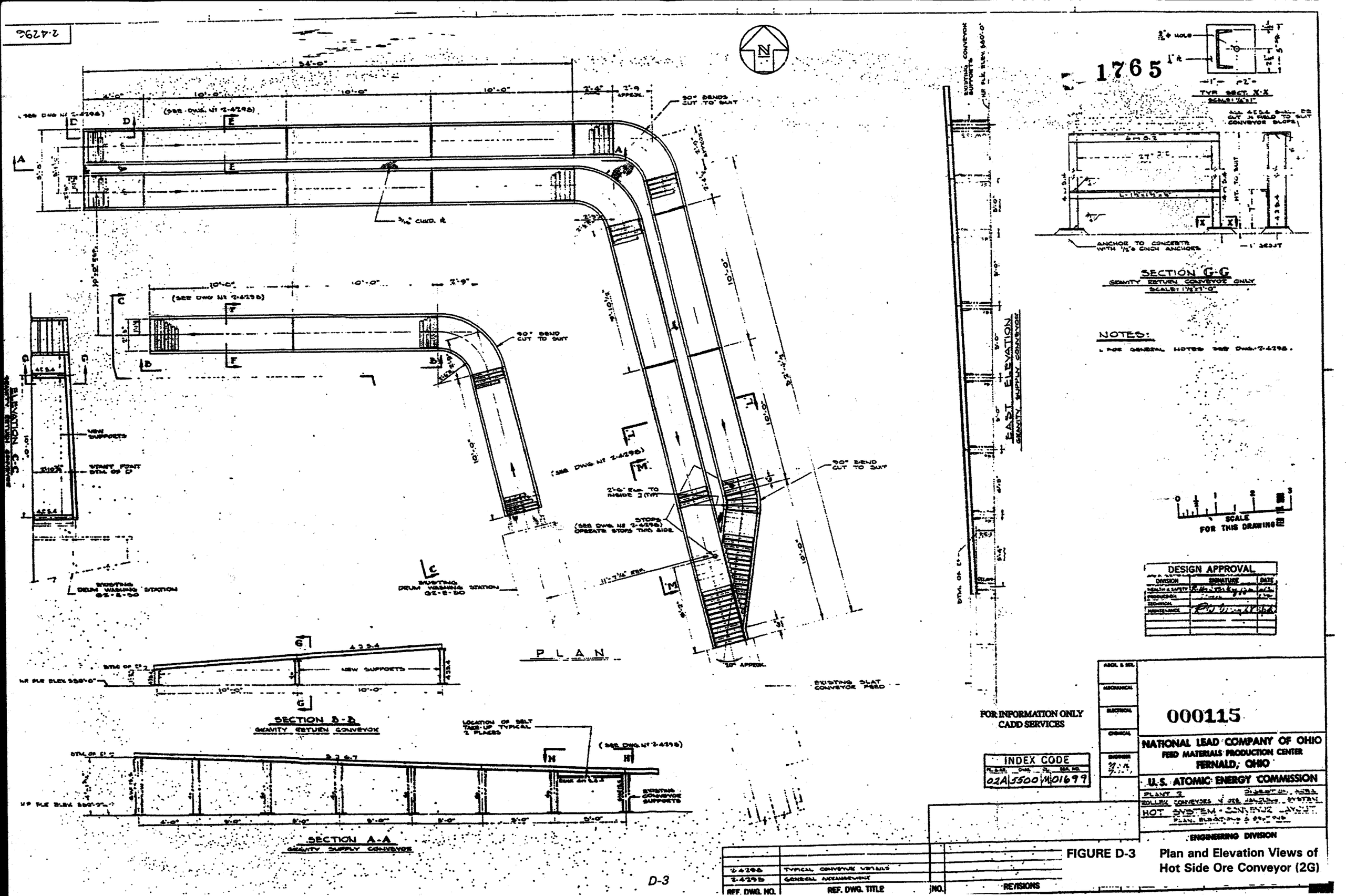
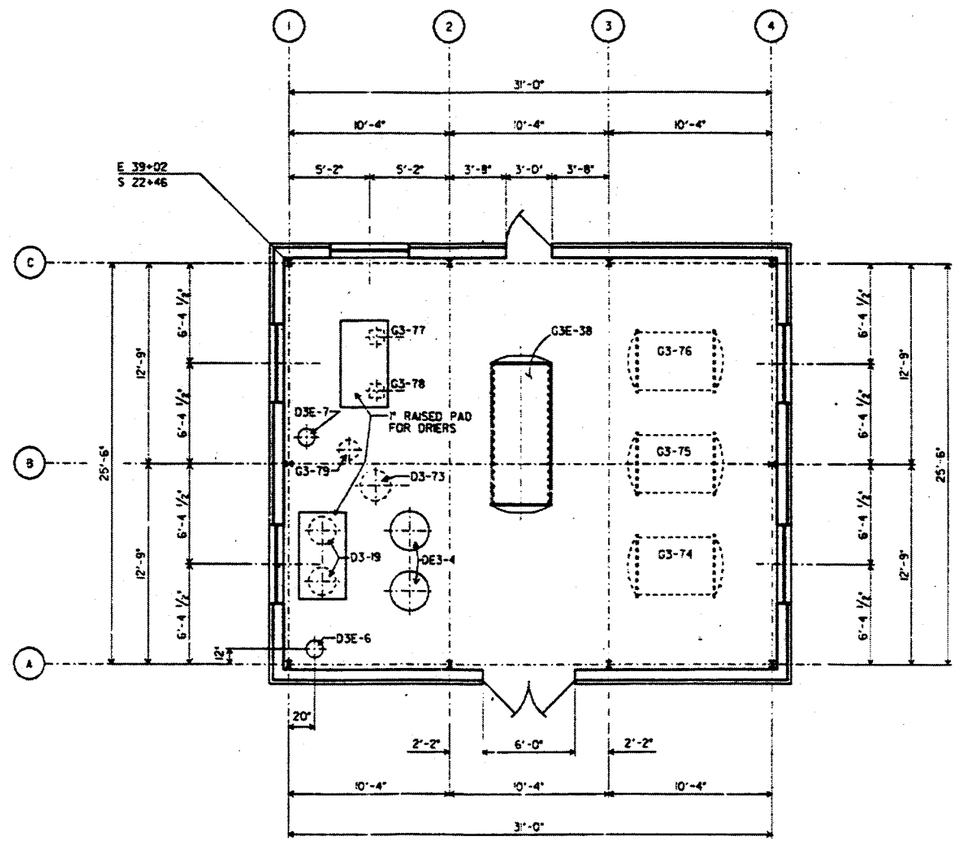


FIGURE D-3 Plan and Elevation Views of Hot Side Ore Conveyor (2G)

1765



DEC - 3 '95

ADD SERVICES

FOR INFORMATION ONLY

000116

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NO.	REVISIONS	DATE	DWN. BY	APPD.
1	UPDATED	2-5-94	MET	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					03X-7000-P-00266
					A-1450-A-00527

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

APPROVALS

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

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

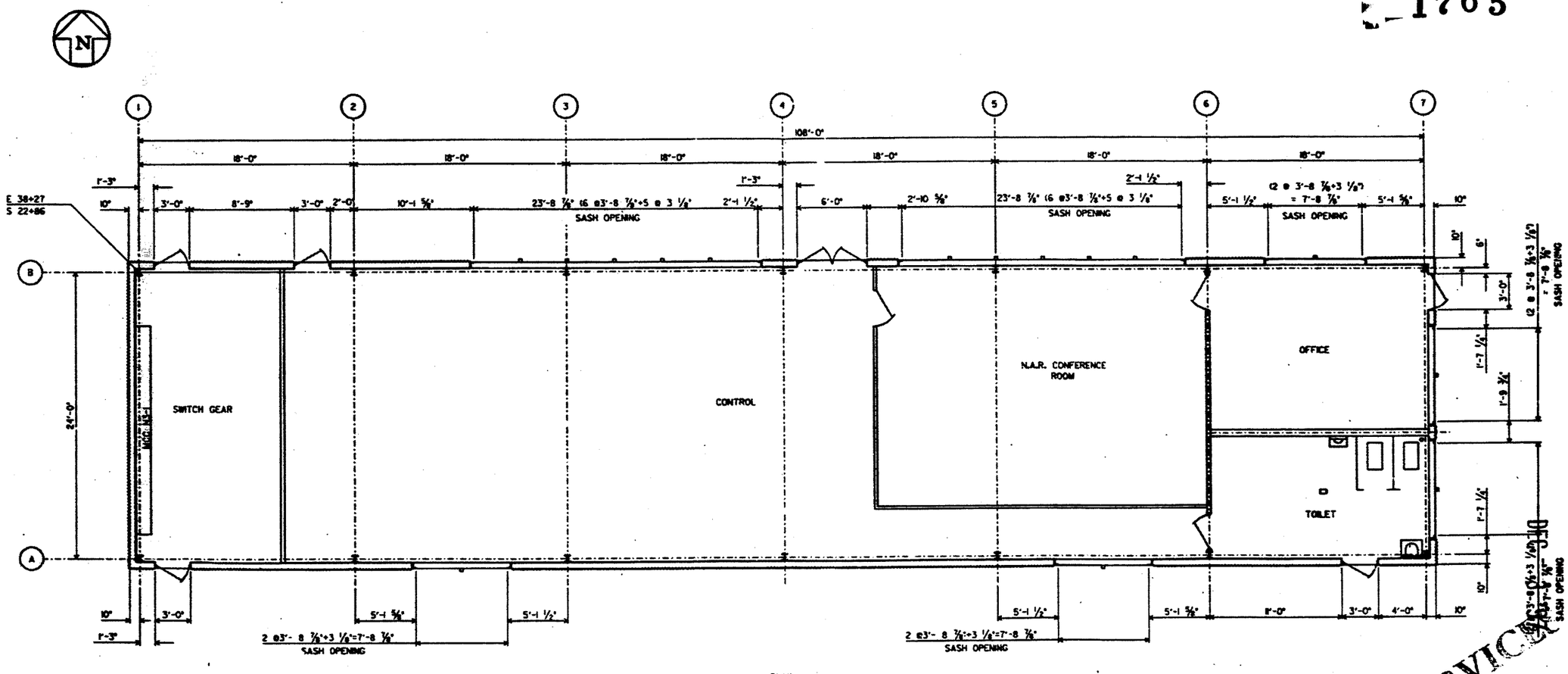
BUILDING 3B — FIRST FLOOR
OZONE BUILDING
FLOOR PLAN
1/4" = 1'-0"

RES. 148
DATE
DRAWN G.V.
03X-5500-A-01033 | 1

FILE NAME: /FLOOR/3B.JGN

FIGURE D-4 Plan View of Ozone Building (3B)

1765



CADD SERVICES
FOR INFORMATION ONLY
000117

DO NOT SCALE REDUCED DRAWINGS

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					1	ADDED MCC	9/6/92	B E LEE	GEP	03X-450-A-00004

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

APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL			MAINTENANCE
ENGINEER			
INSTRUMENT			O.A.
MECHANICAL			
			FIRE PROTECT.
			WASTE MANAGT.
CHECKED	GEP		O.A.A.
APPROVED	G. E. PAUL	1-19-9	SECURITY

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

BUILDING 3C — FIRST FLOOR
NAR CONTROL BUILDING
FLOOR PLAN
1/4" = 1'-0"

RES. NO. 03X-5500-A-01035 | 1

FILE NAME: /floor/3c.dgn

FIGURE D-5 Plan View of NAR Building (3C

3001-C-2214-A

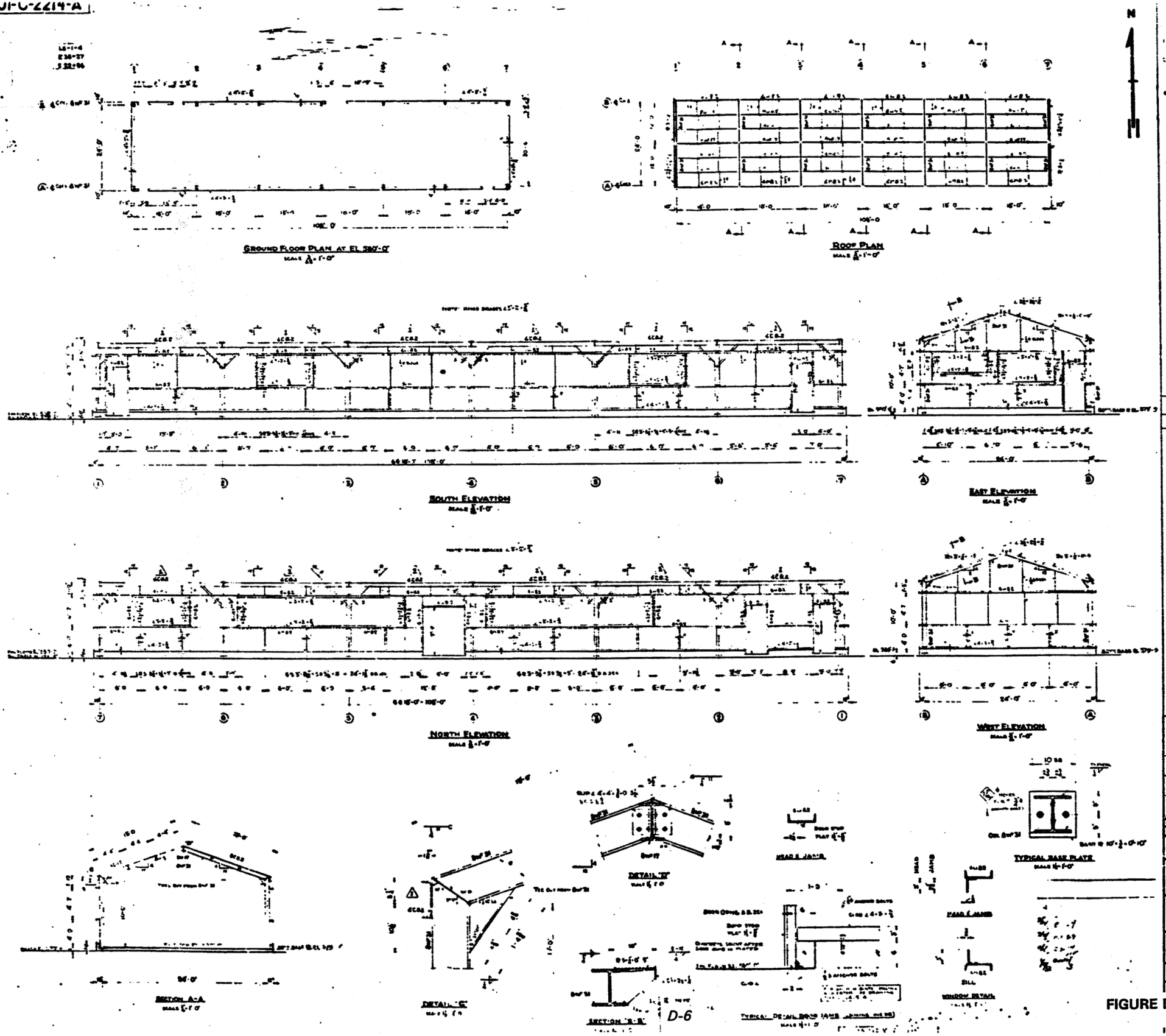
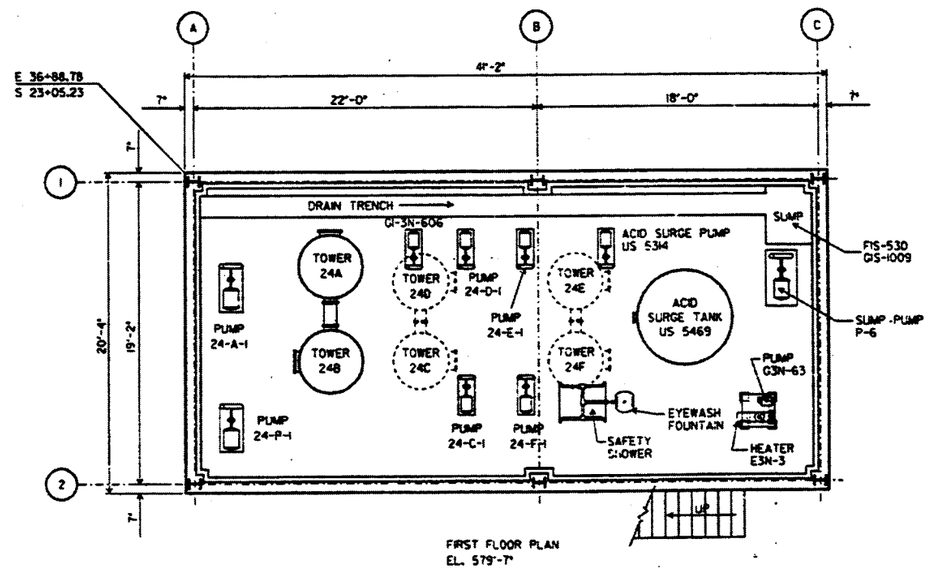


FIGURE D-6 Elevation Views of NAR Building (3C)

1765



DEC - 3 '96

CADD SERVICES

FOR INFORMATION ONLY

000119

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										03AA0025.DGN
										03A-5500-S-00369
					1	UPDATED	8-1-96	MET	CEF	03A-5500-M-00410

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

APPROVALS

CIVIL & STR.			SAFETY, ENG. MAINTENANCE
ELECTRICAL			
ENGINEER			O.A.
INSTRUMENT			
MECHANICAL			FIRE PROTECT. WASTE MANAGM.
CHECKED	CEF		O.O.E.
APPROVED	C. E. PAUL	1-30-96	SECURITY

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

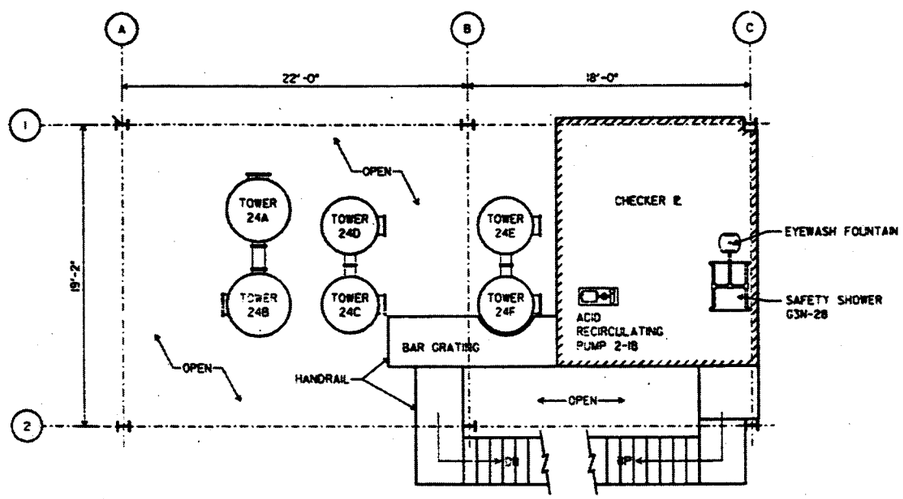
BUILDING 3F — FIRST FLOOR
DIGESTION FUME RECOVERY
FLOOR PLAN
1/4" = 1'-0"

03A-5500-A-01024 | 1

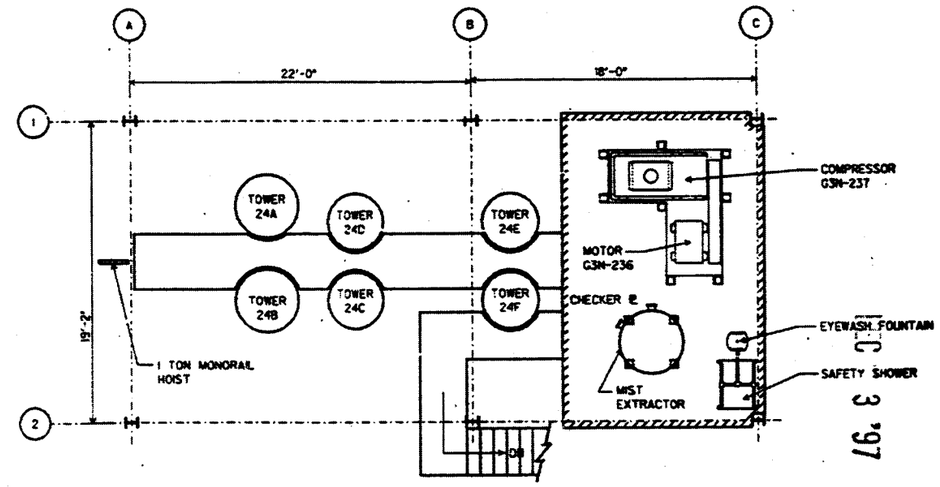
DO NOT SCALE REDUCED DRAWINGS

FIGURE D-7 Plan View of Harshaw System, 1st Floor (3F)

1765



SECOND FLOOR PLAN
EL. 592'-9 1/2"



THIRD FLOOR PLAN
EL. 605'-11 1/2"

CADD SERVICES FOR INFORMATION ONLY

000120

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
										03AA01024.DGN
										03A-5500-S-00369
					1	UPDATED	2-1-94	MET	GEP	[illegible]-5500-M-00410

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

APPROVALS

CIVIL & STR.			SAFETY ENG. MAINTENANCE
ELECTRICAL			
ENGINEER			Q.A.
INSTRUMENT			
MECHANICAL			FIRE PROTECT. WASTE MANAGE.
CHECKED	GEP		O.S.H.
APPROVED	G. E. PAUL	1-3-95	SECURITY

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

BUILDING 3F — SECOND FLOOR
DIGESTION FUME RECOVERY
FLOOR PLAN
1/4" = 1'-0"

REF. DWG. 03A-5500-A-01025 | 1

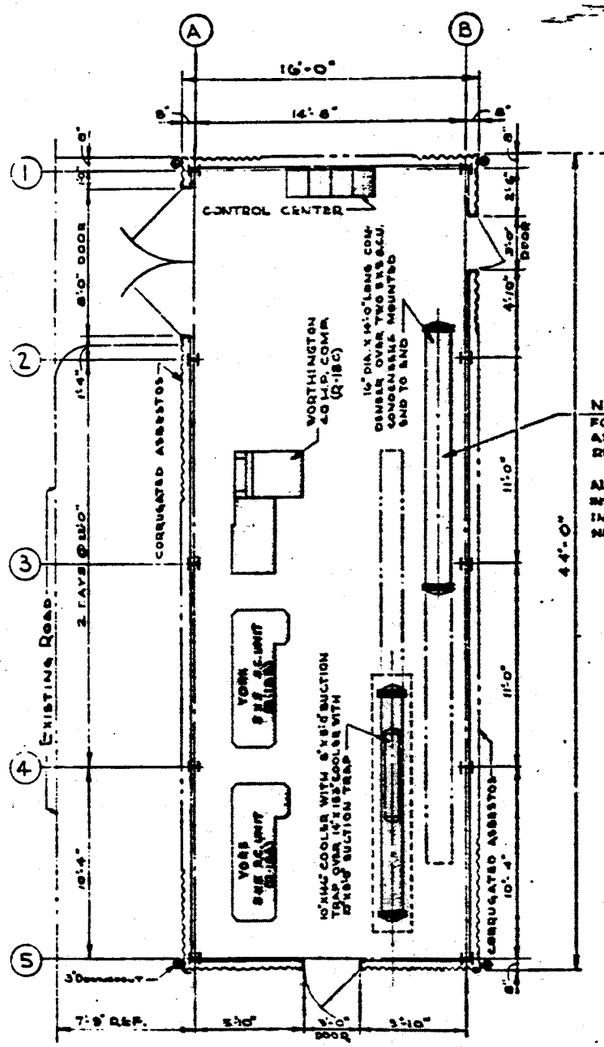
DATE — DRAWN G.V.

FILE NAME: /FLOOR/3F2.DGN

DO NOT SCALE REDUCED DRAWINGS

FIGURE D-8 Plan View of Harshaw System, 2nd Floor (3F)

2-4127

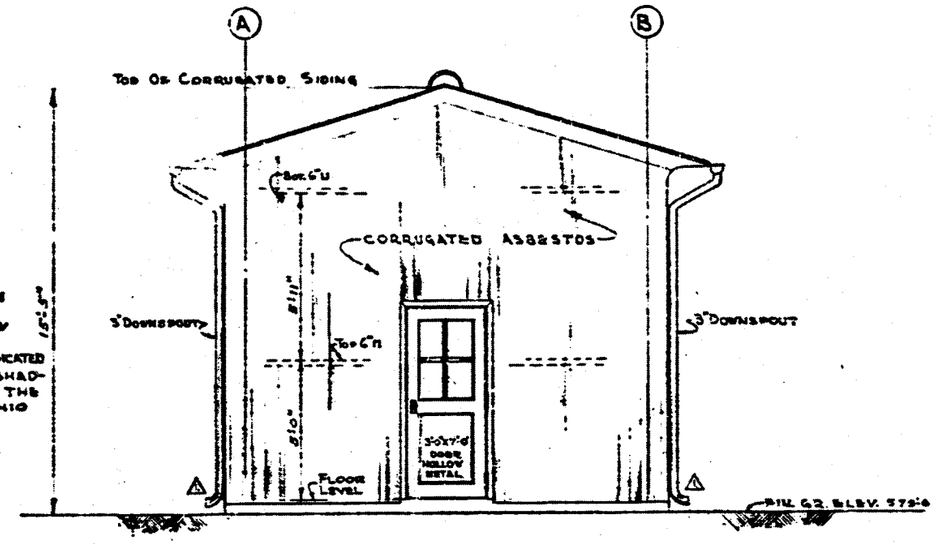


PLAN

SCALE: 1/8"=1'-0"

NOTE:
FOR EQUIPMENT LOCATION AND ELEVATIONS SEE REFERENCE DRAWING BELOW

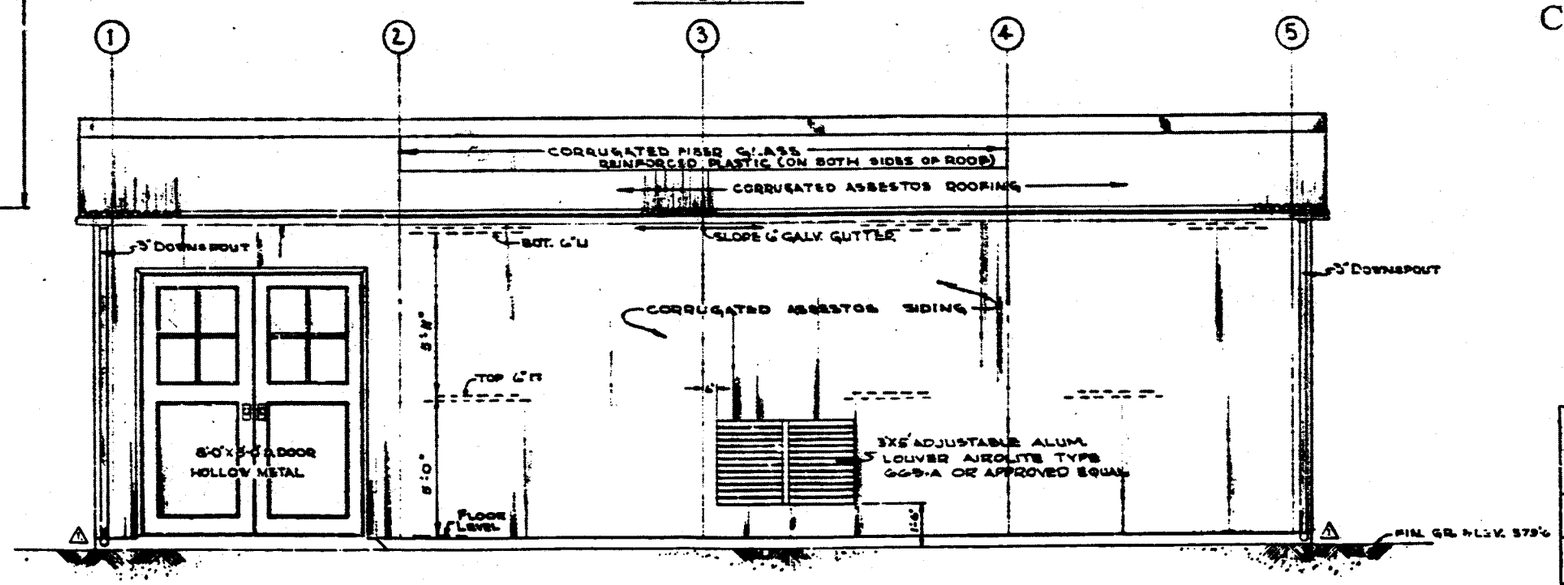
ALL EQUIPMENT THAT IS INDICATED INSIDE BUILDING, BY DARK SHADING, WILL BE PROCURED BY THE NATIONAL LEAD CO. OF OHIO



SOUTH ELEVATION

NORTH ELEV. SIMILAR EXCEPT FOR DOOR

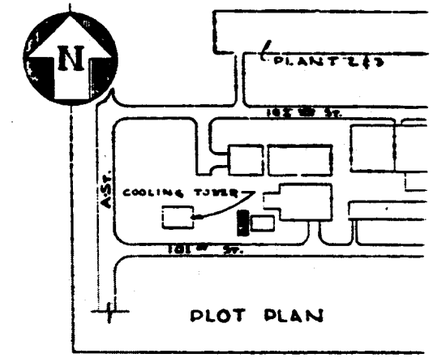
SCALE: 1/8"=1'-0"



WEST ELEVATION

EAST ELEV. SIMILAR EXCEPT FOR DOORS & LOUVER

SCALE: 1/8"=1'-0"



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INDEX CODE
33A 5500A 30412

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NATIONAL LEAD COMPANY OF C
FEED MATERIALS PRODUCTION CEN
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISS

PLANT 3 NOL ABSORP
DIGESTION FUME RECOVERY SYST
REFRIGERATION BLDG.
ARCHITECTURAL LAYOUT - PLAN & EL

PRODUCTION

DESIGN APPROVAL

DIVISION	SIGNATURE	DATE
HEALTH & SAFETY		
PRODUCTION		
TECHNICAL		
MAINTENANCE		

REF. DWG. NO.	REF. DWG. TITLE
66-2622-5	YORK COOR. - LAYOUT OF EQUIPMENT
2-4118-A	LOCATION PLAN
2-4130	EQUIPMENT LAYOUT-PLAN & ELEV.
2-4129	STRUCTURAL-PLAN, ELEV. & DETAILS
2-4128	ARCHITECTURAL - DETAILS
2-4126	FOUNDATION-PLAN, ELEV & DETAILS

PROJ. NO. 2-5
1. CHANGED DO
NO. 1

FIGURE D-9 Plan and Elevation Views of Refrigerator Building (3G)

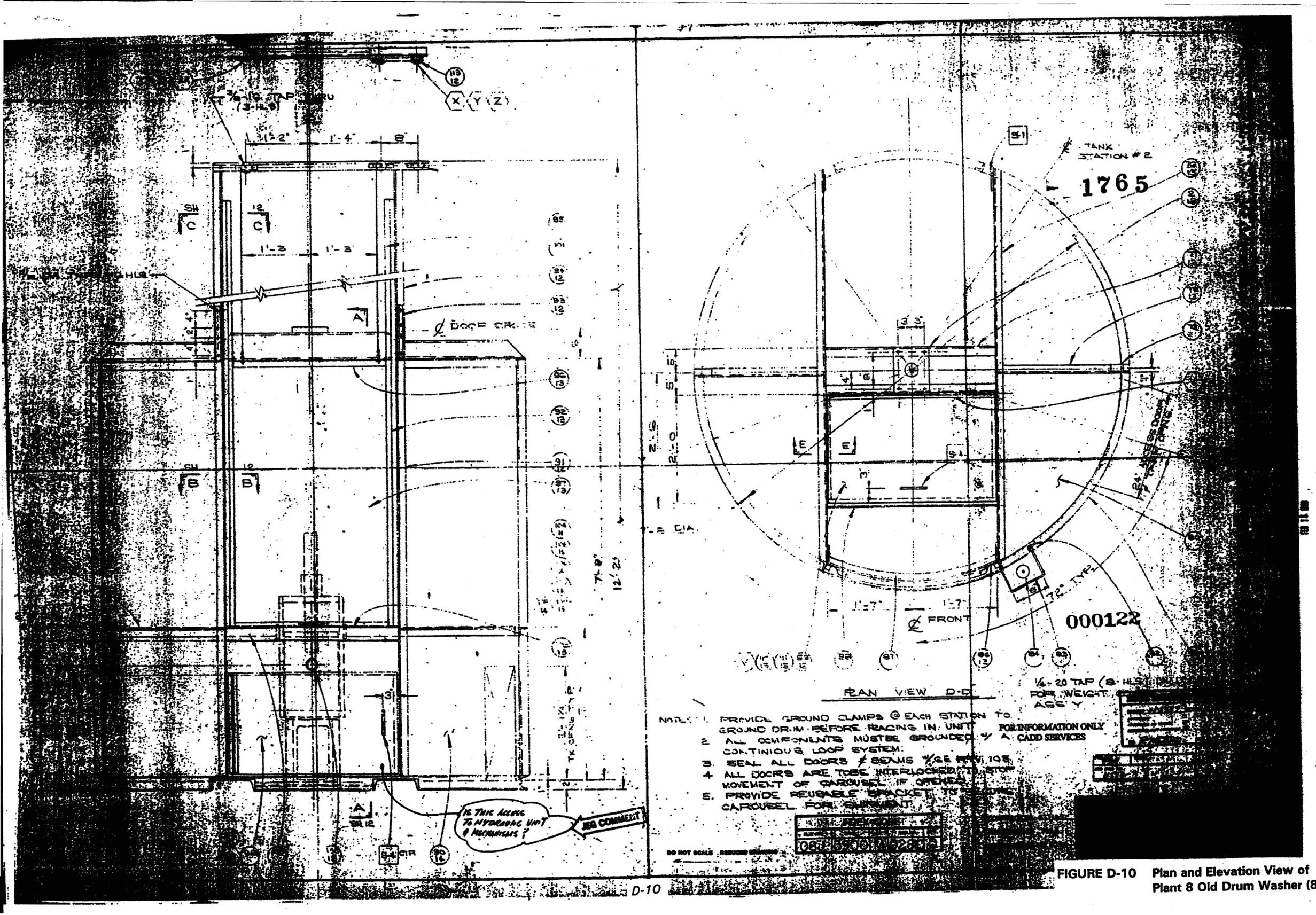


FIGURE D-10 Plan and Elevation View of Plant 8 Old Drum Washer (8F)

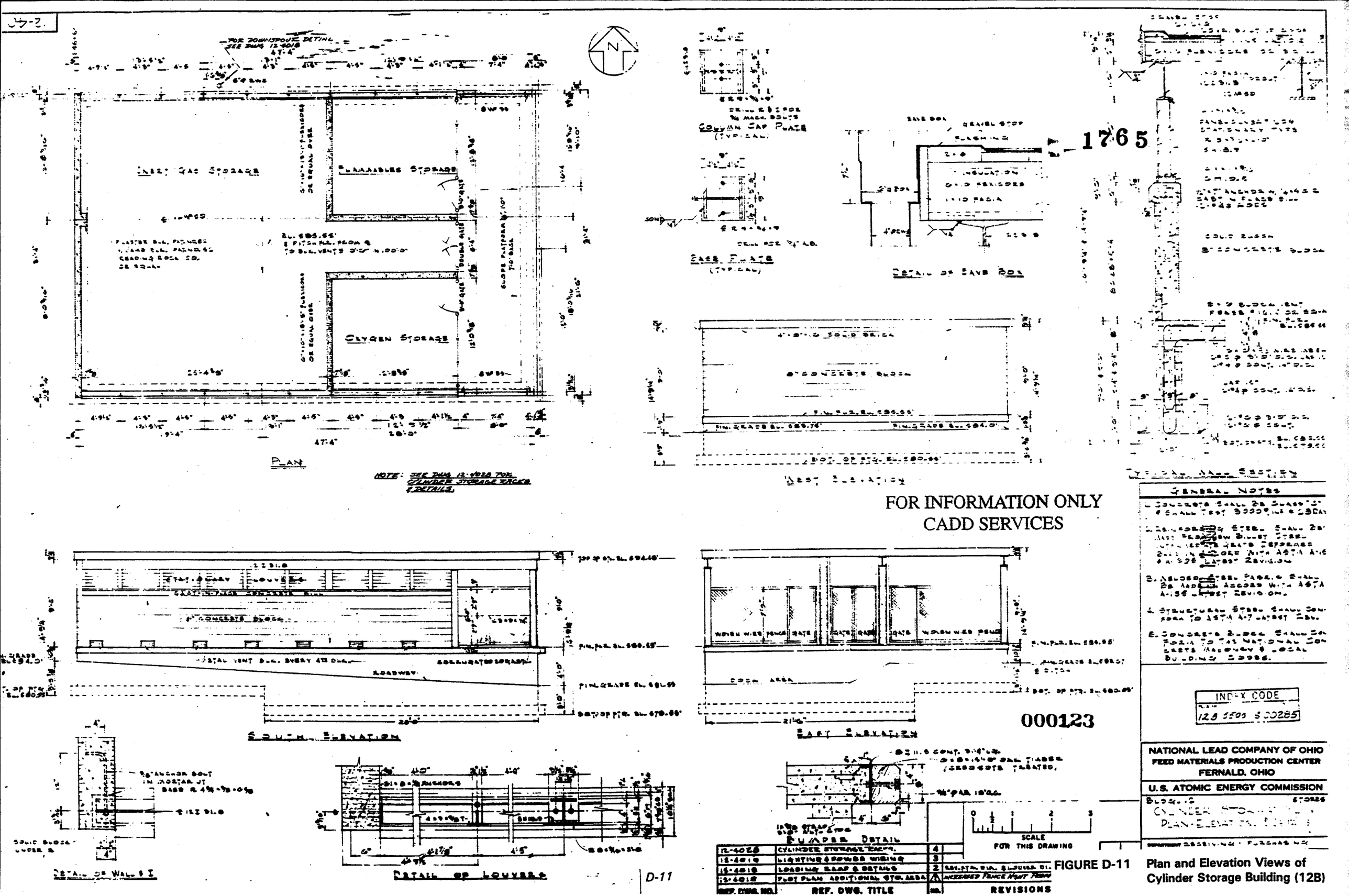


FIGURE D-11

Plan and Elevation Views of Cylinder Storage Building (12B)

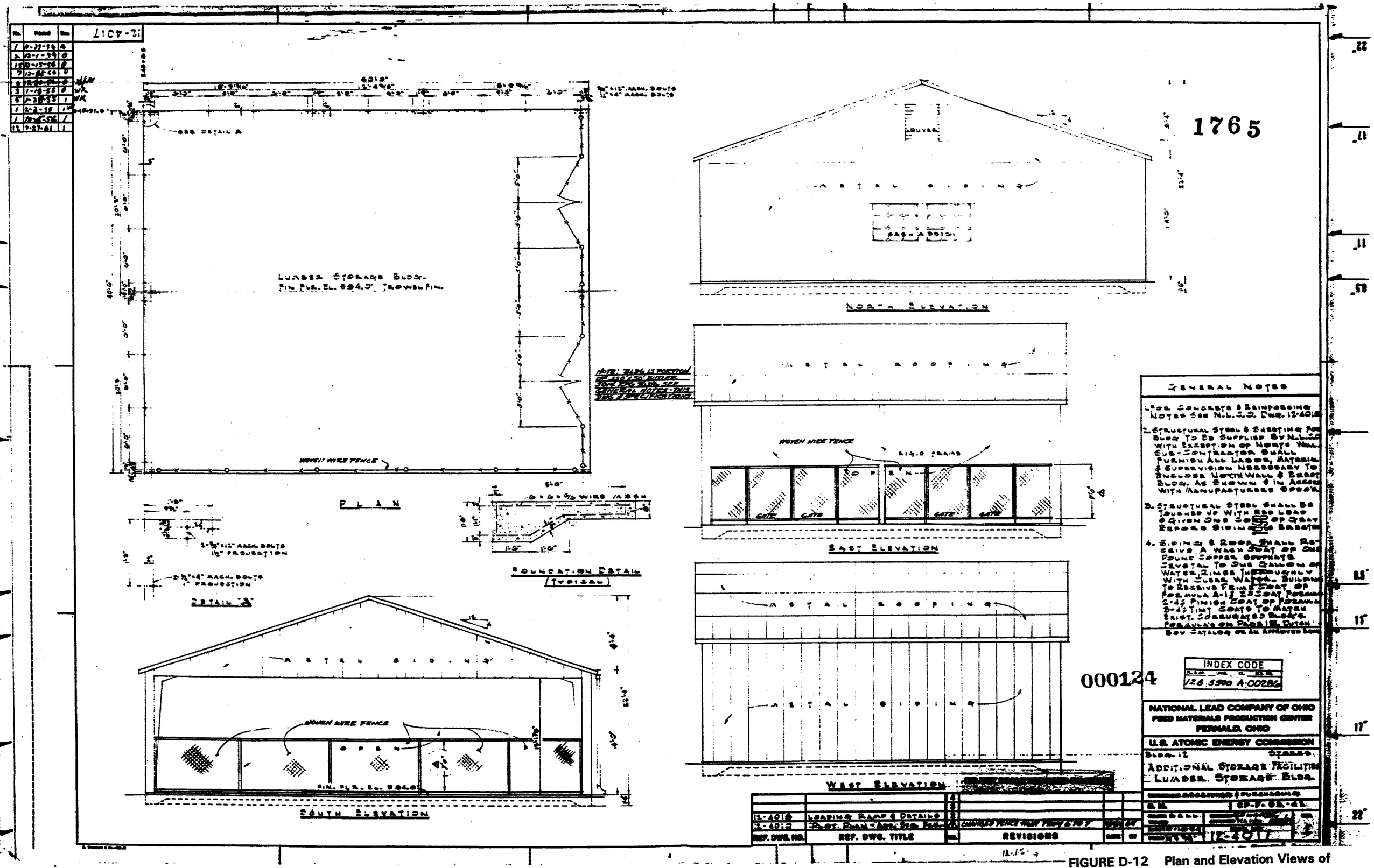


FIGURE D-12 Plan and Elevation Views of Lumber Storage Building (12C)

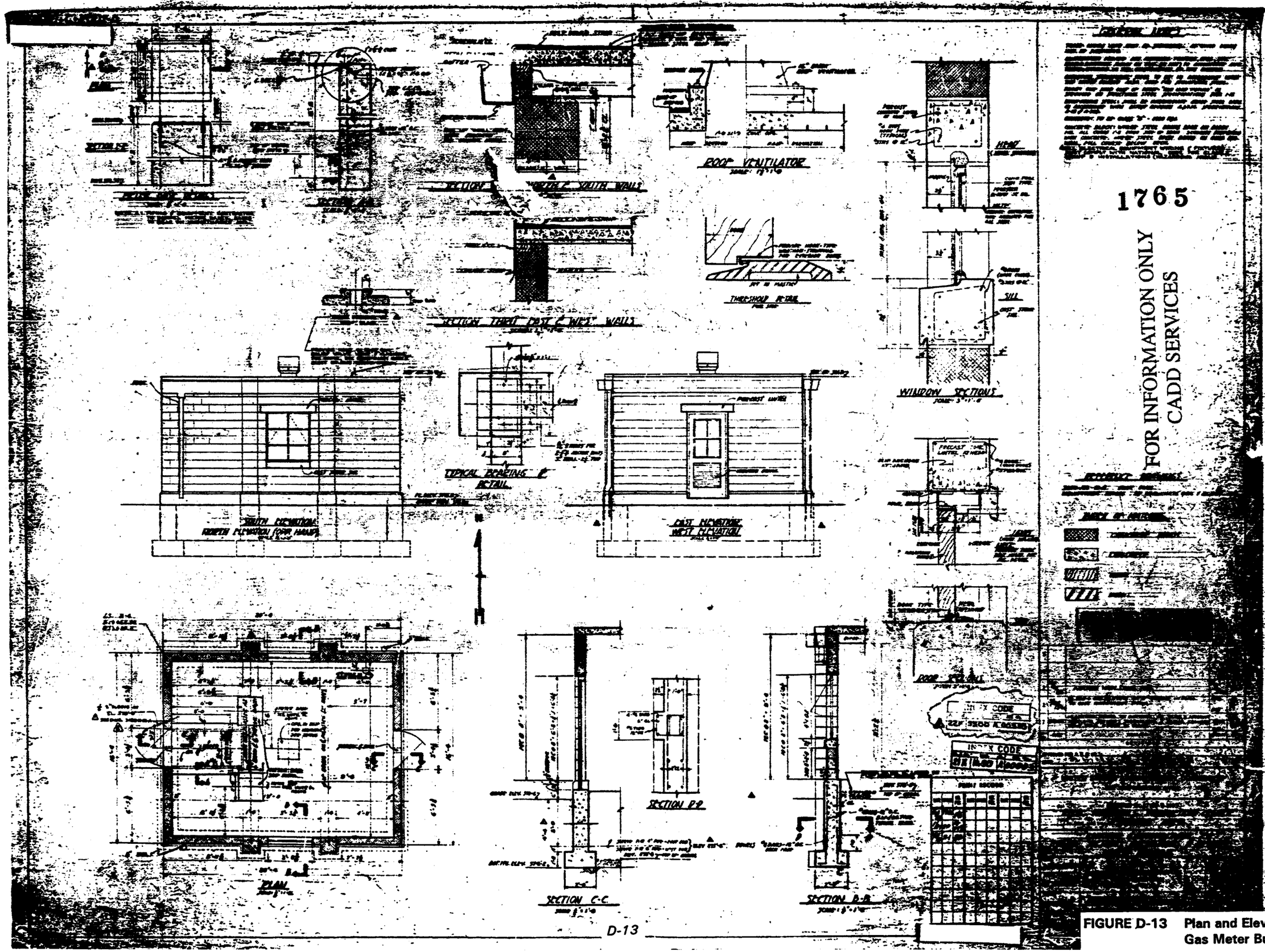
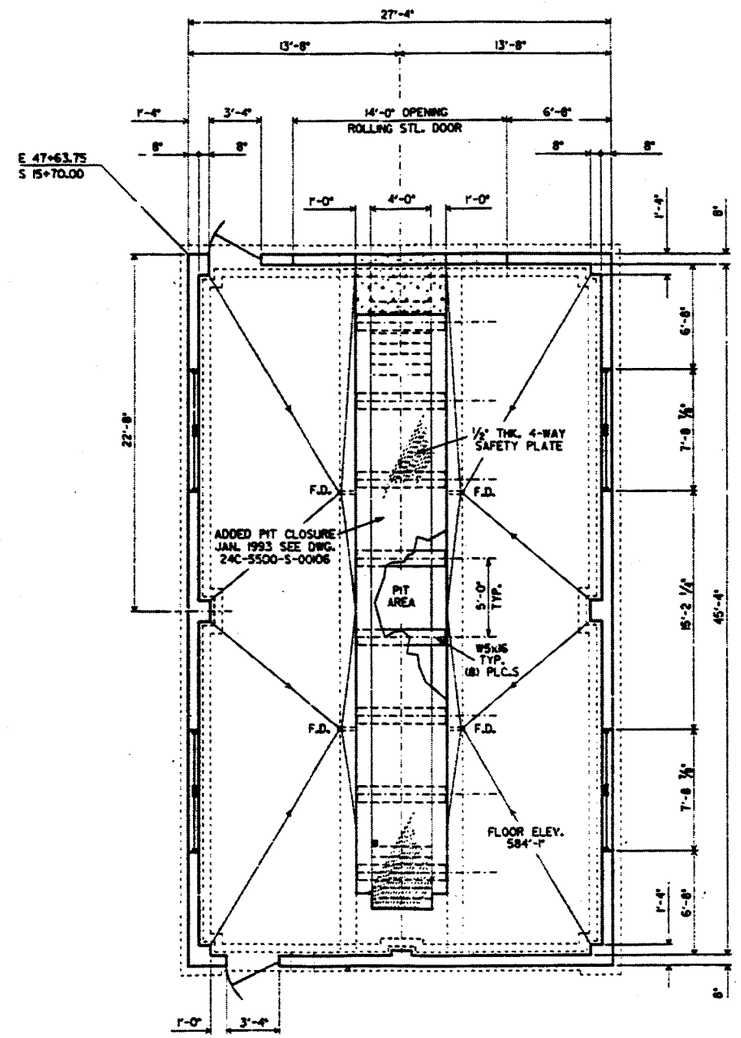


FIGURE D-13 Plan and Elevation Views of Gas Meter Building (22A)

1765



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NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
										24C-1450-S-00006
					1	UPDATED	10/95	SJS	GEP	24C-385-S-00062

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

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		Q.A.	
INS."RUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED	GEP	O.O.S.	
APPROVED	GE PAUL	10/95 SECURITY	

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

BUILDING 24B — FIRST FLOOR
RAILROAD ENGINE HOUSE
FLOOR PLAN
1/4" = 1'-0"
24C-5500-A-00098 | 1

FILE NAME: /FLOOR/24B.DGN

DO NOT SCALE REDUCED DRAWING

FIGURE D-14 Plan View of Railroad Engine House (24B)

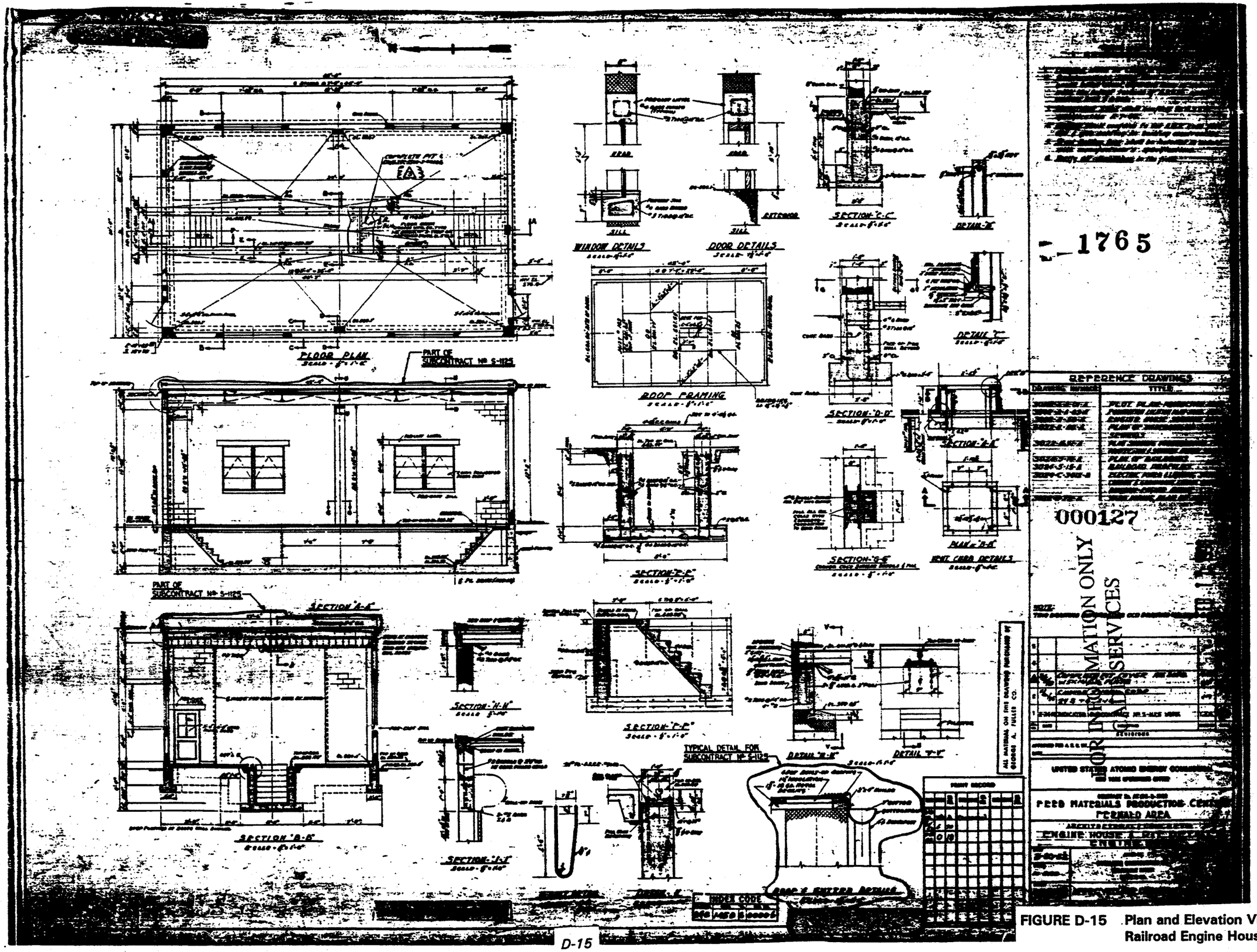


FIGURE D-15 Plan and Elevation Views of Railroad Engine House (24B)

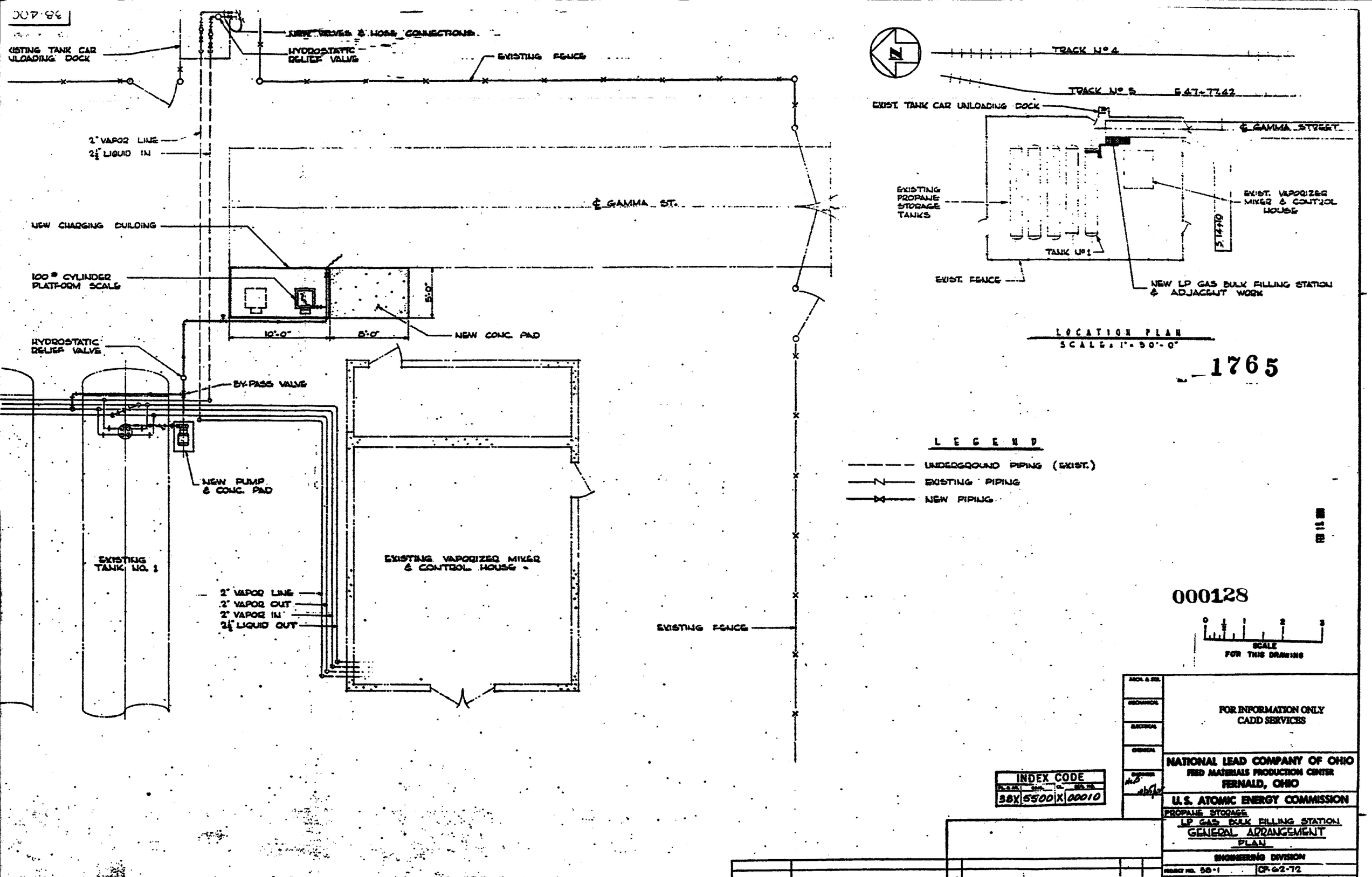


FIGURE D-16 Plan View of Propane Storage Building (38A)

1765

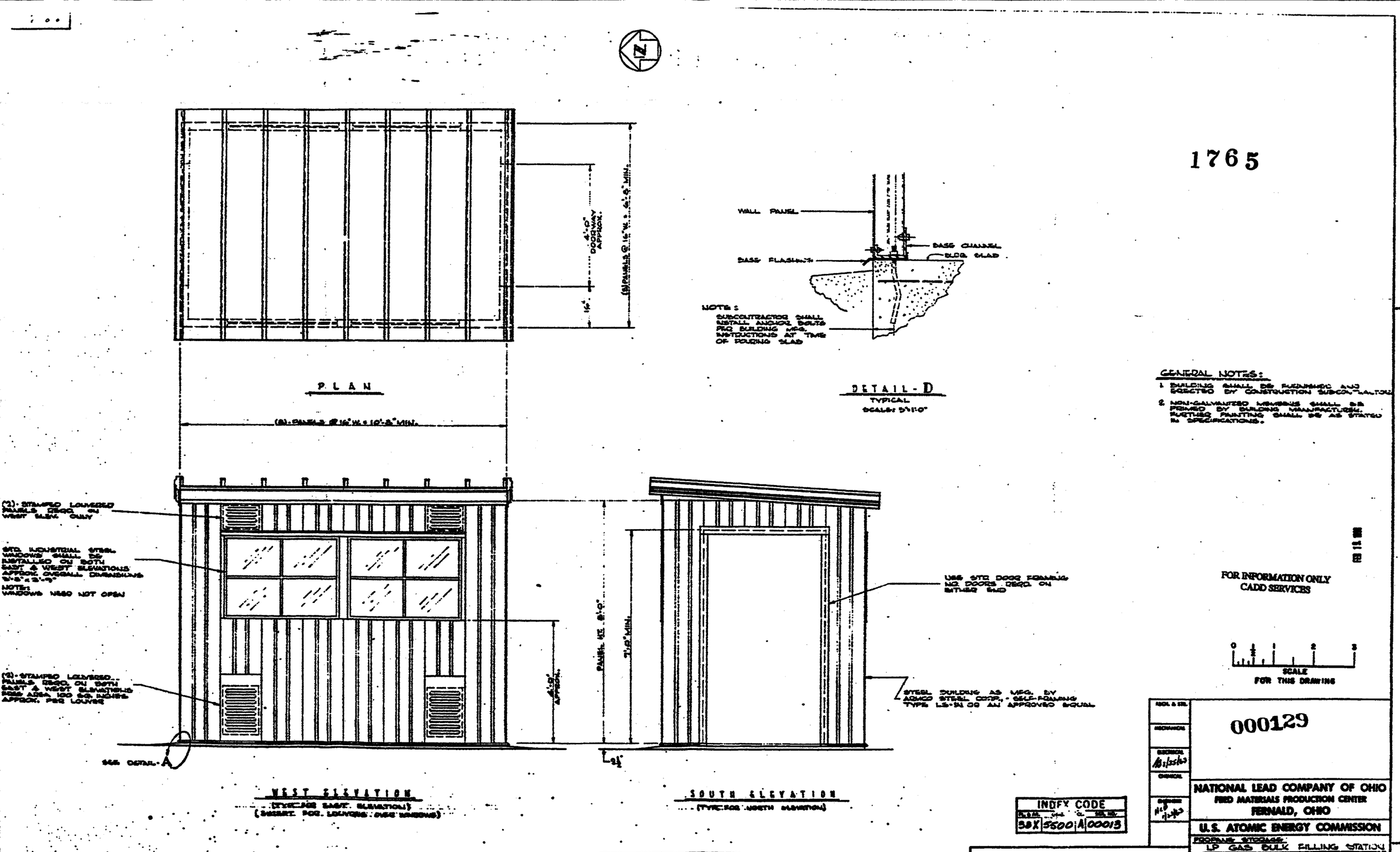
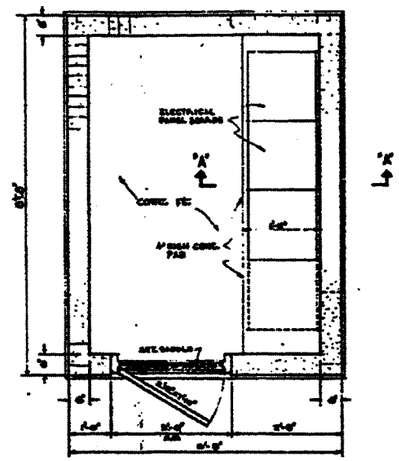
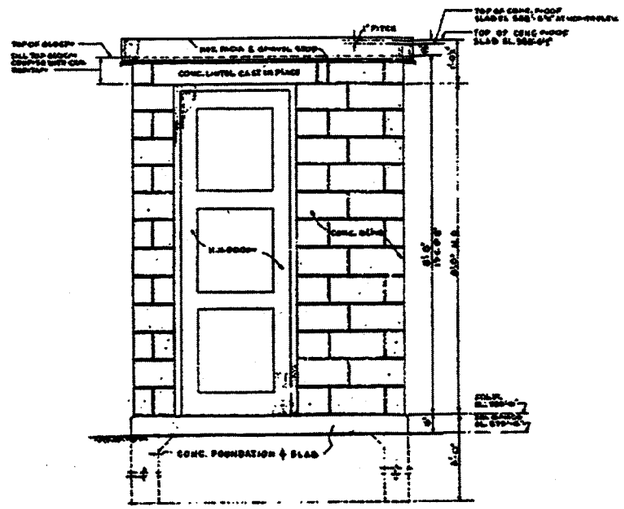
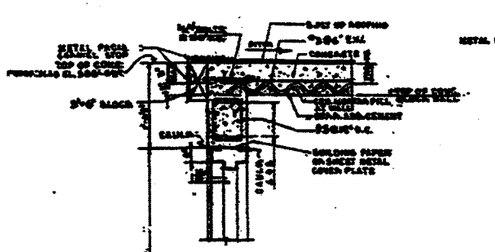


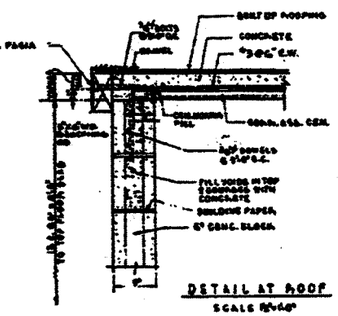
FIGURE D-17 Plan and Elevation Views of Cylinder Filling Station (38B)

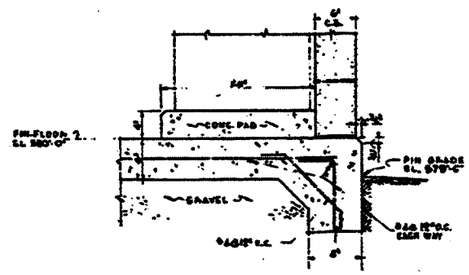
1765

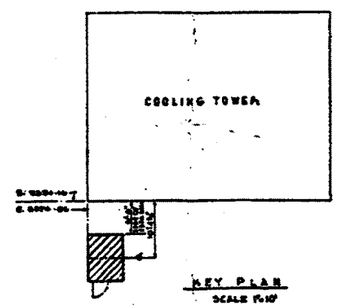


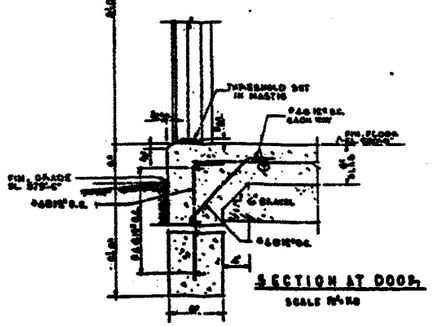


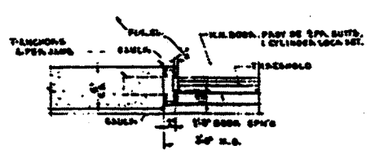












INDEX CODE
39X7000A00062

INDEX CODE
03X7000A 00231

5250-3A-5242 | 1

FOR INFORMATION ONLY
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NOTE:
FOR CONDUIT LOCATION IN SLAB
SEE DWG. 5250-3E-5214

NOTE:
TITLE HAS "COOLING TOWER CONTROL CENTER BUILDING"

U. S. ATOMIC ENERGY COMMISSION
SINGMASTER & BREYER
NATIONAL LEAD COMPANY OF OHIO
INCINERATOR BUILDING
SPRINKLER RISER HOUSE

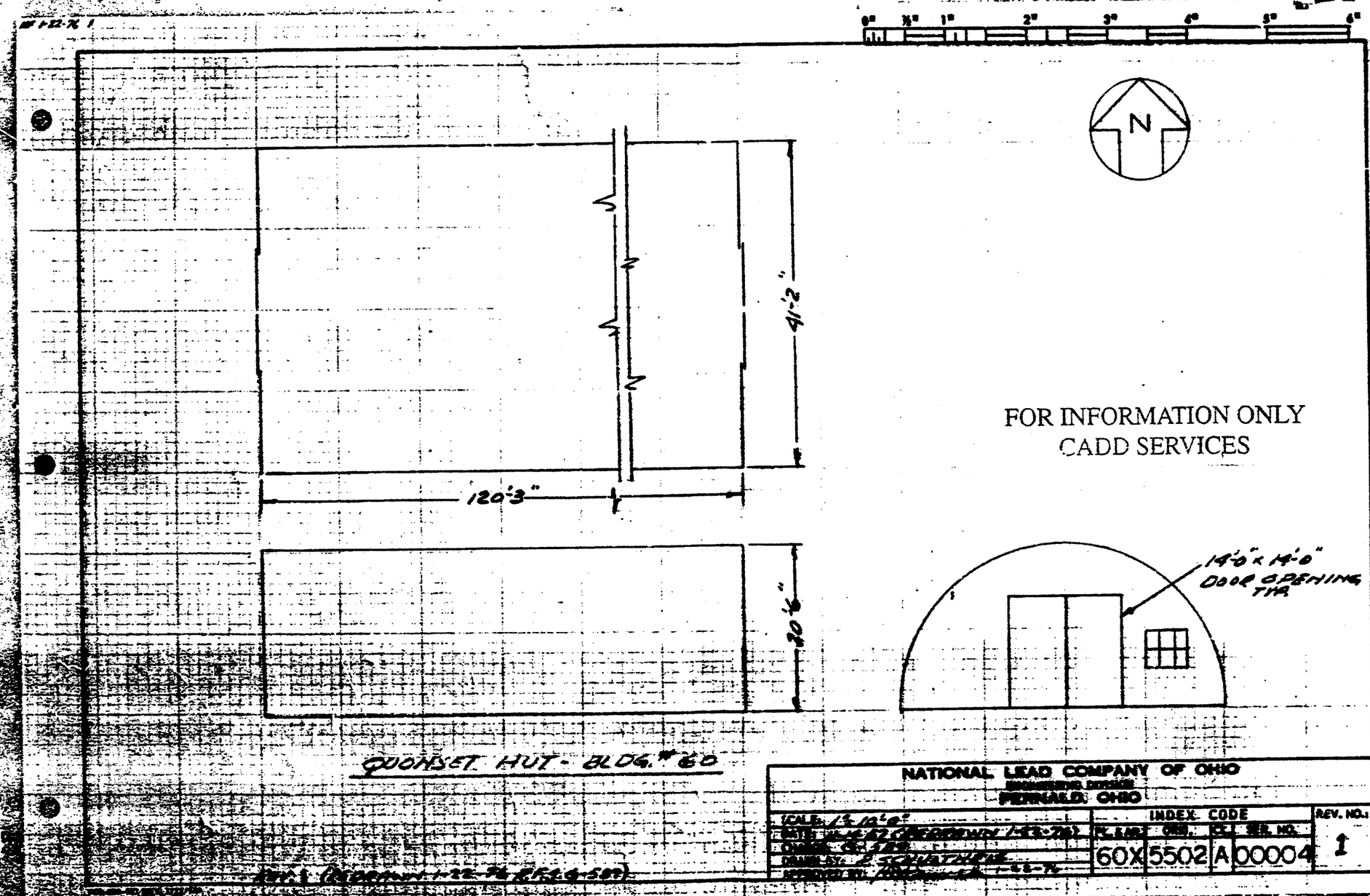
DO NOT SCALE REDUCED DRAWING

ISSUED FOR CONSTRUCTION

5250-3E-5244 | 3

0130

FIGURE D-18 Plan and Elevation View of Incin. Sprinkler Riser House (39C)



FOR INFORMATION ONLY
CADD SERVICES

FEB 17 1998

FIGURE D-19 Plan and Elevation Views of Quonset Hut 1 (60)

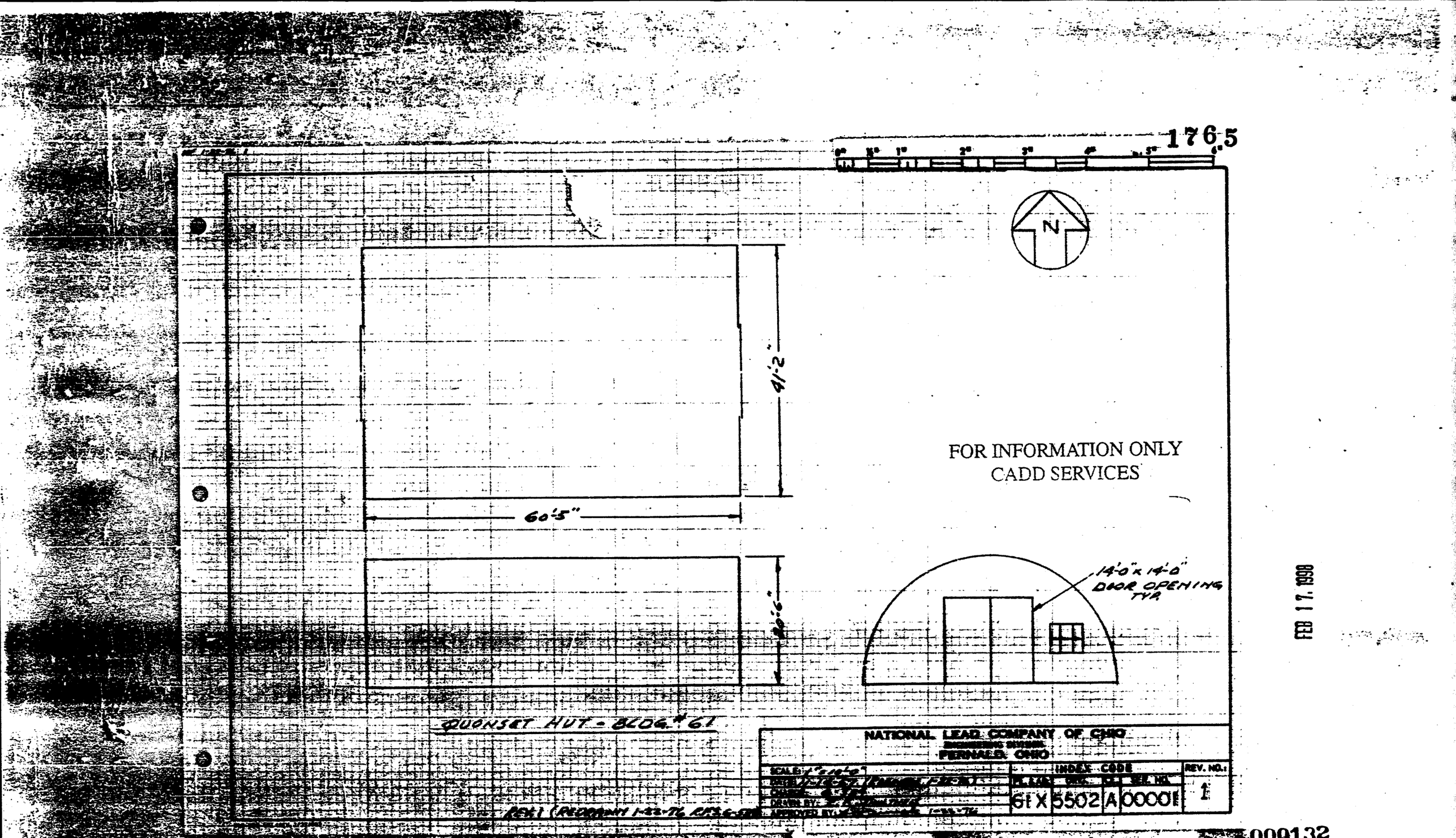
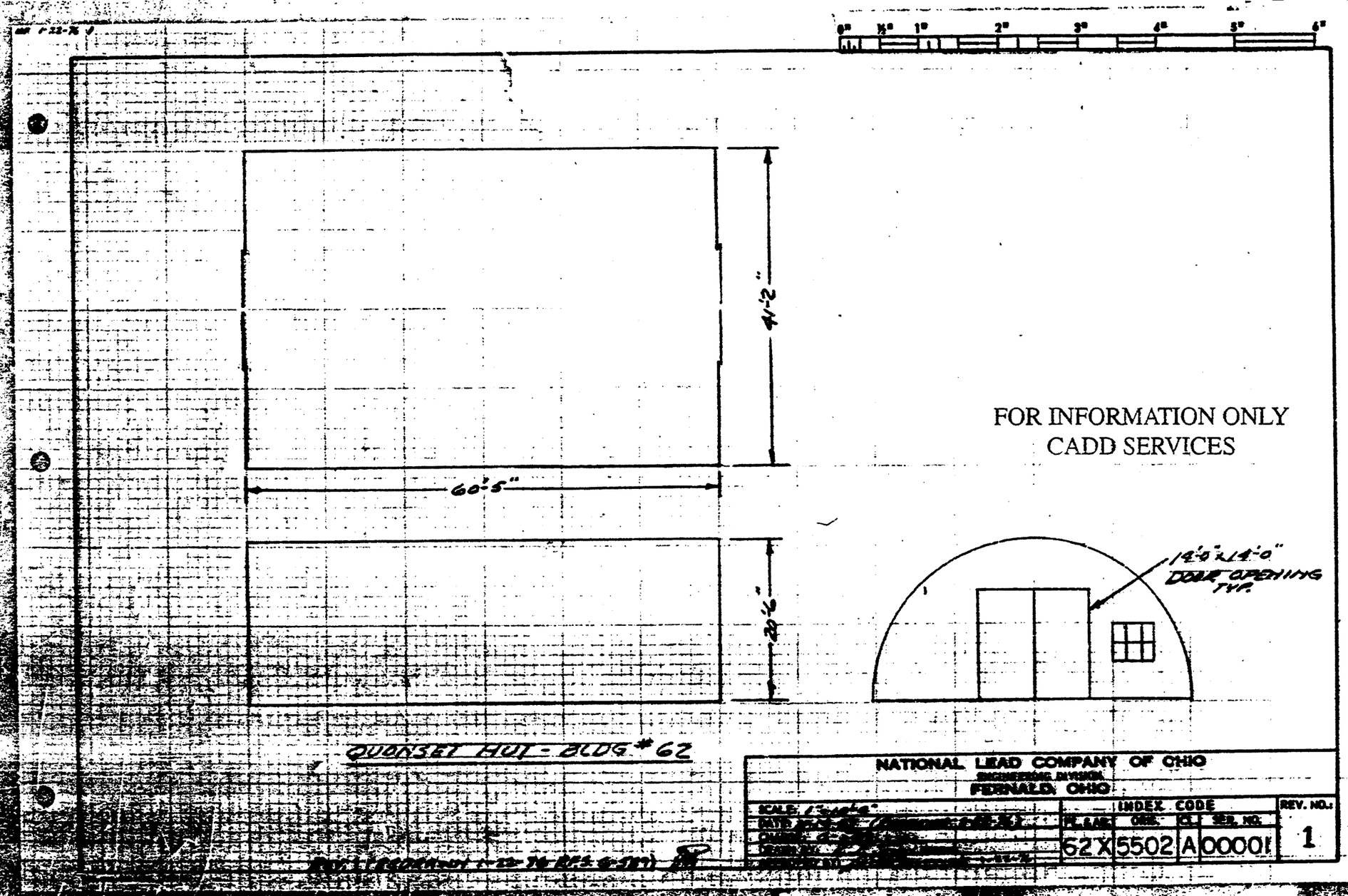


FIGURE D-20 Plan and Elevation Views of Quonset Hut 2 (61)



FOR INFORMATION ONLY
CADD SERVICES

FEB 17 1998

FIGURE D-21 Plan and Elevation Views of Quonset Hut 3 (62)

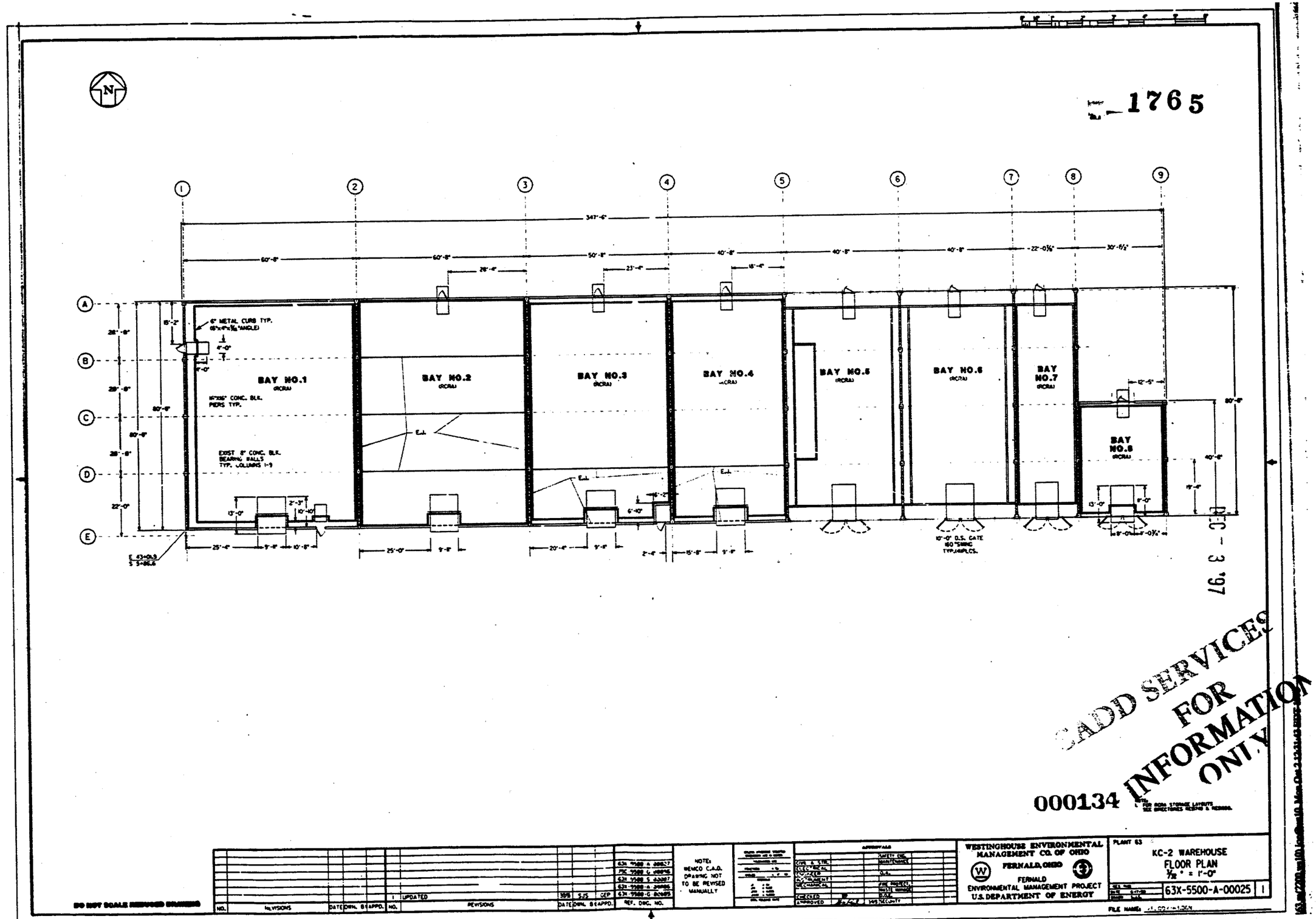


FIGURE D-22 Plan View of KC-2 Warehouse (63)

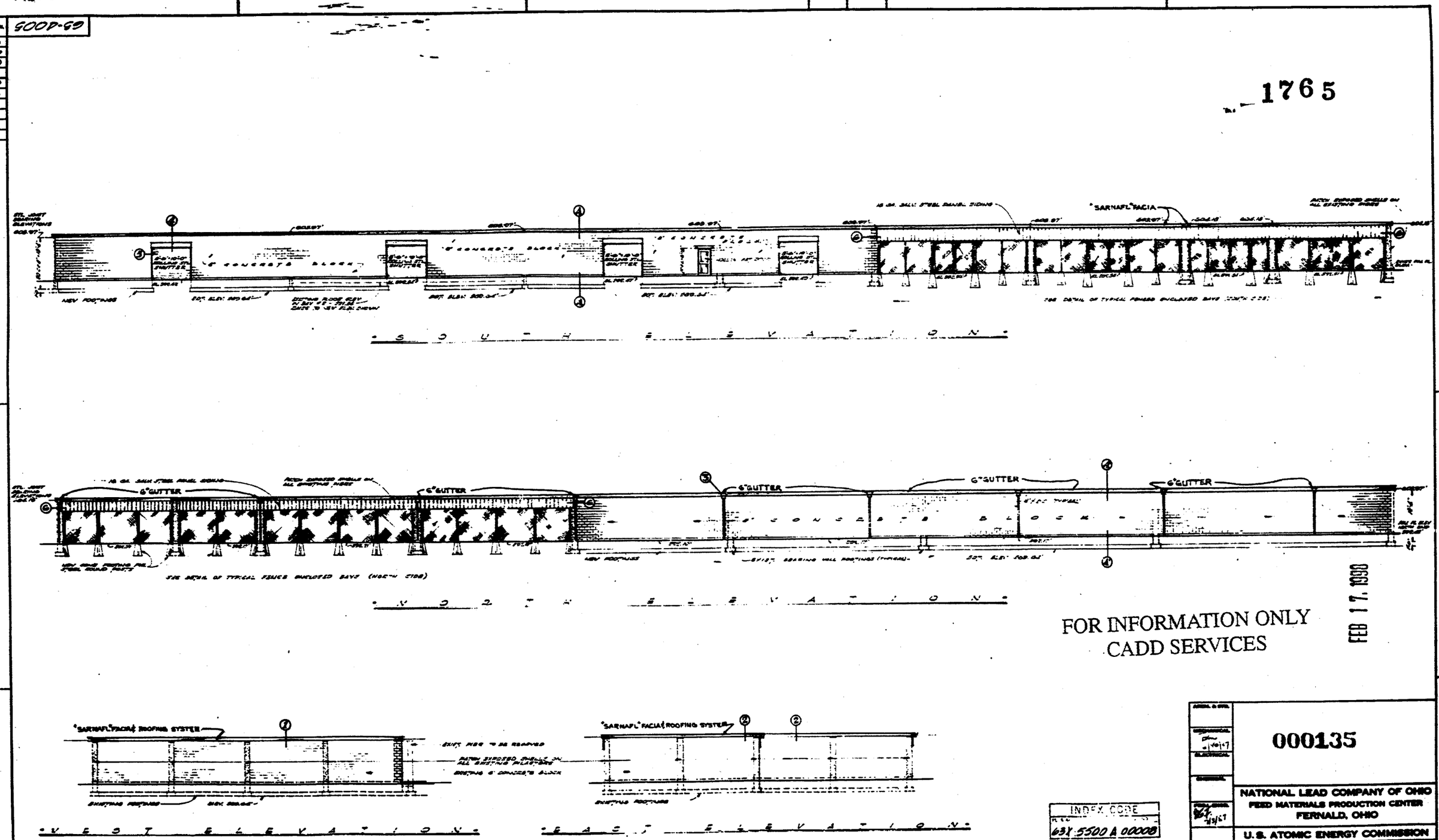


FIGURE D-23 Elevation Views of KC-2 Warehouse (63)

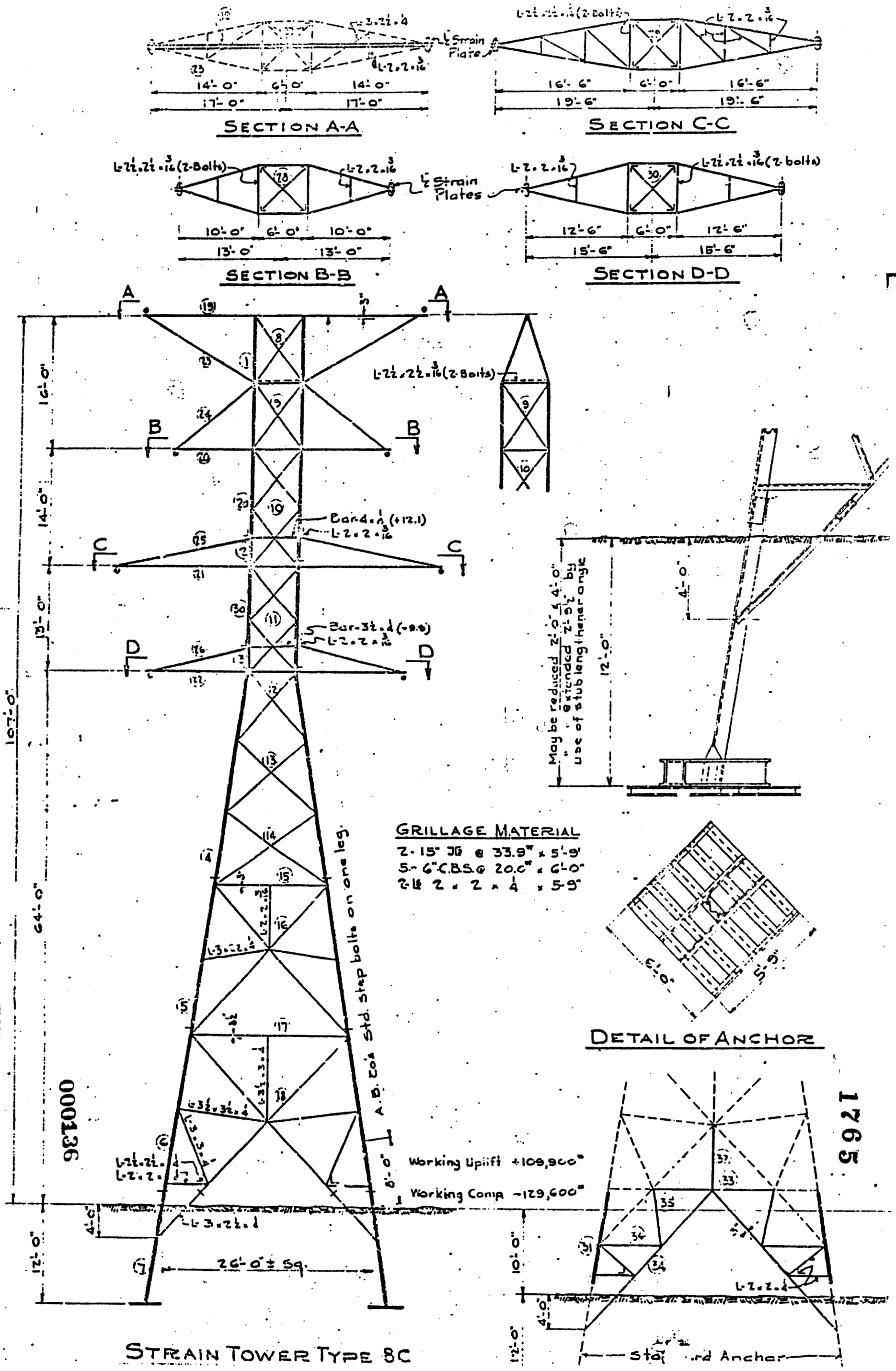


FIGURE D-24 Elevation and Sectional Views of Electrical Utility Tower

1765

APPENDIX E

PHOTOGRAPHS

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APPENDIX E

PHOTOGRAPHS

1765

Page No.	Figure No.	Negative No.	Photo Title/Location	
E-4	E-1	6767-4	Component 2E -	Nuclear Fuel Services Storage, Facing Northeast
E-4	E-2	6767-5	Component 2E -	Nuclear Fuel Services Storage and Pump House, Facing Northwest
E-5	E-3	6767-10	Component 2F -	Cold Side Ore Vertical Conveyor and Drum Dumper Building, Facing North
E-5	E-4	6767-11	Component 2F -	Cold Side Ore Drum Dumper Building and Conveyor Roof, Facing Northwest
E-6	E-5	6767-12	Component 2F -	Cold Side Ore Conveyor Area and Conveyor Roof, Facing West
E-6	E-6	6767-6	Component 2G -	Hot Side Ore Conveyor and Conveyor Roof, Facing Southwest
E-7	E-7	6767-7	Component 2G -	Hot Side Ore Conveyor and Conveyor Roof, Facing North
E-7	E-8	6767-8	Component 2G -	Hot Side Ore Conveyor and Conveyor Roof, Facing East
E-8	E-9	6767-28	Component 3B -	Ozone Building, Facing Northwest
E-8	E-10	6767-29	Component 3B -	Ozone Building, Facing Southwest
E-9	E-11	6767-34	Component 3B -	Ozone Building, Interior
E-9	E-12	6767-20	Component 3C -	NAR Control House, Facing Northeast
E-10	E-13	6219-12	Component 3F -	Harshaw System, Facing North
E-10	E-14	6219-30	Component 3F -	Harshaw System, Facing Northwest
E-11	E-15	6767-18	Component 3G -	Refrigeration Building, Facing Northeast
E-11	E-16	6767-19	Component 3G -	Refrigeration Building, Interior
E-12	E-17	6219-25	Component 8F -	Plant 8 Old Drum Washer, Facing North
E-12	E-18	6219-26	Component 8F -	Plant 8 Old Drum Washer, Facing East
E-13	E-19	6767-25	Component 10D -	Contaminated Oil/Graphite Burn Pad, Facing Northwest
E-13	E-20	6767-26	Component 10D -	Contaminated Oil/Graphite Burn Pad, Facing Northwest
E-14	E-21	6689-43	Component 12B -	Cylinder Storage Building, Facing Northwest
E-14	E-22	6689-42	Component 12B -	Cylinder Storage Building, Facing Interior
E-15	E-23	6689-47	Component 12C -	Lumber Storage Building, Facing Southwest
E-15	E-24	6689-44	Component 12C -	Lumber Storage Building, Facing Interior
E-16	E-25	6767-27	Component 22A -	Gas Meter Building, Facing East
E-16	E-26	6767-14	Component 22D -	Scale House, Facing North
E-17	E-27	6689-66	Component 24B -	Railroad Engine House
E-18	E-28	6219-20	Component 38A -	Propane Storage, Facing Northwest

APPENDIX E

PHOTOGRAPHS (Continued)

Page No.	Figure No.	Negative No.	Photo Title/Location
E-18	E-29	6219-17	Component 38A - Propane Storage, Facing Southwest
E-19	E-30	6219-14	Component 38A - Propane Storage, Interior
E-19	E-31	6219-21	Component 38A - Propane Storage, Interior
E-20	E-32	6219-13	Component 38B - Cylinder Filling Station, Facing Northeast
E-20	E-33	6219-9	Component 38B - Cylinder Filling Station, Interior
E-21	E-34	6767-13	Component 39B - Waste Oil Decant Shelter, Facing Northeast
E-21	E-35	6767-17	Component 39C - Incinerator Sprinkler Riser House, Facing Northwest
E-22	E-36	6767-21	Component 45B - Utility Shed East of Trailers, Facing Northwest
E-22	E-37	6219-32	Component 45B - Utility Shed East of Trailers, Facing Southwest
E-23	E-38	6767-24	Component 60 - Quonset Hut 1, Facing Northwest - Furthest Hut at left
E-23	E-38	6767-24	Component 61 - Quonset Hut 2, Facing Northwest - Center Hut
E-23	E-38	6767-24	Component 62 - Quonset Hut 3, Facing Northwest - Large Hut at right
E-24	E-39	6767-23	Component 63 - KC-2 Warehouse, Facing Northeast
E-25	E-40	6620-37	Electrical Utility Tower

000140

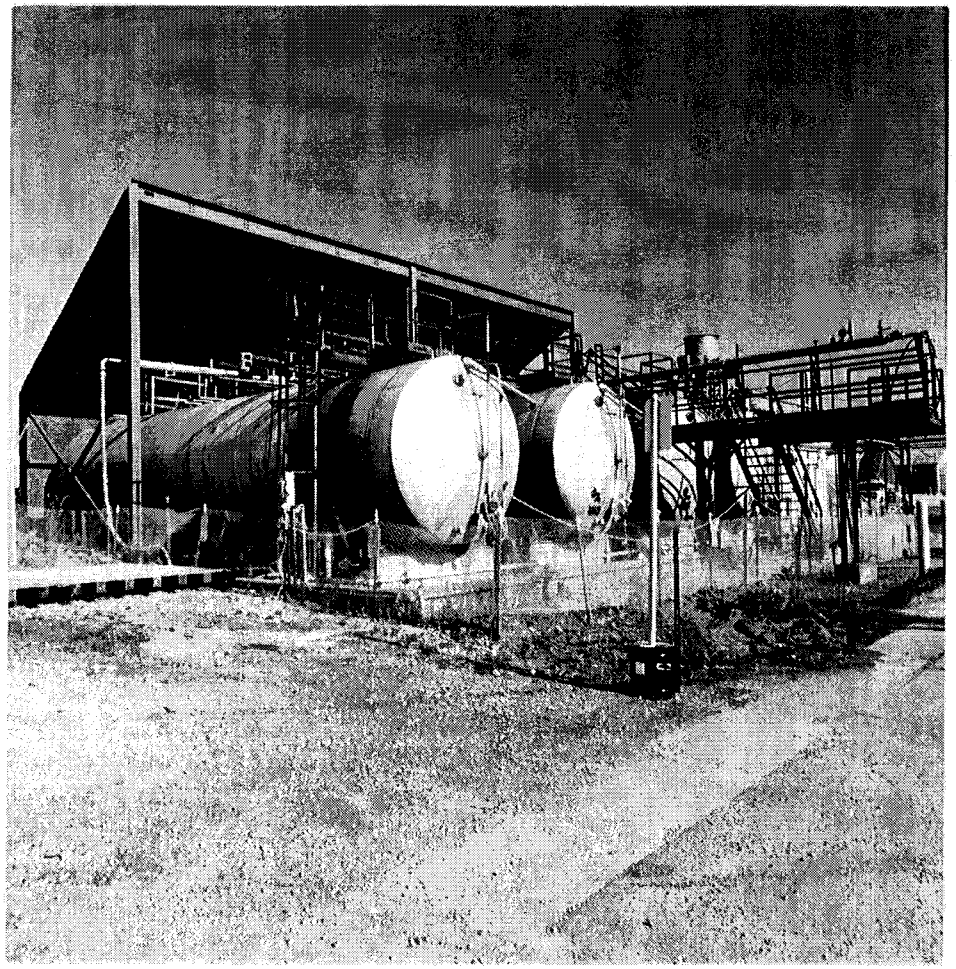

FIGURE E-1
2E - NFS Storage, Facing Northeast

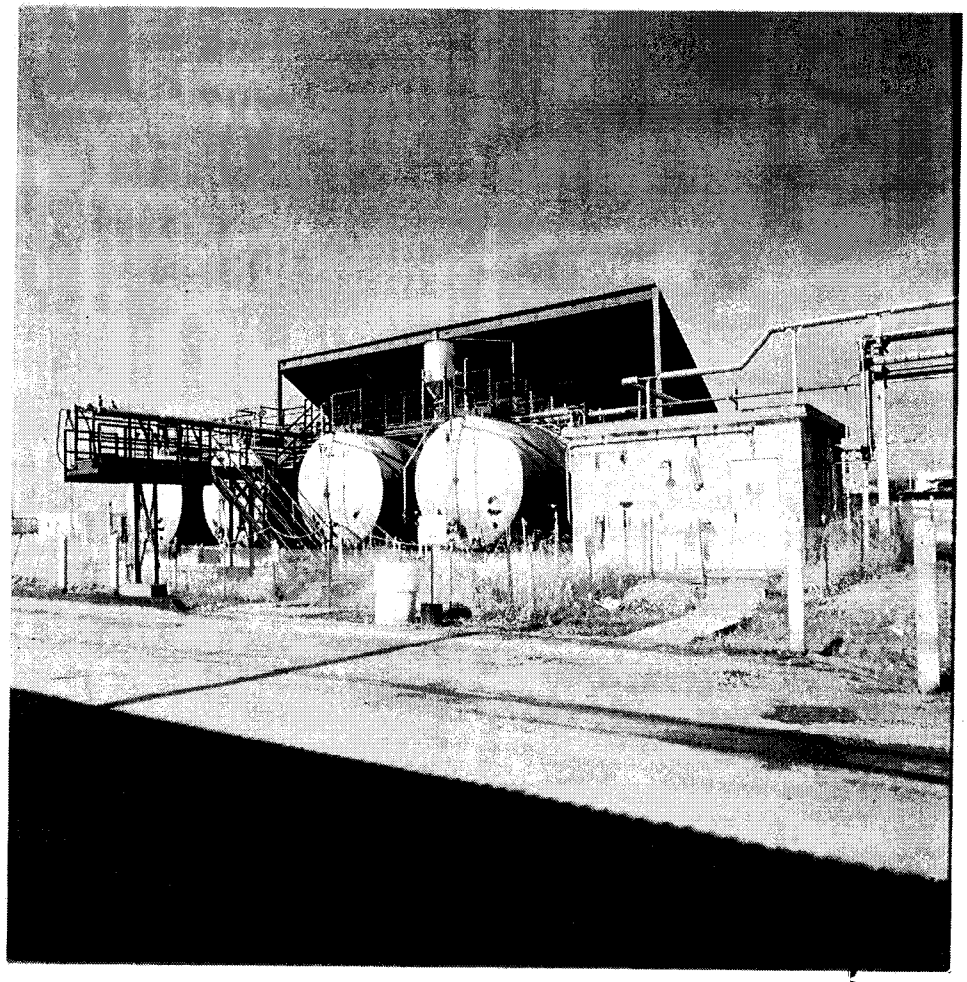

FIGURE E-2
2E - NFS Storage and Pump House, Facing Northwest

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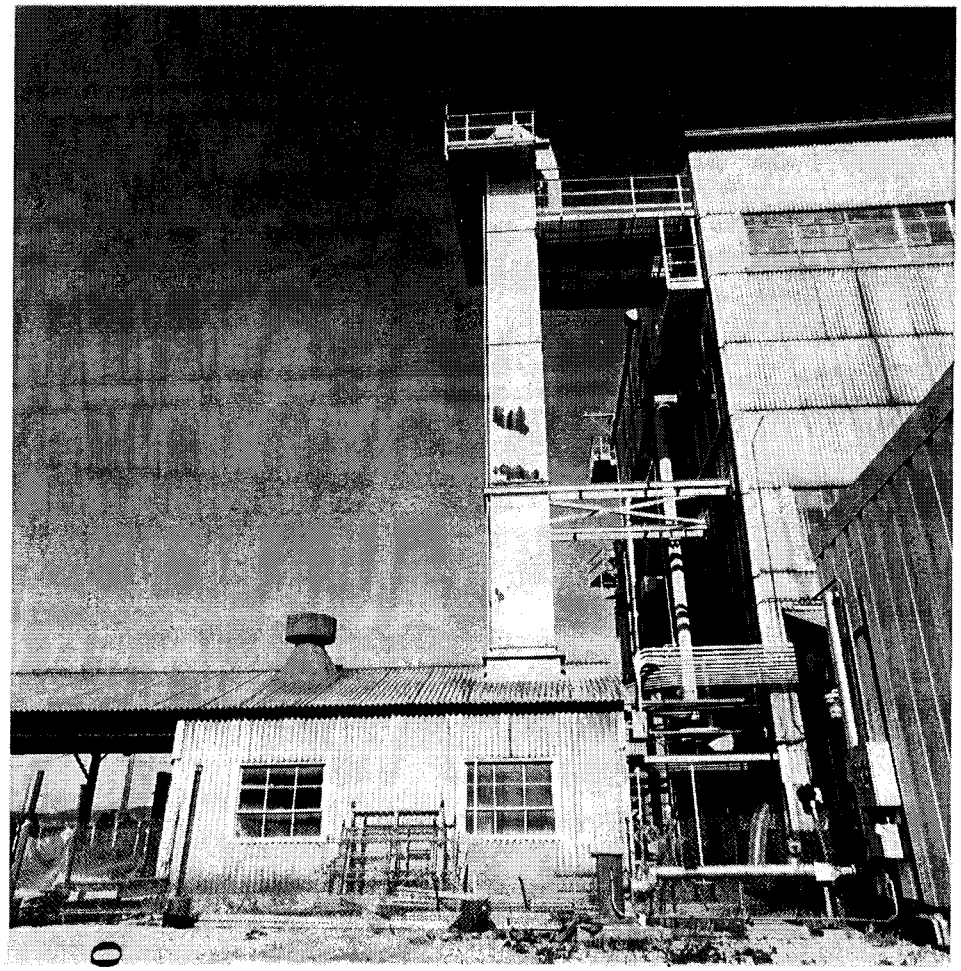

FIGURE E-3
2F - Cold Side Ore Vertical Conveyor
& Drum Dumper Bldg., Facing North
(Note: Vertical Conveyor remains in place)

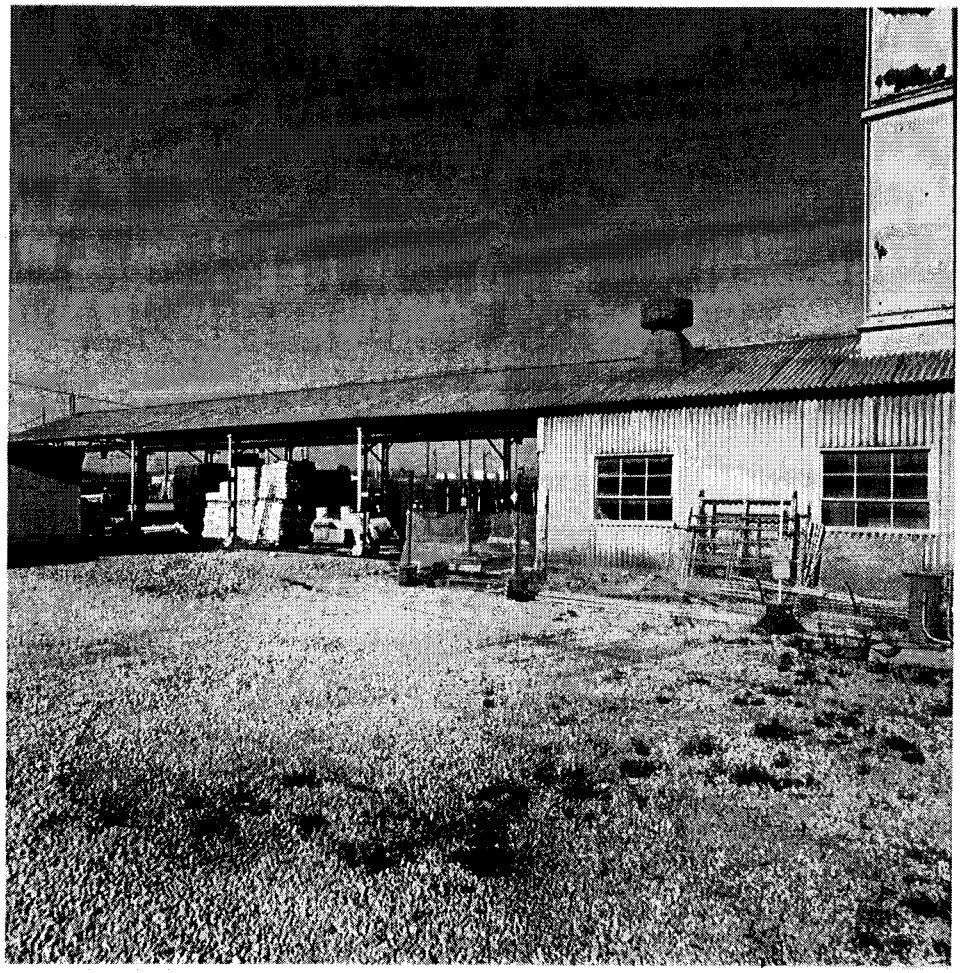

FIGURE E-4
2F - Cold Side Ore Drum Dumper Building
and Conveyor Roof, Facing Northwest

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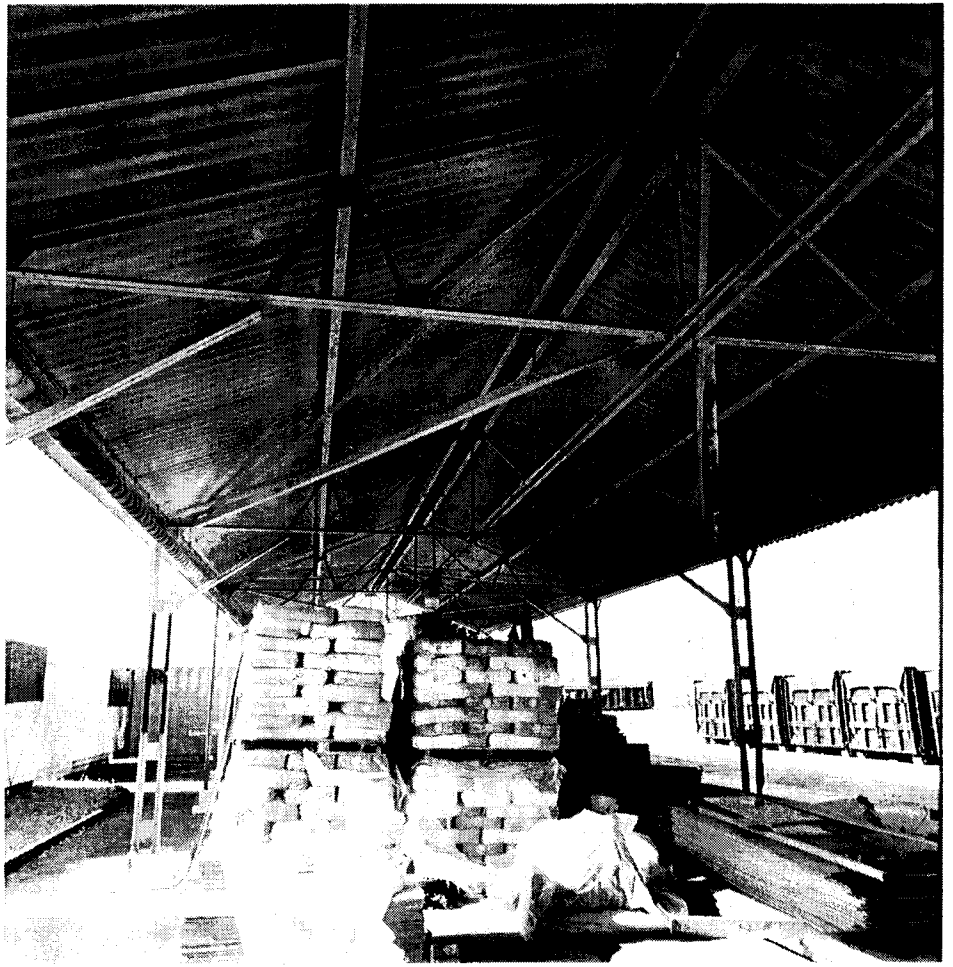

FIGURE E-5
2F - Cold Side Ore Conveyor Area
and Conveyor Roof, Facing West

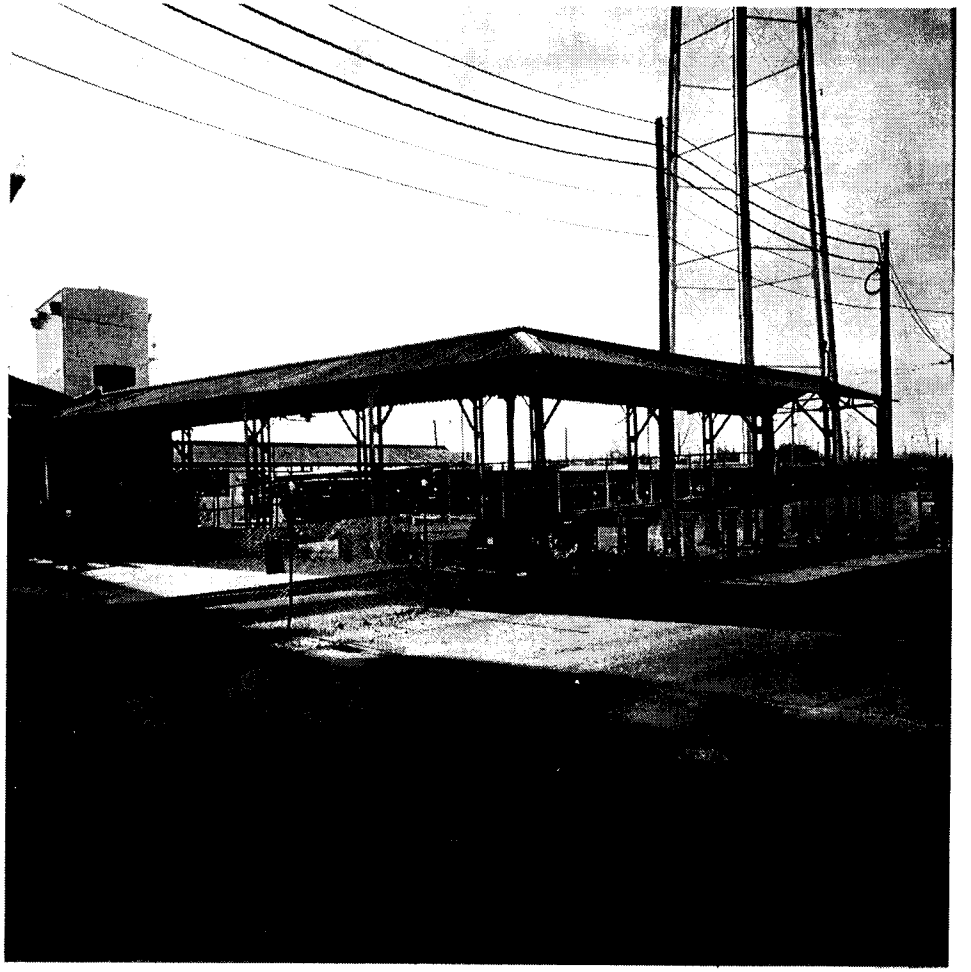

FIGURE E-6
2G - Hot Side Ore Conveyor and
Conveyor Roof, Facing Southwest

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FIGURE E-7
2G - Hot Side Ore Conveyor and
Conveyor Roof, Facing North

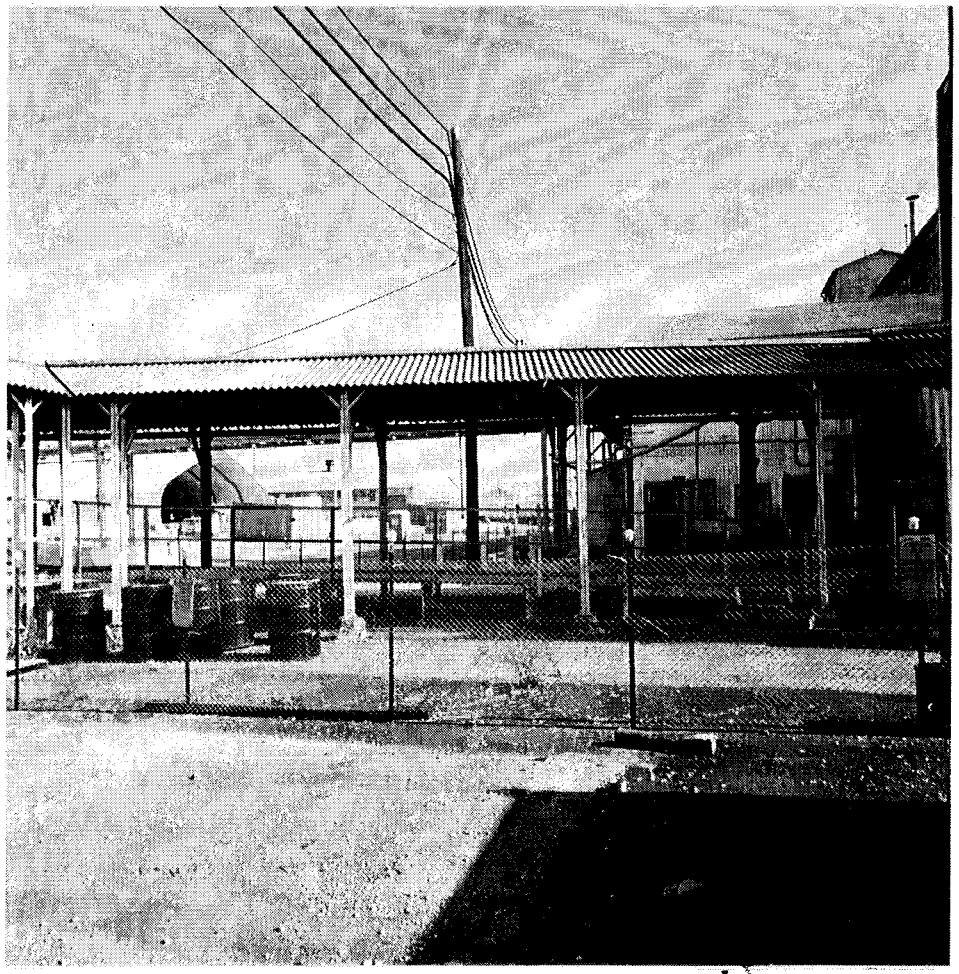

FIGURE E-8
2G - Hot Side Ore Conveyor and
Conveyor Roof, Facing East

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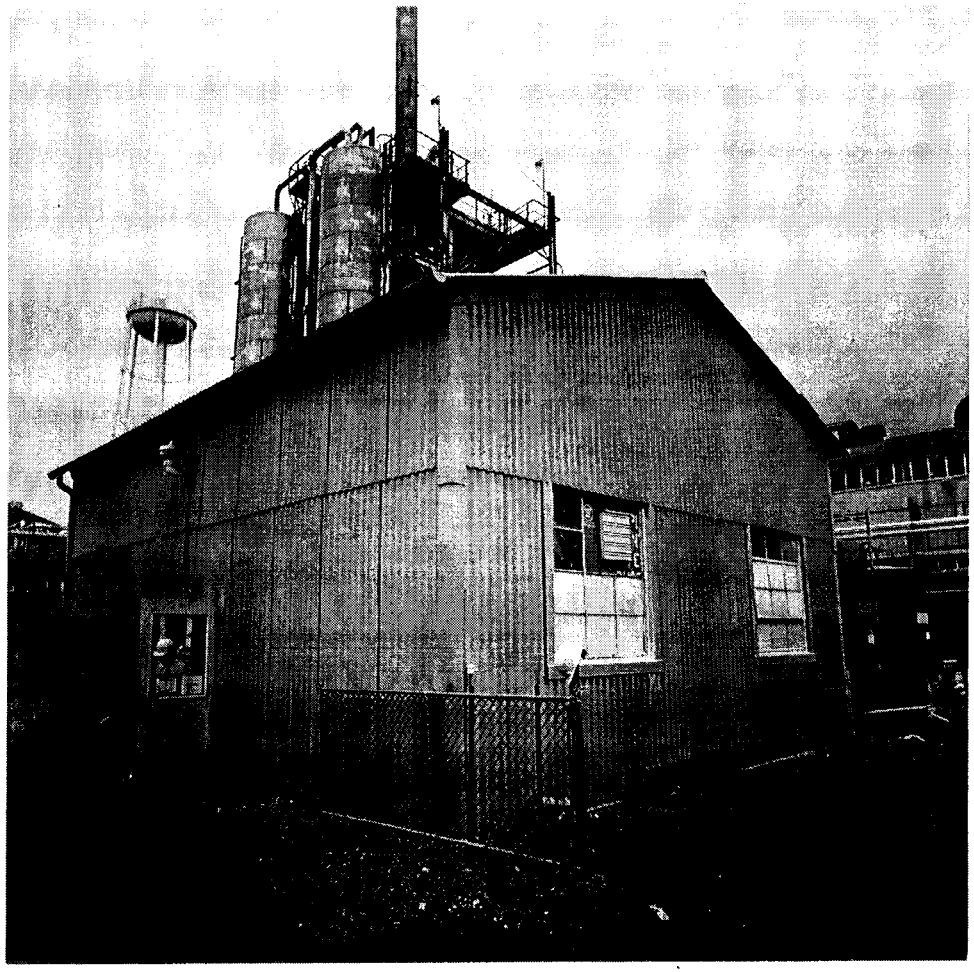

FIGURE E-9
3B - Ozone Building, Facing Northwest

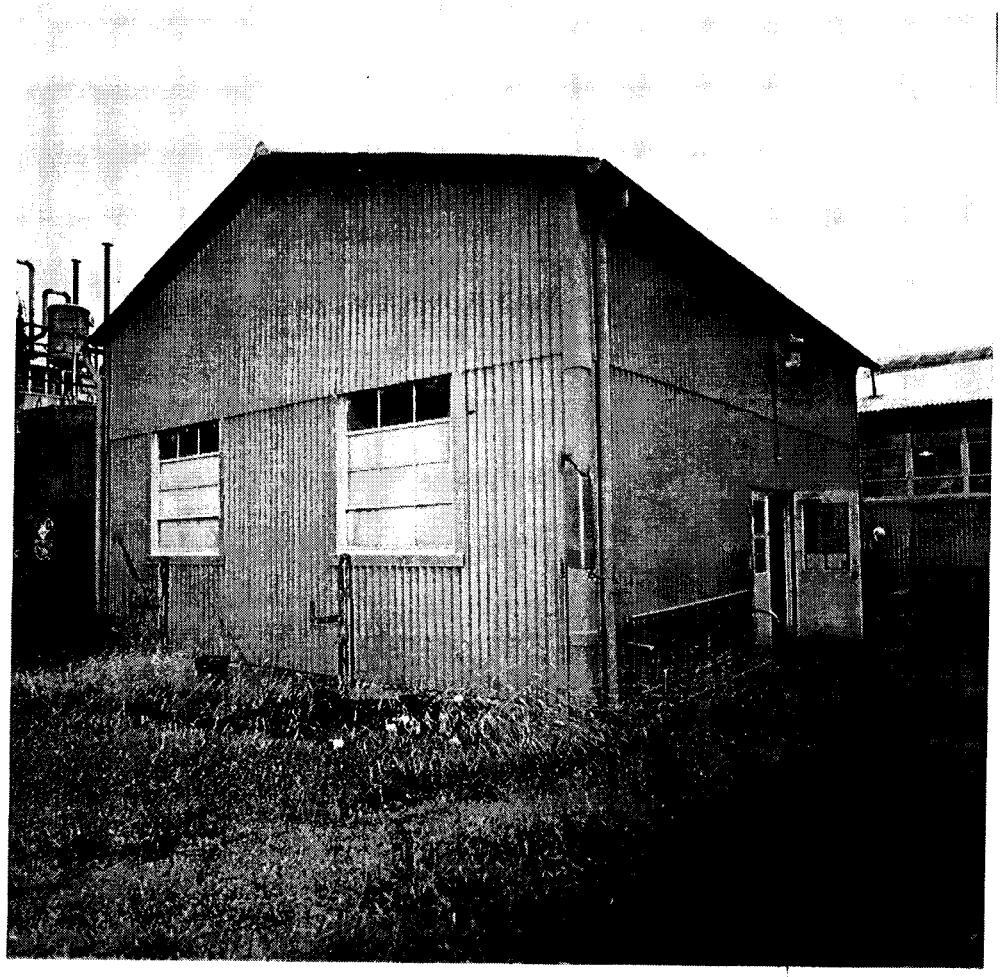

FIGURE E-10
3B - Ozone Building, Facing Northeast

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FIGURE E-11
3B - Ozone Building, Interior

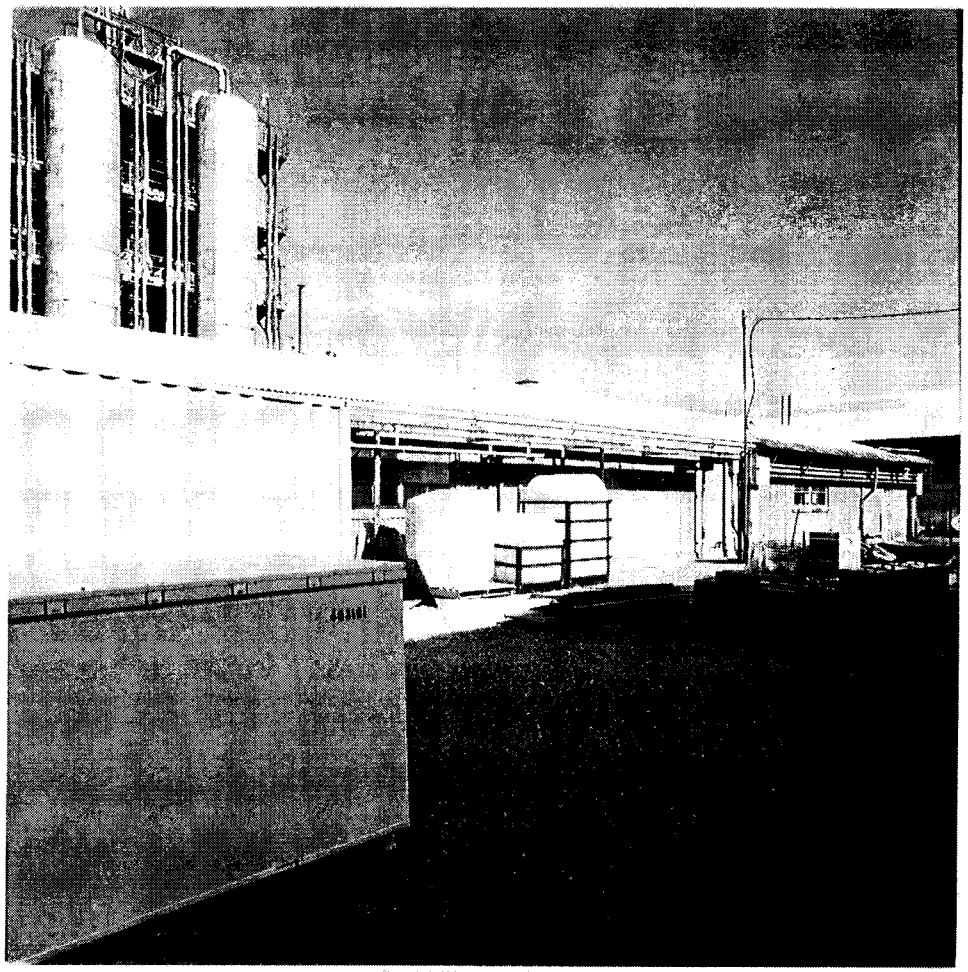

FIGURE E-12
3C - NAR Control House, Facing Northeast

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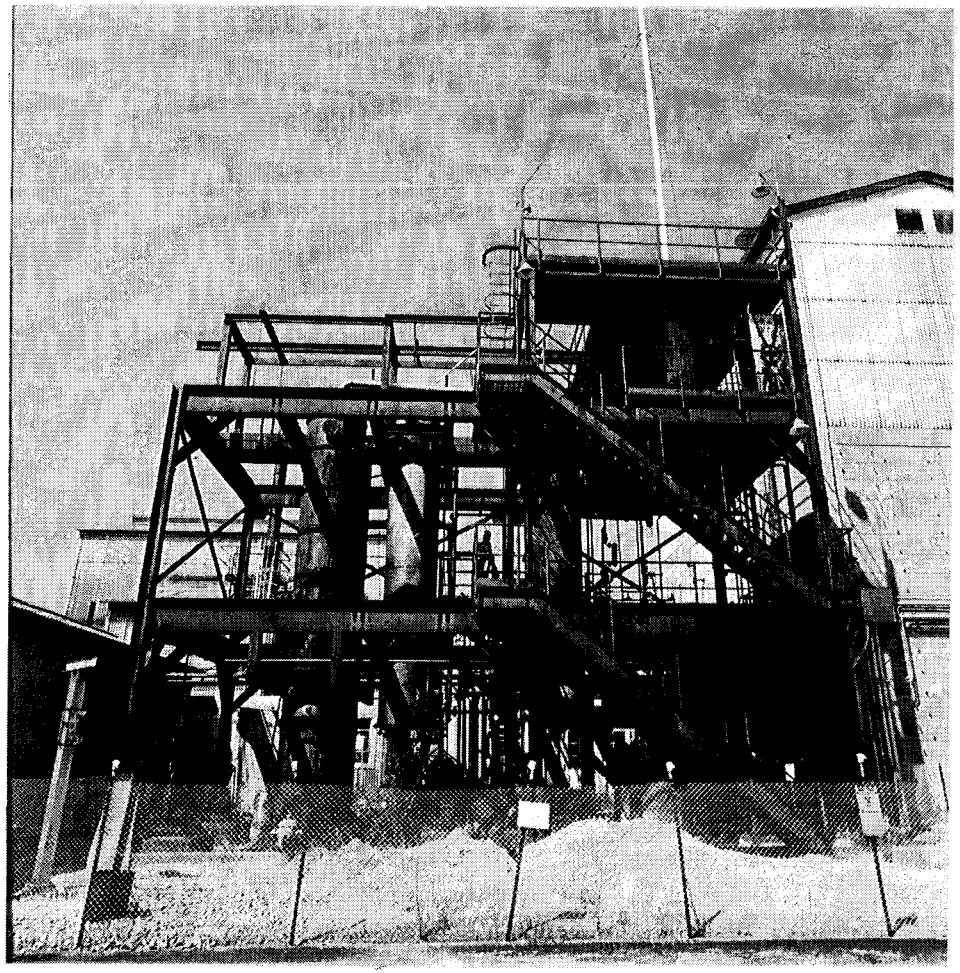

FIGURE E-13
3F - Harshaw Tower, Facing North

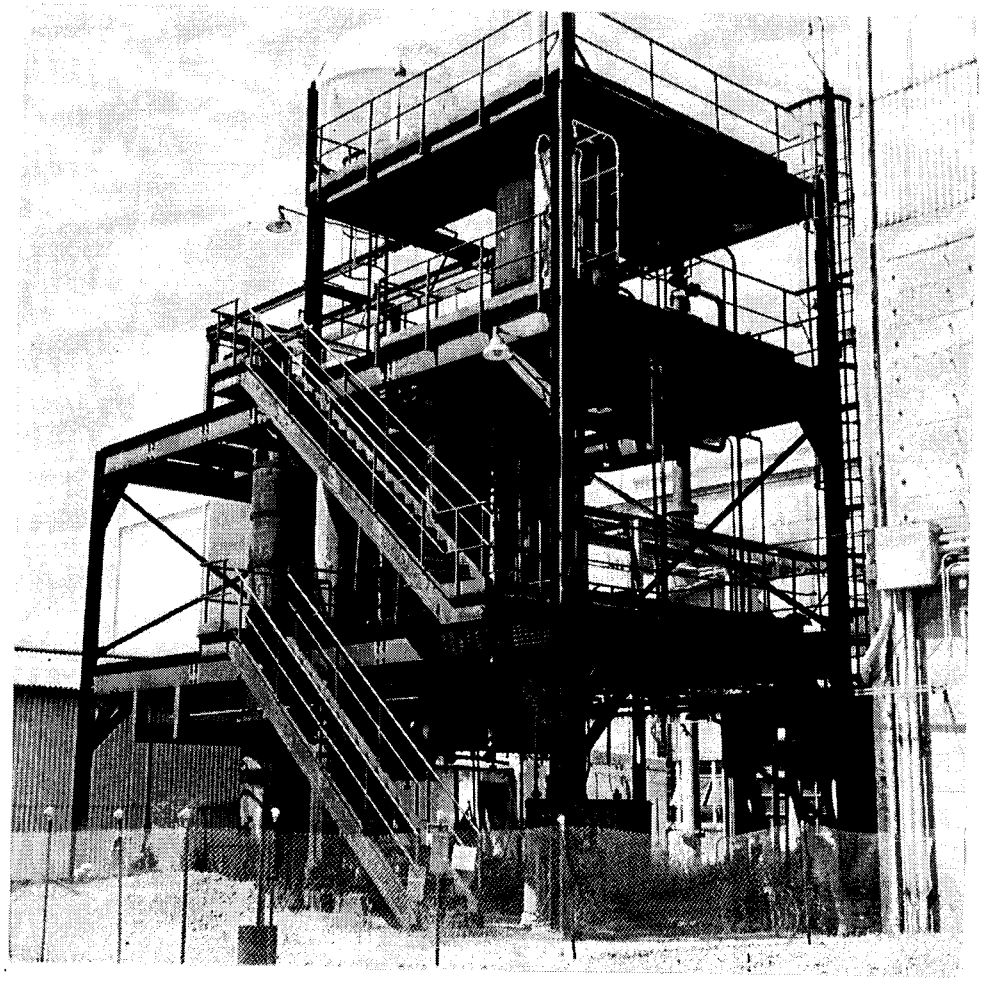

FIGURE E-14
3F - Harshaw Tower, Facing Northwest

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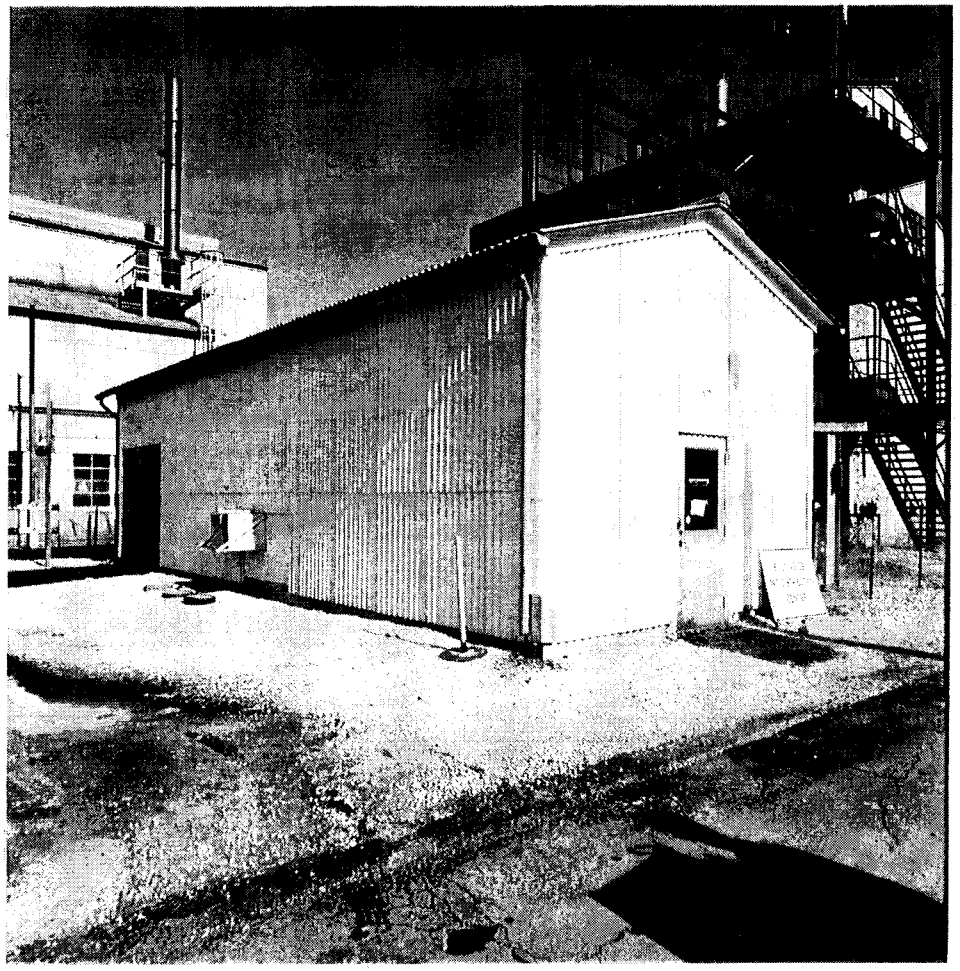

FIGURE E-15
3G - Refrigerator Building, Facing Northeast

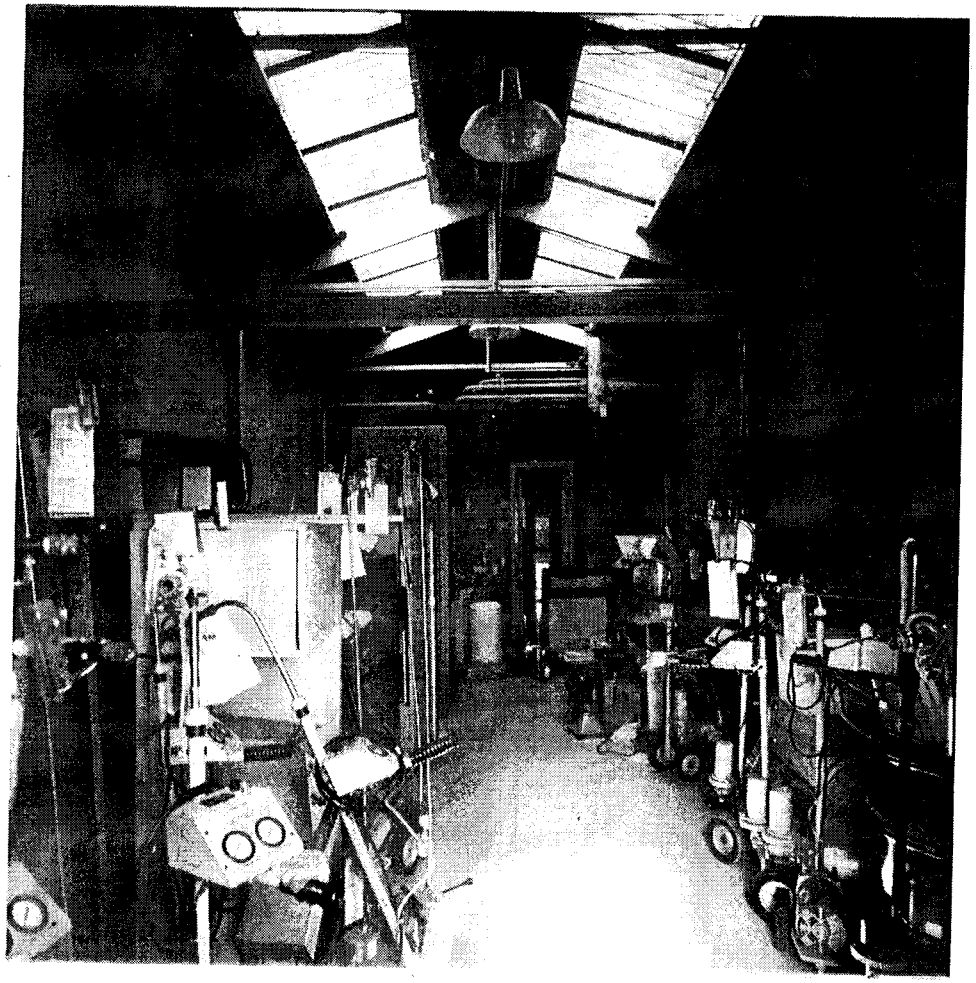

FIGURE E-16
3G - Refrigerator Building, Interior

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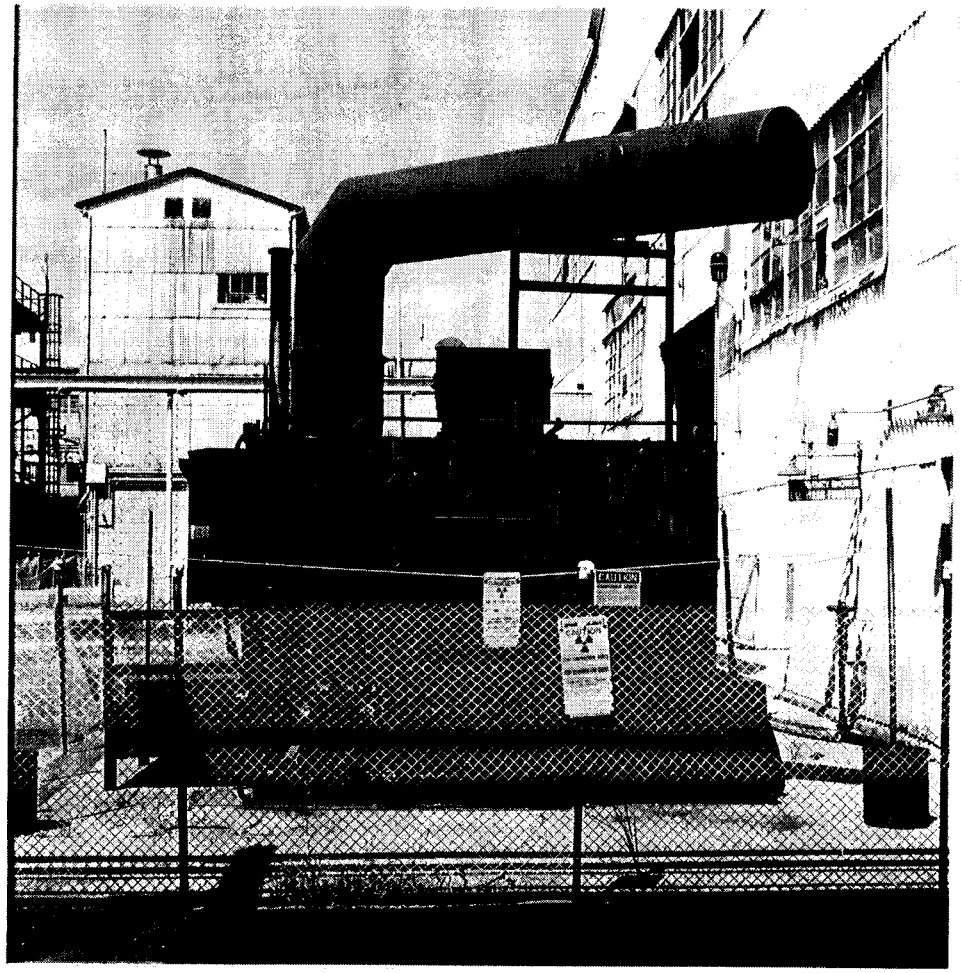

FIGURE E-17
8F - Plant 8 Old Drum Washer, Facing North

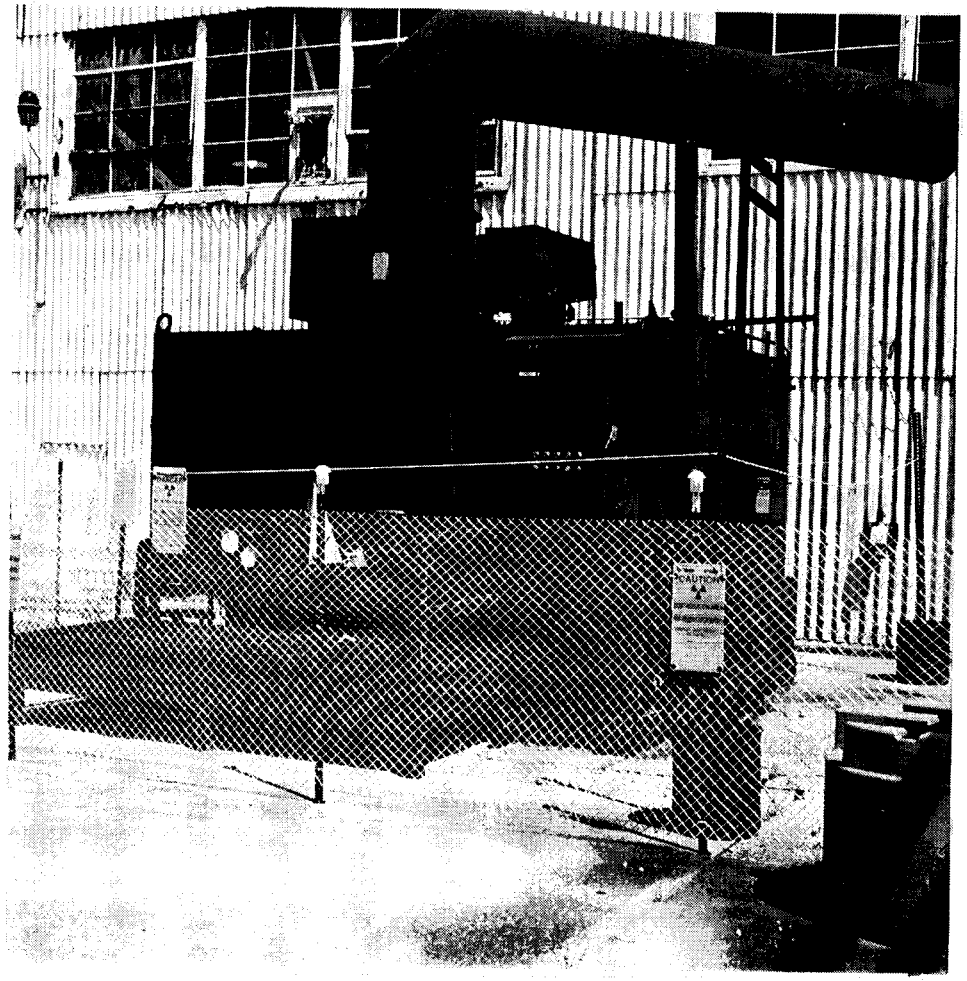

FIGURE E-18
8F - Plant 8 Old Drum Washer, Facing North

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FIGURE E-19
10D - Contaminated Oil/Graphite Burner Pad, Facing Northwest

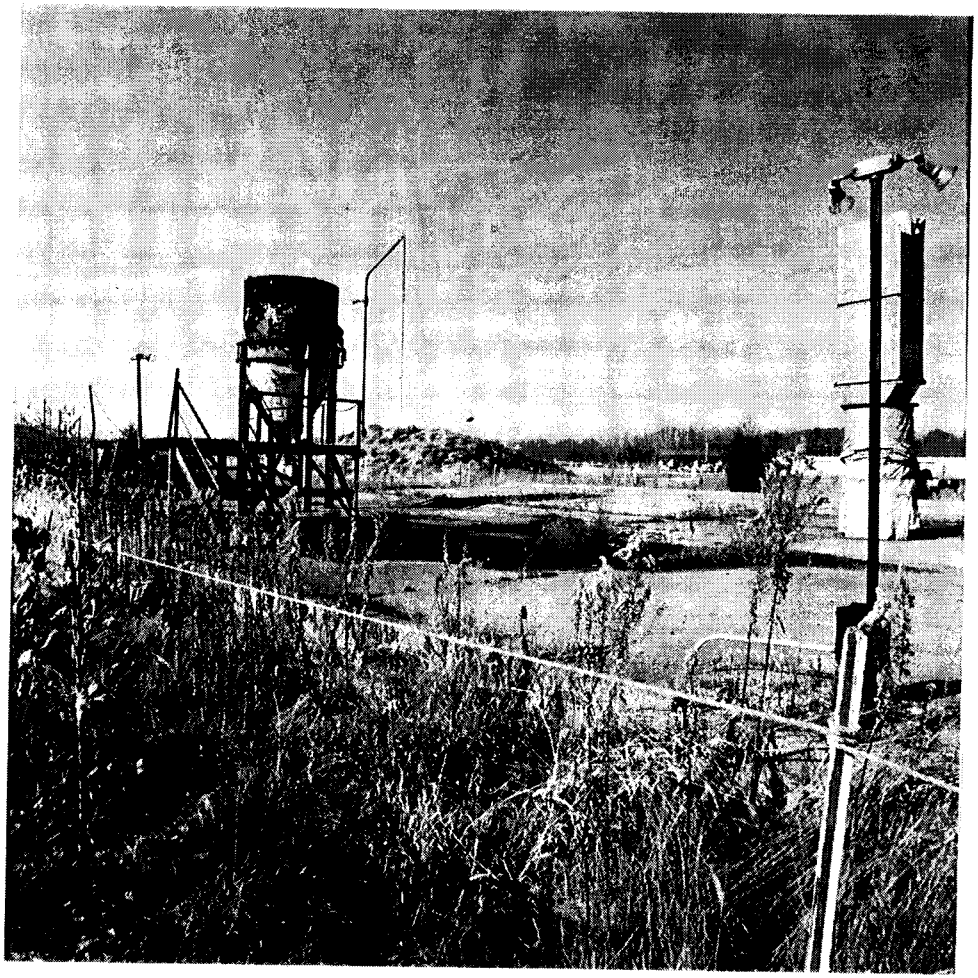

FIGURE E-20
10D - Contaminated Oil/Graphite Burner Pad, Facing Northwest

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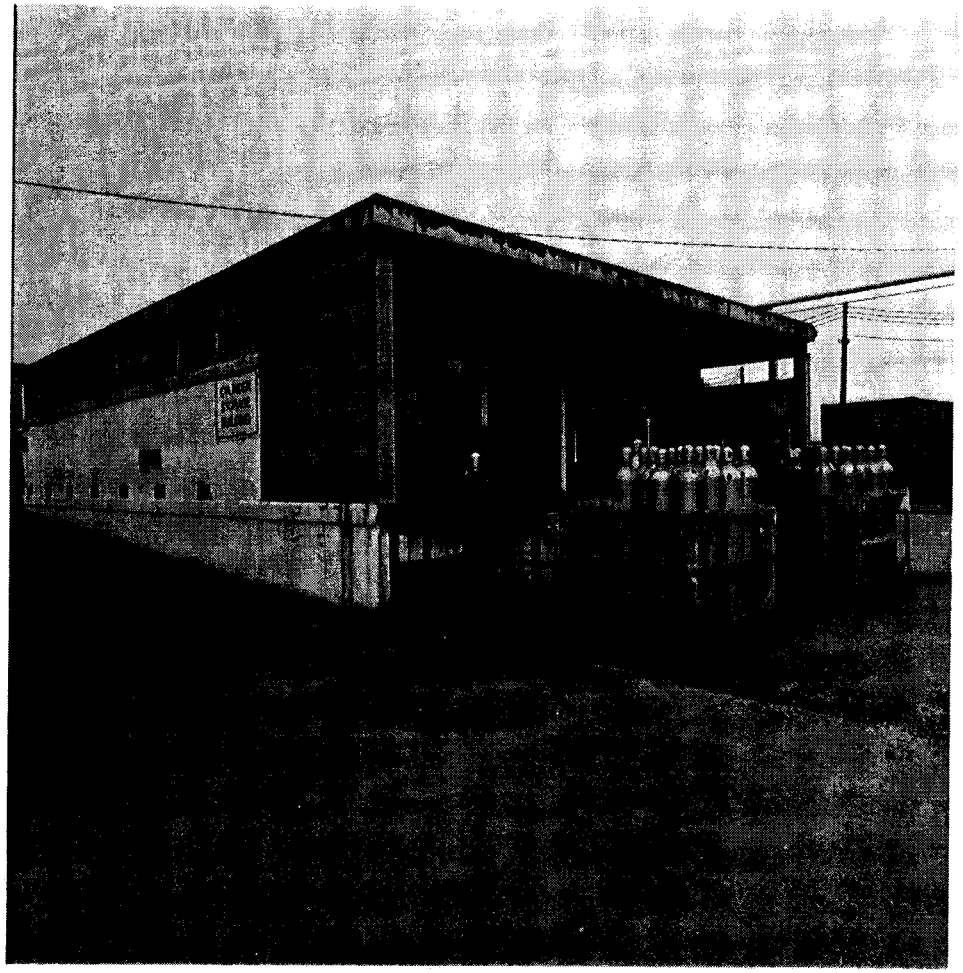

FIGURE E-21
12B - Cylinder Storage Building, Facing Northwest

FIGURE E-22
12B - Cylinder Storage Building, Interior

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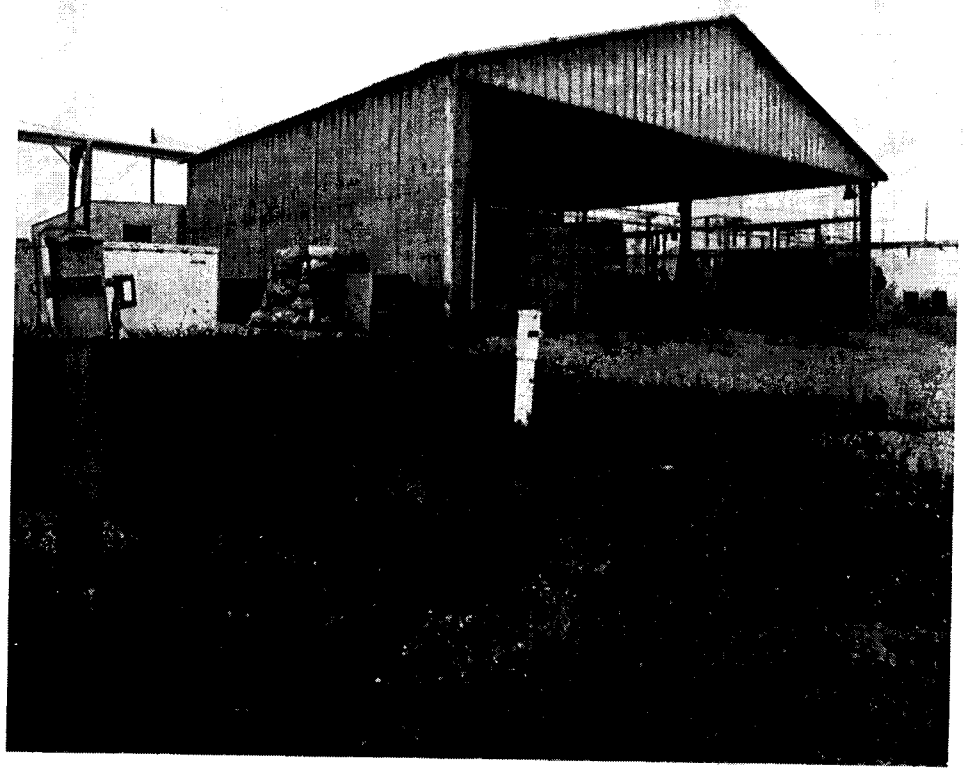

FIGURE E-23
12C - Lumber Storage Building, Facing Southwest

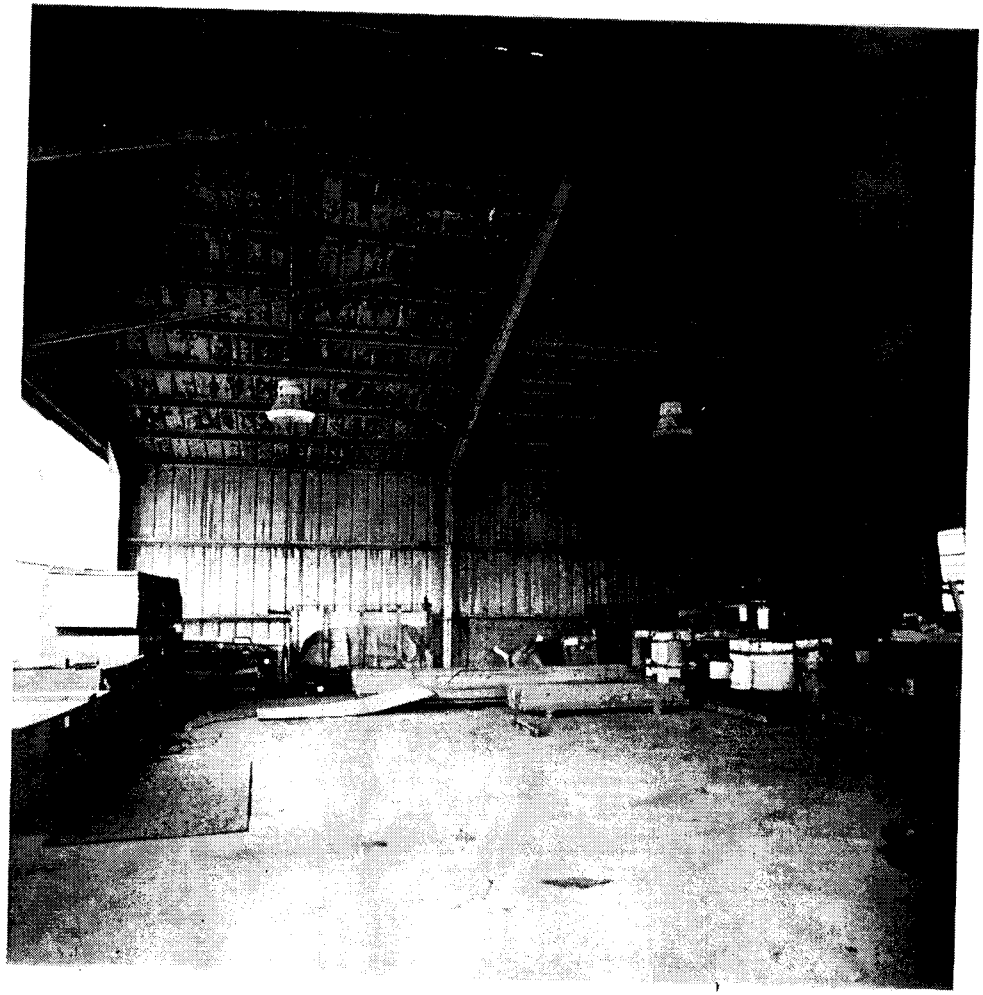

FIGURE E-24
12C - Lumber Storage Building, Interior

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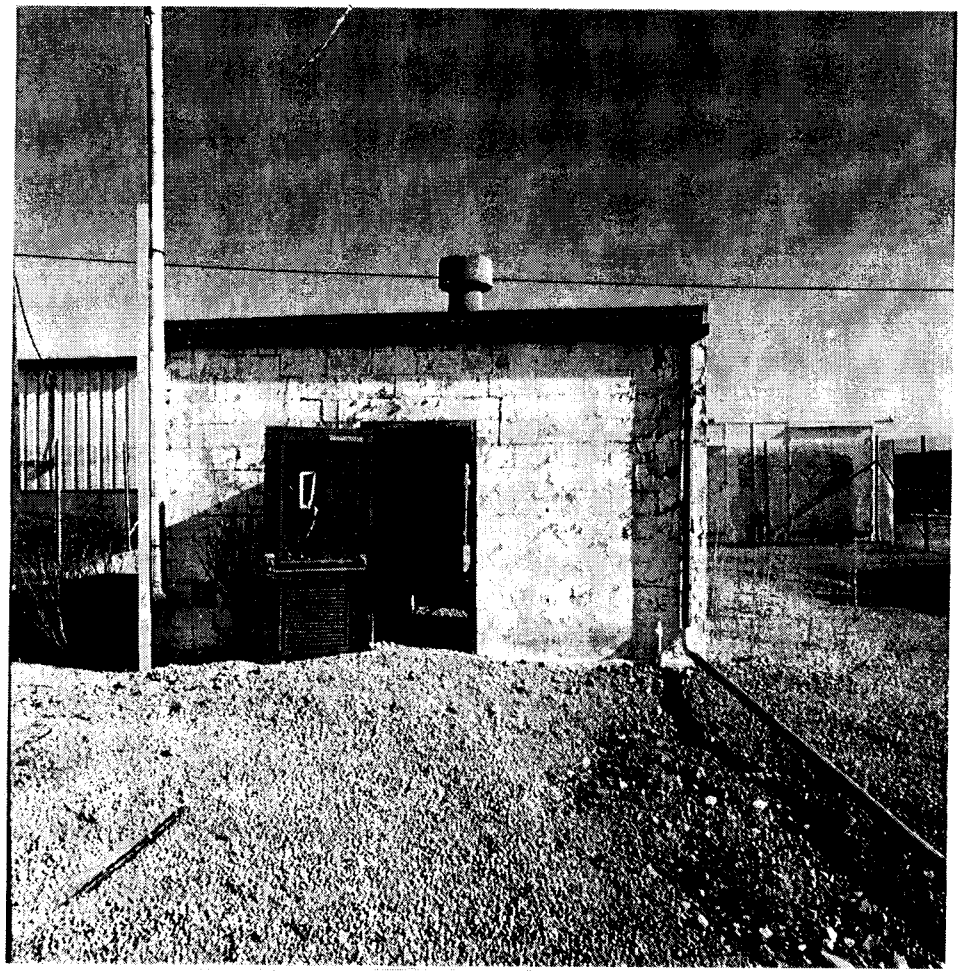

FIGURE E-25
22A - Gas Meter Building, Facing East

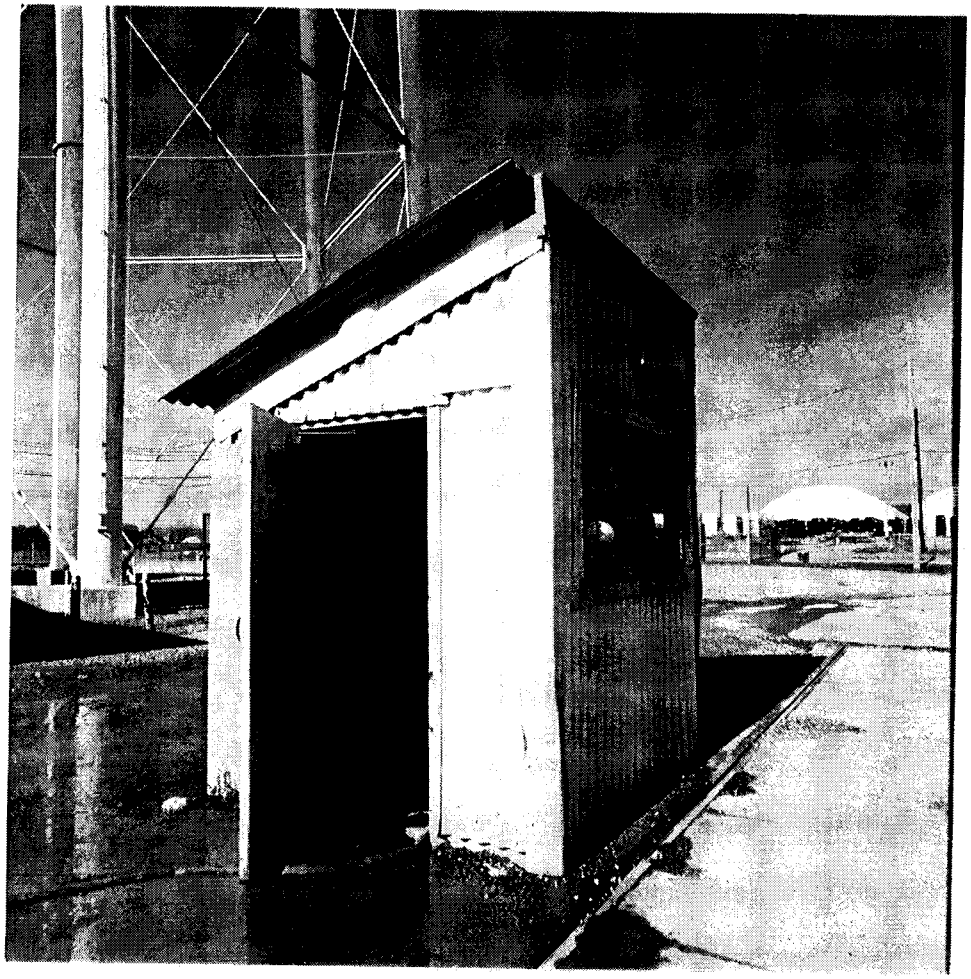

FIGURE E-26
22D - Scale House, Facing North

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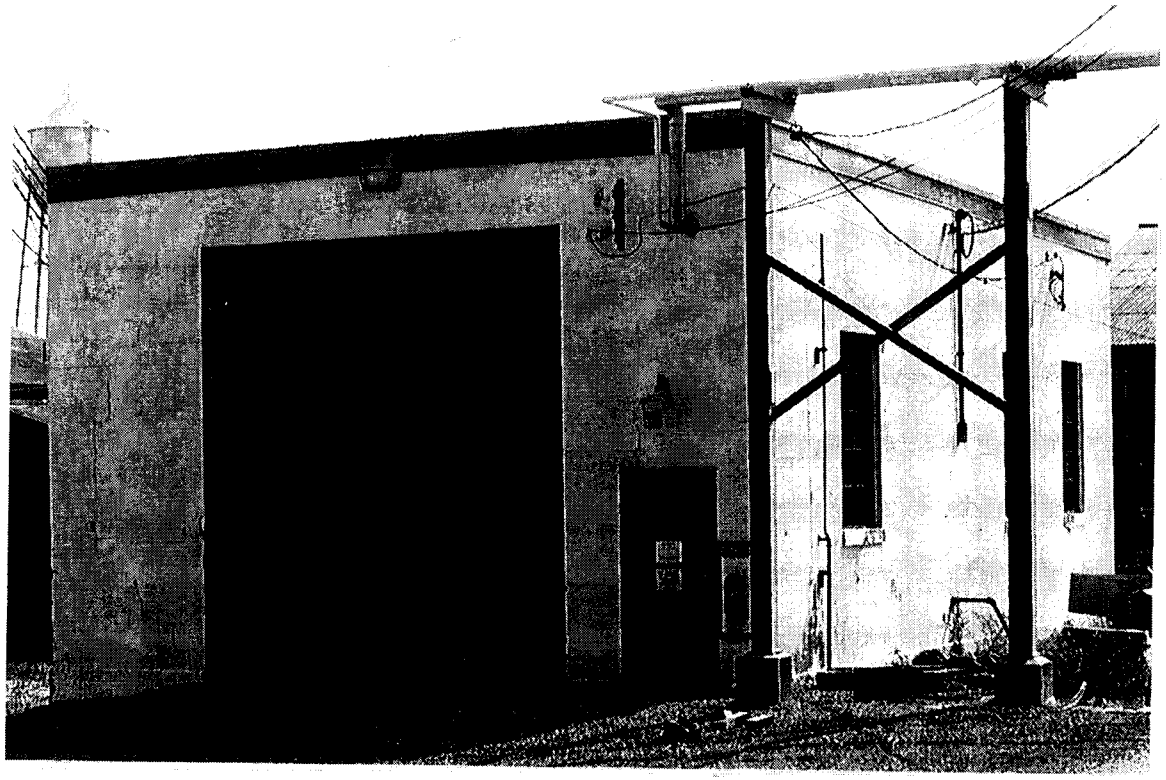

FIGURE E-27
Railroad Engine House, Facing Southeast

1265

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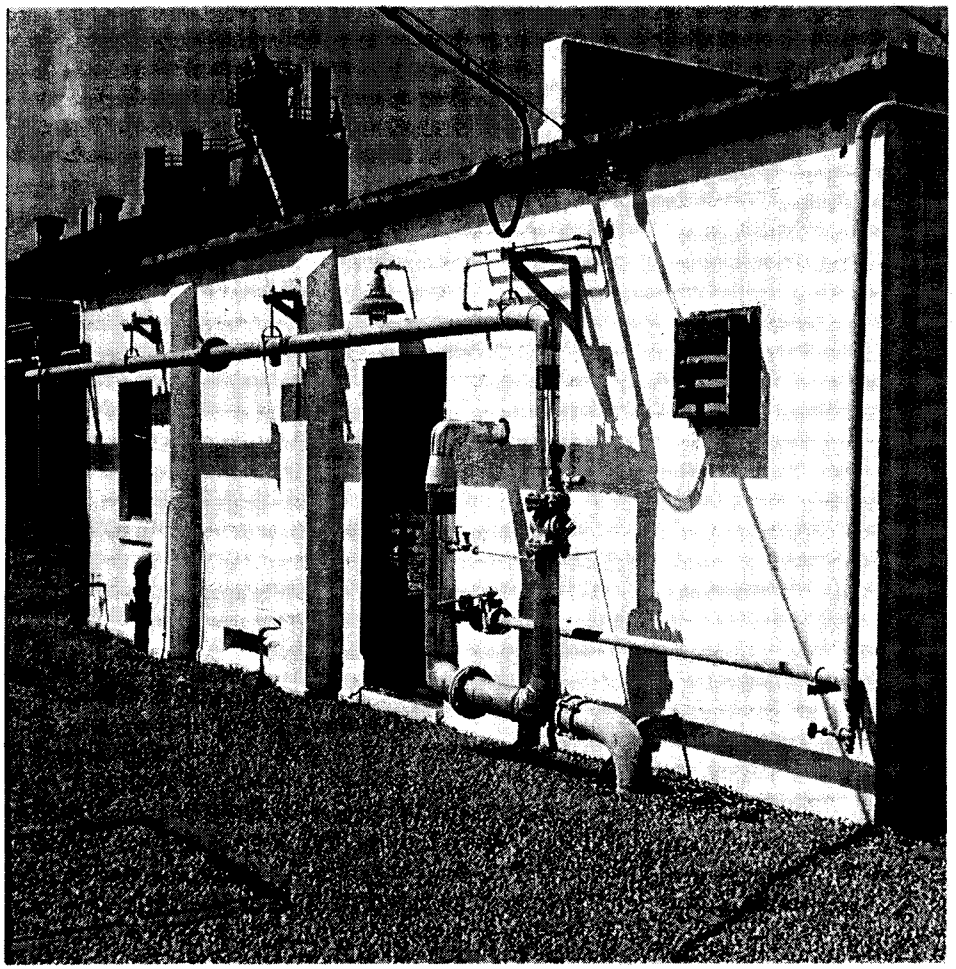

FIGURE E-28
38A - Propane Storage, Facing Northwest

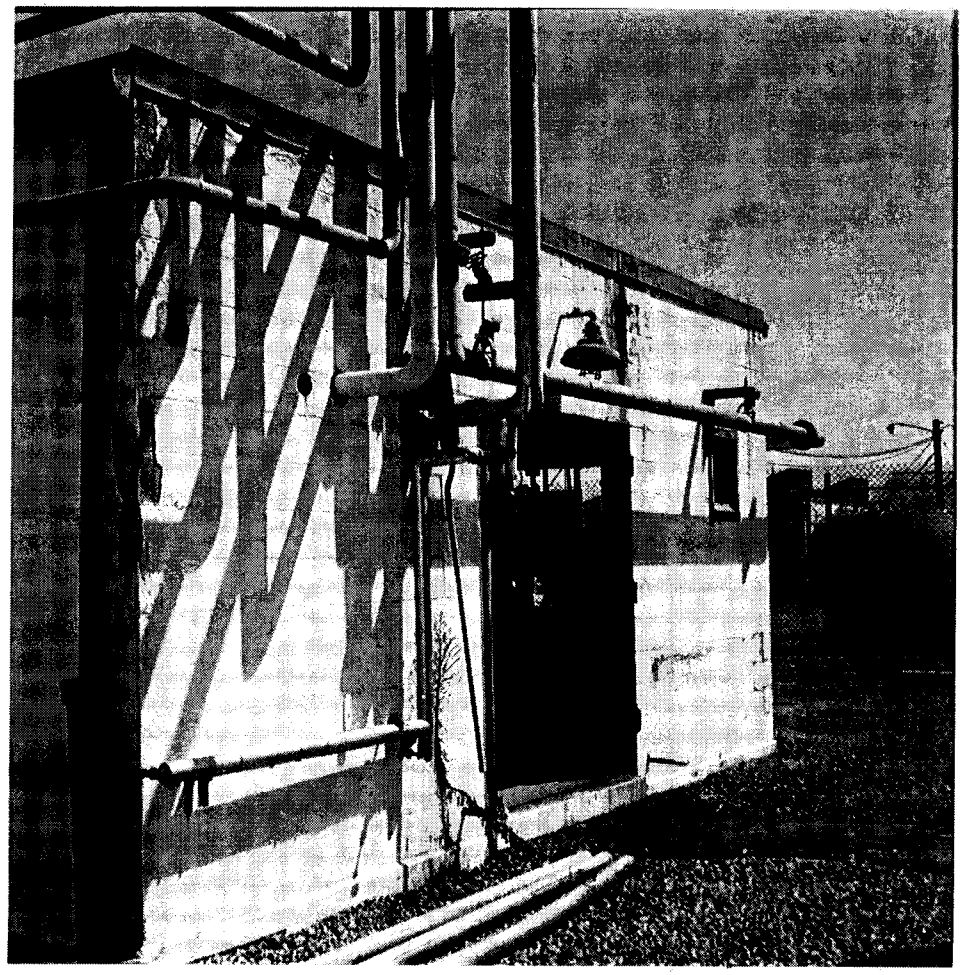

FIGURE E-29
38A - Propane Storage, Facing Southwest

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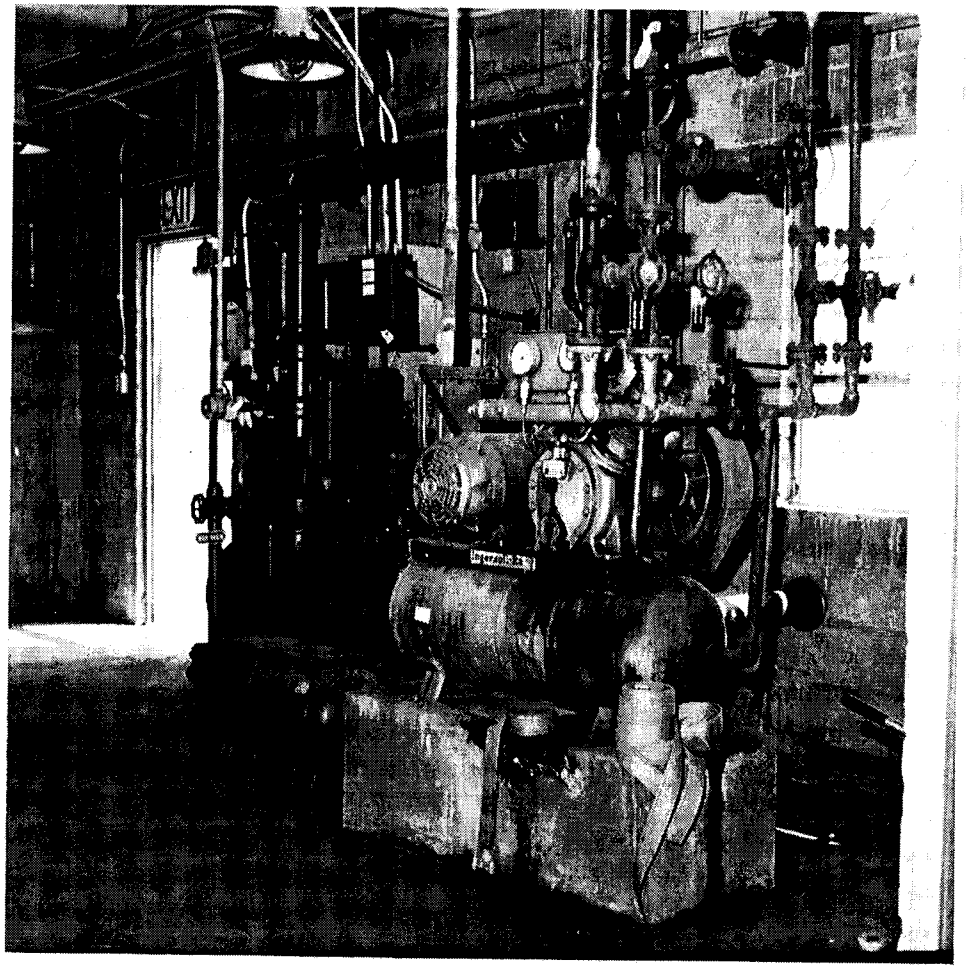

FIGURE E-30
38A - Propane Storage, Interior

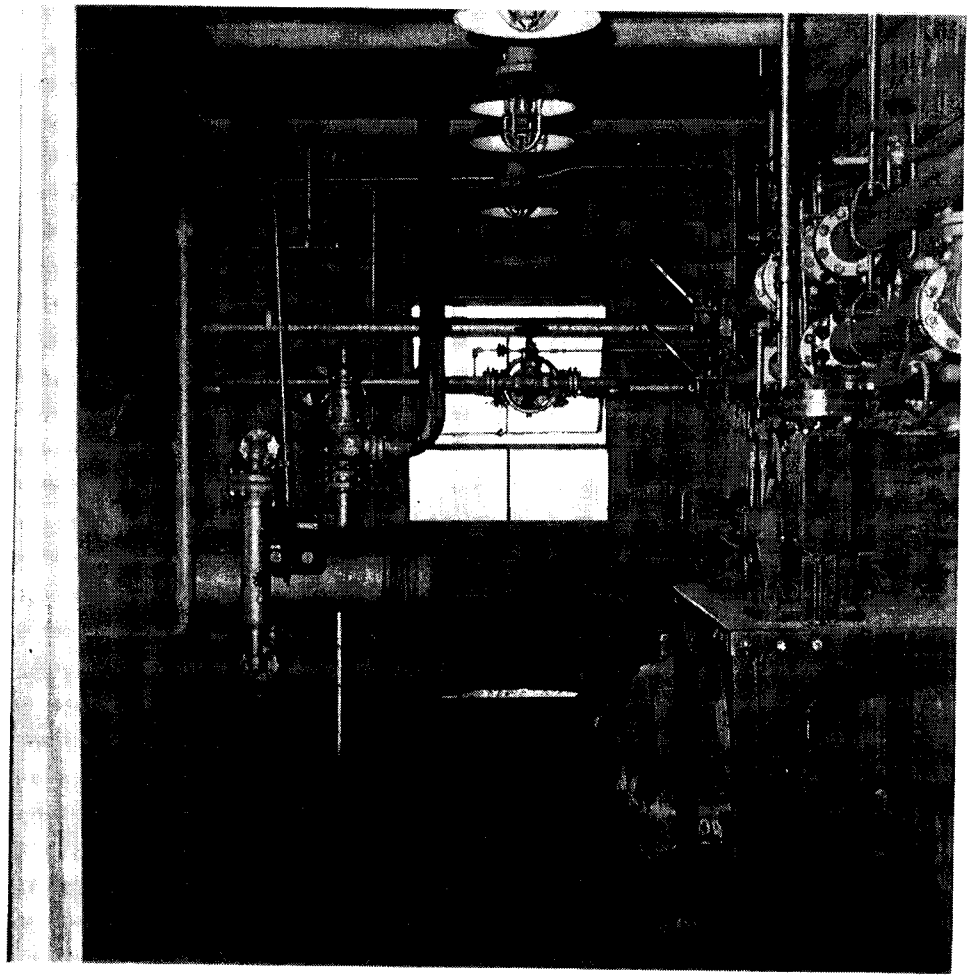

FIGURE E-31
38A - Propane Storage, Interior

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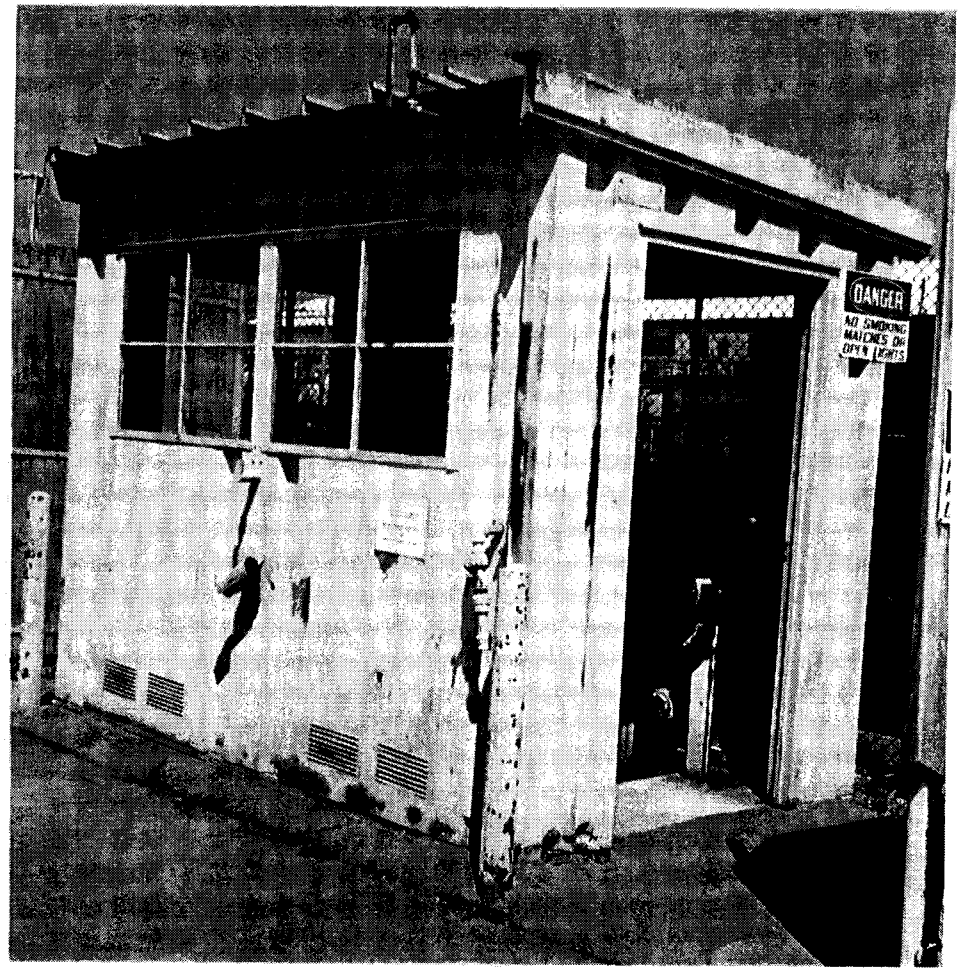

FIGURE E-32
Cylinder Filling Station, Facing Northeast

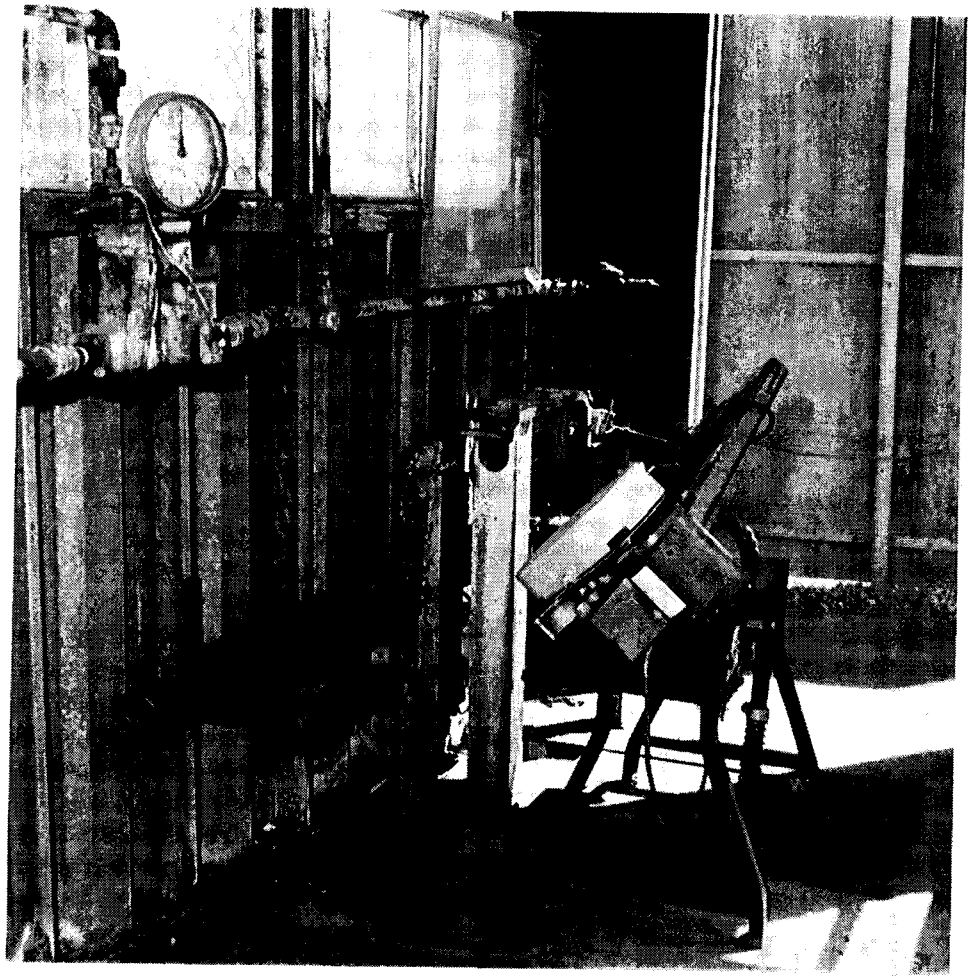

FIGURE E-33
Cylinder Filling Station, Interior

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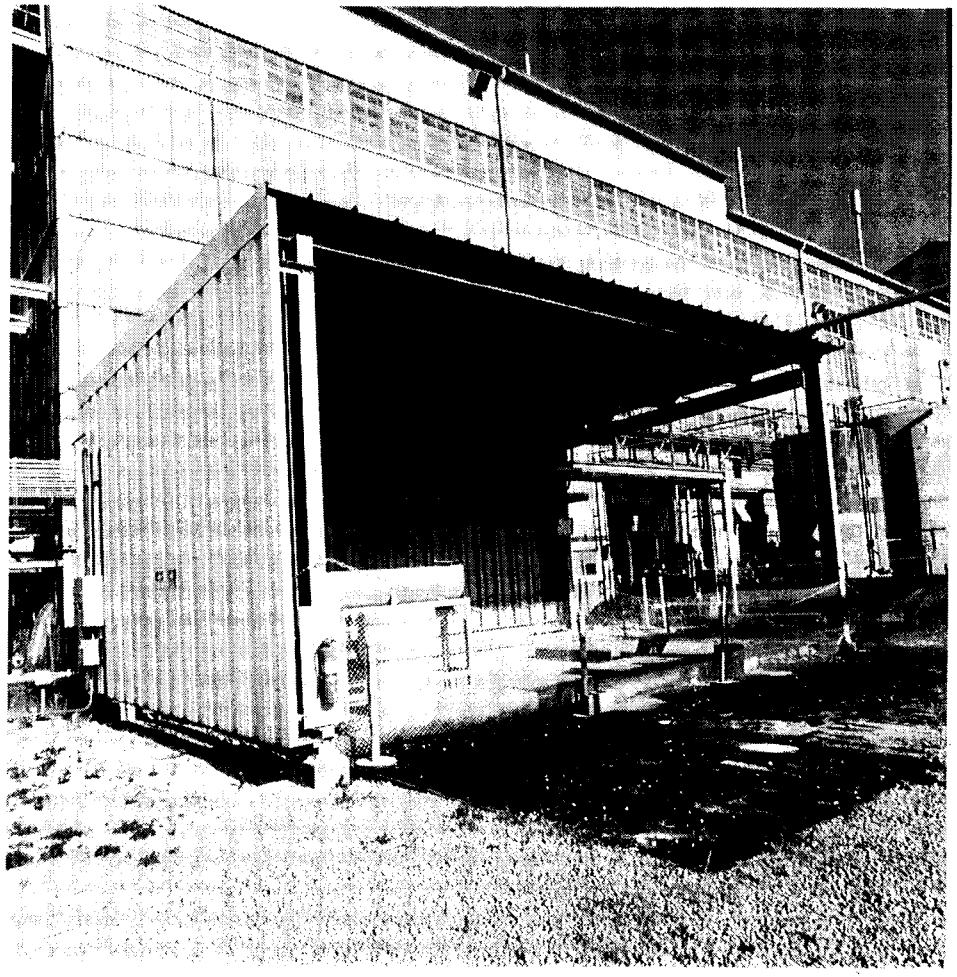

FIGURE E-34
39B - Waste Oil Decanter, Facing Northeast

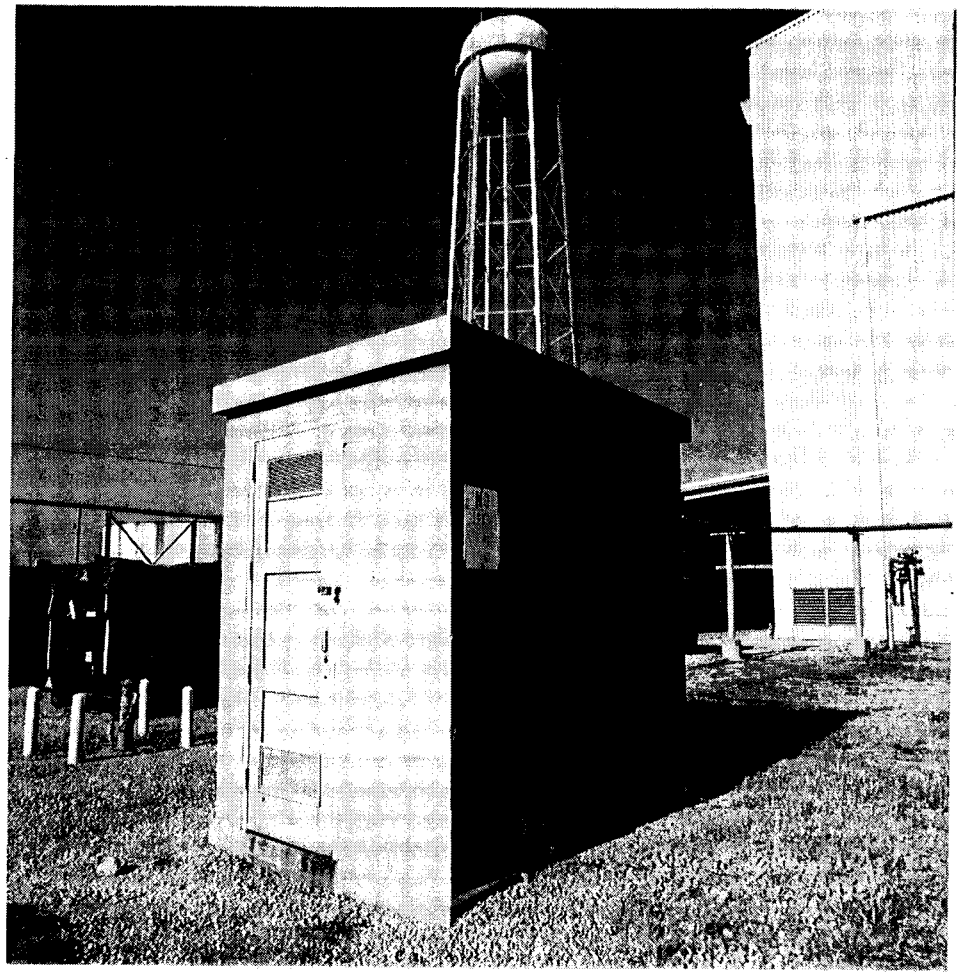

FIGURE E-35
39C - Incinerator Sprinkler Riser House, Facing Northwest

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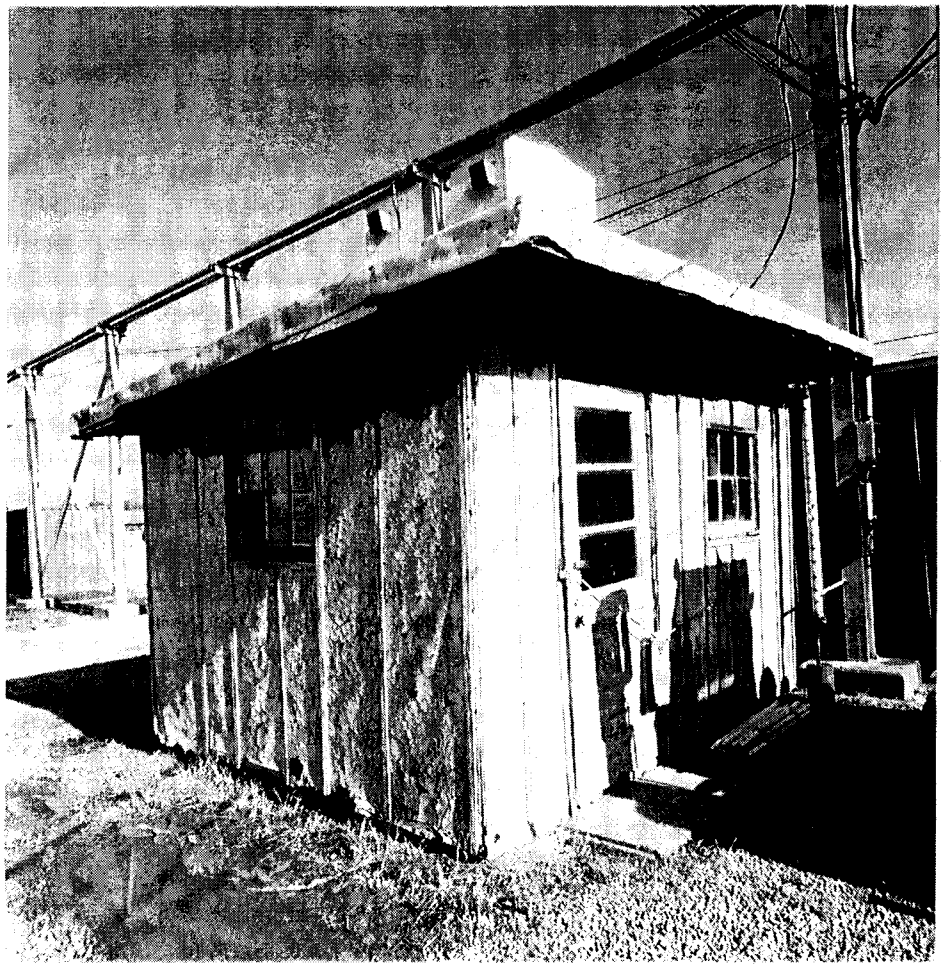

FIGURE E-36
45B - Utility Shed East of Trailers, Facing Northwest

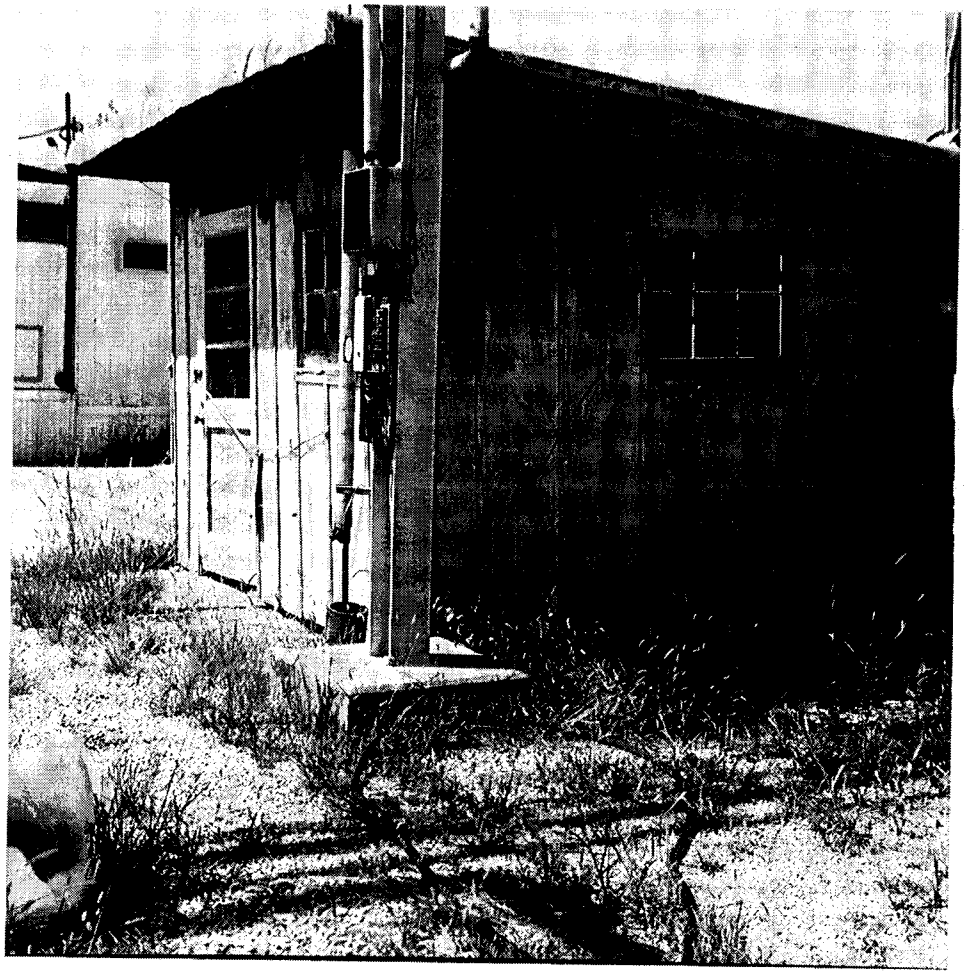

FIGURE E-37
45B - Utility Shed East of Trailers, Facing Southwest

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FIGURE E-38 - Facing Northwest

60 - Quonset Hut 1 - Furthest Hut at Left
61 - Quonset Hut 2 - Center Hut
62 - Quonset Hut 3 - Large Hut at Right

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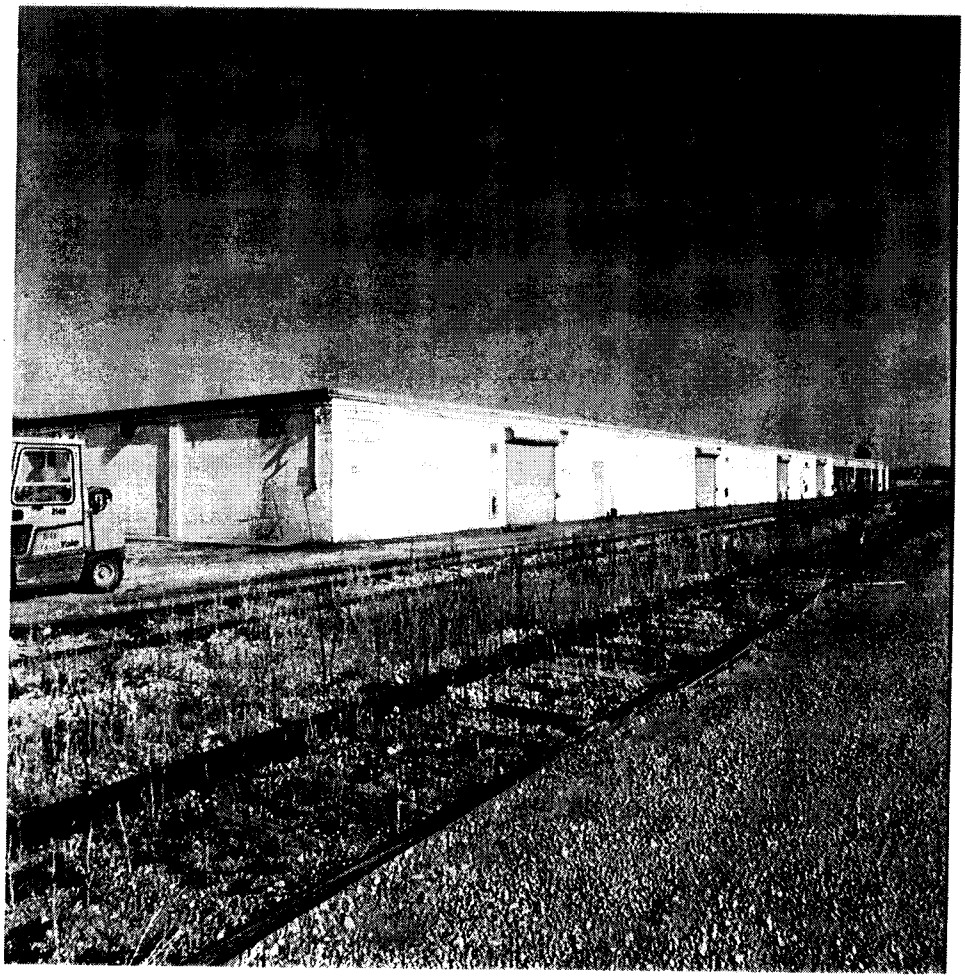

FIGURE E-39
63 - KC-2 Warehouse, Facing Northeast

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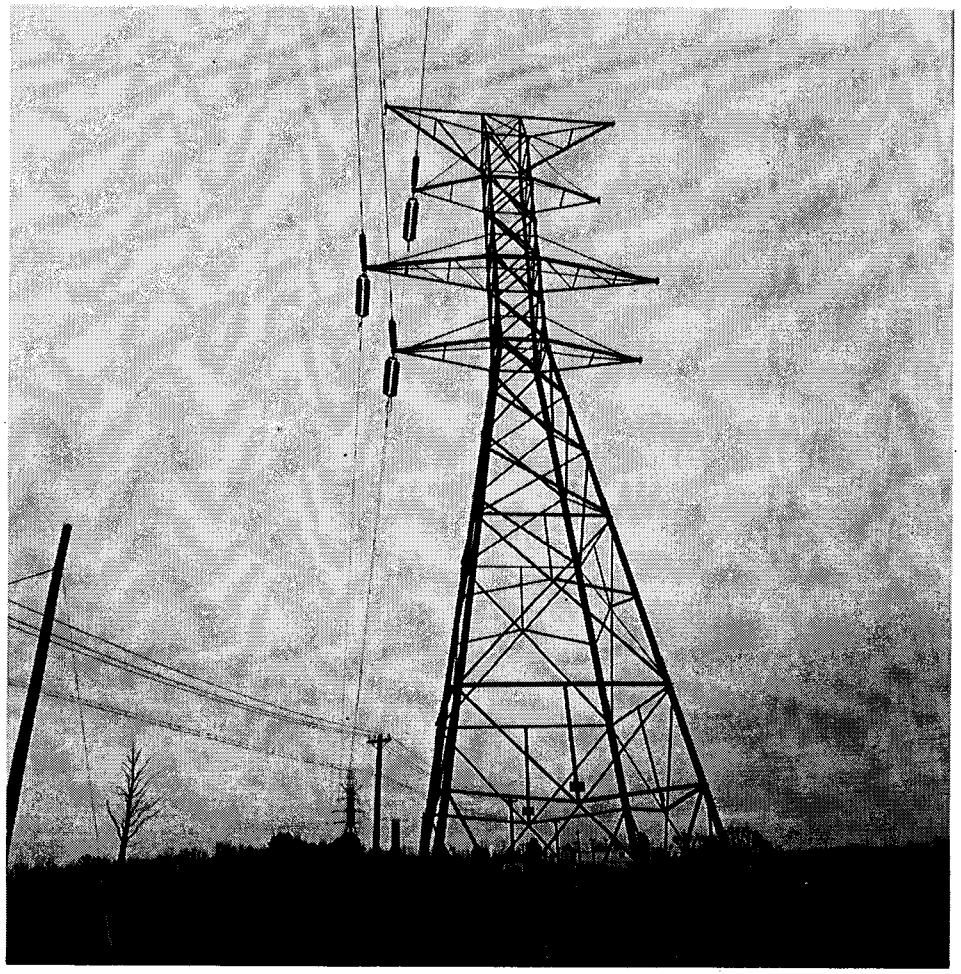
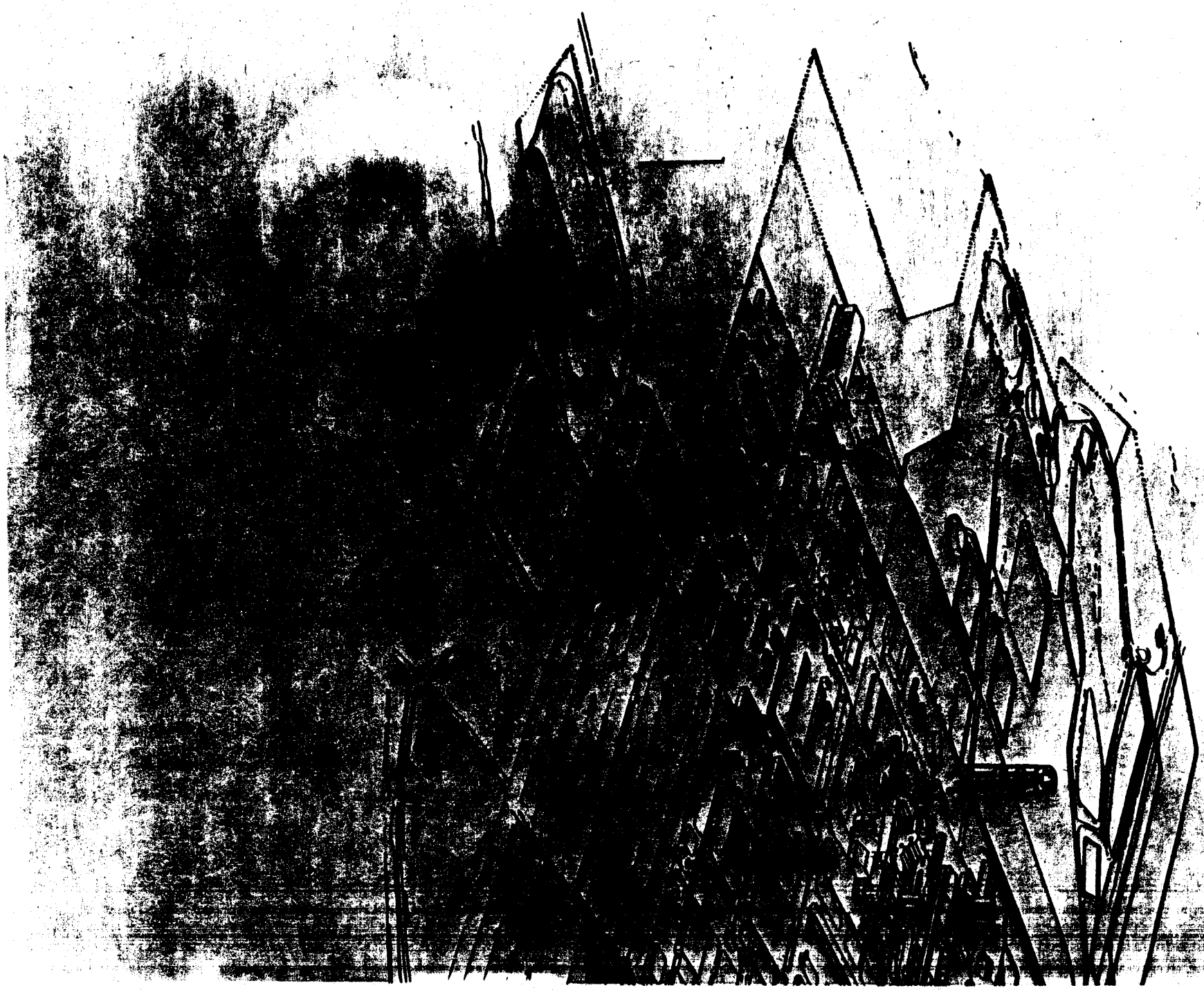


FIGURE E-40
Electrical Utility Tower, Facing East

1765

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