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1303



FEB 27 1998

DOE-0505-98

**Mr. Gene Jablonowski, Remedial Project Manager
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Region V, SRF-5J
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Chicago, Illinois 60604-3590**

**Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911**

Dear Mr. Jablonowski and Mr. Schneider:

**TRANSMITTAL OF THE DRAFT MAINTENANCE/TANK FARM COMPLEX IMPLEMENTATION
PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT**

The purpose of this letter is to transmit to the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) the enclosed draft implementation plan for the above-grade decontamination and dismantlement of the Maintenance/Tank Farm Complex. This implementation plan represents the sole design documentation required for the combined Tank Farm and Maintenance Complexes project and fulfills regulatory milestones for submittal of separate implementation plans for the Tank Farm and Maintenance Complexes, as defined in the Operable Unit 3 Integrated Remedial Design/Remedial Action Work Plan (May 1997).

The strategy for the submittal of one implementation plan for the combined Maintenance/Tank Farm Complexes project was verbally approved by U.S. EPA in July 1997. The strategy includes the submittal of only one implementation plan for the combined project and the establishment of one set of regulatory milestones. The Maintenance/Tank Farm Complex Implementation Plan adheres to the design documentation requirements outlined in the Operable Unit 3 Integrated Remedial Design/Remedial Action Work Plan and follows the same format as the Thorium/Plant 9 Complex Implementation Plan, which was approved in July 1997.

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

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Shah

Enclosure: As Stated

cc w/enc:

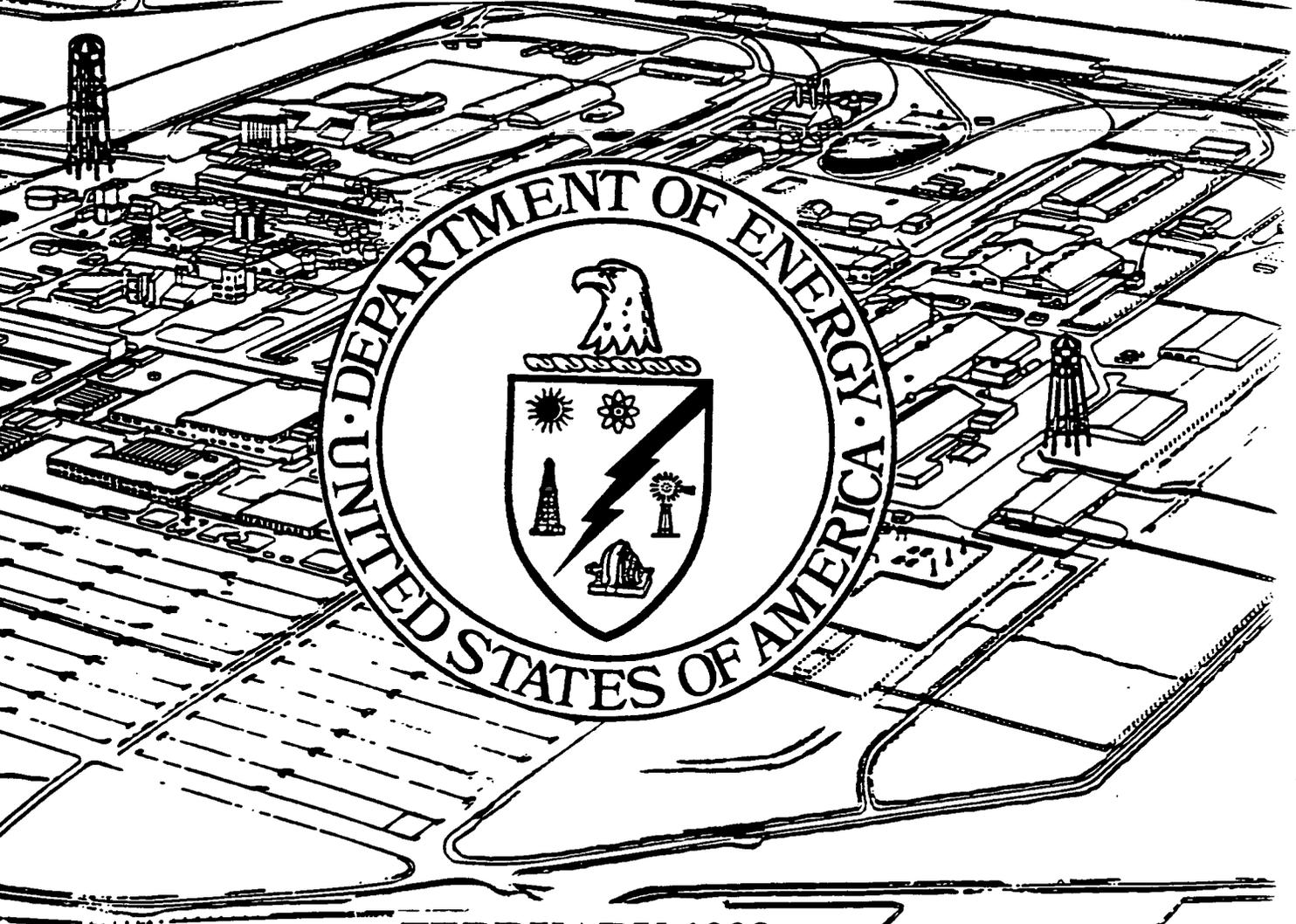
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OPERABLE UNIT 3 INTEGRATED REMEDIAL ACTION

MAINTENANCE/TANK FARM COMPLEX IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



FEBRUARY 1998

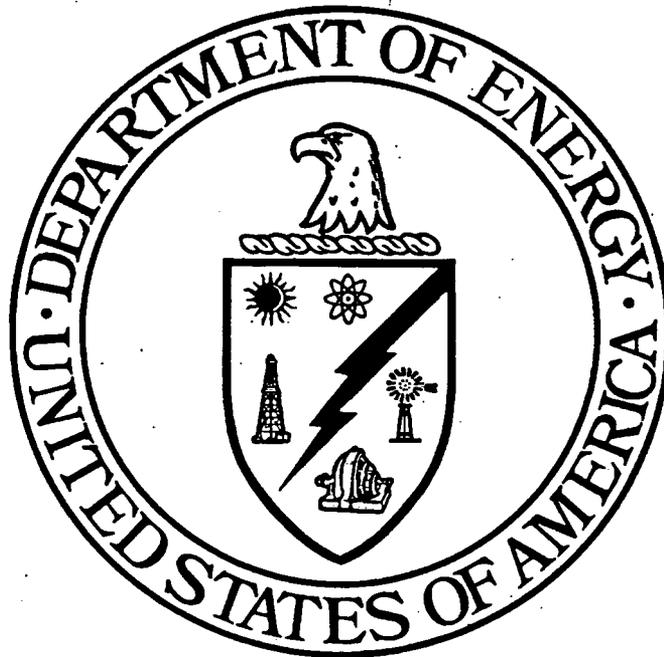
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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OPERABLE UNIT 3

MAINTENANCE/TANK FARM COMPLEX
IMPLEMENTATION PLAN
FOR
ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



FEBRUARY 1998

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U. S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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CONTENTS

TABLE OF CONTENTS I

LIST OF FIGURES ii

LIST OF TABLES ii

LIST OF APPENDICES ii

NOTATION iii

1.0 INTRODUCTION 1

 1.1 Project Statement 1

 1.2 Scope of Work 1

 1.3 Plan Organization 4

 1.4 Location of the Maintenance/Tank Farm Complex 5

2.0 GENERAL PROJECT REMEDIATION APPROACH 9

 2.1 Sequencing of Remediation 9

 2.2 Characterization of the Maintenance/Tank Farm Complex 9

 2.3 Materials Management 12

 2.3.1 Primary Materials Management 12

 2.3.2 Secondary Waste Management 12

 2.3.3 Estimates of Material Volumes 14

 2.3.4 Material Handling, Staging, Interim Storage, and Disposition 15

 2.3.5 Water Storage Tank Construction Waste 22

 2.3.6 Material Recycling/Reuse 22

 2.4 Environmental Monitoring 23

 2.5 Remediation Activities 27

 2.5.1 Preparatory Action: Inventory Removal 28

 2.5.2 Preparatory Action: Safe Shutdown 28

 2.5.3 Hazardous Waste Management Unit 30

 2.5.4 Asbestos Removal 30

 2.5.5 Surface Decontamination 31

 2.5.6 Above-Grade Dismantlement 32

3.0 COMPONENT-SPECIFIC REMEDIATION 37

 3.1 Component 12A - Main Maintenance Building 37

 3.2 Component 12B - Cylinder Storage Building 39

 3.3 Component 12C - Lumber Storage Building 39

 3.4 Component 12D - Maintenance Building Warehouse 40

 3.5 Component 24B - Railroad Engine House 40

 3.6 Component 38A - Propane Storage 41

 3.7 Component 38B - Cylinder Filling Station 42

 3.8 Component 19A - Main Tank Farm 43

 3.9 Component 19C - Tank Farm Control House 43

 3.10 Component 19D - Old North Tank Farm 44

 3.11 Component 19E - Tank Farm Lime Slitter Building 46

 3.12 Component 20A - Pump Station and Power Center 46

3.13 Component 20H - Process Water Storage Tank	47
3.14 Component G-001 - Rail Road Locomotive	48
3.15 Component G-008 - Pipe Bridges	48
D 4.0 SCHEDULE	51
R 5.0 MANAGEMENT	53
REFERENCES	55

FIGURES

FIGURE 1-1 Maintenance/Tank Farm Complex Project Area	7
FIGURE 2-1 FEMP Site Air Monitoring Locations	30
FIGURE 4-1 Maintenance/Tank Farm Complex Remediation Schedule	52

TABLES

TABLE 2-1 Summary of Radiological Data	11
TABLE 2-2 Bulked Material Volume Estimates	17
TABLE 2-3 Unbulked Material Volume Estimates	18
TABLE 2-4 Material Weight Estimates	19
TABLE 2-5 Water Storage Tank Construction Waste Estimates	22

A
LIST OF APPENDICES

APPENDIX A	Proposed Sampling
APPENDIX B	Evaluation of Material Disposition Alternatives
APPENDIX C	Performance Specifications
APPENDIX D	Design Drawings
APPENDIX E	Photographs

F

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NOTATION

Abbreviations, Acronyms, and Initials

D ACM AWWT	asbestos-containing material(s) Advanced Waste Water Treatment System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CFR	Code of Federal Regulations
CMU	concrete masonry unit
COC	Constituents of Concern
DOE D&D	R United States Department of Energy 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
N/A	not applicable
NESHAPs	A National Emissions Standards for Hazardous Air Pollutants
NTS	Nevada Test Site
OEPA	Ohio Environmental Protection Agency
OU3	Operable Unit 3
OU3 RI/FS WPA	OU3 RI/FS Work Plan Addendum
PCB(s)	polychlorinated biphenyl(s)
PCDF	permitted commercial disposal facility
PPE	personal protective equipment
RCRA	F Resource Conservation and Recovery Act, as amended
RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROB	roll-off box
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SOW	Statement of Work
SWIFTS	Site-Wide Waste Information, Forecasting and Tracking System

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Abbreviations, Acronyms, and Initials (Contd.)

TL	top loading [box]
TSI	thermal system insulation
D	
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)

Chemical Symbols

U	uranium
U-235	uranium-235

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1.0 INTRODUCTION

1.1 Project Statement

D This implementation plan represents the combined remedial design documentation for both the Maintenance Complex and the Tank Farm Complex, which were previously identified as separate design submittals in the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (DOE 1997a). These complexes were combined as part of a U.S. Department of Energy (DOE) initiative to accelerate OU3 remediation and reduce costs during design and implementation.

R The purpose of this implementation plan is to summarize the Maintenance/Tank Farm Complex project-specific remedial design for decontamination and dismantlement (D&D) of the above-grade portions of the components contained in this Complex which is located at the DOE Fernald Environmental Management Project (FEMP) in Fernald, Ohio. At- and below-grade remediation is not included within the scope of this project. This implementation plan was developed consistent with the remedial design strategy presented in the OU3 Integrated RD/RA Work Plan and is submitted to the U. S. Environmental Protection Agency (U. S. EPA) and the Ohio Environmental Protection Agency (Ohio EPA) in compliance with the regulatory milestones established for implementation plan submittals. The submittal of this implementation plan replaces the submittal of multiple design and construction documents that are described in Sections 4.1 and 4.2 of the OU3 Integrated RD/RA Work Plan.

The project implementation details contained in this document **F** elaborate on programmatic strategies presented in the OU3 Integrated RD/RA Work Plan project-specific strategies developed for the remediation subcontract Statement of Work (SOW)(Part 6 of the subcontractor procurement document), and performance specifications (contained in Appendix C of this document).

1.2 Scope of Work

T The above-grade Maintenance/Tank Farm Complex decontamination and dismantlement project includes the following major activities:

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- Hazardous Waste Management Unit decontamination;
- asbestos abatement/removal;
- surface decontamination;
- above-grade component dismantlement;
- material management; and,
- Environmental monitoring.

The following components are included in the Maintenance/Tank Farm Complex:

- Component 12A - Main Maintenance Building;
- Component 12B - Cylinder Storage Building;
- Component 12C - Lumber Storage Building;
- Component 12D - Maintenance Building Warehouse;
- Component 24B - Railroad Engine House;
- Component 38A - Propane Storage;
- Component 38B - Cylinder Filling Station;
- Component 19A - Main Tank Farm;
- Component 19C - Tank Farm Control House;
- Component 19D - Old North Tank Farm;
- Component 19E - Tank Farm Lime Slitter Building;
- Component 20A - Pump Station and Power Center;
- Component 20H - Process Water Storage Tank;
- Component G-001 - Rail Road Locomotive; and,
- Component G-008 - Pipe bridges.

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Two additional components are being included within the subcontract SOW as options. These two components are:

- Building 64 - Thorium Warehouse;
- Building 65 - Old Plant 5 Warehouse; and,

The OU3 Prioritization and Sequencing Report (PSR) identified two of the above components, namely 20A and 20H, as part of the Boiler Plant/Water Plant (BP/WP) Complex but they were included only as options in the BP/WP Complex D&D project subcontract. Component 20A was optional because it was the electrical point source for the remediation subcontractor. This component is now being included in the Maintenance/Tank Farm Complex work scope.

Component 20H, a 750,000 gallon water storage tank, was an option in the BP/WP Complex D&D subcontract because it was needed as a back up to the city water source. Before this component can be removed from service and dismantled, a new replacement water storage tank must be constructed to support the FEMP site operational requirements for domestic

water, high pressure fire protection water, and possibly treated water and boiler water. The replacement tank will be of approximately 400,000 gallons capacity and its construction is included in the Maintenance/Tank Farm Complex D&D Project subcontract. The construction requirements and details for this tank are included in the project bid document. Additionally, due to its capacity, proximity to the FEMP Area 3 soils excavation area, and its serviceability, Component 20H is being considered for use by the Soils Characterization and Excavation Project (SCEP) for storm water collection and storage and may be left in tact. In the event the SCEP decides against using Component 20H in that project, it will be included in the Maintenance/Tank Farm D&D Project.

Building 64 (Thorium Warehouse) and Building 65 (Old Plant 5 Warehouse) are components in the Thorium/Plant 9 Complex D&D Project. These two buildings are currently being used by the Waste Stabilization Project and must be vacated by December 1998 in order to meet the Thorium/Plant 9 D&D schedule. However, in the event these two buildings do not become available by the December deadline, they will be included in the Maintenance/Tank Farm D&D. Should the Maintenance/Tank Farm project include Buildings 64 and 65 in its scope, the regulatory agencies will be notified at that time by letter and, if necessary, the D&D schedule will be amended to include the additional scope of work. Should the schedule be amended, it will be submitted by DOE to the regulatory agencies for approval. Because these two buildings were fully described in the Thorium/Plant 9 D&D Implementation Plan, they will not be discussed any further in this Implementation Plan.

The sequence, schedule, and component-specific remediation requirements for at- and below-grade dismantlement are contingent on RD/RA scheduling for soil remediation within the former Production Area and will be addressed in the appropriate RD/RA submittals for the SCEP.

In accordance with the OU3 Integrated RD/RA Work Plan, the Maintenance/Tank Farm Complex remediation activities have been planned utilizing a performance-based methodology using performance specifications as described in Section 3.1.3 and 4.1 of that work plan. The complete set of performance specifications developed for this project are included in Appendix C of this implementation plan.

The use of performance specifications for project implementation requires that the remediation

subcontractor develop work plans, subject to DOE approval, which will specify proposed remediation methods necessary to accomplish certain tasks and meet project objectives. The sequence for performance of remedial activities may differ from the sequence in which they are presented in this implementation plan since the remediation subcontractor's work plan may propose an alternate sequence.

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 the 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

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 Maintenance/Tank Farm Complex. Section 2 describes the overall approach to implementing the Maintenance/Tank Farm Complex remediation project, as applied from the OU3 Integrated RD/RA Work Plan. That approach includes a proposed sequence for remediation of components, a plan for materials management, environmental monitoring activities, and an overview of the six-task approach for implementing above-grade remediation. Section 3 presents the notable component specific remediation aspects of the six remedial tasks for each component. Section 4 presents the schedule for remediation and project reporting. Section 5 describes notable aspects of the project management approach.

Appendix A contains a summary of the types and quantities of proposed environmental and occupational sampling for this project, based on the assumptions in the Sampling and Analysis Plan (SAP), contained in Appendix D of the OU3 Integrated RD/RA Work Plan, and on the remediation requirements presented in this plan. Appendix B provides a summary of the

material disposition alternatives for accessible metals and a tabulation of the cost comparison
 between the disposition alternatives. Appendix C provides the performance specifications that
 were developed for the remediation subcontractor procurement package. Appendix D provides
 copies of drawings which show floor plans and elevations of components. Appendix E
 contains selected photographs of notable features of, within, or around the Maintenance/Tank
 Farm Complex so as to provide an overall perspective of the components, associated
 equipment, and appurtenances.

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1.4 Location of the Maintenance/Tank Farm Complex Project Area

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The Maintenance/Tank Farm Complex project area is located north of 2nd Street and East of
 'B' Street, in the north central portion of the former production area, as shown in Figure 1-1.

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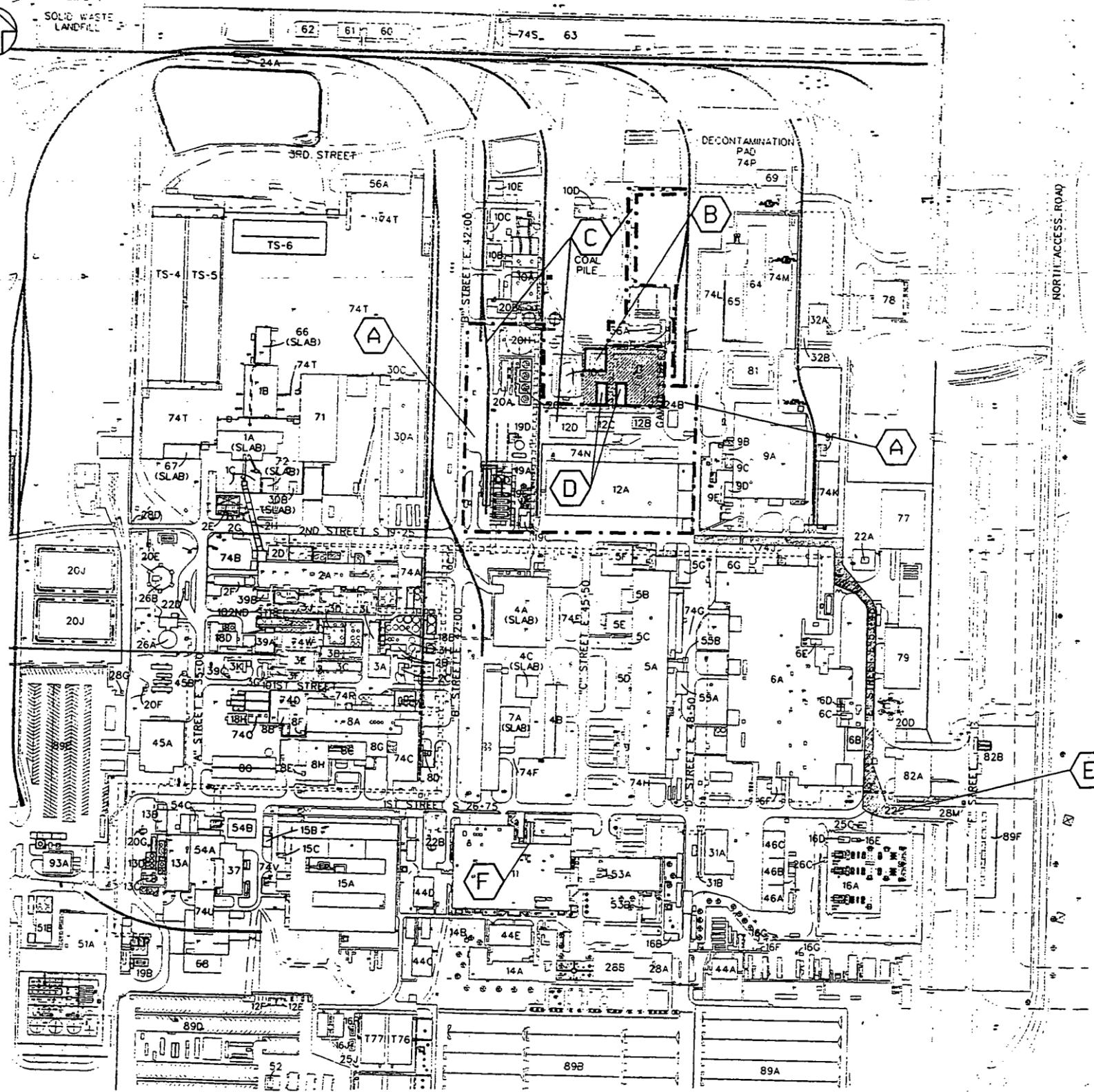
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FEMP SITE IDENTIFICATION

- 73-4 TONGON SUPPORT STRUCTURE - 4
- 73-5 TONGON SUPPORT STRUCTURE - 5
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- LEGEND
- (A) CONTAINER QUEUING AREAS
 - (B) CHANGE FACILITY/PERSONNEL ENTRY/ ROAD CHECK POINT INTO THE CONTROLLED AREA
 - (C) CONSTRUCTION SITE AREA
 - (D) CAFETERIA/BREAK AREA
 - (E) EQUIPMENT ENTRY GATE
 - (F) PERSONAL ENTRY GATE

- SUBCONTRACTOR CONSTRUCTION ZONE BOUNDARY
- CHANGE OUT/CAFETERIA AREA
- EQUIPMENT ACCESS ROUTE

1. EXISTING CONDITIONS SHOWN ON THIS DRAWING WERE PREPARED FROM FEMP SITE PROVIDED DATA FROM THE DOCUMENTS LISTED BELOW.

EXISTING SITE DATA SOURCE (IN PLANT CASES):
 FEMP CADD UTILITY DRAWINGS
 FEMP CONTRACTOR PROJECT DESIGN DRAWINGS

2. PERSONNEL ENTRY INTO THE ADMINISTRATIVE AREA IS THROUGH BUILDING 28A.

PRELIMINARY
INFORMATION ONLY
CADD SERVICES

REVISIONS	DATED	BY	APPD.	NO.	REVISIONS	DATED	BY	APPD.	NO.	REF. DWG. NO.

NOTE:
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 DO NOT REVISE
 MANUALLY.

CONFIGURATION MANAGEMENT DRAWING		APPROVALS	
CIVIL & STR	SAFETY ENG.		
ELECTRICAL	MAINTENANCE		
ENGINEER	FIRE PROTECT.		
INSTRUMENT	WASTE MANAGE.		
MECHANICAL	SECURITY		
	CRU		
	WORKPRACTICE		

Fernald Environmental Management Project

FLUOR DANIEL FERNALD

U.S. DEPARTMENT OF ENERGY

BLDG. 12 AREA	
MAINTENANCE/TANK FARM COMPLEX	
D & D PLAN	
NO SCALE	
DES 3401	12X-5500-X-00470 0
DATE Oct. 1, 1997	

2.0 GENERAL PROJECT REMEDIATION APPROACH

The overall approach to the D&D of the Maintenance/Tank Farm Complex incorporates the applicable programmatic elements and tasks that were described in Section 3 of the OU3 Integrated RD/RA Work Plan. This section describes the notable aspects of the overall approach evaluated during remedial design and addressed in the subcontract documents.

2.1 Sequencing of Remediation

Although the actual sequence of the remediation may vary, it is anticipated that the remediation sequence begins with Tank Farm Components 19A, 19C, 19D and 19E since these will be available for D&D first. D&D of Building 12A and the ancillary structures will start after the commencement of the Tank Farm Components. The ancillary structures 12B, 12C, and 12D will be done concurrent with Building 12A and will be followed by Components 24B, 38A and 38B. Component 20A will be last in the D&D sequence.

If it is determined that the SCEP will not use Component 20H it will be dismantled next. If Buildings 64 and 65 have not been vacated in time to allow their inclusion in the Thorium/Plant 9 D&D Project by December 1998 and they become part of the scope of the Maintenance/Tank Farm subcontract (i.e., the option is exercised), then they will be last in the remediation sequence for the Maintenance/Tank Farm D&D Project.

2.2 Characterization of the Maintenance/Tank Farm Complex

The processes and operations that were performed in the Maintenance Buildings (Components 12A, 12B, 12C, 12D, 24B, 38A and 38B) during production consisted of equipment maintenance, welding, machining, carpentry, painting, storage of maintenance and expendable supplies; compressed gas storage, locomotive maintenance and bulk propane storage. No radiological processes were performed in these components.

The processes and operations that were performed in the Old North Tank Farm (19D) during production consisted of bulk liquid chemical storage. Chemicals stored here were potassium hydroxide, nitric acid, anhydrous hydrofluoric acid, dilute hydrofluoric acid recovered from the Green Salt Plant (Building 4A) operations, and anhydrous ammonia. The Old North Tank Farm

also has a sump (HWMU No. 11, Tank Farm Sump) that was used to collect and treat corrosive storm water run-off, tank car rinseates, and spills and residues from the bulk storage operations. The Main Tank Farm (19A) was never used for production operations. However, a scrubber neutralization tank and one double walled overhead line were used for transfer and neutralization of hydrofluoric acid for the closure of the HF Tank Car (HWMU No. 38). The Control House (19C) was designed as a control center for Tank Farm operations but has only been used for office space.

The Pump Station and Power Center (20A) houses pumps for the sanitary system, a chlorinator, and also a unit substation which supplied power for the maintenance buildings, the Main Tank Farm, and several office trailers. The Process Water Storage Tank (20H) was used for storage of city water.

Radiological survey data obtained from surveys performed during the Maintenance/Tank Farm D&D design and the radiological survey data compiled during the OU3 Remedial Investigation/Feasibility Study (RI/FS), and documented in the OU3 RI/FS Report (DOE 1996a) provided alpha removable, beta-gamma removable, and total beta-gamma radiological information for the Maintenance/Tank Farm components. This data is provided in Table 2-1.

The data in Table 2-1 has been utilized in support of the following Maintenance/Tank Farm Complex D&D planning and design efforts including, but not limited to:

- developing the safety assessment documentation to support the proposed activities;
- enhancing the project-specific health and safety requirements and determining potential concerns for worker protection based on the suggested decontamination and dismantlement techniques;
- enhancing the remediation subcontractor's understanding of expected contamination levels;
- determining personnel monitoring requirements;
- air modeling and assessment of potential radiological air emissions; and,
- identifying potential gross radiological contamination that may require decontamination prior to the remediation subcontractor activities.

TABLE 2-1 Summary of Radiological Data

Component No.	Alpha Removable (dpm/100 sq. cm.)			Beta-Gamma Removable (dpm/100 sq. cm.)			Beta-Gamma Total (dpm/100 sq. cm.)		
	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size
D 12A	61	5,508	1,517	127	17,992	1,557	4,564	319,000	1,953
12B	10	50	113	19	86	113	2,757	10,000	113
12C	8	24	67	14	156	67	3,246	12,000	67
12D	<1	11	100	<1	26	100	<3,000 ¹	<3,000 ¹	100
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
19A	2	R	40	4	16	40	<3,000 ¹	3,000	40
19C	2	R	<3 ¹	5	13	23	<3,000 ¹	<3,000 ¹	23
19D	N/A	N/A	N/A	<400 ¹	<400 ¹	31	32,258	240,000	31
19E	N/A	N/A	N/A	<400 ¹	<400 ¹	30	<3,000 ¹	<3,000 ¹	30
20A	<225 ¹	230	20	<360 ¹	<360 ¹	20	1,341	7,500	88
20H	<42 ¹	<42 ¹	10	<36 ¹	<36 ¹	10	N/A	N/A	N/A

¹ "<" indicates results were below detection range for that sample.

OU3 RI/FS data that were also used to supplement the component characterization/health and safety assessment needs are presented in the OU3 RI/FS Report and, due to the volume of data, are not repeated in this section.

The most significant results from the remedial design data evaluation are those which are relevant to identifying and managing certain materials for treatment and off-site disposition, consistent with the decisions made in the OU3 Final ROD. The results of the evaluation reveal the following:

- potentially mixed waste lead (flashing) exists in the following components in the approximate quantities listed; Component 20A, 0.19 cubic feet; Component 12A, 0.81 cubic feet; Component 24B, 0.27 cubic feet; and, Component 38A, 0.05 cubic feet.

The result of the material data evaluation, summarized above, is the proper identification of specific materials that have special handling requirements in the project specifications and scope of work.

2.3 Materials Management

The project-specific application of material management strategies presented in Section 3.3 of the OU3 Integrated RD/RA Work Plan are outlined in this section.

Specification 01120 of the performance specifications (Débris/Waste Handling Criteria) and the Waste Management Plan included in the subcontractor procurement document, specifies the remediation subcontractor requirements for managing material resulting from all project tasks. Based on the requirements specified in Specification 01120, a work plan that details debris/waste handling methods and procedures will be prepared by the remediation subcontractor. Waste minimization will be accomplished, in part, by unpacking equipment and material prior to entering the radiologically controlled area whenever possible, limiting the number of tools and equipment that could become contaminated, and limiting the quantities of hazardous material brought into the construction zone.

2.3.1 Primary Materials Management

Primary materials include dismantlement debris and other bulk waste materials from the Maintenance/Tank Farm Complex components. The performance specifications address material handling requirements consistent with the OU3 Final Action ROD, and the requirements for treatment and disposition of materials discussed in the OU3 Integrated RD/RA Work Plan, Section 3.3, which adopts the strategies of Removal Action 17 for management of OU3 debris.

As discussed in Section 2.2, the results of material evaluation performed during design revealed that mixed lead waste must be managed for future treatment and on-site or off-site disposal. Section 2.3.4 discusses how this material will be segregated, containerized, treated and dispositioned. An additional evaluation of material disposition alternatives for accessible metals was also performed, and a summary of the results is presented in Appendix B.

2.3.2 Secondary Waste Management

Management of secondary wastes includes handling, sampling (if necessary), storage, and disposition of secondary waste materials generated during remediation. Secondary waste

includes vacuumed dust, filters, filter cake, personal protective equipment (PPE), spent consumables, and washwaters.

Depending on the subcontractor's approved method(s) of decontamination, wastewater may or may not be generated during that activity. It is expected that decontamination using high pressure water spray will be used for decontamination of at least the subcontractor's equipment to allow for unrestricted release of those materials back to the subcontractor. Specification Section 01517 describes the requirements for managing wastewater. Since the remedial design for this project utilizes performance specifications, it is the subcontractor's responsibility to adhere to, propose, and implement a wastewater management system that has been approved, and will be enforced, by the project management team. Part 1.5.A of Specification Section 01517 requires that the subcontractor submit for [Project Management team] approval a work plan in accordance with Part 7 of the subcontract that describes the system design for removing and/or fixing contamination, including the methods and equipment for: removing contamination; fixing contamination; and controlling, filtering, and transporting effluent produced during the removal and/or fixing activities. The basic elements of the project wastewater collection system include effluent control through dikes or berms, collection using sumps or other portable collection devices, filtering using two stage filters to remove entrained particulate prior to discharge into holding tank(s), sampling and analysis of water and sludges for constituents of concern (see Section 2.4 for wastewater monitoring), discharge of approved effluent into the FEMP wastewater treatment system (Advanced Wastewater Treatment Facility), and sludge removal and containerization in 55-gallon drums. The particular requirements provided by Specification Section 01517 for wastewater management are highlighted in the following bullets:

- **Submittals:** Part 1.5.A of the specification addresses the requirements for the subcontractor's work plan, which describes the system design for controlling, filtering, and transporting effluent produced during removal and/or fixing activities.
- **Subcontractor's Equipment:** Part 2.1.B of the specification provides requirements related to methods and equipment needed for collection and filtration of wastewater.
- **Requirements Specific to Structure Decontamination:** Part 3.1.D of the specification addresses requirements that must be met prior to generating wash water from decontamination such as sealing floor cracks/seams and building cracks, use of existing building floor sumps for effluent collection, and precautions to prevent the spread of contamination from other more-contaminated areas of the facility.
- **Rinseate/Effluent Handling:** Part 3.1.E of the specification identifies requirements for effluent and sludge collection, sampling and analysis, commingling of effluents and sludges, and container requirements.

- **Sludge Drumming:** Part 3.1.F of the specification stipulates limits on sludge containment for individual drums from enriched washing operations.

The system used for collection of wastewater (Building sumps or portable collection systems) will be described in the project completion report to be submitted to regulatory agencies.

D Washwater may be sampled for constituents of concern if the Waste Water Treatment System (WWTS) Manager requires analytical data for treatment purposes prior to discharge into the FEMP WWTS. Waste water sampling is described in the SAP which is contained in Appendix D of the OU3 Integrated RD/RA Work Plan. Samples of washwaters will be collected for only those batches that have been determined (through a review of available process information and existing data) to have potentially elevated levels of contaminants of concern, such as volatile organic compounds, heavy metals, uranium, and RCRA-listed constituents. 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

A 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 draft OU3 RD/RA Integrated Work Plan, and are estimated in Tables 2-2, 2-3, and 2-4. Estimated values are also presented for lead flashing which falls within the category of painted light-gauge metals but will be handled separately from that category. Where applicable, materials were assigned to specific containers according to current material management strategies, which were described in the OU3 Integrated RD/RA Work Plan. Segregation and containerization requirements have been documented in the Material Segregation and Containerization Criteria (MSCC) form contained in the subcontract procurement document. The volume estimates associated with each material segregation category are listed according to general material type, volume (bulked and unbulked), weight, and the type and number of containers needed. Estimates for spent PPE and consumables are included as either regulated ACM or miscellaneous materials, depending on the activity undertaken when these materials were generated.

The volumes and weights in Tables 2-2, 2-3, and 2-4 were developed by reviewing engineering

drawings and performing field inspections to identify and quantify materials. Container types and storage configuration are based on the category of material, characteristics of the material, disposition decisions made under the OU3 Final Action ROD, and strategies established in the OU3 Integrated RD/RA Work Plan. Container types and quantities are also estimated in Table 2-2. Container types correspond to those specified in the MSCC prepared during remedial design. Container quantities are estimated based on weight or volume restrictions placed on each type of container to be used. The two primary assumptions that should be noted regarding the material volume and weight estimates are that all materials are assumed to be radiologically contaminated, and that mixed/hazardous wastes are to be containerized separately.

2.3.4 Material Handling, Staging, Interim Storage, and Disposition

Material Handling/Staging

Pursuant to Specification 01120, materials generated from the decontamination and dismantlement of the Maintenance/Tank Farm Complex will be reduced in size, segregated, and containerized (if necessary) in accordance with the requirements placed in the MSCC and other subcontract waste management provisions. Containers will then be weighed, inspected, sealed, and tagged for on-site movement. The MSCC will be used by the remediation subcontractor as the basis for all containerizing activities. Although the MSCC provides a high level of detail for the remediation subcontractor, Table 2-2 provides the essential segregation and containerization criteria for this implementation plan. Material size requirements are identical to those provided in the example MSCC contained in Appendix A of the OU3 Integrated RD/RA Work Plan.

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

efficient use of a limited number of ROBs during the period when impacted material placement in the OSDF for the Maintenance/Tank Farm Complex is occurring.

D Pursuant to Specification 01120, the remediation subcontractor will establish a container queuing area having a controlled boundary within the construction site. The queuing area will be used as a temporary storage area for empty and full debris/waste containers.

Compressed gases, explosives, free-liquids, fine particulates, hazardous wastes, corrosive materials and etiological agents will be containerized separately from debris. Sampling of waste containers designated for off-site shipments will be performed by FEMP waste management personnel in accordance with the OU3 RD/RA SAP (contained in Appendix D of the OU3 Integrated RD/RA Work Plan) and WAC of the receiving facilities.

Any hazardous wastes will be taken once a day to either a designated satellite accumulation area (SAA) or an approved RCRA storage area for proper handling, treatment, and disposal as needed. Approved RCRA storage areas are identified in the FEMP Part B Permit Application. The subcontractor is required, pursuant to Specification 01120, to submit for Project Management Team approval a work plan that identifies a proposed location of the SAA. The SAA, which will be controlled by FEMP personnel and managed in accordance with applicable RCRA requirements, will be established in locations which will ensure minimal disruption of construction activities.

Containers used for ACM will require additional preparation, including the use of polyethylene sheeting as secondary containment. Full containers destined for off-site disposition will be delivered to an on-property packaging/staging area for sampling (if necessary), container inspection, and sealing. Materials destined for on-property temporary storage will be delivered directly to the designated interim storage area.

Pursuant to Specification 01517, waste materials that have to be containerized outside of a Building containment will be required to meet the decontamination requirements established in the Radiological Protection Plan (RPP) contained in the subcontract. If that requirement

TABLE 2-2 Bulk Material Estimates (ft³)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Lead Flashing	Concrete	Brick	Non-Regulated ACM (10)	Regulated ACM (11)	Misc Materials (12)	Component/Complex Totals
12A	43,759	12,261	0	1,158	1	43,889	0	3,018	8,197	2,006	114,289
12B	300	521	0	22	0	3,005	0	0	0	365	4,213
12C	2,025	135	0	43	0	0	0	0	0	5	2,208
12D	5,468	254	0	119	0	11	0	0	0	0	5,852
24B	446	146	0	0	0	2,759	0	0	330	332	4,013
38A	413	12,123	0	24	0	1,860	0	0	92	24	14,536
38B	62	1,485	0	0	0	0	0	6	1	0	1,554
19A	5	16,696	0	0	0	27	0	0	0	851	17,579
19C	381	491	0	49	0	1,544	0	0	0	378	2,843
19D	0	4,452	0	0	0	4	0	0	0	200	4,656
19E	2	1,113	0	12	0	0	0	0	0	50	1,177
20A	1,312	713	0	49	0	0	0	343	610	46	3,073
20H	32	38	0	0	0	4,706	0	0	81	0	4,857
Miscellaneous ⁽⁸⁾	12,056	8,805	0	0	0	0	0	0	1,296	32	22,189
Complex Total	66,261	59,233 ⁽¹¹⁾	0	1,476	1	57,805	0	3,367	10,276	4,287	202,709
Container/Quantity ⁽³⁾	ROB/90	ROB/70	None	ROB/4	B-25 ⁽⁶⁾ /1	ROB/147	None	Skid/42	ISO ⁽⁹⁾ /14	ROB ⁽⁵⁾ /10	
Interim Storage Config ⁽⁴⁾	Plant 1 Pad	ROB/Plant 1 Pad	None	ROB/Plant 1 Pad	Plant 1 Pad	ROB/Plant 1 Pad	None	Skid/Plant 1 Pad	ISO/Plant 1 Pad	ROB/Plant 1 Pad	
Disposition	OSDF ⁽⁷⁾	OSDF	None ⁽⁸⁾	OSDF	PCDF ⁽⁷⁾	OSDF	None	OSDF	OSDF	OSDF	

(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 dumpster for compaction. Miscellaneous materials can be containerized with Non-regulated ACM.
 (3) Individual Roll-Off Boxes may contain commingled debris based on the following segregation groupings, which are consistent with On-Site Disposal Facility Impacted Material categories: a) OU3 Debris - Categories A, B, D, and E (OSDF Impacted Material Category 2).
 (4) Locations identified are based on current planning projections.
 (5) Container is volume restricted.
 (6) Container is weight restricted.
 (7) OSDF: On-site Disposal Facility; PCDF: Permitted Commercial Disposal Facility.
 (8) Miscellaneous component includes pipe bridges and railroad locomotive.
 (9) In the event Process Related Metals are encountered, it will be disposed for PCDF and described in the project completion report.
 (10) This category includes transite which is segregated from other nonregulated ACM; sprayed with encapsulant; banded in 18 inch bundles and palletized; and, stockpiled.
 (11) Total includes unused steel horizontal tank (234 cubic feet) from Component 19A which is considered salvageable equipment and will be size reduced for possible recycling.

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TABLE 2.3 Unbulked Material Estimates (ft³)

Component	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Lead Flashing	Concrete	Brick	Non-Regulated ACM	Regulated ACM	Misc Materials	Component/Complex Total
12A	21,864	6,493	0	2,228	1	29,268	0	2,511	5,488	1,380	69,213
12B	151	346		11	0	2,003	0	0	0	243	2,754
12C	1,013	68		22	0	0	0	0	0	5	1,108
12D	2,732	154		57	0	19	0	0	0	0	2,962
24B	224	92	0	0	0	1,839	0	0	220	224	2,599
38A	212	6,750	0	11	0	1,239	0	0	62	22	8,296
38B	26	81	0	0	0	0	0	5	1	0	113
19A	2	8,343	0	0	0	0	0	0	0	567	8,912
19C	192	243	0	100	0	0	0	0	0	257	1,821
19D	0	2,223	0	0	0	0	0	0	0	67	2,290
19E	3	554	0	5	0	0	0	0	0	33	595
20A	656	392	0	24	0	0	0	286	408	41	1,807
20H	16	22	0	0	0	3,137	0	0	54	0	3,229
Miscellaneous ⁽¹⁾	6,026	5,424	0	0	0	0	0	0	864	22	12,336
Complex Total	33,117	31,185 ⁽²⁾	0	2,458	1	38,534	0	2,802	1,077	2,861	118,035

(1) Materials from Component G - 008, Pipe Bridges and G - 001, Rail Road Locomotive.
(2) Total includes unused steel horizontal tank (124 cubic feet) from Component 19A which is considered salvageable equipment and will be size reduced for possible recycling.

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TABLE 2-4 Material Weight Estimates (Tons)

Component Designation	Accessible Metals	Inaccessible Metals	Process Related Metals	Painted Light-Gauge Metals	Lead Flashing	Concrete	Brick	Non-Regulated ACM	Regulated ACM	Misc Materials	Component/Complex Totals
12A	328	90	0	12	0	1,454	0	141	12	33	2,070
12B	2	1	0	0	0	150	0	0	0	5	158
12C	15	2	0	5	0	0	0	0	0	0	22
12D	41	10	0	11	0	1	0	0	0	0	63
24B	3	2	0	0	0	92	0	0	1	5	103
38A	4	109	0	0	0	62	0	0	0	0	175
38B	0	2	0	0	0	0	0	0	0	0	2
19A	1	125	0	0	0	0	0	0	0	1	127
19C	7	2	0	0	0	51	0	0	0	10	70
19D	0	33	0	0	0	0	0	0	0	0	33
19E	0	8	0	2	0	0	0	0	0	0	10
20A	10	11	0	0	0	0	0	16	1	1	39
20H	0	1	0	0	0	235	0	0	0	0	236
Miscellaneous ⁽¹⁾	90	218	0	0	0	0	0	0	2	1	311
Complex Total	501	614 ⁽²⁾	0	30	0	2,045	0	157	16	56	3,419

(1) Includes materials from Component G - 008, Pipe Bridges and G - 001, Rail Road Locomotive.

(2) Total includes unused steel horizontal tank (30.5 Tons) from Component 19A which is considered salvageable equipment and will be size reduced for possible recycling.

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cannot be attained, the material may be encapsulated or wrapped in fiber reinforced sheeting and sealed prior to movement to prevent migration of contaminants during movement.

D Interim Storage/Disposition

The strategy for interim storage of OU3 materials is described globally in the OU3 Integrated RD/RA Work Plan. Based on the latest projections for the availability of containers and the placement schedule of the OSDF, it is intended that the debris generated from the D&D of the Maintenance/Tank Farm components will be containerized as generated and transferred to the OSDF for disposal. If the OSDF placement schedule is interrupted, the containers of debris will be placed in interim storage on the Plant 1 Pad or as determined by Waste Programs Management.

In the event that for unforeseen reasons containers are not available at the start of the Maintenance/Tank Farm Complex D&D, an alternate material storage plan has been developed. For Categories A (accessible metals), B (inaccessible metals), D (light gauge painted metals, excluding lead), and E (concrete), it is planned that those materials will be size-reduced, commingled into separate stockpiles by component, and, depending on the component from which they are generated, stored on either the Component 12A, 19A, or 20H slab. As stated above, the MSCC is allowing for commingling of OU3 debris categories A, B, D, and E loaded into roll-off boxes. If it becomes necessary to stockpile the debris from the Maintenance/Tank Farm Complex rather than load directly into roll-off boxes, which is the primary plan, commingling the debris categories in the stockpiles will allow for a more efficient use of the available space and ultimately lend itself to more efficient loading of roll-off boxes whenever they become available.

Materials from Components 12A, 12B, 12C, 12D, 20A, 24B, 38A, and 38B will be stored on the Component 12A slab. Calculations show that this storage will require 38,750 ft² of space and approximately 60,000 ft² of capacity will be available. Materials from Components 19A, 19C, 19D, 19E, and the pipe bridges will be stored on the Component 19A slab. Calculations show that this will require approximately 19,347 ft² of storage space and approximately 19,850 ft² are available. Materials generated from Component 20H will be stored on its own slab. This will require 3,520 ft² of space and 5,150 ft² will be available.

The duration for interim storage of materials to be placed in the On-Site Disposal Facility (OSDF) depends on the OSDF material placement schedule. Materials generated that do not meet the OSDF WAC are expected to be dispositioned off-site within six months of generation.

D The decision to use the Building 12A slab for bulk storage of Categories A, B, D, and E debris has been made consistent with the authority and criteria established under OU3 Integrated RD/RA Work Plan. These criteria specify the selection of debris storage locations in decreasing order of preferred usage: Plant 1 Pad, Plant 7 Slab, Plant 4 Slab, Plant 8 Slab, and slabs of dismantled buildings; and specifies the use of engineering controls to prevent potential contaminant releases. **R** Similar to the preparation and use of slabs from Plant 7 and Plant 4 for interim storage of debris, all necessary engineering controls will be provided for the Building 12A slab as required by the OU3 Integrated RD/RA Work Plan. Such engineering controls would include storm water runoff collection and treatment, as necessary, in the site waste water treatment system. Since all bulk stockpiled debris will have to meet release criteria for exposure to the environment (defined in Part 8 of the subcontract document), along with the fact that any materials that fail to meet the release criteria will be containerized and stored on the Plant 1 Pad, potential contaminant releases will be negligible. **A** Prevention or minimization of contaminant releases are achieved by reduction of surface contamination on surfaces of debris using approved in-situ decontamination methods. Additional treatment of debris would be employed (e.g., amended water spray on debris surfaces) in the event of suspected contaminant release.

Materials not identified for immediate off-site disposition will be placed in the queuing area by the remediation subcontractor to allow for FEMP waste management inspection prior to relocation to the designated interim storage facility. **F**

Material tracking and reporting will be accomplished through use of the Site-Wide Information and Tracking System (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 Maintenance/Tank Farm Complex project do not differ from the strategies laid out in the OU3 Integrated RD/RA Work Plan and therefore no additional details were developed during the Maintenance/Tank Farm Complex design. It should be noted that SWIFTS data on the Maintenance/Tank Farm **T**

Complex at this time are only estimated volumes and weights for the various OU3 categories. Those data are provided in Tables 2-2, 2-3, and 2-4 of this Implementation Plan. Actual volumes, weights, and interim storage locations will not be available until after materials have been generated and placed in interim storage, whereupon they will be reported to U. S. EPA in the project completion report for the Maintenance/Tank Farm Complex.

Treatment and Disposition

The project-specific disposition strategy for materials generated during this project is consistent with the strategies presented in the OU3 Integrated RD/RA Work Plan. Treatment and disposition decisions for project materials were made in accordance with the requirements stated in the OU3 Final Action ROD.

Table 2-2 identifies the disposition determination for project materials. Treatment will be required prior to the disposal of the lead flashing. This material is projected to be shipped to the Envirocare of Utah facility in Cleve, Utah for treatment and burial. 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.

2.3.5 Water Storage Tank Construction Waste

Prior to the D&D of Component 20H (Process Water Tank) a new water storage tank will be constructed and placed into service. The construction of this tank will generate a limited volume of potentially contaminated waste materials. Table 2-5 below provides the estimated volumes of these wastes.

Table 2-5 Water Storage Tank Construction Waste Estimates

Waste Description	Volume			Interim Storage	Disposition
	Bulked ft3	Unbulked ft3	Tons		
Non-contaminated asphalt	162	125	10	Soil Pile 3	OSDF
Soil	8,580	7,150	279	Soil Pile 3	OSDF

2.3.6 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"), 501 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all Maintenance/Tank Farm Complex components were evaluated by comparing the four leading alternatives to on-site disposal. Of the three phases of the Decision Methodology (Threshold Phase, Life Cycle Analysis Phase, and Decision Phase), only the first phase was applied since the comparative evaluation of project costs for each alternative showed that the total costs for each of the recycling options greatly exceed the 25 percent total cost criteria compared to the OSDF.

Component 19A, Main Tank Farm, contains a steel horizontal tank that is unused. This tank has been declared as salvageable equipment and will be size reduced by the D&D subcontractor and sold as scrap. The steel in this tank was not included in the evaluation in Appendix B (described above) because it does not meet the OU3 Debris Category A definition. The volume and weight estimates for this tank are included in Tables 2-2, 2-3, and 2-4 under the OU3 Debris Category B, Inaccessible Metals as indicated by the footnotes accompanying the tables. Because the tank has never been placed into service, size reduction and sale as scrap is considered a viable and appropriate disposition for the steel.

2.4 Environmental Monitoring

Project-specific environmental monitoring for the Maintenance/Tank Farm Complex 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 project. 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 storm water management is governed by the FEMP Storm water Pollution Prevention Plan (DOE 1996c) and any monitoring associated with that program is managed by the Aquifer Restoration Project. To ensure that the applicable performance requirements of

that plan are followed during the Maintenance/Tank Farm Complex project, Specification 01515 requires that the subcontractor provide for FEMP approval of the plans to be employed to control storm water runoff and erosion control.

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

R Surface Water (Wastewater) Monitoring

The OU3 Integrated RD/RA Work Plan describes the strategies to be used 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 are discussed.
- **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 is discussed.
- **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:** The subsections in this section focuses on wastewater sampling, among other aspects of sampling.
- **SAP/Section 3 Specific Sampling Programs:** Sampling for disposition of wastes, including wastewater, is discussed. Determination of hazardous, radiological, and other waste characteristics is discussed.

The Maintenance/Tank Farm Complex project is not expected to deviate from the strategies laid out in the referenced documents and therefore no further detail is provided in this implementation plan.

Radiological Air Monitoring

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Occupational monitoring of airborne radio nuclides in the work areas will be performed to ensure worker protection and will also serve as a real-time indicator of airborne radiological

activity during decontamination and dismantlement; 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.

D Environmental radiological air monitoring during the Maintenance/Tank Farm Complex decontamination and dismantlement project will consist 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 and due to the low concentrations of contaminants in the Maintenance/Tank Farm components, supplemental radiological monitoring is not warranted. The basis for this conclusion is from radiological surveys performed on component surfaces (see Table 2-1). Based on these surveys, removable contamination on interior and exterior surfaces are at such low levels that potential releases are negligible. Further explanation is provided below.

Computer modeling of potential emissions from the Maintenance/Tank Farm Complex area was performed in September 1997 using the **A**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 radio nuclides under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) regulations. It should be emphasized that the CAP88 model is being used as a tool for assessing potential emissions from a project for the purpose of identifying potential mitigative controls and possibly the use of supplemental monitoring measures; it is not being used as a means to demonstrate compliance with NESHAPs Subpart H. The method to be used for demonstrating NESHAPs Subpart H compliance is presented in the IEMP as a collective **F** site-wide 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 emissions from the Maintenance/Tank Farm Complex used radiological smear data to provide a more realistic measure of removable alpha, beta, and gamma contamination than **T** fixed contamination (identified through intrusive sampling results from the OU3 RI/FS database) that could be released during dismantlement. 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.

DThe modeling methodology assumed no controls on emissions release, such as high efficiency air particulate (HEPA) filters on containment ventilation systems, and potential emissions sources were treated as being in readily dispersible forms. The results of the computer modeling indicated that the maximally exposed individual would theoretically be located 959 meters north-northeast of the project area and would potentially receive a maximum Effective Dose Equivalent of 2.49×10^{-3} mrem/year from the D&D activities.

RBased on a review of the results of the computer modeling no supplemental environmental air monitoring will be required for the Maintenance/Tank Farm Complex D&D activities. This determination is based on:

- Environmental Monitoring engineering calculations and process knowledge; and,
- Current radiological survey data of the Maintenance/Tank Farm components.

AFurther 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," January, 1998) 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 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.

Environmental air quality monitoring during the Maintenance/Tank Farm Complex D&D Project will utilize the current site-wide monitors. Figure 2-1 illustrates the location of these monitors.

2.5 Remediation Activities

A general approach to the above-grade decontamination and dismantlement of the Maintenance/Tank Farm Complex is described in the following subsections. Section 3 elaborates on this discussion by identifying component-specific interests concerning the six remedial tasks, as applicable. The six tasks are as follows:

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

Although the six remedial tasks are generally described in the order in which they will be performed, the actual order for performing these activities may differ from the sequence presented in this plan as a result of evaluation and selection of alternate methods by the remediation subcontractor as approved by the FEMP Project Manager.

As required by Specification 01515 (Mobilization), the following activities will take place prior to the implementation of remediation activities discussed in Section 3. OU3 Project Management, using the FEMP workforce, will establish a break room, clean room, and shower facilities. The remediation subcontractor will mobilize in preparation for the D&D activities by establishing a material handling and containerization area; utilizing FEMP designated access and egress roadways to and from the job site; and, establishing the construction zone boundary. The proposed construction zone boundary is delineated in Figure 1-1. The remediation subcontractor will also deliver equipment, materials, and office and storage trailers to the site as necessary to perform remediation activities. All equipment will be inspected by OU3 Project Management and surveyed by radiological control technicians 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. Additional radiological control boundaries will be established in various areas as necessary prior to starting remediation activities in those areas. These boundaries will be established prior to starting in order to locate contaminated material staging areas as well as access and egress points to and from contaminated areas.

Additionally, the remediation subcontractor is required to develop and submit safe work plans covering every aspect of the project. One such plan provides details relative to where the remediation subcontractor will erect barriers and fences for radiological control (Specification 01515). Other plans are required for controlling fugitive emissions (Specification 15067), storm water run-off protection (Specification 01515), and controlling erosion (Specification 01515). Throughout the remediation activities, the remediation subcontractor will be responsible for notifying FEMP Project Management of conditions in the field (e.g. chemical spills, leaking containers) that require environmental response. All conditions that necessitate a response will be dealt with immediately.

2.5.1 Preparatory Action: Inventory Removal

Existing waste/product inventories will be removed from project components 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 Waste Inventories. Inventory removal will be completed before OU3 remediation begins in these components. The volumes of material removed during these preparatory activities will be included in the project completion report.

2.5.2 Preparatory Action: Safe Shutdown

These activities are performed by FEMP personnel under Removal Action No. 12, Safe Shutdown, and through a separate initiative, Facility Shutdown, to further prepare the facilities for remediation. The Safe Shutdown activities consist of the following:

- removal of all salvageable equipment;
- removal of loose, gross contamination;

- removal of hold-up material;
- general clean-up; and

Disconnection of all utilities.

Not all of the components will require all of the Safe Shutdown activities; however, all will require Facility Shutdown to perform utility disconnects. For process buildings a general cleaning operation will be performed to remove loose debris (including pigeon debris) from building surfaces, walls, and floors. All steam, potable water, electrical power, fire protection alarms and systems, compressed air, and communication systems will be de-energized and terminated at the equipment or at the building exterior to establish the known condition of each energy source within the remediation area. 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. Section 3.2.2 of the OU3 Integrated RD/RA Work Plan further discusses the scope of this preparatory action.

2.5.3 Hazardous Waste Management Unit

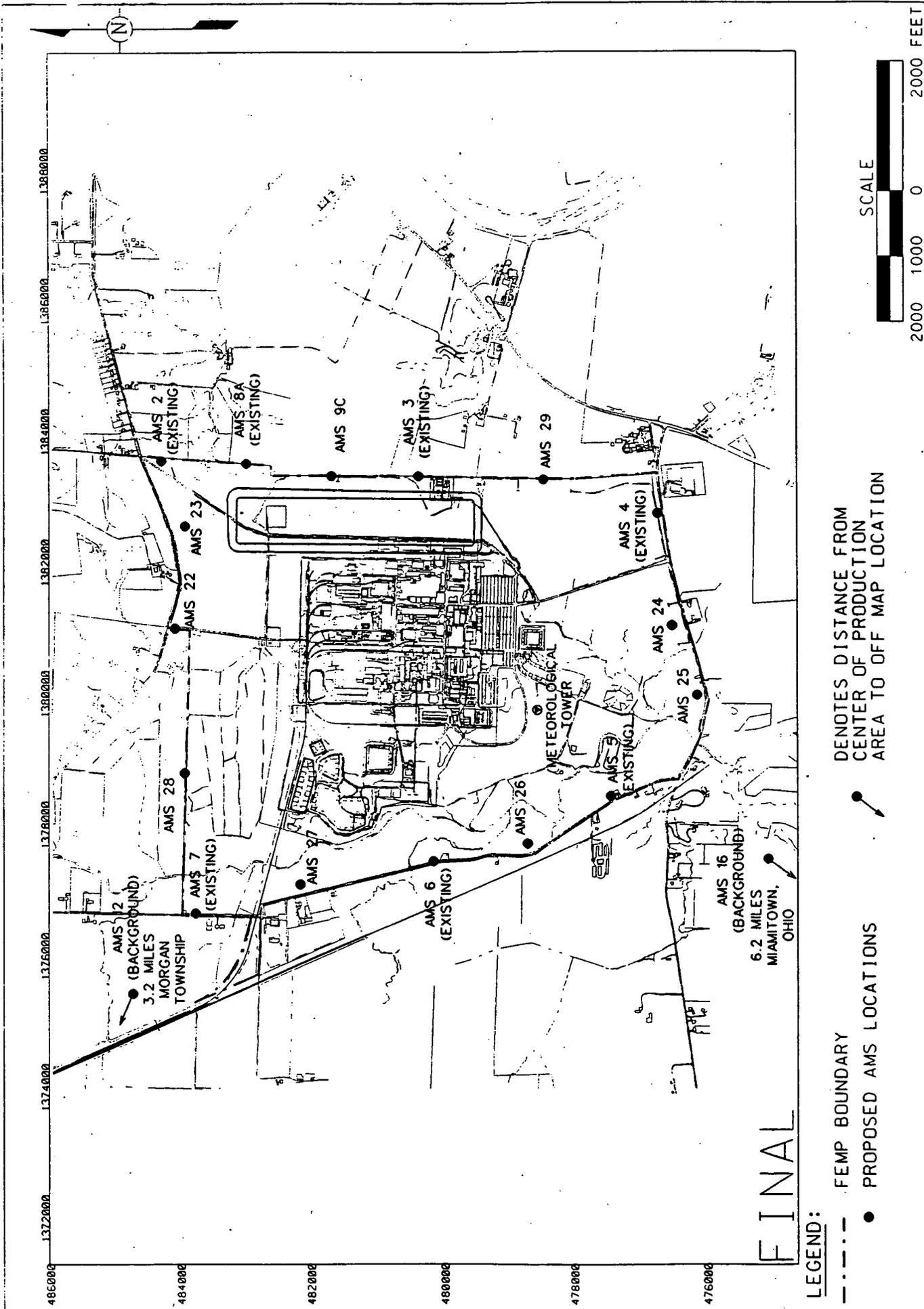
A

The remedial design for the Maintenance/Tank Farm Complex included the assessment of potential contaminants in HWMU No. 11 which is contained in Component 19D and is the only HWMU in the complex. HWMU No. 11, Tank Farm Sump, 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. Remediation of HWMUs will meet the substantive requirements of the OEPA Closure Plan Review Plan Guidance for RCRA Facilities (September 1, 1993). Remediation requirements for HWMU No. 11 are specified in Section 3.10 of this implementation plan.

2.5.4 Asbestos Removal

The removal of ACM from components will be conducted by a remediation subcontractor qualified to conduct asbestos abatement operations. This activity will involve removing all

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0000300

LEGEND:

--- FEMP BOUNDARY

● PROPOSED AMS LOCATIONS

DENOTES DISTANCE FROM
CENTER OF PRODUCTION
AREA TO OFF MAP LOCATION

SCALE

2000 1000 0 2000 FEET

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 project specific requirements for ACM removal are specified in Specification 01516.

2.5.5. Surface Decontamination

Some previous D&D activities performed for OU3 remedial actions have employed the practice of washing down all equipment and the interior surfaces of the buildings and structures prior to opening the structure to the environment. This practice was required to: 1) prevent the maximum exposed individual at the site boundary from exceeding any exposure limit; 2) protect workers from radiological contamination; and, 3) prevent releases to the environment during the D&D and interim storage of debris.

Radiological contamination surveys taken inside the buildings show that the highest levels of removable contamination exists on top of the piping in Building 12A. Since these surveys demonstrate that component surfaces, other than overhead piping in Building 12A, meet release criteria for exposure to the environment (defined below), the practice of washing down the remaining equipment and structures will not provide any benefit to the D&D of the Maintenance/Tank Farm Complex. The D&D subcontractor will use good radiological and housekeeping practices as well as ongoing contamination surveys as the D&D of the complex 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 remediation subcontractor and FEMP Project Management will inspect all debris for visible process residues (defined in Specification Section 01517) and conduct surveys to meet facility radiological release cleaning requirements. The facility radiological release cleaning requirements must be achieved before removing the exterior siding of a structure and prior to structural dismantlement where the exterior siding is not removed. The radiological release cleaning requirements for this project are contained in Part 8 of the bid document and are as follows:

- All non-porous surfaces (such as steel decking or columns) within the structure shall be below 5,000 dpm/100 cm² beta-gamma removable radiological contamination and all porous surfaces (such as concrete decking or wood) shall be below 1,000 dpm/100 cm² beta-gamma removable, 5,000 dpm/100 cm² average beta-gamma fixed plus removable, and 15,000 dpm/100 cm² maximum beta-gamma fixed radiological contamination. The average beta-gamma fixed plus removable radiological contamination limit is the average of the radiological contamination levels that exist within an individual 20 ft x 20 ft area (generally defined by plant column locations) and the maximum beta-gamma fixed radiological contamination limit is the highest permissible contamination levels within the 20 ft x 20 ft area.

2.5.6 Above-Grade Dismantlement

Above-grade dismantlement activities to be performed during the Maintenance/Tank Farm Complex remediation include all of the activities described in Section 3.2.6 of the OU3 Integrated RD/RA Work Plan. Project specifications prepared for above-grade dismantlement include the following:

- 1) Bulk Removal - includes removal of electrical components, piping, construction debris, and heating, ventilation and air conditioning (HVAC) systems (Specification 15065);
- 2) Equipment/Interior Dismantlement - (Specification 15065);
- 3) Transite Removal - (Specification 07415);
- 4) Structural Steel Dismantlement - (Specification 05126); and
- 5) Concrete/Masonry Removal - (Specification 03315).

A general discussion of above-grade dismantlement tasks are described below. The building-specific above-grade dismantlement tasks are discussed in Section 3.

Bulk Removal

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

All piping, valves, electrical components, conduit, wire, cable trays, construction debris, and HVAC systems will be removed and reduced in size. During removal of HVAC ductwork, internal surfaces will be visually inspected to ensure the absence of free liquids or solid materials. If free liquids or solid materials are found, an evaluation will be initiated by the OU3 Project Manager to determine the requirements for material handling and removal (Specification 15065). The evaluation will identify the contents and requirements for containerization,

storage, and disposal. If the item fails visual inspection, it shall be considered to be "process related debris" and disposed appropriately, as described in Specification 01120 and the Waste Management Plan.

D 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 radiological surveys will be performed to ensure that the potential for airborne radioactivity is minimized and to reduce the potential for cross-contamination. Surface wiping or vacuuming may be required to minimize transferrable contamination.

Equipment Removal

Equipment within the Maintenance/Tank Farm Complex has been identified and classified based on size and disposition requirements. As equipment is removed, the internal building surfaces and floor area previously covered by the equipment will be visually inspected to ensure the absence of free liquids or debris. **A** If these materials are found, an evaluation will be initiated by OU3 Project Management to determine the appropriate removal and handling requirements for the material (Specification 15065).

Based on the equipment to be removed and the requirements for removal as specified by Specification 15065, the remediation subcontractor is required to submit for approval a detailed work plan including the sequence, methods of removal and dismantlement, equipment required, catalog cut sheets, drawings and methods and materials to control possible generation of airborne contaminants from cutting operations, etc. **F** Staging of removed equipment and size reduction will be proposed by the remediation subcontractor and approved by FEMP Project Management.

Interior Panel Removal

Transite Panel Removal: Prior to removing any transite panels, a coating of amended water will be applied to lock down any loose fibers. A screw gun or bolt cutter is the preferred method for removing the panel fasteners. **T** If the fasteners are not removed with a screw-gun, then the area around the fastener will be sprayed with a fixative allowing the fastener to be

ried out. Prior to any fixation, Specification 07415 requires the remediation subcontractor to 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. The 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.

In some instances, the interior transite roof panels may be removed after the exterior transite panels have been removed.

Exterior Panel Removal

Transite Panel Removal: Specification 07415 specifies that the remediation subcontractor, prior to opening a building to the environment by removing the exterior siding, shall remove and or fix radiological contamination on all structural surfaces within the facility until the detected radioactivity levels are below the criteria defined in Part 8 of the IFB/RFP.

Use of either a screw gun or bolt cutters is the preferred method for removing the panel fasteners. If the fasteners are not removed with a screw gun, the area around the fastener will be sprayed with a fixative, thus allowing the fastener to be pried out. As with interior transite, prior to any fixation, Specification 07415 requires the remediation subcontractor to demonstrate the proposed method to be utilized. After the screw is pried out, the fixative will be reapplied. If a broken panel is encountered, the area surrounding the break will be sprayed with amended water and the fragmented pieces will be encapsulated with a fixative. HEPA vacuums will be available to collect any loose material.

Structural Steel Removal

Exterior metal panels will be left in place on the structural steel members. 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 visually inspected to determine if these surfaces meet the decontamination requirements of Specification 01517. Additional decontamination such as encapsulation of surfaces may be performed as discussed in Section 2.5.5 of this Implementation Plan.

Hydraulic shears or oxy-acetylene torches may be used to dismantle and size reduce the structural steel frame. Any particular component-specific dismantlement techniques are presented in Section 3 of this document. Prior to and during dismantlement, the area surrounding the structure will be sprayed with water, as necessary to reduce fugitive dust emissions.

The remediation subcontractor will be required, pursuant to Specification 05126, to specify in a structural steel removal work plan the following methods:

- detailed sequence of dismantlement, including equipment;
- methods for contamination control, including fugitive emissions during size reduction;
- methods for cutting/size reduction, including equipment to be used;
- plans for protecting lay down and cutting areas from lead paint chips;
- methods and materials to be used for cutting lead painted steel;
- calculations to verify structural integrity of partially dismantled structure, as applicable;
- calculations to verify structural integrity of roof to support personnel who may be required there; and,
- detailed description of personnel tie-offs, pick boards, and walking on or near roof purlins. All calculations shall be stamped by a Registered Professional Engineer.

Material size reduction requirements for the Maintenance/Tank Farm Complex project are specified in the MSCC located in Part 6 of the procurement document.

Specification 05126 provides direction to the remediation subcontractor in several other ways relative to the removal of structural steel. It reemphasizes the remediation subcontractor's responsibility for avoiding damage to adjacent structures, material, and equipment during dismantlement activities, and, it specifies that lead-based paint chips and debris, released during structural steel dismantlement, shall be collected and managed in accordance with

Specification 01120.

Concrete Masonry Unit (CMU) Secondary Containment and Pedestal Removal

D Specification 03315 requires the remediation subcontractor to develop a concrete/masonry removal work plan containing information quite similar to that of the structural steel removal work plan discussed above. The CMU 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, during removal operations:

Specification 01515 **R** addresses requirements relative to the preparation of the base slab during demobilization. Specifically, all openings in the slab will be filled with granular material or soils and grout to provide a flat uniform surface to minimize the chance for water accumulation and migration, and to mitigate potential safety hazards. All wire and cable will be cut away to grade from the conduit embedded in the concrete. Conduit and other slab obstructions will be cut away to grade, plugged, and covered with grout to grade level for positive drainage.

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3.0 COMPONENT-SPECIFIC REMEDIATION

D This section presents component-specific remediation tasks identified for the Maintenance/Tank Farm Complex decontamination and dismantlement project. Background information provided in this section was obtained primarily from the OU3 RI/FS WPA (DOE 1993) and remediation subcontract SOW, including figures showing notable features of the Building. Information regarding the remediation approach was obtained from the remediation subcontract SOW, performance specifications, and the OU3 Integrated RD/RA Work Plan.

3.1 Component 12A - Main Maintenance Building

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Background

Component 12A, Main Maintenance Building is a rectangular two-story building which measures 360 feet x 150 feet x 20 feet high. The building consists of concrete block and concrete floor construction and is located along the north central side of 2nd street. This building contains the main maintenance stores, shops and offices and is divided into six functional areas according to the location of the various activities within the building. Appendix D, Figures D-1 through D-3 show the floor plans and elevations for this component, while photographs are provided in Appendix E, pages 1 through 8:

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Area 1 - Decontamination Room and Emergency Generator Room. The decontamination room is located in the west end of Building 12A and has a separate entry. This room was used to decontaminate machinery and equipment before moving it into the shop areas for maintenance work. The emergency generator room is located in the northwestern corner of Building 12A. An above-ground diesel fuel tank is located outside this room.

F

Area 2 - Maintenance Stores, Receiving/Loading Dock, Central Hallway, and Second Floor Offices. Maintenance stores was used for the storage of spare equipment and spare parts. Two general areas are used for the storage of chemicals: 1) the paint room which is a diked room for the storage flammables, and 2) the northwest corner of the steel stores which is used for the storage of corrosives, oxidizers, and copier chemicals. This area also has loading and receiving docks, and offices on the second floor which house the administrative offices of the Site Services and Maintenance departments.

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Area 3 - Electric Shop and Scale Shop. This area contains the equipment and materials used to repair electrical gear and a parts washer that utilized a chlorinated solvent for parts degreasing. The scale shop is used to repair and calibrate small scales and also contains a radio room.

Area 4 - Paint Shop and Carpenter Shop. The paint shop has a vent hood that was used for small paint jobs and a booth for larger ones. The booth is constructed of sheet metal with conventional furnace/air conditioner filters. One part of the paint shop was used as an SAA for small quantities of hazardous waste generated during the maintenance activities within the various shops.

Area 5 - Instrument Shop. This shop housed repair and testing equipment for instruments and gauges that were used within the production facilities. It contains a mercury reclaiming unit which was used to reclaim mercury from contaminated mercury solutions removed from equipment such as manometers and from spillage of mercury.

Area 6 - Machine, Pipe, Millwright, and Welding Shops. This area contained the machines that were used to perform various machining operations such as milling, threading, turning and fabricating as well as welding equipment. A SAA was also located in this area and was used to collect small quantities of hazardous waste generated during maintenance activities.

Preparatory Action: Safe Shutdown:

Safe shutdown activities will consist of de-energizing plant utility services; isolation of steam lines; miscellaneous property removal; removal of furnace filters; removal of mercury from drain traps; and, removal of caked paint from paint booths.

Asbestos Removal

Individual asbestos work areas will be established within Component 12A. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 1,864 linear feet of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Sections 2.5.4.

Above-Grade Dismantlement

Component 12A is constructed of transite panel walls, concrete block walls on the east end, and transite panel roofing on a poured reinforced concrete base. The supporting frame is constructed of structural steel. Materials generated during the dismantlement of Component 12A will include piping and conduit, floor tile, equipment, concrete block debris, structural and miscellaneous steel, roofing material, doors and windows, interior roof transite paneling, roof batting insulation, and exterior transite.

3.2 Component 12B - Cylinder Storage Building

Background

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The Cylinder Storage Building is a single-story building measuring approximately 31 feet x 47 feet x 10 feet high. This structure consists of a reinforced concrete floor, cement block walls and interior partitions, chain link fence and horizontal steel beams supporting a built up roof. This structure was used to store pressurized cylinders of gasses such as argon and chlorine. Appendix D, Figure D-4 shows the floor plan and elevation view of this component while interior and exterior views are provided in the photographs in Appendix E, page 15.

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Preparatory Action: Safe Shutdown

Safe shutdown of this structure will consist of electrical utility service de-energization. No hold-up materials are anticipated.

Above-Grade Dismantlement

Dismantlement of Component 12B will generate materials including conduit, structural and miscellaneous steel, roofing material, steel louvers, and concrete masonry block.

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3.3 Component 12C - Lumber Storage Building

Background

The Lumber Storage Building is a single-story building measuring 40 feet x 50 feet x 15 feet high and consists of a concrete floor and steel framing, and light gauge sheet metal roofing and siding. The east and south walls consist of chain link fencing covered with steel screen. This structure was used to store lumber and plywood sheets for on-site construction projects. Plan and elevation views of Component 12C are provided in Appendix D, Figure D-5.

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Photographs are provided in Appendix E, page 16.

Preparatory Action: Safe Shutdown

D Safe Shutdown activities will consist solely of utility service de-energization. No hold-up materials are anticipated.

Above-Grade Dismantlement

Materials to be generated during the dismantlement of Component 12C will include conduit; structural and miscellaneous steel; roofing material; and light gauge sheet metal.

3.4 Component 12D - Maintenance Building Warehouse

Background

Component 12D, Maintenance Building Warehouse, is of steel frame and metal siding with fiberglass insulation construction. The structure is built upon a reinforced concrete floor and measures approximately 60 feet x 100 feet x 15 feet high. This warehouse provides storage space for maintenance supplies. Plan and elevation views are provided in Appendix D, Figure D-6 while photographs are provided in Appendix E, page 9.

Preparatory Action: Safe Shutdown

No hold up materials are contained in this structure. Safe shutdown activities will consist of de-energization of utility services and isolation/disconnection of steam lines.

Above-Grade Dismantlement

The above-grade dismantlement of Component 12D will generate structural steel, light gauge sheet metal, piping, conduit, and fiberglass insulation.

3.5 Component 24B - Railroad Engine House

Background

The Railroad Engine House is built over the end of a railroad spur and provides a covered area for storage and maintenance of the site's locomotive. The building measures 27 feet x 45 feet x 16 feet high and consists of a concrete floor, cement block walls and a steel frame roof. The floor has a 4 feet x 40 feet x 5 feet deep trench that facilitated maintenance under the

locomotive. Plan and elevation views are provided in Appendix D, Figure D-7 and a photograph is provided on page 17 of Appendix E.

D
Preparatory Action: Safe Shutdown

The only safe shutdown activity required for this component is de-energization of utility services.

Asbestos Removal

Individual asbestos work areas will be established within Component 24B. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 107 linear feet of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Sections 2.5.4.

Above-Grade Dismantlement

Materials generated during the dismantlement of Component 24B will include piping and conduit; equipment; structural and miscellaneous steel; and, doors and windows.

3.6 Component 38A - Propane Storage

Background

Component 38A is a single-story building measuring 23 feet x 33 feet x 10 feet high and constructed from cement block walls and a reinforced concrete floor. Included with this Building are two 33,000 gallon propane storage tanks located outdoors and just to the north. Plan and elevation views of this component are provided in Appendix D, Figure D-8 and photographs are provided on pages 18 and 19 of Appendix E.

Preparatory Action: Safe Shutdown

Safe shutdown will de-energize the building utility services; isolate and disconnect steam lines; and, disconnect all propane lines inside the structure and outside at the storage tanks. The tanks will be verified empty.

Asbestos Removal

Individual asbestos work areas will be established in Component 38A. The ACM is located on

a single pipe protruding from the ground on the east side of the building. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 1 linear foot of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Section 2.5.4.

Above-Grade Dismantlement

Materials generated during the dismantlement of Component 38A will include piping and conduit, scrap metal, equipment, doors and windows, and concrete block.

3.7 Component 38B - Cylinder Filling Station

Background

The Cylinder Filling Station is a single-story structure consisting of a steel frame with light gauge metal sides and roof. The structure is constructed on a reinforced concrete floor and measures 6 feet x 10 feet x 8 feet high. A transite barrier is located adjacent to the north and south sides of the structure. The station was used to fill steel cylinders with propane for use at various locations across the site. Plan and elevation views of this component are provided in Appendix D, Figure D-9, and photographs are provided on page 20 of Appendix E.

Preparatory Action: Safe Shutdown

Safe shutdown will isolate and de-energize utilities and break open the propane lines at this structure.

Asbestos Removal

Individual asbestos work areas will be established in Component 38B. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 1 linear foot of pipe insulation on a small stubbed-off pipe protruding through the floor will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Section 2.5.4.

Above-Grade Dismantlement

Materials generated during the dismantlement of Component 38B will include conduit, structural and light gauge steel, windows, and transite.

3.8 Component 19A- Main Tank Farm

Background

D The Main Tank Farm is an open area which measures 140 feet x 190 feet. Completed in 1986, this component had four horizontal steel tanks (approximately 25,000 gallon capacity each) mounted on concrete saddles and two steel vertical tanks (approximately 65,000 gallons each) on concrete pads. None of the tanks or other equipment in this component was ever put into service. Three of the four horizontal tanks were previously removed. Two of the tanks were used at the AWWT and the third tank was size-reduced and scrapped. A small scrubber neutralization tank and one double-walled overhead line were used for transfer and neutralization of dilute hydrofluoric acid during the closure of HWMU No. 38, HF Tank Car. **R** The site plan view of this component is provided in Appendix D, Figure D-10, and photographs are provided on pages 10 and 11 of Appendix E.

Preparatory Action: Safe Shutdown

Safe shutdown activities will consist of de-energizing and disconnecting all utilities and services to this area and verification that all tanks are empty. The overhead line used for the closure of HWMU No. 38, HF Tank Car, will be removed and the neutralization tank will be verified empty. **A**

Above-Grade Dismantlement

The above-grade dismantlement of the Main Tank Farm will consist of the removal and size reduction of two vertical steel storage tanks and one horizontal steel storage tank; removal of piping and insulation; dismantlement of the fume scrubber and equipment; and, removal of conduit and electrical wire. Concrete footings, pedestals, and pads will be left in place and removed with other at- and below-grade materials by the SCEP. **F**

The steel horizontal storage tank mentioned above is unused and considered to be salvagable equipment. This tank is intended to be size reduced and sold as scrap.

3.9 Component 19C- Tank Farm Control House

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Background

The Tank Farm Control House is a single-story structure located in the southeast corner of the

Tank Farm Complex. It is a cement block Building measuring .25 feet x 43 feet x 10 feet high built on a reinforced concrete pad. The Tank Farm Control House was originally built to be the control center for the Main Tank Farm (19A) but was never put into service. Since completion its principal use has been equipment storage. Plan and elevation views of this component are provided in Appendix D, Figure D-11, and a photograph is provided on page 12 of Appendix E.

Safe Shutdown

Safe shutdown activities for the control house will consist of disconnecting and de-energizing all utility services to the structure.

Above-Grade Dismantlement

The above-grade dismantlement of Component 19C will generate conduit, concrete block debris, equipment, roof materials, and doors and windows. The concrete floor slab will be left in place and removed with other at- and below-grade materials by the SCEP.

3.10 Component 19D - Old North Tank Farm

Background

The Old North Tank Farm, a bulk tank farm constructed in the 1950s, is located north of and adjacent to Component 19A, the Main Tank Farm. As originally constructed this tank farm had eight horizontal tanks mounted on concrete saddles and one vertical tank (Tank 17, approximately 65,000 gallons) mounted on a concrete pad. Seven of the horizontal tanks were removed and disposed of in 1991 but the concrete saddles are still in place. The remaining horizontal tank, Tank 18, with a capacity of 31,000 gallons, is rubber-lined and was originally used to store hydrofluoric acid. The site plan view of this component is provided in Appendix D, Figure D-10, and photographs are provided on page 13 of Appendix E.

Preparatory Action: Safe Shutdown

Safe shutdown activities in the Old North Tank Farm will consist of verification that the remaining storage tanks are empty and de-energizing any utility services still active there.

Above-Grade Dismantlement

Above-grade dismantlement of the Old North Tank Farm will consist of dismantling and size reduction of the vertical and horizontal storage tank. Concrete footings, pedestals, and pads

will be left in place and removed with other at- and below-grade materials by the SCEP.

HWMU Decontamination

Purpose. The decontamination requirements needed to accomplish remediation goals for HWMU No. 11 (Tank Farm Sump), consistent with the RCRA/CERCLA Integration strategy are discussed in Section 3.5.3.3 of the OU3 Integrated RD/RA Work Plan.

Background/Scope.

HWMU No. 11, Tank Farm Sump, is a surface impoundment located in the eastern portion of Component 19D, the Old North Tank Farm. The surface dimensions of the five sided sump are approximately 24 feet x 27 feet x 11 feet x 18 feet x 14 feet. This sump is a HWMU because it was used to collect and neutralize leaks and spills of hydrogen fluoride, a corrosive waste with RCRA characteristic waste code D002, which was produced in Plant 4 during production at the FEMP.

In March, 1996, Ohio EPA approved a request from DOE that the sump be allowed to continuously discharge to the FEMP storm water collection system. This request was based on process knowledge that the sump did not contain any hazardous wastes or residues. Additionally, on January 15, 1997, Ohio EPA approved a request from DOE-FN to reduce the frequency of facility inspections conducted at 18 FEMP HWMUs. The Tank Farm Sump was among these 18 HWMUs and the cited basis for this change was that there was no hazardous wastes present in this unit.

Based on evaluation of process knowledge for HWMU No. 11 during the Maintenance/Tank Farm Complex remedial design it was determined, based on process knowledge, that no decontamination of the HWMU surfaces will be required. The basis for this determination is two-fold. First, no RCRA hazardous wastes are present in the unit. Second, wastes managed in the unit were hazardous because they exhibited the characteristic of corrosivity. By definition in 40 CFR 261.22(a)(1) and (2), wastes exhibiting the characteristic of corrosivity are either aqueous solutions with a pH less than 2 or greater than 12.5, or, they are liquids that corrode SAE 1020 steel at a rate of 0.25 inches or more per year. Since the materials in the sump do not meet this definition, they are not hazardous and will not be hazardous when discarded. Additionally, the debris generated when the sump is dismantled will meet the WAC for the OSDF.

3.11 Building 19E - Tank Farm Lime Slitter Building

D

Background

Component 19E, which measures 15 feet x 15 feet x 20 feet high, was constructed in the late 1980s to slit open bags of hydrated lime. It is a steel-framed building with metal siding and roofing and it is elevated approximately 10 feet above a reinforced concrete pad. The building was used briefly for the closure of HWMU No. 38, HF Tank Car, and may contain residual lime powder and caking. Plan and elevation views of this component is provided in Appendix D, Figure D-12, and a photograph is provided on page 14 of Appendix E.

R

Preparatory Action: Safe Shutdown

Safe shutdown activities will consist of de-energizing all utility services to this component.

Above-Grade Dismantlement

Dismantlement of Component 19E will generate materials consisting of piping and conduit, structural and miscellaneous steel, equipment, and doors. Concrete piers supporting the structural steel columns of this component will be removed with other at- and below-grade materials by the SCEP.

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3.12 Component 20A - Pump Station and Power Center

Background

The Pump Station and Power Center is a single story structure located directly to the west of the Boiler Plant Cooling Towers. It is a steel framed building with transite roofing and transite siding on a reinforced concrete base measuring 17 feet x 83 feet x 12 feet high. This building houses the primary pumps for the site sanitary system, a chlorinator for the treatment of sanitary wastes, and high voltage control equipment. Plan and elevation views of this component are provided in Appendix D, Figure D-13, and photographs are provided on page 21 of Appendix E.

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Preparatory Action: Safe Shutdown

Safe shutdown activities will consist of de-energizing all utility services inside this building.

No hold-up materials are expected to be in this building.

Asbestos Removal

D Individual asbestos work areas will be established inside Component 20A. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 198 linear feet of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Section 2.4.5.

Above-Grade Dismantlement

R Dismantlement of Component 20A will generate materials consisting of piping and conduit, structural and miscellaneous steel, doors and windows, equipment, transite panels, and batting insulation.

3.13 Component 20H - Process Water Storage Tank

Background

A The Process Water Storage Tank is a reinforced concrete tank located between the Boiler Plant (10A) and Cooling Towers (20C). This tank has a diameter of 80 feet and a height of 20 feet and is equipped with a flexible membrane liner. The tank was used for the storage of process water. Plan and elevation views of this component are provided in Appendix D, Figure D-14, and a photograph is provided on page 22 of Appendix E.

Asbestos Removal

F Individual asbestos work areas will be established around Component 20H. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 40 linear feet of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Section 2.5.4.

Above-Grade Dismantlement

T The above-grade dismantlement of Component 20H will generate materials consisting of piping, concrete, asbestos and miscellaneous materials.

3.14 Component G-001 - Railroad Locomotive

D Background

When the FEMP uranium production facilities were in operation many of the materials required to support the site operations were shipped to the site by rail. Some of these materials were coal, bulk acids, and other bulk chemicals. The railroad locomotive was used to move these rail cars to site locations where they were required.

Preparatory Action: Safe Shutdown

R The safe shutdown/Facility Shutdown activities will consist of removal of diesel fuel, batteries, and any fluids (i.e., oil, hydraulic) contained in the tanks and systems of this component.

Above-Grade Dismantlement

Dismantlement of the locomotive will generate scrap steel.

3.15 Component G-008 - Pipe Bridges

A

Background

The pipe bridges are steel structures which support the steam lines and other lines required for process support activities which took place in the Maintenance/Tank Farm Complex buildings. Two sections of the pipe bridges cross 2nd Street in a north south direction from Component 19 A, the Main Tank Farm. The west most bridge crosses 2nd street and intersects a section of pipe bridge which runs parallel with the street. The section parallel to the street will not be dismantled but the section crossing the street will be. **F** This section runs north across a portion of the Tank Farm and turns east and intersects with the section of pipe bridge described next.

A second section of pipe bridge crosses 2nd street and runs in a north-south direction towards the Boiler Plant. A branch from this enters Building 12A on the West side. A second branch runs eastward and enters Building 24B on the west side. A sub-branch of this line follows an irregular course, providing a small branch entering Building 38A on the west end, and eventually crosses the railroad tracks and enters the Thorium/Plant 9 Complex on the west **T**

side. Photographs of sections of this component are provided on pages 23 and 24 of Appendix E.

D
Preparatory Action: Safe Shutdown

Safe shutdown activities will consist of de-energizing all electrical utility services, disconnection and isolation of steam lines, and disconnecting water lines. No hold-up materials are present in this component.

Asbestos Removal

R Asbestos removal will consist of removing insulation from pipes and steam lines. Individual asbestos work areas will be established around appropriate sections of Component G-008. The ACM is in good condition and has not caused any areas to be designated as asbestos areas because of the concern for friable asbestos. Approximately 4,270 linear feet of pipe insulation will be removed as part of the asbestos removal activity. Additional information on asbestos removal can be obtained in Section 2.5.4.

Above-Grade Dismantlement

A Dismantlement of this component will generate structural steel, pipe and conduit. Concrete support footings will be left in place and removed with other at- and below-grade materials by the Soil Characterization and Excavation Project (SCEP).

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4.0 SCHEDULE

D This section presents the planning and implementation schedules for the Maintenance/Tank Farm Complex remedial action project. Figure 4-1 presents the schedule for implementation of field activities beginning with the remediation subcontractor's Notice To Proceed and ending with the submittal of the Project Completion Report. Within Figure 4-1, the primary milestones of the project include initiation and duration of remediation field activities, project completion ("Completion of Field Activities"), and the preparation and submittal of the Project Completion Report to U.S. EPA and Ohio EPA.

R This schedule does not account for the additional duration that would be incurred in the event that Components 64 and 65 are exercised as options. Should these components be added to the Maintenance/Tank Farm D&D Project, a revised schedule will be submitted to the regulatory agencies for approval.

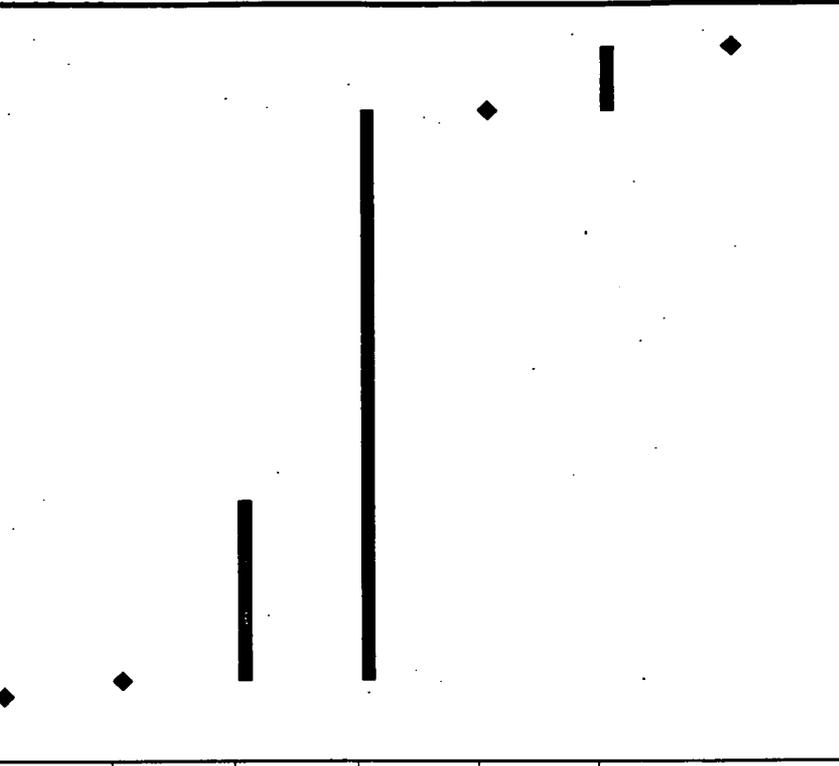
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Activity Description	START	FINISH	DUR
AWARD MAINTENANCE/TANK FARM SUBCONTRACT	01 JUL 98		0
NOTICE TO PROCEED	15 JUL 98		0
CONSTRUCT NEW WATER STORAGE TANK	15 JUL 98	30 DEC 98	97
FIELD REMEDIATION OF MAINTENANCE/TANK FARM COMPL	15 JUL 98	27 DEC 99	303
CERTIFICATION OF CONSTRUCTION COMPLETION		27 DEC 99	0
PREPARE PROJECT COMPLETION REPORT	28 DEC 99	25 FEB 00	44
SUBMIT PROJECT COMPLETION REPORT TO US/EPA		25 FEB 00	0

FY98 FY99 FY00



090060

Sheet 1 of 1

ADS OH-FN-4001
MAINTENANCE/TANK FARM COMPLEX D&D

18201

Project Start: 14 JAN 97
 Project Finish: 25 FEB 00
 Date: 08 SEP 97
 Run Date: 09 FEB 98

Legend:
 Early Bar: [Bar]
 Program Bar: [Bar]
 Critical Activity: [Bar]

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5.0 MANAGEMENT

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

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

The DOE Program 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 selection of qualified subcontractor(s) is based on meeting pre-qualification criteria, demonstrate a good safety record, possess similar work experience, and rank high on a detailed technical proposal assessment;
- assuring that the apparent low bidder/best offeror is responsive and responsible;
- reviewing, commenting, and approving of remediation subcontractor work plans;
- prior to commencing some of the activities (e.g., decontamination), ensuring that the performance specifications will be met by requiring the remediation subcontractor to demonstrate to the FEMP the ability of its proposed methods to meet the performance specifications;

- conducting an alignment meeting, pre-construction meetings, and weekly coordination meetings with the remediation subcontractor to address all concerns, schedule status, planning, progress, deviations;

D performing quality assurance and quality audits of all remediation tasks to determine adherence to performance specifications by conducting inspections of the remedial activities performed by the remediation subcontractor and those performed by FEMP work forces/labor support contractors in support of the remedial action;

- verifying work is performed in compliance with approved health and safety plans; and
- performing pre-final and final inspections.

The subcontracting **R** strategy allows the prime remediation subcontractor to utilize several lower-tier subcontractors each with specific remediation tasks. One remediation subcontract will include D&D of the components included within the Maintenance/Tank Farm Complex project, and the responsibility for material segregation and loading, container weighing, tagging, and movement of containers to and from queuing area.

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REFERENCES

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

U.S. Department of Energy, 1994, *Operable Unit 3 Record of Decision for Interim Remedial Action*, Final, prepared by Fernald Environmental Restoration Management Corporation, Cincinnati, Ohio.

R U.S. Department of Energy, 1995, *Operable Unit 3 Remedial Design/Remedial Action Work Plan for Interim Remedial Action*, Final, prepared by Fernald Environmental Restoration Management Corporation, Cincinnati, Ohio.

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

A 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

F 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

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. A project specific summary of the sample types are included in this implementation plan and are based on assumptions outlined below.

Characterization Screening

Lead screening has been conducted using X-Ray Fluorescence (XRF) screening of media for lead based paint. Radiological screening 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 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.

Secondary Waste (Decontamination Water)

General decontamination water will be sampled to determine potential treatment prior to discharge into the WWTS. It is estimated that 2 samples will be required to characterize wash water for isotopic radio nuclides, heavy metals, volatile organic compounds, PCBs, oils and grease. 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 Maintenance/Tank Farm components. A project specific sampling plan for the Maintenance/Tank Farm Complex 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

One percent of each material/waste stream going to NTS is required to be sampled, and then three samples per container (for that one percent sampled) in accordance with the NTS Waste Acceptance Criteria (WAC). Based on current planning for the Maintenance/Tank Farm

Complex, no materials are projected for NTS disposal, and therefore no sampling will be required.

Permitted Off-site Commercial Disposal Facility

Mixed waste, such as radiologically contaminated lead flashing may be disposed of at an off-site mixed waste disposal facility. If this is necessary, confirmatory sampling will be required to verify whether or not the waste meets the WAC for the disposal facility. Sampling and analysis required for shipment certification will be as specified by the permitted facility's WAC. Section 3.2.3 of the SAP contained in Appendix D of the OU3 Integrated RD/RA Work Plan addresses analytical requirements for off-site disposal.

Asbestos Air Monitoring

Asbestos air sampling will occur over the duration of the asbestos removal activity. Interior and exterior containment perimeter monitoring will be conducted during asbestos removal activities to detect any releases of friable asbestos to protect workers. Occupational breathing zone air monitor samples will also be utilized during asbestos removal within closed areas. Post abatement air sampling will be performed to ensure compliance with performance standards.

Radiological Air Monitoring

Data from the site wide environmental air monitoring program will be used to compliment the Maintenance/Tank Farm D&D occupational air monitoring program.

Occupational air samplers will be worn by at least twenty-five percent (25%) of the workers in each work group/crew (minimum of 1 worker) when entering a radiological area controlled for contamination or airborne radioactivity. More specific information on radiological worker protection can be found in the Radiation Requirements Plan contained in Part 8 of the subcontract.

As explained in Section 2.4 of the implementation plan, no supplemental environmental radiological air monitoring will be performed.

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APPENDIX B

EVALUATION OF MATERIAL DISPOSITION ALTERNATIVES

FOR

THE MAINTENANCE/TANK FARM COMPLEX

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APPENDIX B

EVALUATION OF MATERIAL DISPOSITION ALTERNATIVES
FOR THE MAINTENANCE/TANK FARM COMPLEX

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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 Unrestrictive Release Recycling/Reuse, an evaluation of disposition alternatives was performed for potentially recyclable/reusable materials estimated to be generated from the Maintenance/Tank Farm Complex. Using the Decision Methodology for Fernald Material Disposition Alternatives (the "Decision Methodology"), which was finalized in July 1997 following extensive stakeholder involvement, 501 tons of potentially recyclable structural steel (OU3 Debris Category A) from all Maintenance/Tank Farm Complex components was evaluated as part of the design process by comparing the four leading alternatives to on-site disposal.

A

The Decision Methodology consists of three phases: 1) Threshold Phase; 2) Life Cycle Analysis Phase; and 3) Decision Phase. The first phase, the Threshold Phase, includes a comparative evaluation of project costs for each alternative. The cost estimates which were recently established under the Plant 4 Case Study (presented during July 8, 1997 public meeting) were utilized for the 501 tons of structural steel from the Maintenance/Tank Farm Complex. Since total cost estimates for each recycling alternative are current, and other factors such as vendor and market information have not significantly changed since the Plant 4 evaluation was performed, unit rates for each of the recycling alternatives shown in the Plant 4 Case Study are considered valid for the Maintenance/Tank Farm Complex alternative disposition alternative evaluation. The total cost comparison of the disposition alternatives is shown in Table B-1.

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TABLE B-1 Total Cost Comparison for Disposition Alternatives

DISPOSITION ALTERNATIVE	COST PER POUND	TOTAL COST	PERCENT ABOVE LOWEST COST
On-Site Disposal Facility	\$ 0.04	\$ 40 K	--
FEMP Material Release Facility	\$ 0.27	\$ 270 K	675 %
Vendor Material Release facility	\$ 1.10	\$ 1.1 M	2,750 %
"Recycle 2000"	\$ 1.20	\$ 1.2 M	3,000 %
Privatized FEMP Material Release Facility	\$ 0.56	\$ 560 K	1,400%

The comparison of total costs between disposal in the OSDF and the four recycling alternatives indicates that each of the recycling alternatives greatly exceeds the 25 percent total cost criteria established for the Threshold Phase. As a result, only the lowest cost alternative (i.e., on-site disposal) meets the minimum criterion defined for the Threshold Phase. Therefore, as identified in the Decision Methodology, no further consideration of these decision alternatives is warranted and the decision for dispositioning the estimated 501 tons of Maintenance/Tank Farm Complex 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 the disposition alternatives would be considered.

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APPENDIX C

PERFORMANCE SPECIFICATIONS
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APPENDIX C
PERFORMANCE SPECIFICATIONS

D The performance specifications that follow have been modified from the original set of 1
performance specifications contained in the May 1997 final version of the OU3 Integrated 2
RD/RA Work Plan to incorporate project specific requirements. 3

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**MAINTENANCE/TANK FARM COMPLEX
DECONTAMINATION AND DISMANTLEMENT
ENGINEERING PERFORMANCE SPECIFICATIONS**

(Reference: EE-Specifications 1747-TS-0001)

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TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>REV.</u>	<u>DATE</u>	
DIVISION 1 - GENERAL REQUIREMENTS				1
				2
01010	R GENERAL REQUIREMENTS	0	01/13/98	3
01120	DEBRIS/WASTE HANDLING CRITERIA	0	01/13/98	4
01515	MOBILIZATION, DEMOBILIZATION, AND GENERAL SITE REQUIREMENTS	0	01/13/98	5 6 7
01516	ASBESTOS ABATEMENT	0	01/13/98	8
01517	REMOVING/FIXING RADIOLOGICAL CONTAMINATION	0	01/13/98	9 10
01519	A DECONTAMINATION OF CONTRACTOR PROVIDED TOOLS, EQUIPMENT AND MATERIALS	0	01/13/98	11 12 13
DIVISION 2 (NOT USED)				14
DIVISION 3 - CONCRETE				15
03315	CONCRETE/MASONRY REMOVAL	0	01/13/98	16
DIVISION 4 - MASONRY (COMBINED WITH DIV. 3 - CONCRETE)				17
DIVISION 5 - METALS				18
05125	NEW STRUCTURAL STEEL	0	01/13/98	19
05126	STRUCTURAL STEEL DISMANTLEMENT	0	01/13/98	20
DIVISION 6 (NOT USED)				21
DIVISION 7 - THERMAL AND MOISTURE PROTECTION				22
07415	TRANSITE REMOVAL	0	01/13/98	23

F

T

DIVISION 8 - 12 (NOT USED)

DIVISION 13 - SPECIAL CONSTRUCTION SYSTEMS (NOT USED)

DIVISION 14 - CONVEYING SYSTEMS (NOT USED)

D

<u>SECTION</u>	<u>TITLE</u>	<u>REV.</u>	<u>DATE</u>
----------------	--------------	-------------	-------------

DIVISION 15 - MECHANICAL

15065	EQUIPMENT/SYSTEM DISMANTLEMENT	0	01/13/98
15067	VENTILATION AND CONTAINMENT	0	01/13/98

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APPENDIX D
A
DESIGN DRAWINGS

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SECTION 01010**GENERAL REQUIREMENTS****PART I GENERAL****1.1 SCOPE**

- A. The intent of these specifications is to establish technical requirements necessary to support the decontamination and dismantlement (D&D) of the Tank Farm - Maintenance Buildings at the Fernald Environmental Management Project (FEMP).
- B. In all cases where the terms "Vendor", "Seller", "Manufacturer", or similar terms appear in these specifications or in the appendices to these specifications, they shall be understood to refer to an individual or firm(s) providing materials, equipment or services, as noted, under a contract to Fluor Daniel Fernald (FDF).
- C. In all cases where the term "contractor" appears in these specifications, it shall be understood to refer to the Contractor and their sub-tier contractors who are performing the D&D services at the FEMP.
- D. In all cases where the words "FEMP Project Manager" or "Construction Manager" appear, they shall be understood to refer to FDF.

1.2 TESTING

- A. The Contractor shall provide written procedures for FDF's review and approval of all tests to be performed as identified in the drawings and specifications. These procedures shall provide the detailed step-by-step operations with sign-off columns and date columns and shall be submitted and approved prior to testing.
- B. The Contractor shall not deviate from construction acceptance tests as reviewed and approved by FDF.
- C. All test instruments shall have been calibrated within 12 months prior to use on this contract or at intervals as recommended by vendor, by a calibration laboratory whose calibration equipment and instruments are fully traceable to National Institute of Standards and Technology (NIST) standards. The Contractor shall provide individual certification of calibration and NIST standards traceability for all test instruments used on this contract.

1.3 GOVERNING CODES

All work shall be accomplished in accordance with the following code requirements:

- A. Ohio Basic Building Code (OBBC) 1994.
- B. Uniform Building Code (UBC) 1994.

SECTION 01010

- C. Life Safety Code 101 - 1994.
- D. All other National Fire Protection Association (NFPA) Codes - All inclusive, including 1995 revisions.
- E. 29 CFR 1910 - Occupational Safety and Health Administration - Department of Labor.
- F. 29 CFR 1926 - Occupational Safety and Health Administration (OSHA).
- G. 40 CFR - United States Environmental Protection Agency (U.S. EPA).
- H. DOE Order 441.1 - Radiological Protection for DOE Activities
- I. DOE Order 5400.5 - Radiation Protection of the Public and the Environment and 10 CFR 835 - Occupational Radiation Protection.

References to specific codes, regulations, standards, or other criteria documents in these specifications are indicated as the latest edition of revision of each document, as of the date when these specifications were prepared.

1.4 OPERATING MANUALS AND SPARE PARTS LISTS

- A. If required, provide twelve (12) copies of a recommended operating manual or spare parts list which shall be submitted at least sixty (60) days prior to the shipment of any item of equipment.
- B. An Installation, Operation, and Maintenance (IOM) Manual shall be prepared so as to provide optimum operation and maintenance of the equipment and systems being furnished.
- C. The cover of the IOM Manual shall include the following information:
 - 1. Project Title - _____.
 - 2. Contractor.
 - 3. Construction Manager - FDF.
 - 4. Subtier Contractor (name, if any).
- D. The IOM Manuals shall be bound into one or more volumes for ease of handling, and shall have an index. The manual shall include descriptive literature, drawings, performance curves and rating data, test reports, and spare parts lists. The maintenance section shall divide maintenance procedures into two categories, "Preventive Maintenance" and "Corrective Maintenance," and a subsection for "Safety Precaution." Preventive maintenance shall include cleaning and adjustment instructions. Corrective maintenance shall include instructions and data arranged in the normal sequence of corrective maintenance (i.e., troubleshooting, logical effect to cause), then repair and replacement of parts, then the parts list. Safety Precautions shall comprise a list of safety precautions and instructions to be followed before, during, and after making repairs, adjustments, or routine maintenance.

SECTION 01010

- E. If required, provide twelve (12) copies of complete sets of final, approved manuals at least sixty (60) days prior to the shipment of the equipment or system.

1.5 SPECIFICATION EXPLANATION

- A. General: The technical specifications are of the abbreviated, simplified, or streamlined type and include incomplete sentences. Omissions of words or phrases such as "the contractor shall," "in conformity therewith," "shall be," "as noted on the drawings," "according to the plans," "a," "the," and "all" are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

For convenience of reference and to facilitate the letting of contracts, the specifications may be separated into titled divisions. The following defines the separations referred to in the specifications:

1. Division: Separate numbered division of specifications (e.g., Div. 16)
2. Section: Separate numbered section of a division (e.g., Sec. 16020)
3. Article: Separate numbered article of a subsection (e.g., Article 2.1)

- B. Definitions: Certain terms and words as used throughout the specifications shall be defined as follows, unless otherwise particularly specified:

1. "Provide": Furnish and install, complete, in place.
2. "Indicated": As shown on the drawings and/or specified.
3. "Directed,"
"Authorized,"
"Permitted": Shall be as directed, authorized, or permitted by FDF.
4. "Selected": Shall be as selected by the Contractor or FDF.
5. "Satisfactory,"
"Acceptable": Satisfactory or acceptable to FDF.
6. "Necessary,"
"Required,"
"Suitable": As necessary, required, or suitable for the intended purpose as determined by FDF.
7. "Submit": Submit to FDF unless otherwise specified.
8. "Above-grade": Refers to first, second, third, etc., stories of a facility.

In all cases where the words "or equal" appear in these specifications, they shall be understood it to mean "or approved equal."

SECTION 01010**1.6 ABBREVIATIONS FOR REFERENCED STANDARDS AND SPECIFICATIONS**

- A. The following list denotes abbreviations used in the technical portions of these specifications:
- B. Invoking all or any part of these standards are to be accomplished in accordance with normal industry practices.
- C. Standards listed in this section can be used in their entirety or applicable sections depending on their application to the services being rendered by the Contractor.

<u>Abbreviation</u>	<u>Authority</u>
AASHTO	American Association of State Highway Transportation Officials
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	American Concrete Institute
ACRI	Air Conditioning and Refrigeration Institute
ADC	Air Diffusion Council
AGC	Associated General Contractors of America
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCAAir	Movement and Control Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society

SECTION 01010

<u>Abbreviation</u>	<u>Authority</u>
AWWA	American Water Works Association
CFR	Code for Federal Regulations
DHI	Door and Hardware Institute
ERDA	Energy Research and Development Administration
FGMA	Flat Glass Marketing Association
FM	Factory Mutual System
GA	Gypsum Association
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IFB	Invitation to Bid
IMIAC	International Masonry Industry All-Weather Council
MBMA	Metal Building Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers Association
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
ODOH	Ohio Department of Health
ODOT	Ohio Department of Transportation Occupational Safety and Health Administration
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association

SECTION 01010

<u>Abbreviation</u>	<u>Authority</u>
PCI	Prestressed Concrete Institute
PS	United States Department of Commerce, Voluntary Products Standards
RFP	Request for Proposal
SDI	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
UL	Underwriters Laboratories, Inc.

END OF SECTION

SECTION 01120**DEBRIS/WASTE HANDLING CRITERIA****PART I GENERAL****1.1 SCOPE**

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

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

1.2 RELATED SECTIONS

- A. Section 01515 - Mobilization, Demobilization, and General Site Requirements.
- B. Section 01516 - Asbestos Abatement.
- C. Section 01517 - Removing/Fixing Radiological Contamination.
- D. Section 01519 - Decontamination of Contractor Provided Tools, Equipment, and Material.
- E. Section 03315 - Concrete/Masonry Removal.
- F. Section 05126 - Structural Steel Dismantlement.
- G. Section 07415 - Transite Removal.
- H. Section 15065 - Equipment/Interior Dismantlement
- I. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

- A. See Invitation for Bid/Request for Proposal (IFB/RFP) for the following:
1. Index of Drawings.
 2. Photographs.
 3. Drawings.
 4. Contractor Work Plan Format Requirements.

SECTION 01120

"Material Segregation and Containerization Criteria (MSCC)."

- B. Generation of additional debris/waste shall be minimized. Waste minimization shall include, but not be limited to, unpacking equipment and material prior to entering the Controlled Area. The Contractor shall not bring any hazardous material to the construction zone unless prior approval is received from FDF. Alternatives to hazardous materials shall be used whenever possible.

PART II PRODUCTS

2.1 EQUIPMENT

- A. The Contractor shall supply all equipment required to move containers between and within the container queuing area and construction zone, as well as all equipment to load containers.

2.2 MATERIALS

- A. FDF will provide appropriate containers, except as specified in the IFB/RFP, for debris/waste categories as identified on the MSCC, except liquid storage tanks as noted in Section 01517 of this specification package. These containers include, but are not limited to, the following:

Container Designation	Nominal Exterior Dimensions (HxWxL)	Maximum Gross Weight (lbs)
Large white metal box (LMB) (top load)	8'x8'x20'	42,000
ISO container (top load)	8'x8'x20'	42,000
ISO container (end load)	8'x8'x20'	42,000
Small metal box	3'x4'x6'	9,000
55-gallon drum with lid	---	882
Roll-off boxes (ROB)	6'x8'x22'	42,000

- B. The Contractor shall supply fiber-reinforced polyethylene or polyester sheeting approved for outdoor storage: color, yellow; minimum thickness of 6-mils; ultraviolet resistant; as manufactured by Griffolyn, Herculite or equal.
- C. FDF will deliver empty ("prepped" if required) containers, pallets (possibly radiologically contaminated), and miscellaneous materials, as required, to the container queuing area.
- D. The Contractor shall furnish 8 1/2" x 11" weatherproof removable tags.

SECTION 01120**PART III EXECUTION****3.1 PREPARATION**

- A. The Contractor shall establish a container queuing area in the location indicated on reference site drawings and provide a physical boundary to define this area. The queuing area shall be used as a temporary storage area for empty and full debris/waste containers.
1. If the queuing area is a non-concrete surface, the Contractor shall be responsible for stabilizing and maintaining the areas and routes of access to accommodate container handling requirements.
- B. The Contractor shall identify a satellite accumulation area or an approved RCRA storage area for hazardous waste handling, treatment, and disposal as needed. Areas shall be secured to prevent unauthorized entry, controlled by FDF, and managed in accordance with applicable RCRA requirements. Size and location of the accumulation area shall be coordinated with FDF.
- C. The Contractor shall provide labor and equipment required to handle containers as follows:
1. Remove lid or tarp and place in designated location to prevent damage.
 2. Remove any freestanding liquids (ice is considered freestanding liquid).
 3. Replace lid or tarp on the box and secure with clamping devices, pins, or other FDF approved method.
- D. Request for containers shall be made to FDF at least 4 days in advance of need.

3.2 APPLICATION

- A. The Contractor shall be responsible for: retrieving 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 Contractor will use the MSCC as the basis of all containerizing activities and will be responsible for minimizing debris/waste generation by limiting the amount of material brought on site.
- B. Equipment, material or debris requiring movement outside the enclosed building to be containerized or palletized, must meet the requirements of Section 01517 of this specification package. 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 by the Contractor as follows:

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

SECTION 01120

2. Secure fiber-reinforced sheeting over material to prevent migration of contamination.
3. Secure material to pallet with vinyl or metal banding material.

3.3 LOADING OF CONTAINERS

A. The Contractor shall:

1. Provide a debris/waste handling supervisor to supervise operations. The supervisor will be required to complete (FDF conducted) NVO-325 training.
2. Segregate and containerize all debris/waste according to the categories defined in the MSCC. Should a debris/waste stream be discovered that is not on the MSCC, then work on the handling of this debris/waste will stop. Contact FDF for further direction.
3. Upon receipt of containers, the Contractor shall perform a visual inspection to ensure that the containers do not hold freestanding liquids (FDF will remove liquids if any is found). If freestanding liquids accumulate in the containers after the Contractor accepts the containers, the Contractor shall be responsible for removing the liquids by either draining the container or using absorbent material.
4. 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.
5. The following "Prohibited Materials List" shall be displayed in the containerization area or on each container. Notify FDF if any of the prohibited materials are identified for specific material handling directions.

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.
6. The Contractor shall provide and install weatherproof removable tags on each debris/waste container prior to loading. Tags 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.

SECTION 01120

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

3.4 SECURITY AND MOVEMENT OF CONTAINERS**A. The Contractor shall:**

1. Move containers to the specific task location from the queuing area.
2. 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.
3. Inspect all containers, double bagged materials, drums, boxes, or double wrapped components for exterior contamination and damage before removing them from the work area.
4. Secure full containers.
 - a. End-loading ISO containers will be secured as follows:
 - 1) Close and latch doors, ensuring that all latching mechanisms are engaged.
 - b. Drums will be secured as follows:
 - 1) Place lid on drum, ensuring that gasket is seated to maintain a tight seal.
 - 2) Install bolt-type lock ring on lid and torque to 45 ± 5 foot-pounds.
 - 3) Drums shall be strapped together on pallets.
 - c. Top-Loading Metal boxes (large and small) will be secured as follows:
 - 1) Inspect gasket for damage and repair, if required.
 - 2) Place gasket and lid on the box and secure with clamping device or pins.
 - d. Roll-Off Boxes (ROBs)
 - 1) Cover ROB with tarp or steel lid.
 - 2) Secure tarp (with straps) or steel lid (with clamping device or pins).
 - 3) Secure all gate chains.
 - e. Ensure that containers have not been damaged during loading.

SECTION 01120

- f. Return full, secured containers to the queuing area.
5. Secure ACM-filled containers as follows:
 - a. Label all containers prior to use.
 - b. Inspect all containers as noted in Part 3.4.A.3
 - c. Prior to securing lid or doors on ACM containers, fold fiber-reinforced sheeting over ACM and seal with tape.
 - d. Return full, secured container to the queuing area.
6. The Contractor shall decontaminate waste containers, equipment, tools, etc., prior to exiting the construction zone or queuing area as necessary in accordance with Section 01519.

3.5 BULK STAGING OF DEBRIS/WASTE

- A. Multi-Level Floor Demolition Debris Movement: If the Contractor chooses to stage any demolished material on a floor other than the ground floor of a multi-floored structure or an equipment platform, an engineering analysis shall be required. It shall be the Contractor's responsibility to perform the analysis to verify the loading capacity of said floor and submit the analysis to FDF signed and stamped by a professional engineer (PE) to ensure that the load capacity is not exceeded.

3.6 FIELD QUALITY ASSURANCE

- A. The Contractor and FDF shall inspect filled containers upon their return to the queuing area to verify that no damage has occurred during the filling of the container and that materials/debris are segregated according to the MSCC.

END OF SECTION

SECTION 01515**MOBILIZATION, DEMOBILIZATION AND
GENERAL SITE REQUIREMENTS****PART I GENERAL****1.1 SCOPE**

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

1. Site access.
2. Patching building slab.
3. Construction utilities.
4. Signs and barriers.
5. Potential use of existing overhead bridge cranes.
6. Gravel pads for access and queuing areas.
7. Establishing lay down, cutting, and storage areas.
8. Protecting adjacent facilities and components.
9. Debris chutes.
10. Remediation equipment.
11. Ventilation and containment.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 03315 - Concrete/Masonry Removal.
- C. Section 05126 - Structural Steel Dismantlement.
- D. Section 07415 - Transite Removal.
- E. Section 15065 - Equipment/Interior Dismantlement.
- F. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

A. See the Invitation for Bid Package/Request for Proposal (IFB/RFP) for the following:

1. Index of Drawings.
2. Photographs.
3. Drawings.

SECTION 01515**1.4 REFERENCES, CODES AND STANDARDS**

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

A. American Society of Testing and Materials (ASTM):

1. ASTM A36/A36M-94 Standard Specification for Carbon Structural Steel.
2. ASTM C109-93 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
3. ASTM C136-93 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates (AASHTO T27).
4. ASTM D698-91 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/ft.).
5. ASTM C1042-91 Standard Test Method for Bond Strength of Latex Systems Used with Concrete by Slant Shear.

B. National Fire Protection Association (NFPA)

1. NFPA 70 National Electrical Code, 1996 Edition.
2. NFPA 101-94 Code for Life from Fire in Buildings and Structures.

C. American National Standards Institute (ANSI)

1. ANSI C2-93 National Electrical Safety Code.
2. ANSI C135.1-79 Galvanized Steel Bolts and Nuts for Overhead Line Construction.
3. ANSI 05.1-92 Wood Poles Specifications and Dimensions.

D. American Wood-Preservers Association (AWPA)

1. AWPA C4-95 Poles, Pressure Treatment

E. National Electrical Manufacturers Association (NEMA)

1. NEMA LA 1-92 Surge Arresters.
2. NEMA WC 7088 Cross-Linked-Thermosetting Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

SECTION 01515**F. Underwriters Laboratories (UL)**

1. UL 96-94 UL Standard for Safety Lightning Protection Components.
2. UL Electrical Directories, 1995 Construction Materials.

G. United States Department of Agriculture, Soil Conservation Service

1. Water Management and Sediment Control in Urbanizing Areas.

H. 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).

I. American Water Works Association (AWWA)

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

J. Ohio State Plumbing Code

1. 4104:26:105 Backflow

1.5 SUBMITTALS**A. The Contractor shall submit a Mobilization Safe Work Plan for approval by Fluor Daniel Fernald (FDF) that shall include the following:**

1. Drawings and Data
 - a. Provide detail and layout drawings showing locations of any barriers and/or fencing the Contractor will use for construction zone and radiological control boundaries as well as for protection of adjacent structures.
 - b. Provide detail and layout drawings showing temporary structures, access and roadways required during mobilization of major equipment components (e.g., cranes, field offices, tool and equipment storage, chutes within the stated limits of the construction zone).
 - c. Provide drawings showing layout, details and applicable equipment, or plans the Contractor will employ to control fugitive emissions, storm water runoff, erosion, and migration of liquids.

SECTION 01515

- d. Provide detail and layout drawings showing that show lay down areas, building vestibule sizes and locations, cutting areas, and container queuing areas.
- e. Provide shop drawings for all debris chutes to be used.
 - 1. Provide manufacturer's data or calculations to verify that the chute, its support system and the existing structure (if the debris chute is attached) can withstand all dynamic impact loads they will be subjected to during dismantlement operations.
 - 2. Debris Chute drawings and calculations submitted must bear the stamp of a Registered Professional Engineer.
- 2. Temporary utilities (such as water, steam, electric power) from the point source location identified on the reference site drawings in Part 7 of the IFB/RFP to end use locations.
- 3. Verification that the patching grout compressive and bond strengths are in accordance with ASTM C109 and ASTM C1042, respectively.
- 4. Results of the Engineering Survey per 29 CFR 1926.850. (If any building or if part of a building to be dismantled is identified in the Contractor's engineering survey as being structurally deficient, the Contractor shall include in the Safe Work Plan proposed methods to shore the structure so that safety of the workers is maintained.)
- 5. Written statement of acceptability of utilities isolation.

PART II PRODUCTS**2.1 MATERIALS**

- A. Patching Grout: Non-shrink type, premixed compound consisting of non-metallic aggregate; cement; water reducing and plasticizing agent; capable of developing minimum compressive strength of 5,000 psi in 28 days; capable of developing a bond strength of 1,200 psi in 28 days; conforming to ASTM C 109 and ASTM C827.
 - 1. Acceptable products and suppliers (or equal):
 - a. Masterflow 713, by Masters Builders.
 - b. SikaGrout 212, by Sika Corp.
 - c. Sealtight 588, by W. R. Meadows.
 - 2. The "or equal" products will be approved by FDF prior to use on the FEMP.
- B. 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.

SECTION 01515

- C. Ensure that clean granular fill is used to fill large openings in the base slab, including pits, large sumps, etc. This material will be supplied by the Contractor. Use of fine aggregate shall be natural river sand, bank sand or sand manufactured from stone or air-cooled blast furnace slag; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100
No. 50	10 - 40
No. 200	0 - 5

- D. Gravel Pads for Access and Queuing Areas

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

- E. Wood Poles

- 1. Use 45' Class 2 wood poles.
- 2. ANSI 05.1; treated southern pine poles.
- 3. Select poles for straightness, minimum sweeps and short crooks. FDF shall be notified of any sweeps or crooks prior to installation for determination of acceptance.
- 4. Preservative: ANSI 05.1 and AWWA C4, Pentachlorophenol.
- 5. Apply preservative to AWWA C4 with minimum net retention of 12 lbs/ft³ (285 kg/m³). Obtain complete sapwood penetration.

- F. Pole Hardware

- 1. Miscellaneous Pole Hardware: Hot dipped galvanized after fabrication.
- 2. Bolts and Nuts: ANSI C135.1.
- 3. Butt Plate: Copper.
- 4. Guy Strand: High strength, seven strand steel cable galvanized to ASTM A475, Class A or B.
- 5. Guy Termination: Three-bolt clamp type.
- 6. Guy Guards: 8 foot (2 m) long plastic, colored yellow.

SECTION 01515

7. Ground Wire: Soft drawn copper conductors, 6 AWG minimum size.
 8. Air Terminal: UL 96; 18 inch copper air terminal.
 9. Guy Adapter: Twin Eye.
- G. Line Conductors
1. Secondary Conductors: Copper, triplex (three) cable with 600 volt cross-linked polyethylene insulation for phase conductors. Use bars, extra high strength copper messenger for ground.
- H. Arresters
1. Surge Arresters: NEMA LA 1; valve type, arranged for pole mounting, and rated 3 kv.
 2. Mechanical Connectors: Bronze.
 3. Wire: Stranded copper.
 - a. Grounding Conductor: Size to meet NFPA 70 requirements.
- I. Anchors
1. Helical Screw Anchors: Galvanized steel, ASTM A36/36M.
- J. 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.

SECTION 01515**PART III EXECUTION****3.1 EXAMINATION**

- A. The Contractor shall perform an Engineering Survey in accordance with the requirements of OSHA 29 CFR 1926.850, approved by FDF prior to the Contractor proceeding with any work activities beyond mobilization.

3.2 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. Patching Building Slab

1. Conduit, piping, drain openings, etc., shall be plugged/capped/covered at grade level as they become accessible with patching grout.
2. If required in Part 6 of the IFB/RFP, the contractor shall fill large openings, pits, sumps, etc. with granular fill material to within 2 inches of grade and covered with a minimum of 2 inches of patching grout.
 - a. The contractor shall ensure that large openings in the base slab including pits, sumps, trenches, etc. are free of water and loose debris prior to filling.
 - b. To ensure proper bond to concrete, all grease, oil, dirt and other deleterious materials shall be completely removed and handled in accordance with Section 01120 of this specification package.
 - c. Follow all manufacturer's recommendations for the application of patching grout.
 - d. Fill in damaged areas of base slab and small openings including drains, chases, small sumps, etc., with a patching grout to create a surface level with surrounding slab. Maximum allowable depression not requiring repair is 1 inch in depth.

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, the Contractor shall conduct a survey to verify that all utilities are capped and/or controlled to the Contractor's satisfaction.

SECTION 01515

2. FDF will provide electrical power and water to the locations indicated on reference site drawing listed in Part 7 of the IFB/RFP. Capacities for water and power provisions are listed in Part 6 of the IFB/RFP. The Contractor shall determine if the capacities that can be provided by FDF are adequate for their needs; if not, the Contractor shall supply any additional capacities required.
 3. All electrical appurtenances required for temporary power shall be in accordance with the National Electric Code.
 4. Temporary heating or cooling, if needed, shall be provided by the Contractor. 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. Use of LPG gas-fired heaters shall be approved by FDF. All portable continuous running of gas fired heating systems require 24 hour coverage by the Contractor.
 5. The Contractor shall extend the water from the point source location to support operations or provide portable facilities as may be required.
 - a. The Contractor shall supply, install, and maintain all backflow prevention devices (in accordance with Part 2.1 of this specification section), fittings, and valves for point source connections.
 1. The contractor shall provide FDF with the backflow prevention device at least two weeks prior to installation for inspection, and .
 2. FDF will test, certify, and approve the backflow preventor for contractor installation.
 - b. At the time of installation and at least every 12 months thereafter, FDF will inspect the assemblies.
 1. The Contractor shall coordinate water hook-up with FDF. FDF will activate hydrants.
 - c. At project completion, the Contractor shall turn all backflow prevention devices, fittings, and valves over to FDF in good working order at no additional costs.
- D. Signs and Barriers - The Contractor shall:
1. Protect 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 from damage. If displaced or lost, the Contractor shall reinstall at no additional cost to FDF.

SECTION 01515

2. Remove all existing chain link fencing as noted on the reference drawings and install construction zone fencing outlining construction boundary. The Contractor shall install and maintain throughout the performance period of this subcontract, barriers (minimum - orange snow fence) around the construction area to control access.
 3. The Contractor shall supply and post construction safety signs, such as "Hard Hat Area" and "Danger-Demolition Ongoing," and construction barriers as necessary to protect the operations and adjacent structures. Signs shall be placed approximately every 25 feet around the defined construction area.
 4. FDF shall supply signs, barriers, fencing, and tape indicating radiological control zones.
 5. The Contractor shall install radiological control fencing 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.
 6. 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, the Contractor may utilize 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).
- 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.

SECTION 01515**F. Protecting Adjacent Facilities and Components**

1. The 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 contractor's 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. The Contractor shall ensure that catch platforms, chutes and other means of handling debris are 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 by the Contractor, 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 IFB/RFP in the Project Radiological Requirements Plan.

J. Ventilation and Containment

1. If release cleaning requirements for structures, as specified in the Radiological Requirements Plan contained in Part 8 of the IFB/RFP, 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 Section 15067 of this specification package.
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

SECTION 01515

material (including where doors or windows are missing) in accordance with Specification Section 15067. Enclosed structures shall allow for emergency exits.

3.3 DEMOBILIZATION AND FINAL PROJECT SITE ACCEPTANCE

- A. Demobilization includes the removal of all contractor tools, equipment and materials.
- B. Final project site acceptance shall be conducted by FDF in accordance with FDF Site Procedures, and will consist of verification of completion of all work activities relating to the work scope.

END OF SECTION

SECTION 01516**ASBESTOS ABATEMENT****PART I GENERAL****1.1 SCOPE**

This section specifies the requirements for an asbestos hygiene 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.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01517 - Removing/Fixing Radiological Contamination.
- C. Section 07415 - Transite Removal.

1.3 REFERENCE MATERIALS

- A. See the Invitation for Bid/Request for Proposal (IFB/RFP) Package for the following:
 - 1. Index of Drawings.
 - 2. Photographs.
 - 3. Drawings.
 - 4. Air Cleaning Device (ACD) Procurement Specification.
 - 5. Air Cleaning Filter Procurement Specification.
 - 6. Contractor Work Plan Format Requirements.
 - 7. HEPA Vacuum Cleaner Requirement.
 - 8. HEPA Air Filtration Device Requirement.
- B. For ACM information on the project, refer to Part 6 of the IFB/RFP Package.

1.4 REFERENCES, CODE AND STANDARDS

All work shall be accomplished in accordance with the following reference, code and standards:

- A. 29 CFR 1910 Occupational Safety and Health Administration - Dept. of Labor (as applicable).
- B. 29 CFR 1926 Occupational Safety and Health Administration - Dept. of Labor (as applicable).
- C. Ohio Department of Health Asbestos Hazards Abatement Rules Chapter 3701 - 34, OAC (Ohio Department of Health).

SECTION 01516

- D. Ohio Environmental Protection Agency Chapter 3745-20, OAC.
- E. United States Environmental Protection Agency (U.S. EPA) 40 CFR 61, Subpart M, (NESHAPS).

1.5 SUBMITTALS

- A. The Contractor shall submit the following for approval:
 - 1. An asbestos abatement work plan as described in the IFB/RFP Part 8, Safety and Health and Training Requirements.
 - 2. Prior to initiation of ACM work, the Contractor shall submit the following items to Fluor Daniel Fernald (FDF):
 - a. Ohio Department of Health/OSHA-required documentation for Asbestos Removal Contractors:
 - 1) Documentation of training.
 - 2) Medical surveillances.
 - 3) Respirator fit-test.
 - 4) Employee exposure assessments.
 - b. State of Ohio certificates and licenses for the Contractor.
 - c. State of Ohio certification for all personnel as required by law.
 - 3. Five (5) days prior to submittal of notification to government agencies, the Contractor shall provide a copy of the notification to FDF for concurrence.
 - 4. Product Data: The Contractor shall submit manufacturer's technical information including application instructions for each material proposed for use.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be in original, new, and unopened containers bearing manufacturer's name, label, and the following information:
 - 1. Name or title of material.
 - 2. Manufacturer's stock number and date of manufacture.
 - 3. Manufacturer's name.
 - 4. Thinning instructions.
 - 5. Application instructions.

SECTION 01516**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 and contain a colorant to make coverage areas readily apparent. Products that have been acceptable to FDF include those listed below. Equivalent or better products may be acceptable and shall be approved by FDF.

1. Surfactants:
 - a. Childers CP-225 CHIL-SORB.
 - b. Certech.
 - c. Expert Environmental Products.
 - d. International Protective Coatings Corp.
2. Encapsulants:
 - a. Certane 2050 Certified Technologies.
 - b. Expert Environmental Products - Eppco #1.
 - c. International Protection Coatings Corp. - Serpiloc.
3. Lockdowns:
 - a. 1050 - Clearcoat by Certane.
 - b. Fiber-Seal by Eppert.
 - c. International Protection Coatings Corp.-Serpiloc.

2.2 EQUIPMENT

A. Negative pressure Air Filtration Device (AFD) equipped with HEPA filtration and operated in accordance with the requirements of 29 CFR 1926.1101 (See Part 7 of the IFB/RFP).

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 manometric measurements. The ventilation system for this type of operation shall provide a minimum of four air changes per hour.

SECTION 01516

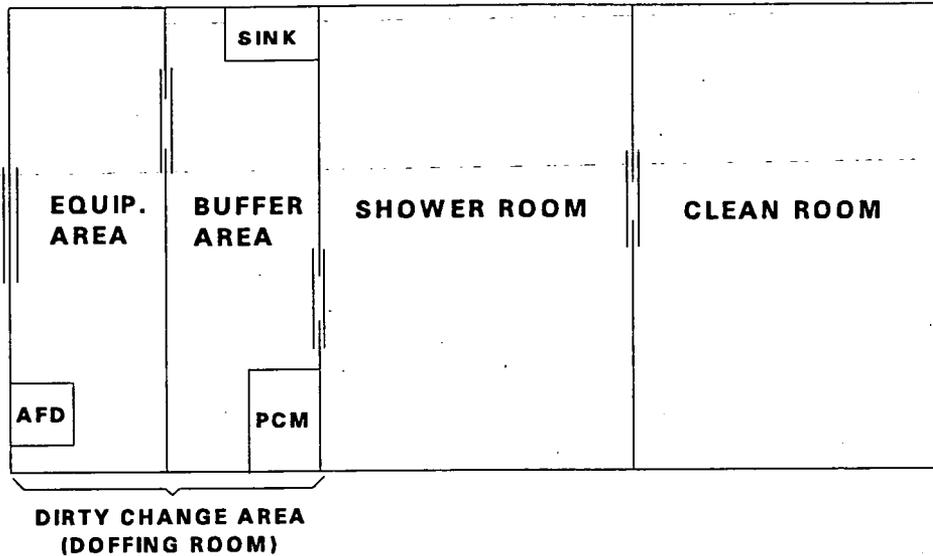
- C. For mini-enclosures and glovebags, a HEPA filtered vacuum system may be substituted to provide negative air pressure. Ensure that the HEPA filtered vacuum system meets the four air changes per hour capacity required for mini-containments.
- D. HEPA filtered vacuum. See Part 7 of the IFB/RFP for requirements of HEPA vacuum systems.
- E. The Contractor shall supply a Portable Asbestos Hygiene Facility (See Figure 1 on the following page). The size of this facility 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 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. It is recommended that the Contractor provide more showers than are legally required so the workers can exit the work area in a timely manner.
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. The Contractor shall ensure that an electrical outlet exists for the PCM. 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.

SECTION 01516

ASBESTOS HYGIENE FACILITY (EXAMPLE)



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.

PART III EXECUTION

3.1 PREPARATION

A. Regulatory:

1. The Contractor shall notify the Ohio Department of Health (ODOH) ten (10) days prior to start of ACM removal, and FDF will be responsible for notifying the EPAs and all other applicable governmental agencies before start of work.
2. Adherence to and compliance with work practices and procedures set forth in all applicable Federal, State, and local codes, regulations, and standards.
3. Obtaining certifications and licenses.
4. The contractor shall take precautions to prevent creation of friable ACM during handling.

B. Work Area (for containment work):

SECTION 01516

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.
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.
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 according to the Waste Management Plan, located in Part 6 of the IFB/RFP.
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 Contractor-supplied, 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

SECTION 01516

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, after cleaning 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 reveals no evidence of any AMC as determined by FDF.
6. Apply lockdown to all surfaces in the work area.
7. For containment work, aggressive clearance testing shall be performed by FDF and the acceptable limit <0.01 f/cc by Phase Contrast Microscopy.
8. Upon successful completion of aggressive clearance testing by FDF, the Contractor shall remove containment and dispose of it as ACM waste per Part 6 of the IFB/RFP.
9. Wastewater associated with asbestos abatement shall be handled in accordance with Section 01517 of this specification package.

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

END OF SECTION

SECTION 01517

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

PART I GENERAL

1.1 SCOPE

- A. Decontamination of dismantled equipment or structural debris to a level that permits removal of the equipment from a local containment, enclosure or permits opening the building to the environment. This section includes, but is not limited to:
1. Decontaminating low-level uranium contaminated equipment, materials, structural members, and/or buildings.
 2. Decontaminating enriched uranium contaminated equipment and materials.
 3. Decontaminating RCRA contaminated equipment and materials.
 4. Controlling and moving effluent produced during the removal and/or fixing of contamination.
 5. Fixing of contamination.
- B. Project Conditions
1. The Contractor shall establish an inspection area for each contamination area to allow Fluor Daniel Fernald (FDF) to inspect 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 FDF/Contractor radiological survey personnel.
 - b. Only those items which meet the requirements for leaving the local containment or building should enter the inspection area. The requirements for items to leave local containment or a building enclosure are given in Section 3.2.C of this specification.
 2. If by visual inspection, hold-up material is found (solid or liquid), FDF shall be notified immediately. If the volume is estimated to be less than 1 quart, the D&D Contractor will be responsible for removing and containerizing the hold-up in accordance with the Waste Management Plan, located in Part 6 of the IFB/RFP. If the material found is estimated to be greater than 1 quart by volume, activities will cease on that piece of demolition debris.

SECTION 01517**1.2 RELATED SECTIONS**

All work shall be accomplished in accordance with the following code requirements:

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 03315 - Concrete/Masonry Removal
- C. Section 05126 - Structural Steel Dismantlement.
- D. Section 07415 - Transite Removal.
- E. Section 15065 - Equipment/Interior Dismantlement.
- F. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

- A. See Part 7 of the IFB/RFP Package for the following:
 - 1. Index of Drawings.
 - 2. Photographs.
 - 3. Drawings.
 - 4. Safe Work Plan Requirements

1.4 REFERENCES, CODES, AND STANDARDS

- A. United States Department of Energy (DOE):
 - 1. DOE Order 5400.5 Radiation Protection of the Public and the Environment.
 - 2. DOE/EH-0256T Radiological Control Manual, April 1994.
 - 3. DOE/EM-0142P Decommissioning Handbook, Chapter. 9, Mar. 1994.
- B. 10CFR835 Occupation Radiation Protection

1.5 SUBMITTALS

- A. Before start of decontamination work, the Contractor shall submit for approval a work plan in accordance with IFB/RFP, Part 7, Contractor Work Plan Format Requirements, describing the system design for removing and/or fixing contamination, including the methods and equipment for: removing contamination; fixing contamination; and controlling, filtering, and transporting effluent produced during removal and/or fixing activities.

SECTION 01517

- B. **Product Data:** The Contractor shall submit manufacturer's technical information including the material to be used, its intended use, and its application instructions.

PART II PRODUCTS

2.1 CONTRACTOR'S EQUIPMENT

- A. The Contractor shall supply all equipment required to remove and/or fix contamination.
- B. The Contractor shall collect all waste and effluent generated while removing and/or fixing contamination. Effluent and sludge shall be containerized in accordance with the requirements listed in Sections 3.1.E and 3.1.F of this specification. The Contractor shall supply all equipment required to control, filter, and move effluent produced during removal and/or fixation of contaminants.
1. The filter system shall consist of a 20 micron pre-filter and a 5 micron filter to remove entrained particulate prior to effluent discharge to tankage.
 2. The Contractor shall construct all holding tank systems and secondary containment systems as specified in Sections 3.1.E and 3.1.F of this specification.

2.2 MATERIALS

- A. If encapsulating coatings are employed, they shall be Carboline D3358 or approved equal. Manufacturers may include, but are not limited to: Tnemec Series 6 - Tnemec-Cryl, Sherwin-Williams, or International Protective Coatings.
- B. If non-strippable coatings are employed, they may include, but are not limited to: Polymeric Barrier System (Bartlett), or an approved equal.
- C. Where encapsulation by plastic sheet wrapping is allowed, the wrapping shall be a minimum of 6-mil polyethylene sheeting.

PART III EXECUTION

3.1 APPLICATION

- A. To remove equipment or debris out of a local containment or enclosure or prior to loading into containers, or to containerize outside of an enclosure, or prior to moving to the inspection area, all surfaces shall be free of visible process residues and dry as determined by FDF. 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 in accordance with Section 01120 of this

SECTION 01517

specification package and containerized as stated in the Waste Management Plan located in Part 6 of the IFB/RFP. 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, CO₂ blasting, etc.
 2. Encapsulation of contaminants is required if contamination levels specified in part 8 of the IFB/RFP 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 as referenced in Section 2.2. The Contractor shall 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, the Contractor must 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 specification (see Section 2.2).
- 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 stated in Section 3.1.A shall be moved to the inspection area required per Section 1.1.B.
 2. Hazardous Waste Management Unit (HWMU) equipment shall be decontaminated in accordance with Section 3.1.A of this specification and any specific requirements identified in the Scope of Work (Part 6 of the IFB/RFP).
 3. Equipment identified by FDF as being contaminated with uranium with an enrichment over 2 percent will be removed, wrapped, and containerized by the Contractor 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, the Contractor shall remove and/or fix radiological contamination on all surfaces within the facility until the detected radioactivity levels are below the criteria as defined in Part 8 of the IFB/RFP.

SECTION 01517

FDF will perform a radiological release survey to ensure the radioactivity criteria are met.

2. If hydro-blasting or steam cleaning is employed, the Contractor shall:
 - 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. The Contractor may 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 as stated in Section 3.1.E.
4. The Contractor shall 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, the Contractor shall supply effluent storage tanks with a minimum storage capacity to allow 30 calendar days storage without impacting operations. 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 (if listed in Part 8 of the IFB/RFP): In addition to effluent tanks, the washing of enriched equipment/material, as listed in Part 8 of the IFB/RFP, requires the use of smaller tanks to permit safe quantities to be maintained (for nuclear criticality safety purposes). There are no mass restrictions for rinsates 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, the Contractor shall supply effluent storage tanks of no greater than 175 gallon capacity, in numbers sufficient to permit 15 calendar days storage without impact to Contractor operations.
 - 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, see Section 3.2.C.4), the Contractor shall supply effluent storage tanks no greater than 30 gallon capacity, in numbers sufficient to permit 15 calendar days storage without impact to Contractor operations.

SECTION 01517

- c. The Contractor shall store sludge, resulting from enriched equipment/material cleaning, in 55-gallon drums (supplied by FDF). 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. FDF will perform all effluent and sludge sampling and analysis. Approval to commingle the effluents and sludges is required from FDF. Approval to transfer effluents to large effluent tanks is required from FDF.
 4. Upon approval from FDF, the Contractor shall empty the contents of the effluent storage tanks and transport the effluent to the FEMP Advanced Wastewater Treatment Facility.

F. Sludge Drumming

Sludge limits for individual drums from enriched cleaning operations are restricted to the weight listed below. (Note: The weight is limited due to Department of Transportation and/or the maximum allowable weight of the drum.)

1. 104 grams of U-235 per 55-gallon drum.

3.3 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall deliver materials in original, new and unopened containers bearing the manufacturer's name, label, and the following information:
 1. Name or title of material.
 2. Manufacturer's stock number and date of manufacture.
 3. Manufacturer's Name.
 4. Application instructions.
 5. Material Safety Data Sheets.

END OF SECTION

SECTION 01519

DECONTAMINATION OF CONTRACTOR PROVIDED TOOLS,
EQUIPMENT, AND MATERIAL

PART I GENERAL

1.1 SCOPE

- A. Preventative measures for and decontamination of Contractor provided 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 in Part 6 of the IFB/RFP, shall be considered contaminated with radioactive material.
 2. The Contractor shall establish a holding/inspection area to allow Fluor Daniel Fernald (FDF) to perform 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 FDF/Contractor radiological survey personnel.
 - b. Only those items which meet the requirements (as described in this Specification Section) for leaving the work zone should enter the inspection area.
 3. The Contractor should assume that extensive dismantlement and an aggressive decontamination effort will be required to achieve unrestricted release of items that have come in contact with radioactive material or were used in contamination areas. Based on past experience using the best available technologies, decontamination and survey access requirements to meet the release criteria may be difficult to achieve.
 4. Hand and portable tools used in controlled areas for performance of the subcontract are to be considered expendable as specified in Part 4 IFB/RFP, Special Terms and Conditions, DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIALS THAT HAVE BECOME CONTAMINATED (SC-11).

SECTION 01519**1.2 RELATED SECTIONS**

- A. Work related to this Specification Section shall also be accomplished in accordance with the following Specification Sections:
1. Section 01120 - Debris/Waste Handling Criteria.
 2. Section 01517 - Removing/Fixing Radiological Contamination.
 3. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

- A. Part 4 of IFB/RFP, Special Terms and Conditions, DISPOSITION OF CONTAMINATED TOOLS, EQUIPMENT, AND MATERIALS (SC-11).
- B. Part 6 of IFB/RFP, Scope of Work
- C. Part 7 of IFB/RFP, Safe Work Plan Requirements

1.4 REFERENCES, CODES, AND STANDARDS

- A. United States Department of Energy (DOE):
1. DOE Order 5400.5, Radiation Protection of the Public and the Environment.
 2. DOE/EH-0256T, Radiological Control Manual, April 1994.
 3. DOE/EM-0142P, Decommissioning Handbook, Chapter. 9, Mar. 1994.
- B. 10CFR835 Occupation Radiation Protection

1.5 SUBMITTALS

- A. The Contractor must provide FDF with a list of all tools, vehicles, equipment and material to be brought onsite which have been used in conjunction with radioactivity in the past including such information as:
- Previous use of the equipment.
 - Dates of use.
 - Levels of contamination.
 - Radioisotopes involved.

This list must be submitted as soon as known but no less than 30 days in advance of bringing the item on site. FDF reserves the right to reject the Contractor's request to bring these items on site.

1. Any tools or equipment contaminated with a radioactive material greater than 1 percent enriched uranium or thorium-232 will be rejected.

SECTION 01519

2. Thorium contaminated tools and equipment may only be used in a thorium contaminated area.
- B. The Contractor shall submit the manufacturer's technical information for any decontamination or contamination controlling agents for compliance review prior to use. This information shall include:
- Material to be used.
 - Intended use.
 - Application instructions.
 - MSDS Sheets.
- C. Before start of decontamination work, the Contractor shall submit a Safe Work Plan addressing tool and equipment decontamination for compliance review in accordance with Part 7 IFB/RFP, Contractor Work Plan Format Requirements, describing the following:
- Preventative measures to be employed.
 - The design and construction of the decontamination area.
 - The methods to be utilized for decontamination (see 3.1.C of this Section).
 - The methods and equipment for controlling and handling effluent and/or secondary waste produced during decontamination activities.
 - Plans for relocating, reusing, or releasing tools and equipment.

PART II PRODUCTS**2.1 CONTRACTOR PROVIDED TOOLS AND EQUIPMENT**

- A. The contractor shall furnish all equipment, tools, and material required to perform the work described in the subcontract except where the contract explicitly states FDF will provide the item.
1. The Contractor shall deliver approved decontamination and contamination control materials in original, new and unopened containers bearing the manufacturer's label, and the following information:
 - Name or title of material.
 - Manufacturer's stock number and date of manufacture.
 - Manufacturer's Name.
 - MSDS Sheets.
 2. All possible shipping and packing materials will be removed upon receipt at the site prior to entering the controlled area to minimize contaminated waste generation.
- B. For the purposes of meeting the "As Low As Reasonably Achievable" (ALARA) goal for tools, equipment, and materials, it is expected that all reasonable efforts are to be used to control residual contamination to the extent that there is no detectable contamination on items that were free of contamination prior to use, or there is no increase in the level of contamination on items

SECTION 01519

that were previously contaminated. The ALARA efforts include, but are not limited to, the following:

- Protective measures prior to use of items.
- Preventative measures while items are being used.
- Decontamination upon completion of work activities.

The following requirements also apply to the Contractor in support of the ALARA initiative:

1. All Contractor furnished tools, vehicles, equipment, and material may be inspected for radioactive contamination by FDF personnel prior to initial entry and upon removal from the radiological controlled area.
2. The Contractor shall supply all equipment required to remove and/or control contamination.
3. The Contractor shall supply all equipment required to control, filter, and move effluent produced during removal of contaminants.

PART III EXECUTION**3.1 APPLICATION****A. Prevention of or Minimizing Contamination:**

1. The Contractor shall 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.
2. It is the Contractor's responsibility to evaluate materials, tools and equipment for ease of decontamination and disassembly that may be required for decontamination prior to use on-site. Use of unrestricted release items (i.e., those other than expendable as defined in Part 4 IFB/RFP, Special Terms And Conditions, DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIALS THAT HAVE BECOME CONTAMINATED) should incorporate appropriate precautions to prevent contamination which should be implemented prior to and during use. Examples of precautionary measures may include the following which are expected to be implemented as described in the Safe Work Plan:
 - Internal combustion equipment subject to contamination should make use of pre-filters or have a separate source of outside air on the intake.

SECTION 01519

- High volume air handling equipment such as blowers, compressors, etc., shall have a filtered inlet to minimize the potential for internal contamination due to build up of low level radioactivity. Vents for air cooling shall be covered in a similar manner.
 - The Contractor is prohibited from bringing electrical driven mobile equipment to the FEMP (e.g., fork-lifts) except where only electric driven equipment is available.
 - 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.
3. If encapsulants, sealants and/or coatings are utilized during the project, the Contractor shall be responsible for protecting their tools and equipment from over spray. In addition, the Contractor shall 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, the Contractor shall 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.
3. As an alternative to decontamination, replacement of contaminated components shall be in accordance with the requirements of Part 4 IFB/RFP, Special Terms And Conditions,

SECTION 01519**DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT AND TOOLS, THAT HAVE BECOME CONTAMINATED (SC-11).**

- a. The contaminated components are subject to the cleaning criteria stated in 3.4.B of this Specification Section.
- b. The contaminated components will be managed and handled per Specification Section 01120 and Part 6 of the IFB/RFP subsequent to the cleaning as directed by FDF.

D. Control of Effluent and Waste Management Activities

1. The Contractor shall control and collect all waste and effluent generated while removing and/or fixing contamination in accordance with the requirements listed in Part 7 IFB/RFP, and Specification Sections 01517 and 01120.
2. Management of wastes generated during decontamination activities shall be in accordance with Specification Section 01120 and the Waste Management Plan located in Part 6 of the IFB/RFP.

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

1. The Contractor shall perform all decontamination and surveying activities required to verify that the surface contamination limits identified in Table 1 of this section are not exceeded. FDF shall perform final verification surveying.
2. The Contractor shall to provide a minimum of 24 hours prior notice to FDF of intent to remove tools and equipment from the work area.
3. Release of tools, equipment, and material from Contamination Areas to the Controlled Area
 - a. If removable contamination in excess of the limits of Table 1 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 by FDF and released to the Controlled Area.

SECTION 01519**4. 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 a FDF Material Release Evaluator 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 levels given in Table 1.
 - 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 of Table 1 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 use such as coverings, wrappings, air intake filters, etc.
 - 3) Upon approval from FDF, the Contractor shall remove the tools, equipment, and/or materials off-site within eight hours.

5. Release to an Off-Site Licensed Facility

- a. If the contractor possesses the appropriate license to receive, possess, use, and transfer the equipment, tools, material, or vehicles with radioactive contamination, Contractor may elect to remove such items from the site in lieu of decontamination. The responsibility of complying with all state, local and federal regulations during the packaging, shipping, and receipt of the equipment shall be the responsibility of the Contractor. The Contractor shall submit a copy of the license and applicable procedures to FDF for compliance review prior to removal of the contaminated equipment. A copy of all Bills of Lading shall be submitted to Fluor Daniel Fernald prior to shipment.
- b. The Contractor is to provide 24 hours notice to FDF prior to shipping radioactive tools, equipment, and/or material.

3.2 UNSUCCESSFUL/IMPRACTICAL CONTRACTOR DECONTAMINATION

- A. If FDF determines that the contractor has implemented the requirements of this Section and the Safe Work Plan and the contractor's decontamination efforts are unsuccessful or decontamination is not practical (as identified below), refer to Part 4 IFB/RFP, Special Terms And Conditions,

SECTION 01519

DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT AND TOOLS THAT HAVE BECOME CONTAMINATED (SC-11) for action to be taken.

1. Decontamination may be considered impractical for non-expendable items that are integral parts of equipment and not readily replaceable such as porous materials (e.g. wood and fiberglass), wire rope, chains, brushes, items with finned surfaces, and similar items where contamination may be embedded within the material configuration matrix. These items may not be released if detectable contamination is identified on the surface.
- B. All tools, material, vehicles equipment accepted by FDF for disposition must have been cleaned to meet the visual inspection requirements defined in Specification Section 01517 and handled as defined in Specification Section 01120 and the Waste Management Plan located in Part 6 of the IFB/RFP.

SECTION 01519

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 cm².
- (e) The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.
- (f) The limits presented for transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, and Ac-227 may be adjusted on a case by case basis. Consult with Radiological Compliance when required to apply these limits for unrestricted release.

END OF SECTION

SECTION 03315**CONCRETE/MASONRY REMOVAL****PART I GENERAL****1.1 SCOPE**

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

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01515 - Mobilization, Demobilization, and General Site Requirements.
- C. Section 01517 - Removing/Fixing Radiological Contamination.
- D. Section 05126 - Structural Steel Dismantlement.
- E. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

- A. See the Invitation for Bid/Request for Proposal (IFB/RFP) Package for the following:
1. Index of Drawings.
 2. Photographs.
 3. Drawings.
 4. Contractor Work Plan Format Requirements.

SECTION 03315**1.4 REFERENCES, CODES, AND STANDARDS**

All work shall be accomplished in accordance with the following reference, code, and standard requirements:

A. American National Standards Institute (ANSI):

1. ANSI A10.6-90 Safety Requirements for Demolition Operations.
2. ANSI A10.8-88 Construction and Demolition Operations - Scaffolding - Safety Requirements.
3. ANSI A10.9-83 Construction and Demolition Operations - Concrete and Masonry Work - Safety Requirements.

B. National Fire Protection Association (NFPA):

1. NFPA 101-94 Code for Safety to Life from Fire in Buildings and Structures.
2. NFPA 241-93 Standard for Safeguarding Construction, Alteration, and Demolition Operations.

C. United States Department of Energy (DOE):

1. DOE N441.1 Radiation Protection of the Public and the Environment.
2. 10 CFR 835 Occupational Radiation Protection.

D. Ohio Administrative Code (OAC):

1. 3745-17-08 Restriction of Emission of Fugitive Dust.

1.5 SUBMITTALS

A. The Contractor shall submit for approval a concrete/masonry removal work plan in accordance with Part 7 of the IFB/RFP, Contractor Work Plan Format Requirements, which contains the following information:

1. Detailed method and sequence of dismantlement, including equipment to be used.
2. Methods for control of contaminants, including control of fugitive emissions.
3. Materials, such as non-woven geotextile fabrics and surfactants, to be used.
4. Methods of cutting, including equipment to be used.
5. Calculations to verify structural adequacy of partially dismantled structure, as applicable.

SECTION 03315

6. If dismantlement method requires personnel on the roof, the Contractor shall provide calculations verifying the structural adequacy of the roof to support personnel and equipment. These calculations shall be stamped by a Registered Professional Engineer.
7. If controlled explosive methods are proposed to be used on building structures that are constructed of precast columns and roof beams, a detailed work plan containing the following information shall be prepared and contain the following information:
 - a. Methods and materials to be used.
 - b. Means to protect adjacent structures, equipment, material, and underground utilities from damage, including protection from projectiles.
 - c. Methods and materials to control fugitive emissions.
 - d. Contingency plan for detonation failure.
 - e. Proof of permit, issued by the Bureau of Alcohol, Tobacco and Firearms, to use explosives.
 - f. Methods and materials to store explosives according to the requirements of 29 CFR 55 Subpart K.
 - g. Evidence of previous work experience using controlled explosives to take down multi-story structures near other structures within the last 5 years. Provide project locations and contacts for verification.

PART II PRODUCTS**2.1 MATERIALS****A. Non-woven Geotextile Fabric:**

1. Trevira Spunbond 1120 by Hoechst Celanese Corp.
2. Mirafi 160N by Mirafi, Inc.
3. ADS 600 by Advanced Drainage Systems, Inc.
4. Equal products manufactured by others will be acceptable.

B. Surfactant used in amended water.

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

SECTION 03315**PART III EXECUTION****3.1 PREPARATION**

- A. The Contractor shall ensure that adequate lay down space has been cleared and barriers have been established.
- B. The Contractor shall take the following precautions to control fugitive emissions. A wet dust suppression system shall be used. This system will utilize the following:
 - a. Amended water (with surfactant).
 - b. 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 Section 01517 of this specification package.

3.2 APPLICATION

- A. The Contractor shall prevent damage to adjacent structures, materials, and equipment including underground utilities, during dismantlement activities. Activities to fell concrete structures outside their own footprint require prior approval. 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 as described in Section 01515 of this specification package.
 - 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 in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.

SECTION 03315

2. Embedded steel reinforcing is considered part of concrete.
3. Because of contamination levels, some concrete may require local containment for cutting activities in accordance with Section 15067 of this specification package. Any currently known areas requiring local containment are identified in Part 6 of the IFB/RFP; however, new or additional areas may be identified during dismantlement activities.

D. Explosives:

1. Interior concrete/masonry walls shall be removed using non-explosive methods prior to opening the shell of the structure.
2. All bituminous roofs felled through the use of explosives are to be dropped in a single unit and impact the ground in a horizontal plane.

3.3 SPECIAL INSTRUCTIONS**A. The following special instructions apply to concrete/masonry removal:**

1. Doors, Windows, and Frames
 - a. The Contractor shall remove all windows in one piece and place them in appropriate containers.
 - b. The Contractor shall remove all doors (wood and/or steel) and place them in appropriate containers.
2. Lead Materials
 - a. The Contractor shall segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.
 - 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. The Contractor shall (whenever possible) 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.

SECTION 03315

3. Wall and Roof Louvers

- a. The Contractor shall ensure that louvers and roof vents are removed during exterior concrete/masonry removal and placed in appropriate containers.

END OF SECTION

000132
11/10/98

SECTION 05125**NEW STRUCTURAL STEEL****PART I GENERAL****1.1 SCOPE**

- A. Design, fabrication, and erection of miscellaneous metal items for protective barriers, lifting assemblies, rigging, and temporary bracing and supports.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
B. Section 05126 - Structural Steel Dismantlement.

1.3 REFERENCE MATERIALS

- A. See the Invitation for Bid/Request for Proposal (IFB/RFP) for the following:
1. Index of Drawings.
 2. Photographs.
 3. Drawings.

1.4 REFERENCES, CODES, AND STANDARDS

- A. American Society for Testing and Materials (ASTM):
1. ASTM A36/A36M-94 Standard Specification for Carbon Structural Steel.
 2. ASTM A307-94 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 3. ASTM A325M-94 Standard Specification for Bolts, Structural Steel, Heat Treated, 120/105 KSL Minimum Tensile Strength.
- B. American Welding Society (AWS):
1. AWS A2.4-93 Standard Symbols for Welding, Brazing, and Nondestructive Examination.
 2. AWS D1.1-94 Structural Welding Code Steel.

SECTION 05125

- C. American Institute of Steel Construction (AISC):
 - 1. AISC Steel Construction Manual - Allowable Stress Design (ASD), 9th Edition.
- D. American National Standards Institute (ANSI):
 - 1. ANSI A10.13-89 Construction and Demolition Operations - Steel Erection - Safety Requirements.

1.5 SUBMITTALS

- A. The Contractor shall submit the following for conformance review by Fluor Daniel Fernald (FDF).
 - 1. Calculations: Indicate design loads, member forces, moments and stresses, and connection forces.
 - 2. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 3. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths. Submit copies of welder's certifications with shop drawings.
 - 4. Plan for conducting and documenting field quality testing and inspection including test methods and reports required under Field Quality Assurance.
- B. For additional submittal requirements see Part 6 of the Invitation for Bid/Request for Proposal (IFB/RFP).

1.6 DELIVERY, STORAGE, AND HANDLING.

- A. ASTM A325 high strength bolts shall be delivered to the site in the original labeled containers and once on site shall not be transferred into unlabeled containers. The label information shall include the type of bolt, purchase order number, and the name of the supplier.

PART II PRODUCTS**2.1 MATERIALS**

- A. Steel Sections: ASTM A36.

SECTION 05125

- B. Threaded Fasteners: Heavy hexagon bolts, nuts, and hardened washer shall be ASTM A325 or ASTM A307.
1. Bolts connecting primary members shall be A325.
- C. Expansion Anchors: Expansion bolts used for securing steel to concrete shall be one of the following:
1. "Parabolt" as manufactured by Molly Fastener Group of Emhard, Temple, PA 19560.
 2. "Wedge Anchors" as manufactured by ITT Phillips Drill Division, Michigan City, IN 46360.
 3. "Kwik Bolt" as manufactured by Hilti, Inc., Stamford, CT 06405.
- D. Welding Materials: AWS D1.1 - Structural Welding Code.

2.2 FABRICATION

- A. For delivery to site, fit and ship assemble in largest practical sections.
- B. Supply components required for anchorage of fabricated structural assemblies.
- C. All welding procedures, welder's certification, and visual acceptance criteria must be in accordance with AWS D1.1, Chapter 5.
- D. Clean surfaces of rust, scale, grease, and foreign matter prior to applying shop primer.
- E. Shop prime with one coat of rust-resistant red oxide primer.
- F. Do not prime surfaces in direct contact with concrete or where field welding shall be required.
- G. All coatings shall be lead and chromium free.

PART III EXECUTION**3.1 PREPARATION**

- A. Prior to fabrication, the Contractor shall verify field dimensions.

SECTION 05125**3.2 INSTALLATION - GENERAL**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads and provide temporary bracing to maintain true alignment until completion of erection.
- C. Field weld components as indicated on the approved drawings. Field welding shall be in accordance with AWS D1.1, Chapter 3.
- D. Fasteners shall be tightened to manufacturer's specifications or applicable design requirements.
- E. Field modifications to load bearing structures shall require prior approval from FDF.
- F. After erection, prime field welds and abrasions. Any steel embedded in concrete is an exception.
- G. All steel shall be fabricated and erected in accordance with the codes and standards referenced in Article 1.4 of this section.
- H. After use, all steel shall be dismantled and cut for containerization in accordance with Section 01120 and Section 05126 of this specification package.
- I. All coatings shall be lead and chromium free.

3.3 QUALITY ASSURANCE

- A. Calculations and shop drawings must bear the stamp of a Registered Professional Engineer.
- B. The Contractor shall inspect high-strength bolted connections for all shop-fabricated steel, perform tests and prepare test reports in accordance with the AISC specifications. All test results shall be submitted to FDF.
- C. The Contractor shall conduct and interpret tests, shall state in each report whether test specimens comply with requirements, and shall specifically state any deviations. Deviations must be approved in writing by FDF.
- D. Shop and Field Welding
 - 1. The Contractor shall: inspect and test, during fabrication and erection of structural steel assemblies in accordance with AWS Structural Welding Code and as follows:
 - a. Conduct inspections and tests as required. Record types and locations of all defects found in the work. Record work required and performed to correct deficiencies. All test results to be submitted to FDF.

SECTION 05125

- b. Perform visual inspection of all welds.
 - c. Perform nondestructive tests of welds per Contractor submitted plan.
 - d. All welds that fail shall be repaired per approved Contractor repair plan.
 - e. Reworked areas shall be retested in accordance with the original design requirements.
2. Full penetration welded connections on structural steel rigging frame utilized for critical lifts, as defined in the FEMP Hoisting and Rigging Manual, shall be 100 percent radiograph tested by an independent certified testing lab. Results shall be submitted to FDF for approval.
- a. All welds that fail shall be repaired per approved Contractor repair plan.
 - b. Reworked areas shall be retested in accordance with the original design requirements.
- E. Correction of Substandard Work:
- 1. The Contractor shall correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements.

END OF SECTION

SECTION 05126**STRUCTURAL STEEL DISMANTLEMENT****PART I GENERAL****1.1 SCOPE**

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

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01517 - Removing/Fixing Radiological Contamination.
- C. Section 03315 - Concrete/Masonry Removal.
- D. Section 07415 - Transite Removal.

1.3 REFERENCE MATERIALS

- A. See the Invitation for Bid/Request for Proposal (IFB/RFP) Package for the following:
 - 1. Index of Drawings.
 - 2. Photographs.
 - 3. Drawings.
 - 4. Contractor Work Plan Format Requirements.

1.4 REFERENCES, CODES, AND STANDARDS

All work shall be accomplished in accordance with the following reference, code, and standard requirements:

- A. American National Standards Institute (ANSI):
 - 1. ANSI A10.6-90 Safety Requirements for Demolition Operations.

SECTION 05126

2. ANSI A10.8-88 Construction and Demolition Operations - Scaffolding - Safety Requirements.
 3. ANSI A10.13-89 Construction and Demolition Operations - Steel Erection.
- B. National Fire Protection Association (NFPA):
1. NFPA 241-93 Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- C. United States Occupational Safety and Health Administration:
1. 29 CFR 1926.858 Removal of Steel Construction

1.5 SUBMITTALS

- A. The Contractor shall submit to Fluor Daniel Fernald (FDF) for conformance review a structural steel removal work plan in accordance with IFB/RFP, Part 7, Contractor Work Plan Format Requirements, that contains the following information:
1. Detailed sequence of dismantlement and method of cutting, including equipment to be used.
 2. Methods for contaminant control, including fugitive emissions during cutting.
 3. Detailed plan for protecting lay down and cutting areas from contamination by lead paint chips and for controlling airborne radiological emissions.
 4. Methods and materials used for cutting lead-painted steel.
 5. If structural steel is removed in sections, verify the structural adequacy of the remaining structure. Calculations to verify the structural integrity of the partially dismantled structure must bear the stamp of a Registered Professional Engineer.
 6. Plans for personnel tie offs, use of pick boards and walking on or near roof purlins/girders.
 7. If controlled explosive methods are used for structural steel dismantlement, a detailed work plan containing the following information shall be prepared:
 - a. Methods and materials to be used.
 - b. Means to protect adjacent structures, equipment, material, and underground utilities from damage, including protection from projectiles.
 - c. Methods and materials to control fugitive emissions.

SECTION 05126

- d. Contingency plan for detonation failure and safe recovery of all undetonated charges.
- e. Proof of permit, issued by the Bureau of Alcohol, Tobacco and Firearms, to use explosives.
- f. Evidence of previous work experience using controlled explosives to take down multi-story structures within the last 5 years. This experience may be shown through the sub-tier contract. Provide project locations and contacts for verification.
- g. If interior concrete/masonry walls and slabs are to be removed, refer to concrete/masonry removal specifications in Section 03315 of this specification package.
- h. Identify locations of all cuts and charges and detonation sequence on composite drawings which will be provided by FDF.
- i. Provision of adequate protection of charges to prevent shrapnel from damaging the non-electric detonation system or persons near the exclusion boundary.
- j. Predications of rubble/debris piles should be made to ensure that safe exclusion zones are established.

PART II PRODUCTS**2.1 MATERIALS****A. Non-woven Geotextile Fabric:**

- 1. Trevira Spunbond 1120 by Hoechst Celanese Corp.
- 2. Mirafi 160N by Mirafi Inc.
- 3. ADS 600 by Advanced Drainage Systems, Inc.
- 4. Equal products manufactured by others will be acceptable.

B. Surfactants:

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

SECTION 05126**PART III EXECUTION****3.1 PREPARATION**

- A. The Contractor shall 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 Section 01517 of this specification package.
- C. If controlled explosive methods are used, the Contractor shall take precautions to control fugitive emissions by saturating the explosion footprint with water 2 to 4 hours prior to the implosion.

3.2 APPLICATION

- A. All dismantlement activities shall be performed in accordance with the standards listed in Part 1.4 of this section.
- B. The Contractor shall apply mechanical means of cutting and removing the structural steel to the largest extent possible.
- C. 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.
- D. The Contractor shall dismantle, shear and segregate the structural steel to maximize accessible surfaces.
 - 1. The Contractor shall 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. The Contractor shall 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.

SECTION 05126

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

3. The Contractor shall minimize bending, twisting, and smashing of the steel during segregation and bulk storage.
- E. Control of fugitive emissions shall be maintained at all times during this removal work to minimize visible dust.
- F. All temporary bracing and rigging frames required shall be in accordance with Section 05125 of this specification package.
- G. All steel columns, anchors, and other projections shall be removed flush with the floor slab or existing grade.
- H. Lead-based paint chips and debris, released during structural steel dismantlement, shall be collected and managed in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.

3.3 SPECIAL INSTRUCTIONS

- A. The following items are also included (where applicable) in the sequence of structural steel dismantlement:
 1.
 - a. The Contractor shall remove all windows in one piece and place them in appropriate containers.
 - b. The Contractor shall remove all doors (wood and/or steel) and place them in appropriate containers.
 2. Lead Materials:
 - a. The Contractor shall segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.
 - 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. The Contractor shall (whenever possible) 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.

SECTION 05126

- B. All material shall be cut to meet sizing criteria and be managed in accordance with the Waste Management Plan located in Part 6 of the IFB/RFP.

END OF SECTION

000143

SECTION 07415

TRANSITE REMOVAL

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.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01515 - Mobilization, Demobilization, and General Site Requirements.
- C. Section 01516 - Asbestos Abatement.
- D. Section 01517 - Removing/Fixing Radiological Contamination.
- E. Section 15065 - Equipment/System Dismantlement.
- F. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

- A. See the Invitation for Bid/Request for Proposal (IFB/RFP) for the following:
 - 1. Index of Drawings.
 - 2. Photographs.
 - 3. Drawings.
 - 4. Contractor Work Plan Format Requirements.
 - 5. HEPA Vacuum Cleaner Requirements.

1.4 REFERENCES, CODES, AND STANDARDS

- A. 29 CFR 1926.850 Demolition Preparatory Operations.
29 CFR 1926.1101 Asbestos (Construction Industry).
29 CFR 1910.134 Use of Respirators.
29 CFR 1910.1001 Asbestos (General Industry).

SECTION 07415

- B. Ohio Department of Health Asbestos Hazards Abatement Rules Chapter 3701-34, OAC (Ohio Department of Health).
- C. Ohio Environmental Protection Agency Chapter 3745-20, OAC.
- D. United States Environmental Protection Agency (U.S. EPA) 40 CFR 61 Subpart M (NESHAPS).

1.5 SUBMITTALS

- A. The Contractor shall submit to Fluor Daniel Fernald (FDF) a detailed work plan for approval in accordance with Part 7, Contractor Work Plan Format Requirements, and Part 8, Asbestos Abatement Work Plan Requirements, of the IFB/RFP, including the procedures proposed for use in complying with the requirements of this specification.
 - 1. The plan shall include the following information:
 - a. The location and layout of storage and queuing areas.
 - b. The method of applying poly sheeting, encapsulants, and/or surfactants.
 - c. The methods and sequencing of interior and exterior panel removal.
 - d. The interface of trades involved in the performance of work.
 - e. A detailed description of the methods to be employed to prohibit visible emissions in the work area.
 - f. A detailed description of the methods for removing transite panels from the structures and moving them to the laydown location for containerization. The description of methods shall include methods to be employed to ensure transite panels are removed without cutting, abrading, or breaking.
 - g. Description of the portable HEPA ventilation system, the containerization of removed asbestos debris, the method of treating broken and/or damaged panels, and the method of protecting adjacent structures.
 - h. If dismantlement method requires personnel on the roof, the plan shall include calculations verifying the structural adequacy of the roof and roof penetrations to support personnel and equipment. These calculations shall be stamped by a Registered Professional Engineer, consistent with Specification Section 01515.
 - i. Plans for personnel tie off, use of pick boards and walking on or near roof purlins/girders.
- B. Prior to initiation of the work, the Contractor shall submit the following OSHA-required documentation for Asbestos Removal Contractors to FDF:

SECTION 07415

1. Documentation of training.
 2. Medical surveillances.
 3. Respirator fit-test.
 4. Employee exposure assessments.
- C. Prior to submittal of notification to government agencies, the Contractor shall provide a copy to FDF for concurrence.
- D. Product Data: The Contractor shall submit for approval manufacturer's technical information, including application instructions for each material proposed for use.

1.6 QUALITY ASSURANCE

- A. Prior to commencement of work, the Contractor shall provide for approval a FDF selected sample area of transite for approval, 10 feet by 10 feet in size, to demonstrate encapsulant, lockdown, and/or surfactant methods. The approved mock-up shall serve as a standard for the balance of the work.

1.7 HANDLING AND STORAGE

- A. The Contractor shall:
1. Manage transite in accordance with Specification Section 01120 and the Waste Management Plan, located in Part 6 of the IFB/RFP.
 2. Take precautions to prevent breakage of transite panels during handling.

PART II PRODUCTS

2.1 MATERIALS

- A. Deliver materials in original, new, and unopened containers bearing manufacturer's name, label, and the following information:
1. Name or title of material.
 2. Manufacturer's stock number and date of manufacture.
 3. Manufacturer's name.
 4. Thinning and application instructions.
- B. Encapsulants:
1. Certane 2050 Certified Technologies.
 2. Expert Environmental Products; Eppco-1.
 3. International Protective Coatings Corp.; Serpiloc.
 4. 1050-Clearcoat by Certane.
 5. Fiber-Seal by Eppert.

SECTION 07415

- C. Surfactants:
1. Childers CP-225 CHIL-SORB.
 2. Certech.
 3. Expert Environmental Products.
 4. International Protective Coatings Corp.
- D. 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.
- E. Or equal, as approved by FDF.

PART III EXECUTION**3.1 PREPARATION**

- A. Regulatory:
1. When applicable, the Contractor shall notify the Ohio Department of Health (ODOH) and FDF shall notify the EPA and all other applicable governmental agencies before the start of work.
 2. The Contractor shall adhere to and comply with work practices and procedures set forth in the most current and applicable Federal, State, and local codes, regulations, and standards.
 3. Obtaining certifications and licenses.
- B. Consistent with Specification Section 01517, prior to opening a building to the environment by removing the exterior siding, the Contractor shall remove and/or fix radiological contamination on all structural surfaces within the facility until the detected radioactivity levels are below the criteria defined in Part 8 of the IFB/RFP.

3.2 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.

SECTION 07415

- B. Upon removal of transite panels, all surfaces of the panels shall be thoroughly wetted, encapsulated, or wrapped in 6-mil poly sheeting.
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, the Contractor shall apply encapsulant and/or surfactant to the edges of deteriorated areas.
 4. Removed transite panels shall be encapsulated or wrapped in 6-mil poly sheeting by the end of the work shift.
- C. Removal of transite roof panels shall be sequenced to minimize exposed underlying surfaces.

3.3 SPECIAL INSTRUCTIONS

- A. The following special instructions apply to the items listed below during transite removal:
1. Gutters:
 - a. The Contractor shall remove and collect all ACM from gutters, apply an encapsulant and/or surfactant to the gutters before their removal.
 2. Insulation:
 - a. The Contractor shall remove the mineral wool insulation between the transite panels and/or other materials.
 - b. The Contractor shall use dust control techniques (minimum of applying amended water) to minimize airborne contaminants generated during insulation removal.
 3. Doors, Windows, and Frames
 - a. The Contractor shall remove all windows in one piece and place them in appropriate containers.
 - b. The Contractor shall remove all doors (wood and/or steel) and place them in appropriate containers.
 4. Lead Materials
 - a. The Contractor shall segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.

SECTION 07415

- 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. The Contractor shall (whenever possible) 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.
- B. All material shall be managed in accordance with the Waste Management Plan located in Part 6 of IFB/RFP.

END OF SECTION

000149

SECTION 15065**EQUIPMENT/SYSTEM DISMANTLEMENT****PART I GENERAL****1.1 SCOPE**

A. This section includes the Contractor's 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.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01515 - Mobilization, Demobilization, and General Requirements.
- C. Section 01516 - Asbestos Abatement
- D. Section 01517 - Removing/Fixing Radiological Contamination.
- E. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIAL

- A. See the IFB/RFP for the following:
 1. Index of Drawings.
 2. Photographs.
 3. Drawings.
 4. HEPA Vacuum Cleaner Requirements.

SECTION 15065

5. HEPA Air Filtration Device Requirements.
6. Contractor Work Plan Format Requirements.

1.4 REFERENCES, CODES, AND STANDARDS

All work shall be accomplished in accordance with the following reference, code, and standard requirements:

- A. 29 CFR 1926.301 Hand Tools.
- B. 29 CFR 1926.302 Power Operated Hand Tools.

1.5 SUBMITTALS

The Contractor shall submit the following for approval:

- A. Detailed removal work plan in accordance with IFB/RFP Part 7, Contractor Work Plan Format Requirements, including sequence, methods of removal and dismantlement, equipment required, catalog cut sheets, drawings and method and materials to control possible generation of fugitive emissions from cutting operations, methods to seal equipment openings for each equipment type and location of interim storage areas and allowable floor loads.
- B. Catalog cuts, proposed location, and method of installation of all hoisting equipment, and specialized construction equipment submitted for approval by Fluor Daniel Fernald with the work plan.

1.6 QUALITY ASSURANCE

- A. Calculations submitted on maximum allowable floor loading must bear the stamp of a Registered Professional Engineer.

1.7 PROJECT CONDITIONS

- A. Residual process material (hold-up) has been removed from equipment to the maximum extent practical. If hold-up is found, FDF shall be notified immediately. If the volume is estimated to be less than 1 quart, the D&D Contractor will be responsible for removing and containerizing the hold-up in accordance with the Waste Management Plan, Part 6 of the IFB/RFP. If the material found (solid or liquid), is estimated to be greater than 1 quart by volume, D&D activities will cease on that piece of equipment.

SECTION 15065**PART II PRODUCTS****2.1 EQUIPMENT**

- A. The Contractor shall supply all items necessary for the performance of the work.
- B. The Contractor shall use mechanical means of cutting whenever possible.

2.2 MATERIALS

- A. The Contractor shall supply all materials required to seal equipment openings, to prevent spillage and/or migration of contaminants, per requirements of this section.
- B. Fiber-reinforced polyethylene or polyester material approved for outdoor storage: color, yellow; minimum thickness of 6 mils; ultraviolet resistant; as manufactured by Griffolyn, Herculite, or equal.

PART III EXECUTION**3.1 APPLICATION**

- A. All equipment, piping and ductwork shall be dismantled, cut, and segregated per the requirement of Section 01120 of specification package and Part 6 of the IFB/RFP.
- B. Prior to equipment/system dismantlement, the Contractor shall take the necessary actions to preclude spillage of residual material, if encountered.
- C. Part 6 of the IFB/RFP identifies structures containing HVAC and equipment/piping that will require sealing of openings prior to removal from the structure. Sealing material shall be sufficiently durable to maintain its integrity during handling, containerization, and exposure to weather.
- D. Prior to cutting into tanks or piping where the potential for flammable lining exists, it shall be the Contractor's responsibility to verify that no lining exists. Should the Contractor find 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.
- F. Upon FDF approval, equipment which can be removed in one piece during dismantlement of the building will be required to meet the criteria in Specification Section 01517.

SECTION 15065

- G. Uncontrolled dropping of materials is not allowed.
- H. Piping insulated with asbestos may be removed in its entirety per the requirements of Section 01516 of this specification package.
- I. Prior to cutting into tanks, piping, or ductwork where the potential for flammable lining exists, it shall be the Contractor's responsibility to verify that no lining exists. Should the Contractor find lined pipes or tanks, the tanks shall be cut and removed by mechanical means and shall not be torch-cut.
- J. Hanging light fixtures may be required to be wrapped in plastic to prevent the spread of contamination prior to being cut down.
- K. Requirements for management of debris and waste are specified in Section 01120 of this specification package and in the Waste Management Plan contained in Part 6 of the IFB/RFP.

3.2 INTERIM MATERIAL STORAGE

- A. Where removed materials are staged or stored within the facility, they shall be stored in designated floor storage areas as described in Specification Section 01120.
- B. Damaged areas within facilities identified by the Contractor's Engineering Survey shall not be used for interim material storage.

3.3 SPECIAL INSTRUCTIONS**A. Lead Materials:**

1. The Contractor shall segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the Waste Management Plan located in Part 6 of the IFB/RFP.
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. The Contractor shall (whenever possible) dismantle lead flashing in a manner that will facilitate recycling. This will include minimizing inaccessible surfaces and maximizing straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

END OF SECTION

SECTION 15067**VENTILATION AND CONTAINMENT****PART I GENERAL****1.1 SCOPE**

A. This section consists of the work related to the Contractor-supplied 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.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria.
- B. Section 01515 - Mobilization, Demobilization, and General Site Requirements.
- C. Section 01517 - Removing/Fixing Radiological Contamination.
- D. Section 03315 - Concrete/Masonry Removal.
- E. Section 05126 - Structural Steel Dismantlement.
- F. Section 07415 - Transite Removal.
- G. Section 15065 - Equipment/System Dismantlement.

SECTION 15067**1.3 REFERENCE MATERIALS**

- A. See Invitation for Bid/Request for Proposal (IFB/RFP) Package for the following:
1. Index of Drawings.
 2. Photographs.
 3. Drawings.
 4. Air Cleaning Device Procurement Specification.
 5. Air Cleaning Device Filter Procurement Specification.

1.4 REFERENCES, CODES, AND STANDARDS

All work shall be accomplished in accordance with the following reference, code, and standard requirements:

- A. The entire work under this section shall be in compliance with the provisions of the following:
1. United States Department of Energy (DOE):
 - a. DOE 6430.1A General Design Criteria Division 15.
 - b. DOE 5400.5 Radiation Protection of the Public and the Environment.
 - c. DOE/EH 0256T Radiological Control Manual, April 1994.
 2. Energy Research and Development Administration (ERDA):
 - a. ERDA 76-21-79 Nuclear Air Cleaning Handbook.
 3. American Conference of Governmental Industrial Hygienists (ACGIH):
 - a. ACGIH Industrial Ventilation (latest edition).
 4. American Society of Civil Engineers (ASCE):
 - a. ASCE 7-95 Minimum Design Loads for Buildings and Other Structures.

1.5 SUBMITTALS

- A. The Contractor shall submit a work plan in accordance with IFB/RFP, Part 7, Contractor Work Plan Format Requirements, with the following information to Fluor Daniel Fernald (FDF) for approval.

SECTION 15067

1. Drawings and Data:
 - a. Indicate materials of construction, sizes, locations, entrances, and egresses that do not allow for breach of the local containment or vestibule, and all other details of local containments and vestibules to be erected.
 - b. Provide calculations and air flow diagrams for local containment and vestibule ventilation.
 - c. Submit calculations indicating that a minimum negative pressure of 0.1 inch water gauge or six air changes per hour is maintained in all local containments when the ventilation system is in operation.
 - d. All drawings and calculations shall bear the stamp of a Registered Professional Engineer.
 - e. If any part of this affects or involves asbestos activities, the Ohio Department of Health/OSHA Asbestos Hazard Abatement Project Designer certification shall be part of the documentation submitted with the work plan.
2. Equipment:
 - a. Submit vendor information on all accessory ventilation equipment that will be used.
3. Provide building-specific work plans on the use of portable HEPA units including replacement of HEPA filters and prefilters.

PART II PRODUCTS**2.1 MATERIALS**

- A. The Contractor shall provide air cleaning devices, HEPA, and prefilter elements, and all other ventilation accessory equipment for the completion of this project in accordance with Part 7 of the IFB/RFP.
- B. 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.

SECTION 15067**PART III EXECUTION****3.1 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.
- 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.

3.2 PREPARATION

- A. The Contractor shall enclose the structure and ensure that all building exterior holes, gaps, or openings are adequately sealed to prevent exhaust of airborne radioactive particulates.
- B. The Contractor shall 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. The Contractor shall ensure that all vestibules are large enough to support appropriate storage containers, material handling and dismantling equipment, and debris containerizing operations.

3.3 ERECTION/INSTALLATION/APPLICATION

- A. The Contractor shall block, tie-down, or wheel lock all portable HEPA units.

SECTION 15067

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

3.4 FIELD QUALITY ASSURANCE

- A. Final acceptance of local containments, building enclosures, and vestibule structures shall be obtained from FDF.

END OF SECTION

APPENDIX D
DESIGN DRAWINGS

DThe following drawings are copies of the blueprint drawings that were prepared during the remedial design for the Maintenance/Tank Farm Complex project.

Figure D-10 shows the site plan for Component 19A, Main Tank Farm, and Component 19D, Old North Tank Farm. Figure D-14 shows an elevation and sectional views of Component 20H, Process Water Storage Tank. All other figures show floor plan and elevations. The key features shown in these drawings (Functional Areas and related equipment) are discussed in Section 3 of this implementation plan.

FIGURES

- | | | |
|-------------|---|----------|
| FIGURE D-1 | Floor Plan and Elevations East Half of Component 12A, Maintenance Building | 9 |
| FIGURE D-2 | Floor Plan and Elevations West Half of Component 12A, Maintenance Building | 10 |
| FIGURE D-3 | Floor Plan and Elevation of Office Addition, Component 12A, Main Maintenance Building | 11
12 |
| FIGURE D-4 | Floor Plan and Elevation, Component 12B, Cylinder Storage Building | 13 |
| FIGURE D-5 | Floor Plan and Elevation, Component 12C, Lumber Storage Building | 14 |
| FIGURE D-6 | Floor Plan and Elevation, Component 12D, Maintenance Storage Building | 15 |
| FIGURE D-7 | Floor Plan and Elevation, Component 24B, Engine House | 16 |
| FIGURE D-8 | Floor Plan and Elevation, Component 38A, Propane Storage Building | 17 |
| FIGURE D-9 | Floor Plan and Elevation, Component 38B, Cylinder Filling Station | 18 |
| FIGURE D-10 | Site Plan, Component 19A, Main Tank Farm, and 19D, Old North Tank Farm | 19 |
| FIGURE D-11 | Floor Plan and Elevation, Component 19C, Control House | 20 |
| FIGURE D-12 | Floor Plan and Elevation, Component 19E, Lime Slitter Building | 21 |
| FIGURE D-13 | Floor Plan and Elevation, Component 20A, Pump Station and Power Center | 22 |
| FIGURE D-14 | Elevation and Sections, Component 20H, Process Water Storage Tank | 23 |

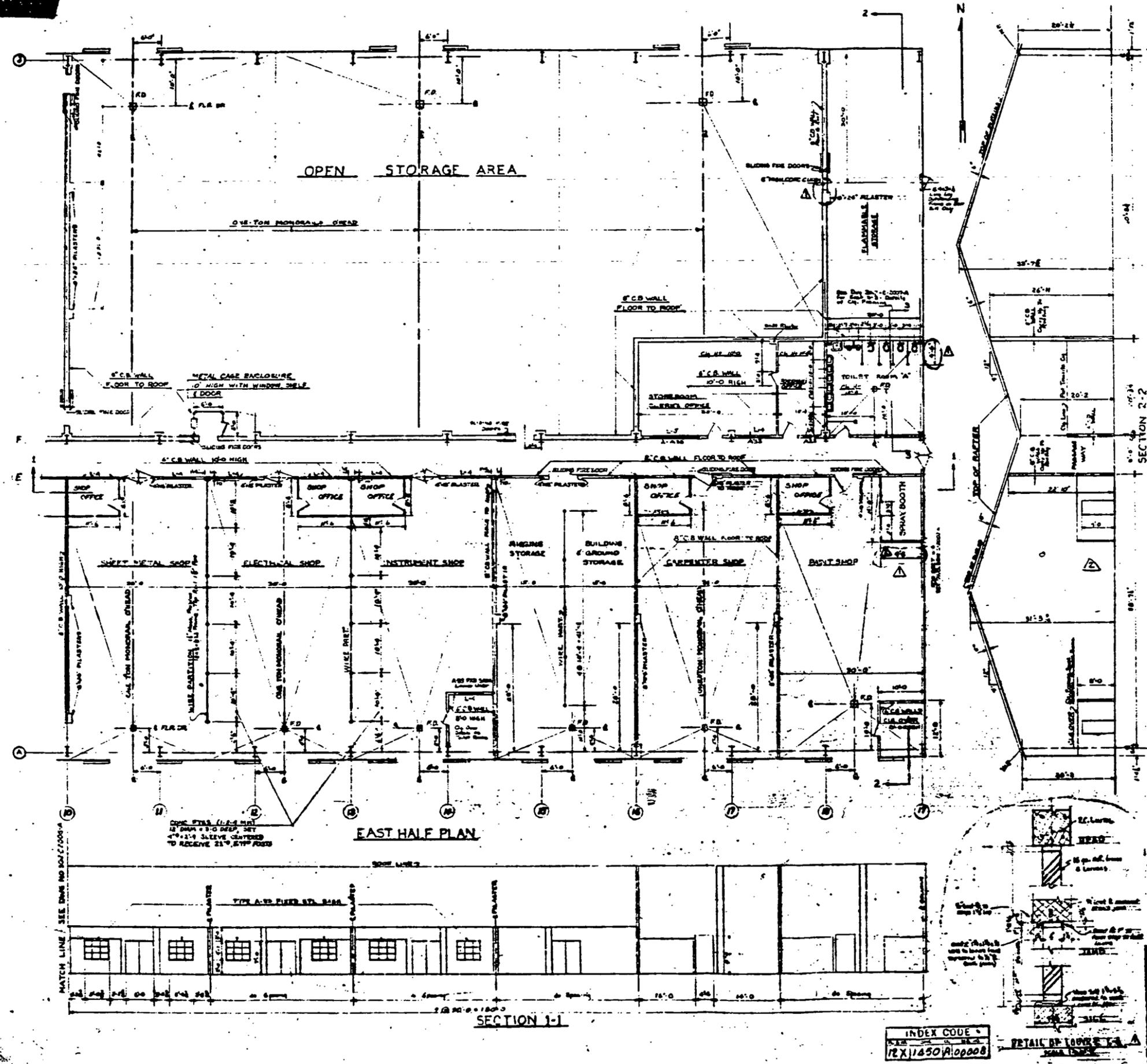
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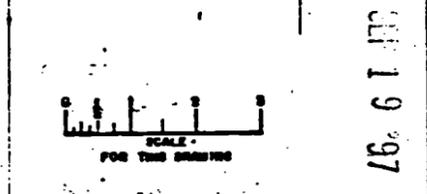
GENERAL NOTES

1. ALL DIMENSIONS TO MASONRY WALLS & METAL PARTITIONS ARE TO CENTER LINES UNLESS SHOWN OTHERWISE.
2. ALL EXTERIOR DOOR SLIDING & PASS DOORS TO BE FURNISHED BY STEELCRAFT MFG. CO.
3. STEELCRAFT MFG. CO. WILL ALSO FURNISH: ALL NECESSARY STRUCTURAL STEEL SUPPORTS FOR MONO-RAILS WHERE SHOWN.
4. PARTITION WALLS TO BE MASONRY, THICKNESS & HEIGHT AS DESIGNATED.
5. PASSAGEWAY DOORS & SASH FURNISHED BY GEN'L CONTRACTOR.
6. SHOP OFFICE FRAMING, SIDING, SASH & DOORS BY GEN'L CONTRACTOR SEE DWG 3012-C-2007-A FOR DETAILS.
7. ALL SLIDING FIRE DOORS BY GEN'L CONTRACTOR.
8. WHERE CEILINGS ARE REQ'D, ALL FRAMING TO BE OF STEAM-STEEL JOISTS & BRACING.
9. SHOP OFFICES TO BE WALL UP OF STEAM-STEEL STUDS, FINISHED BOTH SIDES WITH 1/2\"/>

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REFERENCE DRAWINGS

TITLE	Drawing Number
PLOT PLAN - PRODUCTION AREA	3000-AA-011-A
FOUNDATION & ANCHOR BOLT PLAN	3012-C-2001-A
WEST HALF PLAIN SECTIONS	3012-C-2006-A
ARCHITECTURAL DETAILS & SECTIONS	3012-C-2007-A
DOOR SCHEDULE	3012-C-2008-A
FRAMING	3012-C-2009-A
ELECTRICAL	3012-N-100-A
ELECTRICAL	3012-N-101-A
ELECTRICAL	3012-N-102-A
ELECTRICAL	3012-N-103-A
ARCHITECTURAL DETAILS & SECTIONS	3012-C-2005-A



NO.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	12/14/50

UNITED STATES ATOMIC ENERGY COMMISSION
 AND THE OPERATING OFFICE

CONTRACT NO. AT(40-1)-1000
**FEED MATERIALS PRODUCTION CENTER
 FERNALD AREA**

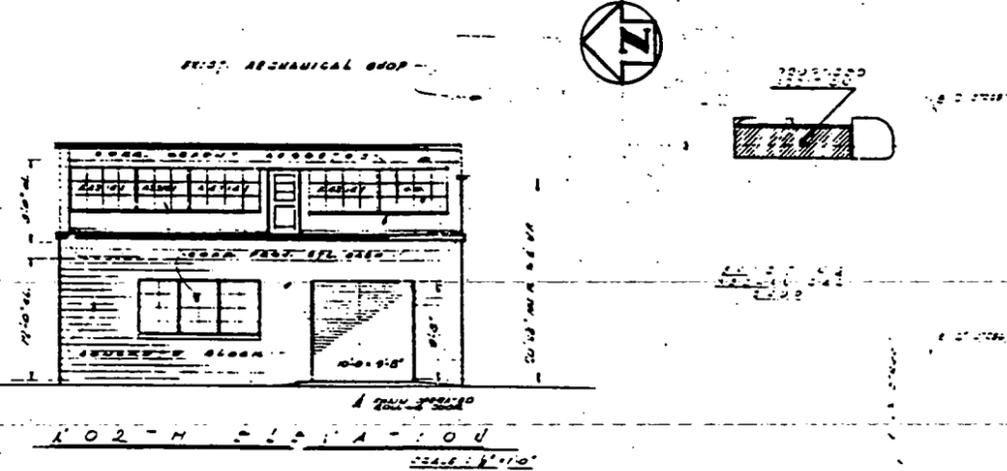
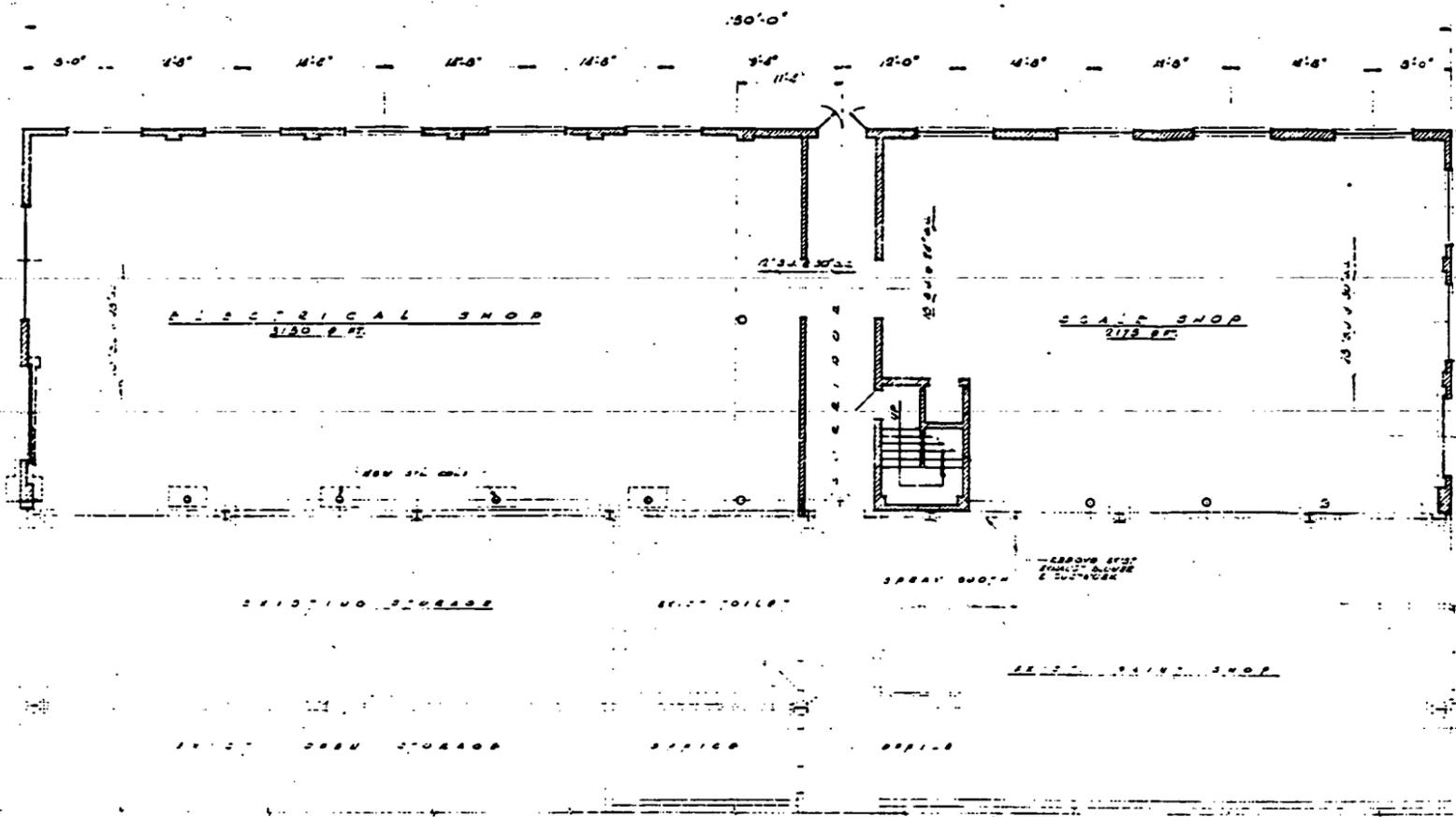
ARCHITECTURAL
**EAST HALF PLAN - SECTION A
 MAINTENANCE BUILDING**

3-7-51
 APPROVED FOR CONSTRUCTION
 3012-C-2005-A

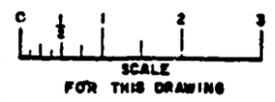
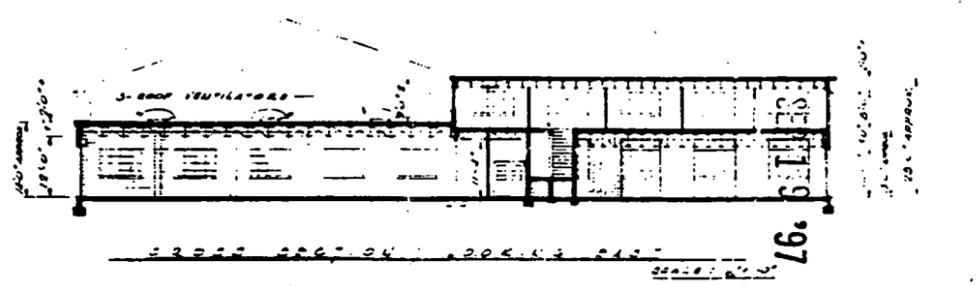
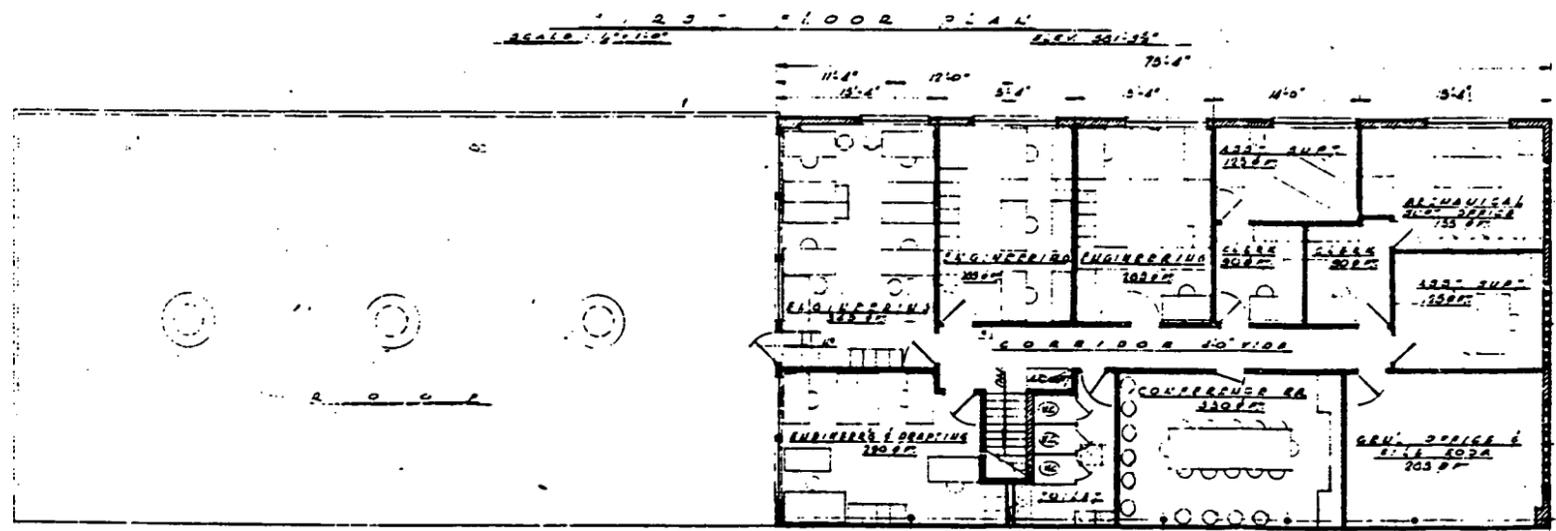
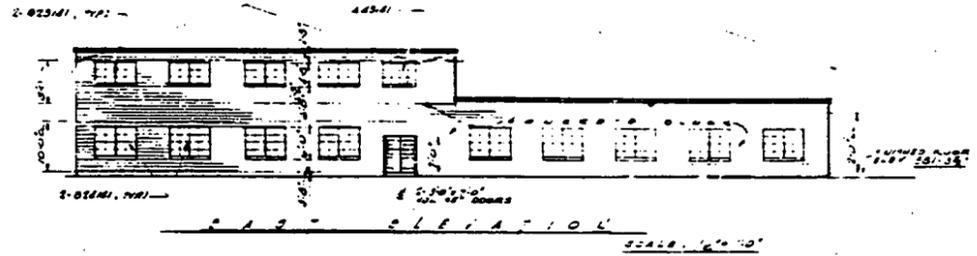
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FIGURE D-1 Floor Plan and Elevations East Half of Component 12A, Maintenance Building

5507-31



FOR INFORMATION ONLY



ARCH & STR.	
MECHANICAL	
ELECTRICAL	
CHEMICAL	
OWNER	
12X 5500 A 55353	
NATIONAL LEAD COMPANY OF OHIO FEED MATERIALS PRODUCTION CENTER FERNALD, OHIO	
U.S. ATOMIC ENERGY COMMISSION	
MECHANICAL SHOP (2nd FLOOR)	
22030540 3-10-43 1007-24	
ENGINEERING DIVISION	
PROJECT NO. 12-31	CP-5-10
DRAWN BY K. H. BROWN	CHECKED BY J. J. BROWN
DATE APR. 11 1943	DWG. NO. 12-5535
SCALE 1/4" = 1'-0"	

REF. DWG. NO.	REF. DWG. TITLE	NO.	REVISIONS	DATE	BY

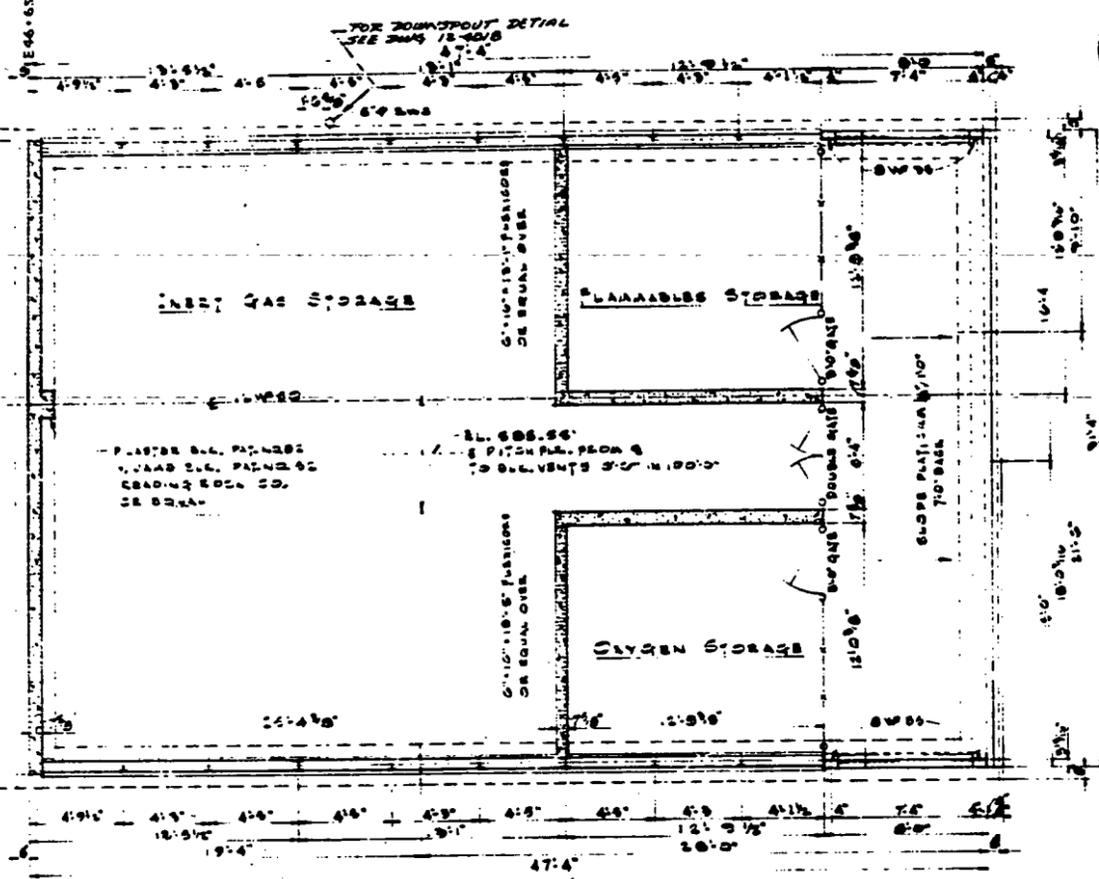
FIGURE D-3 Floor Plan and Elevation of Office Addition, Component 12A, Main Maintenance Building

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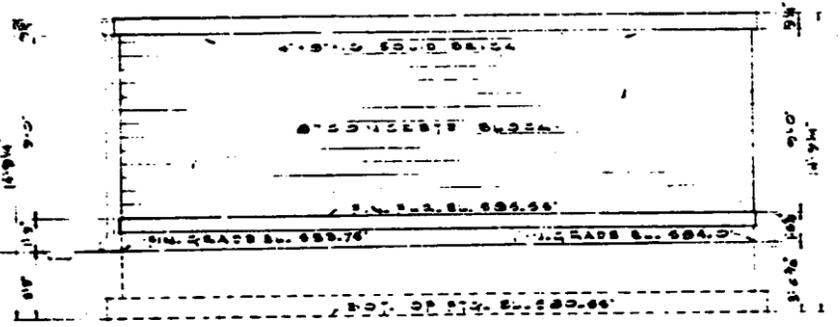
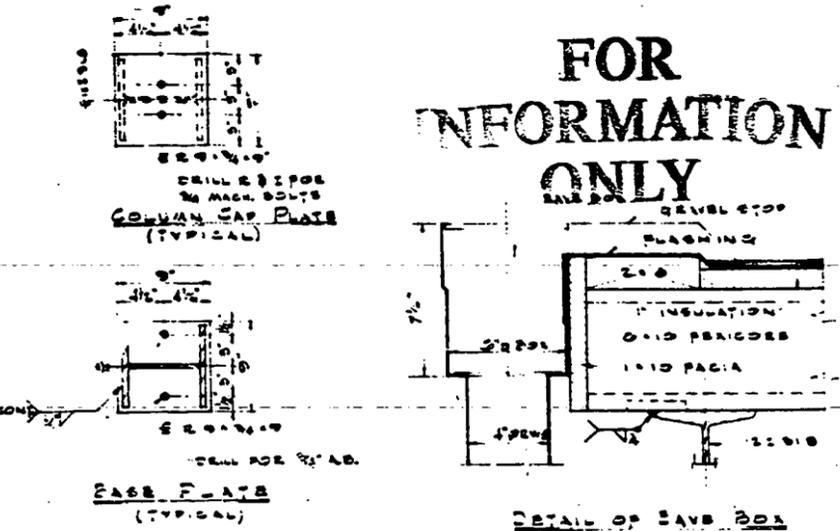


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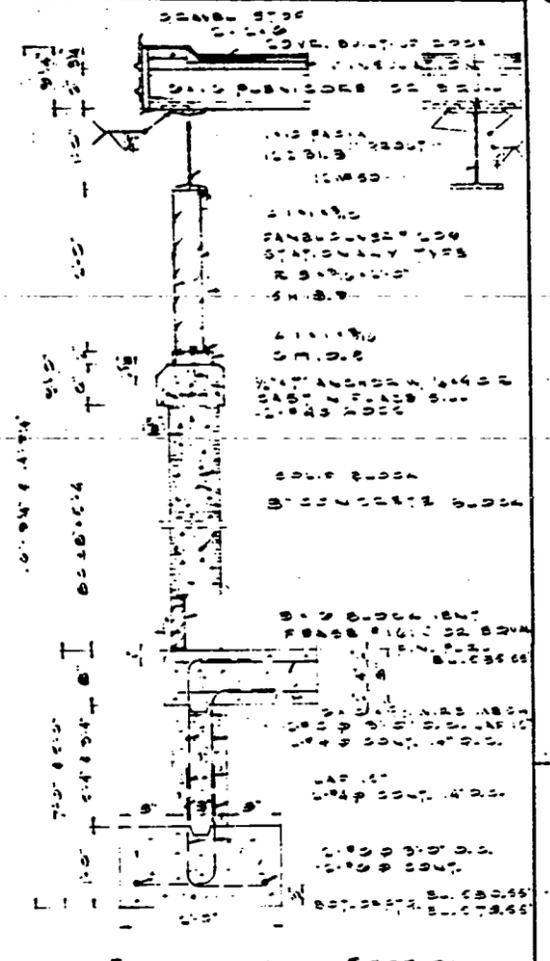


PLAN

NOTE: SEE DWG 12-4018 FOR CYLINDER STORAGE TANK DETAILS.



WEST ELEVATION



TYPICAL WALL SECTION

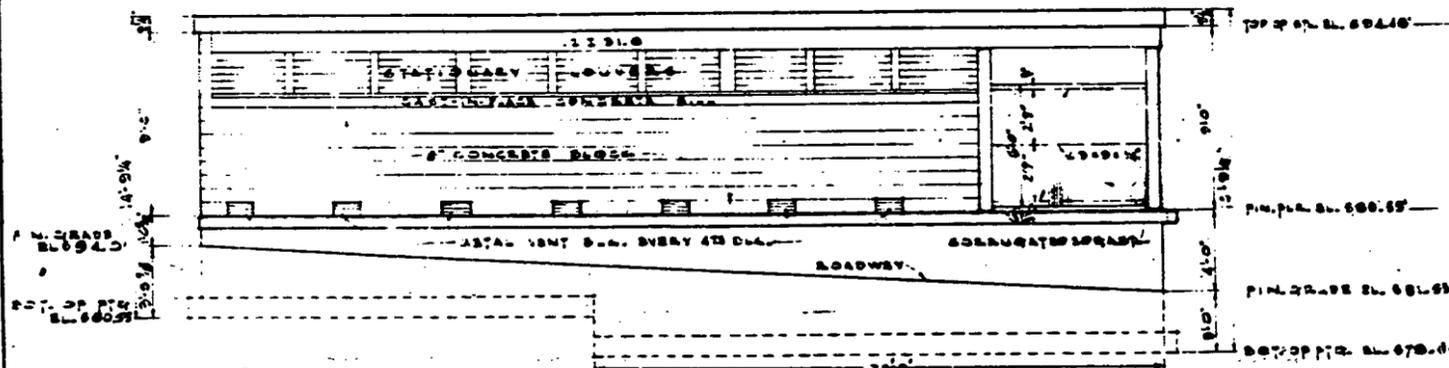
- GENERAL NOTES**
- CONCRETE SHALL BE CLASS "C" SHALL TEST 3000 PSI @ 28 DAYS
 - REINFORCING STEEL SHALL BE MADE FROM NEW SHEET PILES LATEST ISSUE WITH APPROVED WELDING DATA AS ACCORD WITH ASTM A108 LATEST REVISION
 - WELDED STEEL FABRICATION SHALL BE MADE IN ACCORD WITH ASTM A108 LATEST REVISION
 - STRUCTURAL STEEL SHALL CONFORM TO ASTM A7 LATEST REV.
 - CONCRETE BLOCK SHALL CONFORM TO THE NATIONAL CONCRETE MASONRY SOCIETY BUILDING CODES.

INDEX CODE
12B 5500 300285

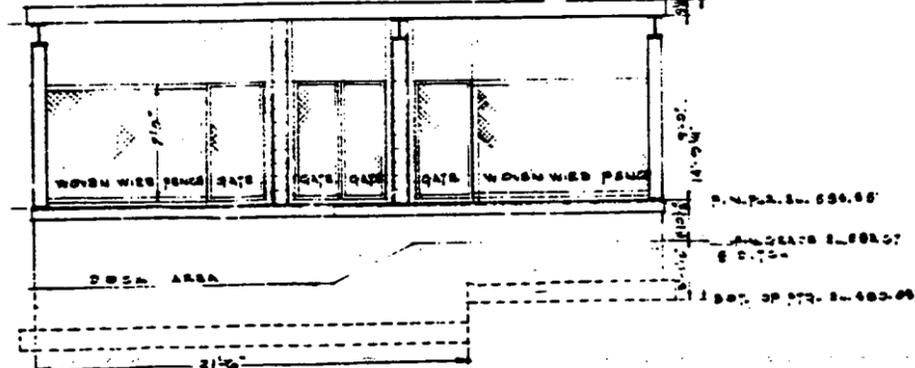
NATIONAL LEAD COMPANY OF OHIO
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISSION
Block 12
CYLINDER STORAGE BUILDING
PLAN-ELEVATIONS & DETAILS

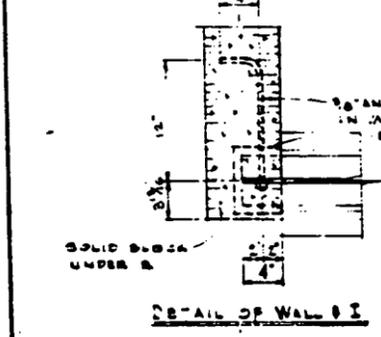
DEPARTMENT RECEIVING	DATE	BY
B. M.	CP-F-53-42	
DATE	DWG. NO.	
12-4016	12-4016	



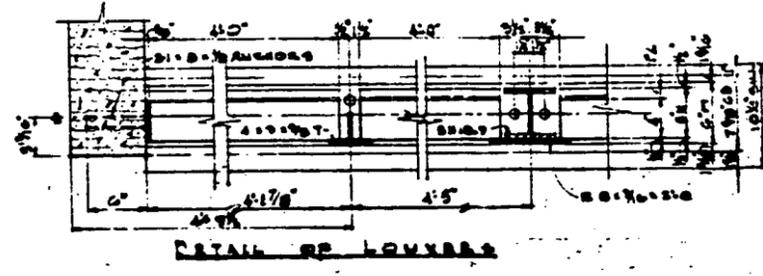
SOUTH ELEVATION



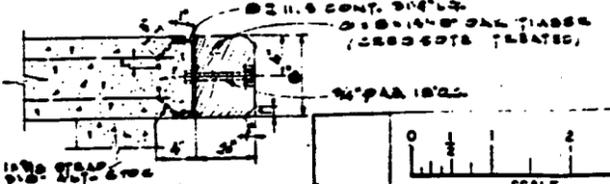
EAST ELEVATION



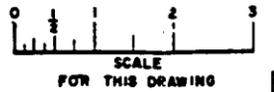
DETAIL OF WALL & BASE



DETAIL OF LOUVERS



ROOF DETAIL



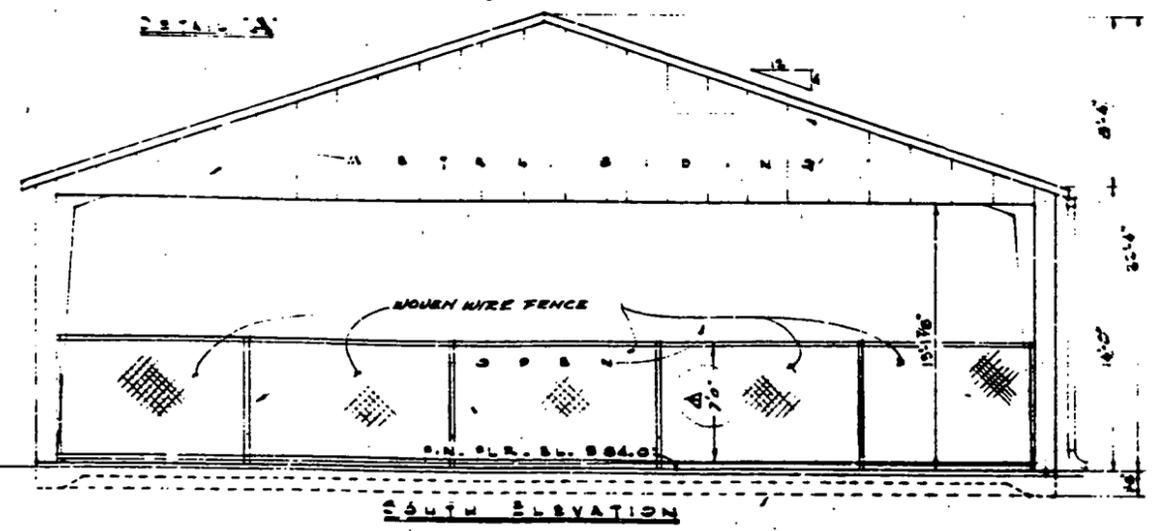
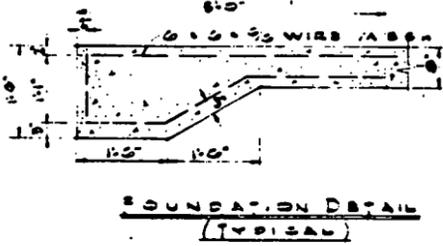
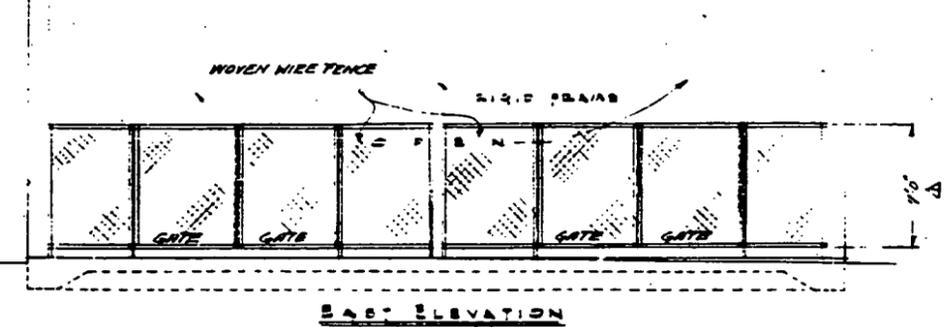
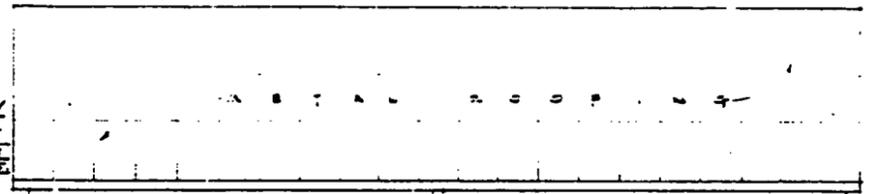
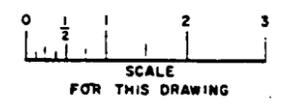
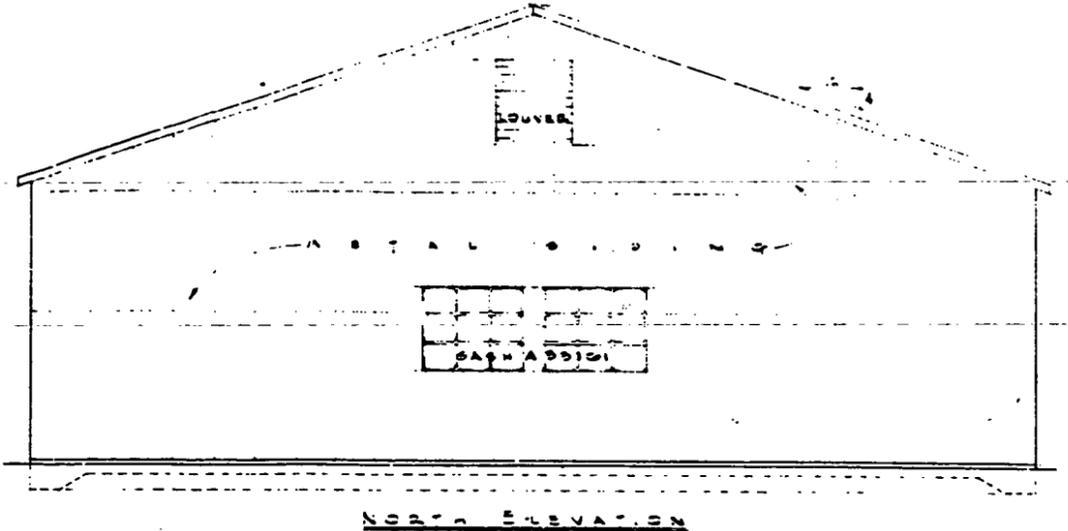
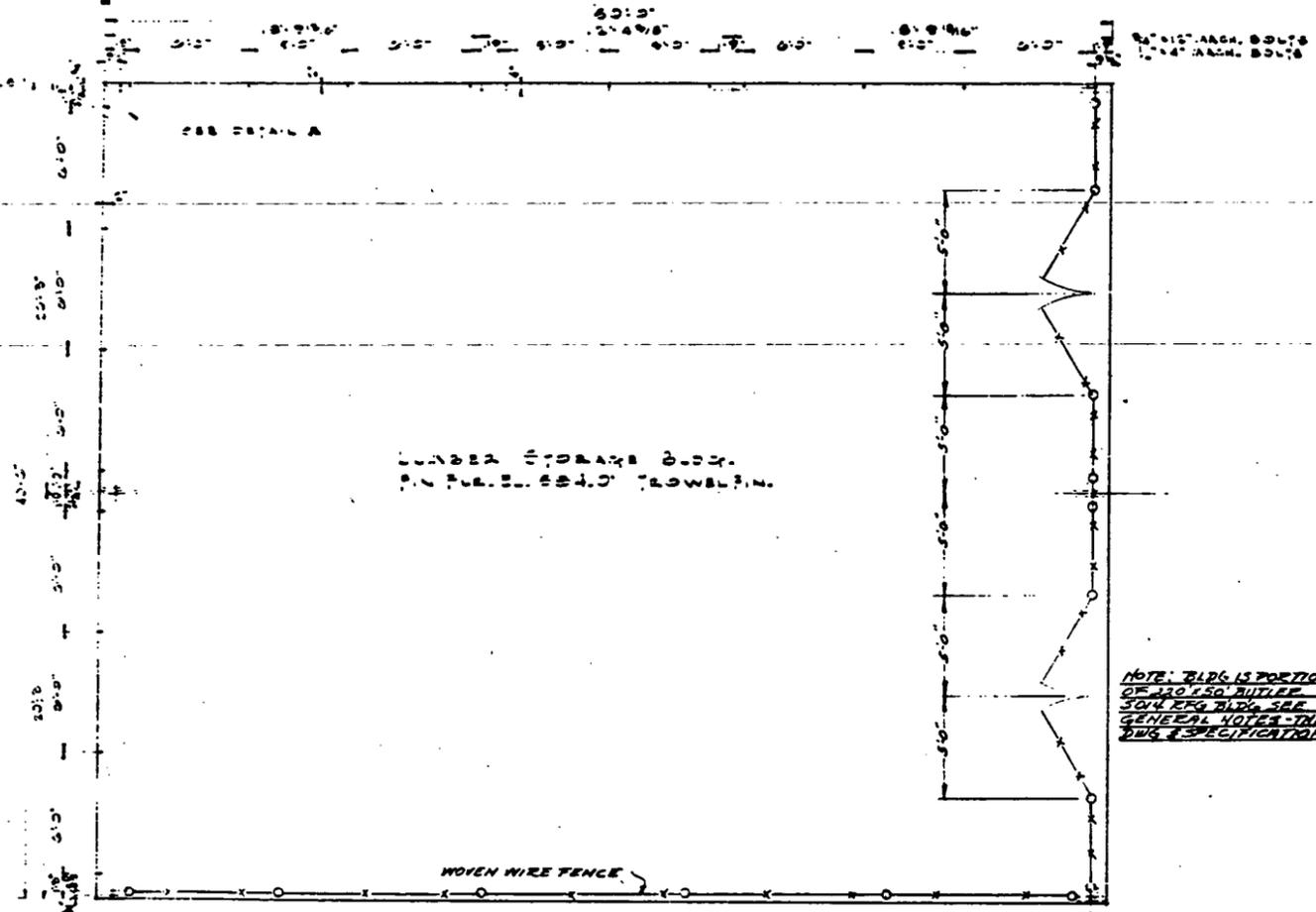
SCALE FOR THIS DRAWING

REF. DWG. NO.	REF. DWG. TITLE	NO.	REVISIONS	DATE	BY
12-4020	CYLINDER STORAGE TACKS	4			
12-4010	LIGHTING & POWER WIRING	3			
12-4010	LOADING BAYS & DETAILS	2	REPLY TO B. M. 12-4010	12-4010	AD
12-4010	PLAT PLAN ADDITIONAL STR. AREA	1	INCREASED FENCE HEIGHT FROM 6'-7\"/>		

4000164

FIGURE D-4 Floor Plan and Elevation, Component 12B, Cylinder Storage Building

FOR INFORMATION ONLY



GENERAL NOTES

1. CONCRETE & REINFORCING NOTES SEE N.L.C. CAT. 12-4312
2. STRUCTURAL STEEL & FASTENING PER SPEC. TO BE SUPPLIED BY N.L.C. PER N.L.C. DRAWING OF CORR. METAL ROOFING. ALL LABOR, MATERIAL & EQUIPMENT NECESSARY TO COMPLETE THIS WORK SHALL BE PROVIDED BY THE CONTRACTOR. AS NECESSARY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS & APPROVALS FROM THE LOCAL AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS & APPROVALS FROM THE LOCAL AUTHORITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS & APPROVALS FROM THE LOCAL AUTHORITIES.

INDEX CODE
PLAN
12B 5500 A 00236

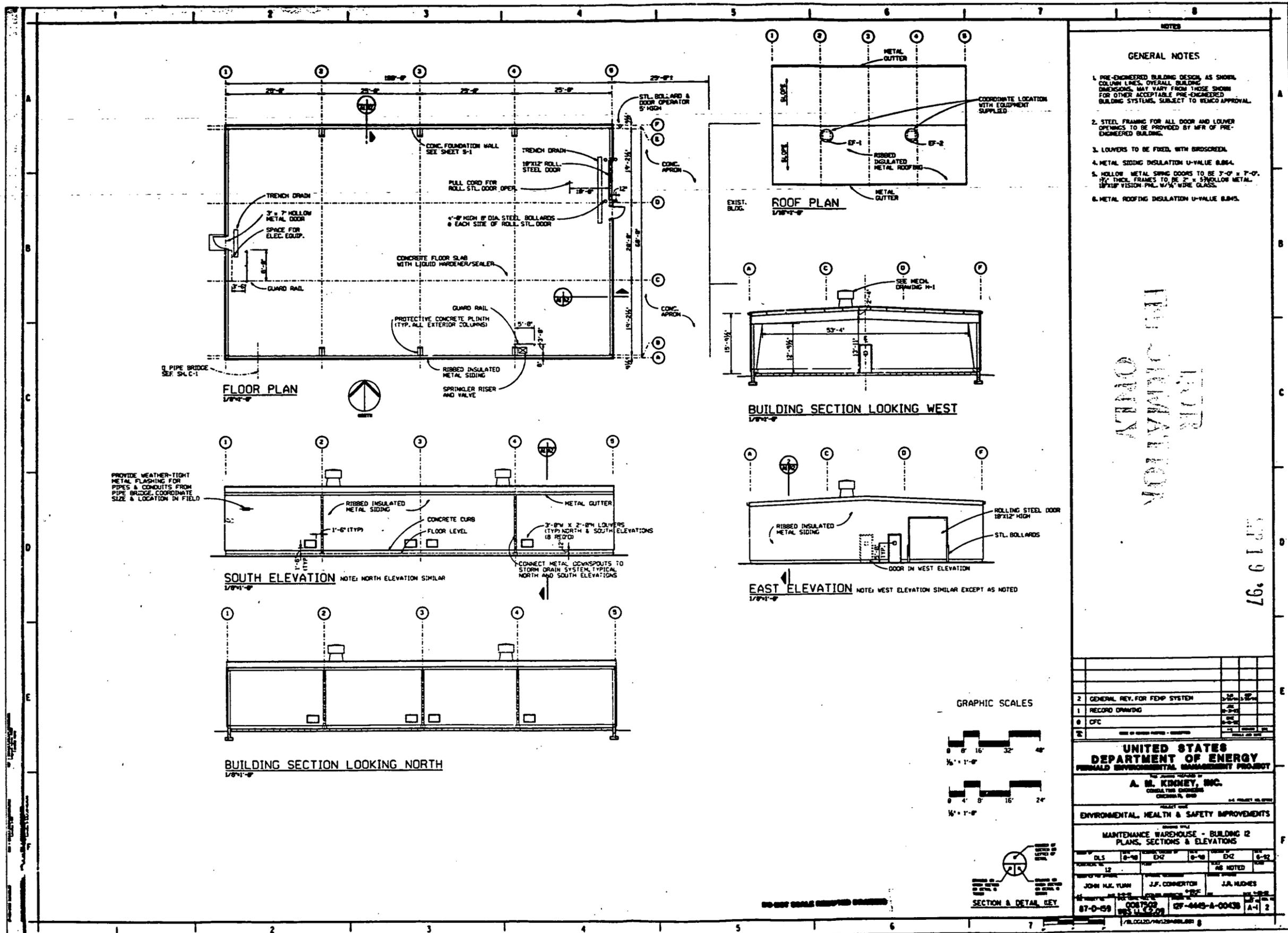
NATIONAL LEAD COMPANY OF OHIO
FERTILIZERS PRODUCTION CENTER
FERNALD, OHIO

U.S. ATOMIC ENERGY COMMISSION
Bldg. 12 STORES
ADDITIONAL STORAGE FACILITIES
LUMBER STORAGE BLDG.

REF. DWG. NO.	REF. DWG. TITLE	NO.	REVISIONS	DATE	BY
12-4010	LOADING RAMP DETAILS	3			
12-4312	FLOOR PLAN - ADD. ST. FAC.	1	CHANGED FENCE HWT FROM 6 TO 7	11/28/54	SM

FIGURE D-5 Floor Plan and Elevation, Component 12C, Lumber Storage Building

1000165



APPROVED FOR
 SUBMITTAL

1997 19 97

FIGURE D-6 Floor Plan and Elevation, Component 12D, Maintenance Storage Building

GENERAL NOTES

1. THIS DRAWING IS TO BE USED FOR THE CONSTRUCTION OF THE PROPOSED BUILDING. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURROUNDING AREAS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT PROPERTIES.

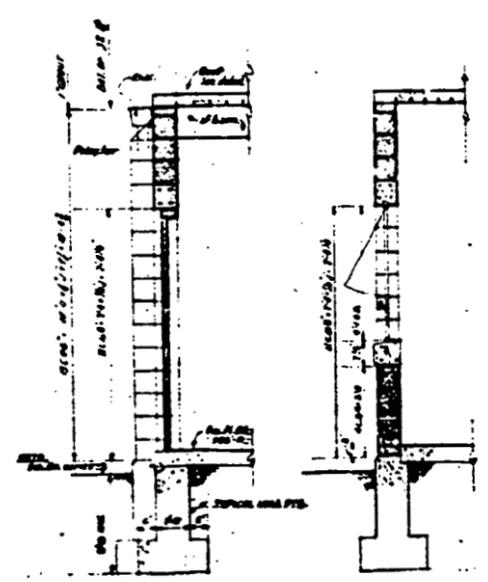
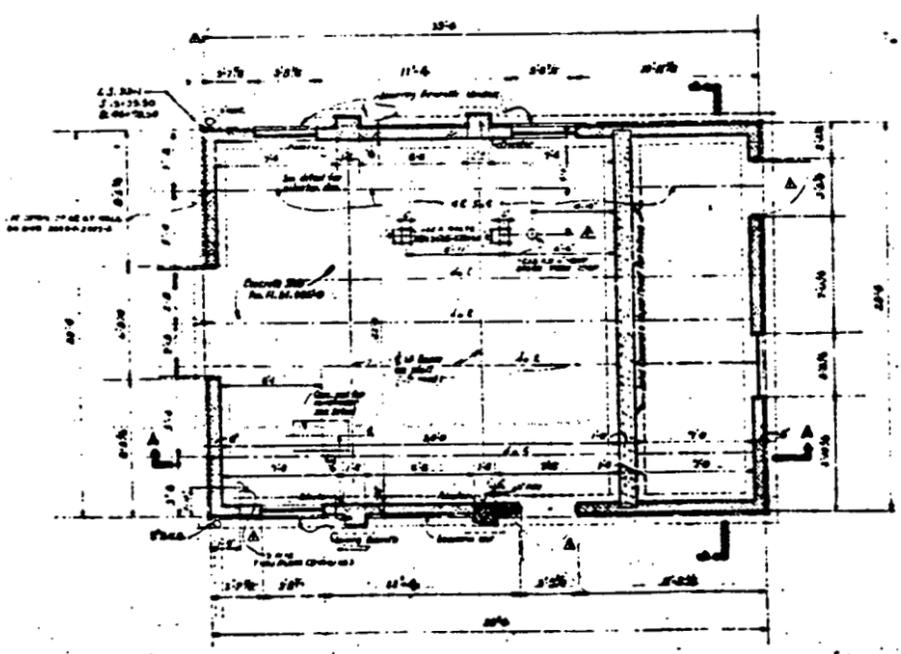
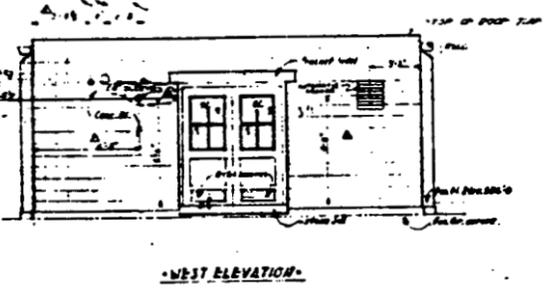
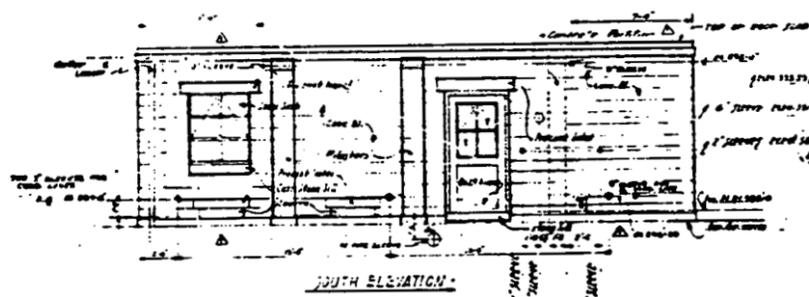
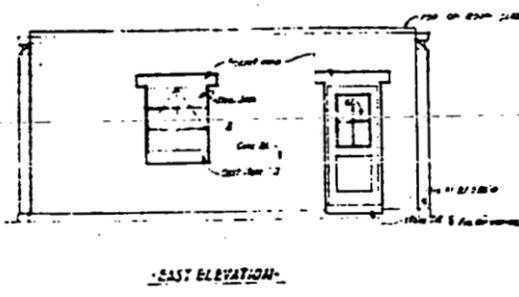
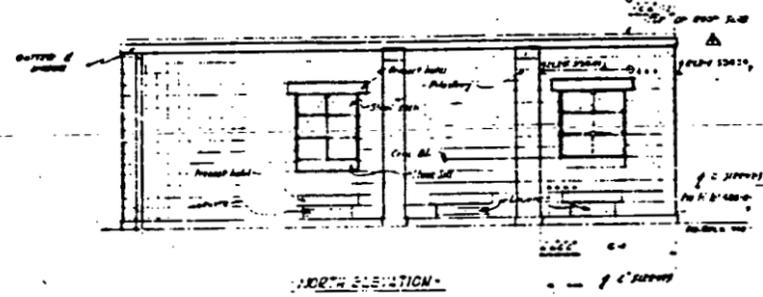
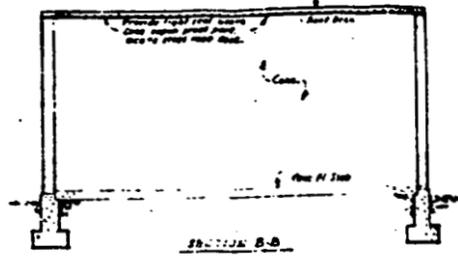
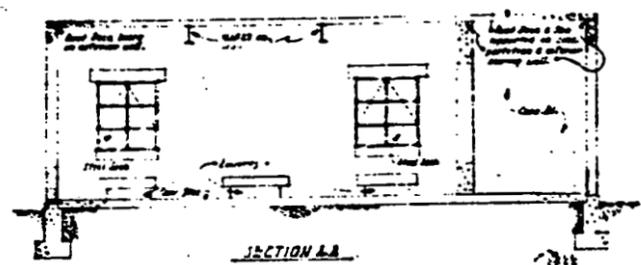
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT ROADS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT UTILITIES.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT STRUCTURES.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT AREAS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ADJACENT PROPERTIES.



FOR INFORMATION ONLY

INDEX OF MATERIALS

Concrete	Steel
Wood	Steel
Asphalt	Steel
Paint	Steel
Roofing	Steel
Insulation	Steel
Glazing	Steel
Hardware	Steel
Finish	Steel
Lighting	Steel
Sanitary	Steel
Structural	Steel
Other	Steel

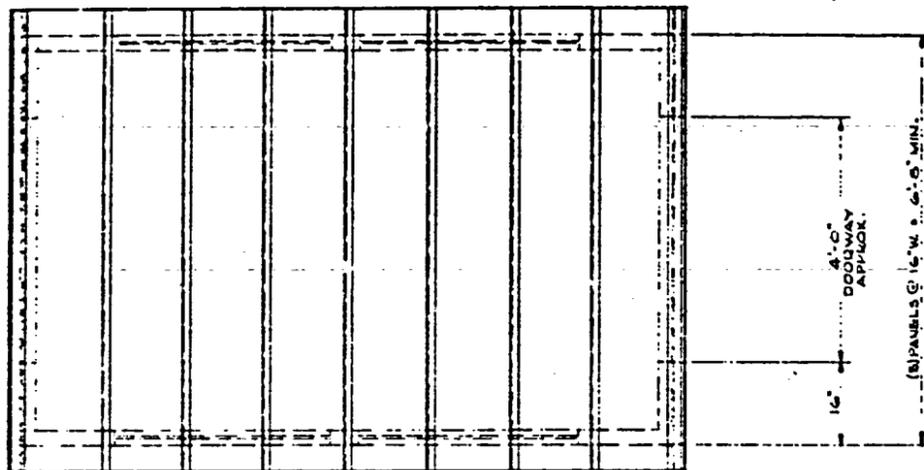
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8	11/15/52	AS SHOWN
9	11/15/52	AS SHOWN
10	11/15/52	AS SHOWN

NO.	DATE	DESCRIPTION
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10	11/15/52	AS SHOWN

INDEX CODE
BX 1450 A 0000?

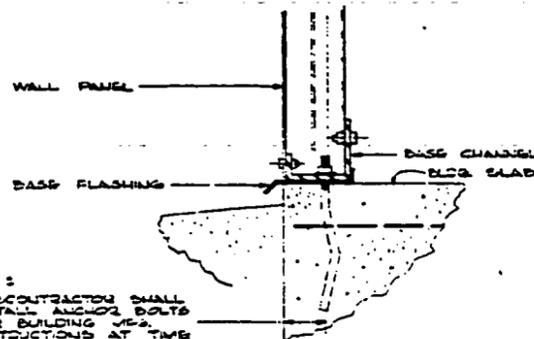
FIGURE D-8 Floor Plan and Elevation, Component 38A, Propane Storage Building

000168



PLAN

(8) PANELS @ 16" W. x 10'-8" MIN.

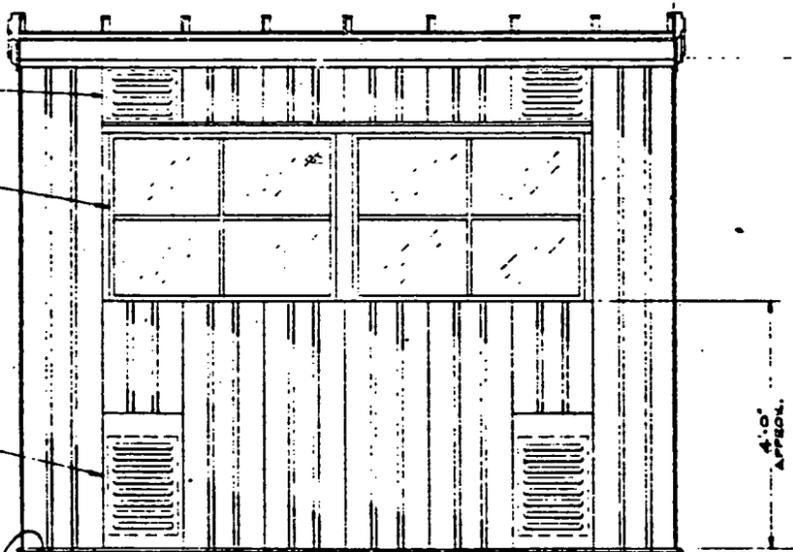


DETAIL - D

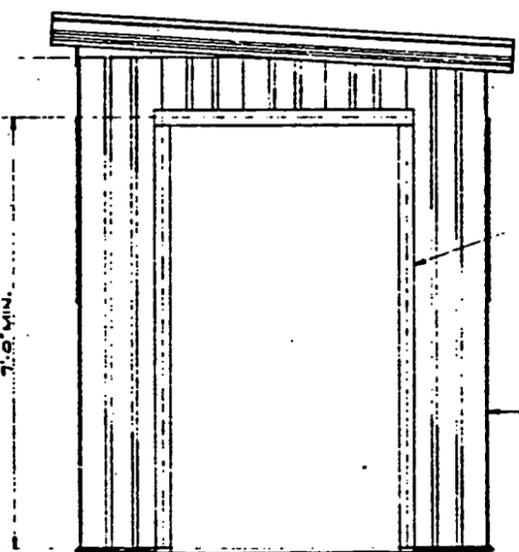
TYPICAL
SCALE: 5"=1'-0"

FOR INFORMATION ONLY

- GENERAL NOTES:
1. SURFACES SHOWN AS FINISHED UNLESS NOTED OTHERWISE.
 2. NON-GALVANIZED MEMBERS SHALL BE FINISHED BY THE CONTRACTOR WITH AN APPROVED PAINT OR AS SPECIFIED.

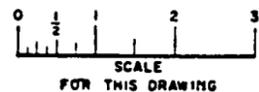


WEST ELEVATION
(TYP. FOR EAST ELEVATION)
(EXCEPT FOR LOUVERS OVER WINDOWS)



SOUTH ELEVATION
(TYP. FOR NORTH ELEVATION)

SEP 19 '97



SCALE FOR THIS DRAWING

INDY CODE
58X 5500 A 00013

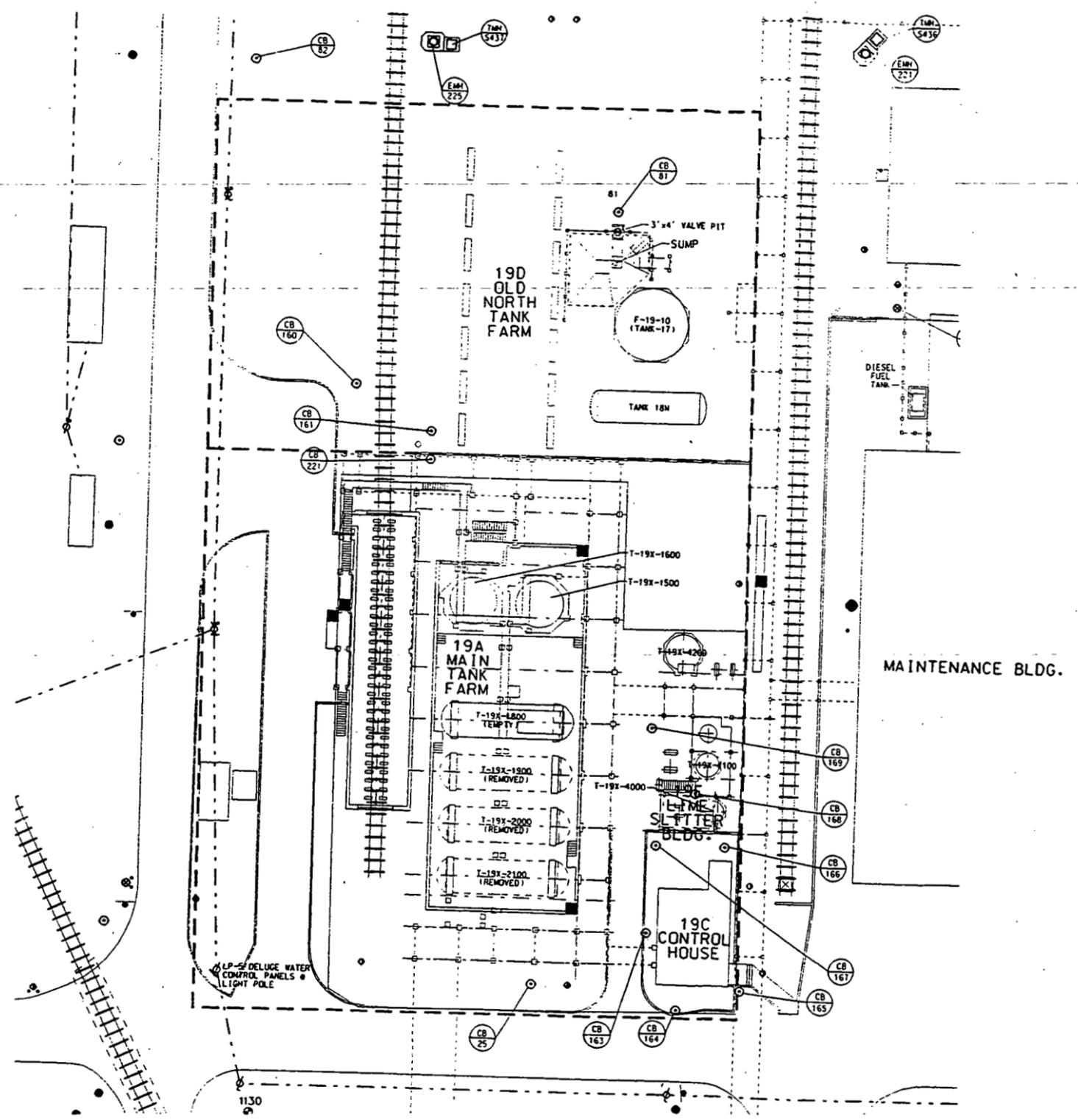
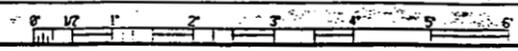
MECH & STR.	
MECHANICAL	
ELECTRICAL	
CHEMICAL	
ENGINEER	
PROJECT NO. 25-11	CP-25-11
NATIONAL LEAD COMPANY OF OHIO FEED MATERIALS PRODUCTION CENTER FERNALD, OHIO	
U.S. ATOMIC ENERGY COMMISSION	
FERNALD STATION LP GAS BULK FILLING STATION STRUCTURAL	
ENGINEERING DIVISION	
DATE 2-14-97	DWG. NO. 28-4004
SCALE 3/4"=1'-0"	

DESIGN APPROVAL			
DESIGNER	SIGNATURE	DATE	
DR	<i>[Signature]</i>	1997	
TECHNICAL	<i>[Signature]</i>	1997	
MANAGER	<i>[Signature]</i>	1997	

REF. DWG. NO.	REF. DWG. TITLE	NO.	REVISIONS	DATE	BY
28-4003	CONCRETE - BLDG. PAD				
28-4002	GENERAL ARCH'T.				

FIGURE D-9 Floor Plan and Elevation, Component 38B, Cylinder Filling Station

000169



**PRELIMINARY
INFORMATION ONLY**
CADD SERVICES

REVISIONS	DATEDWN. BY/APPD. NO.	REVISIONS	DATEDWN. BY/APPD. NO.	REF. DWG. NO.

NOTE:
FLUOR DANIEL
FERNALD CADD
DRAWING.
DO NOT REVISE
MANUALLY.

CONFIGURATION MANAGEMENT DRAWING		APPROVALS	
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE.	
MECHANICAL		SECURITY	
		CRU	
		OPERATION	
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR DANIEL FERNALD

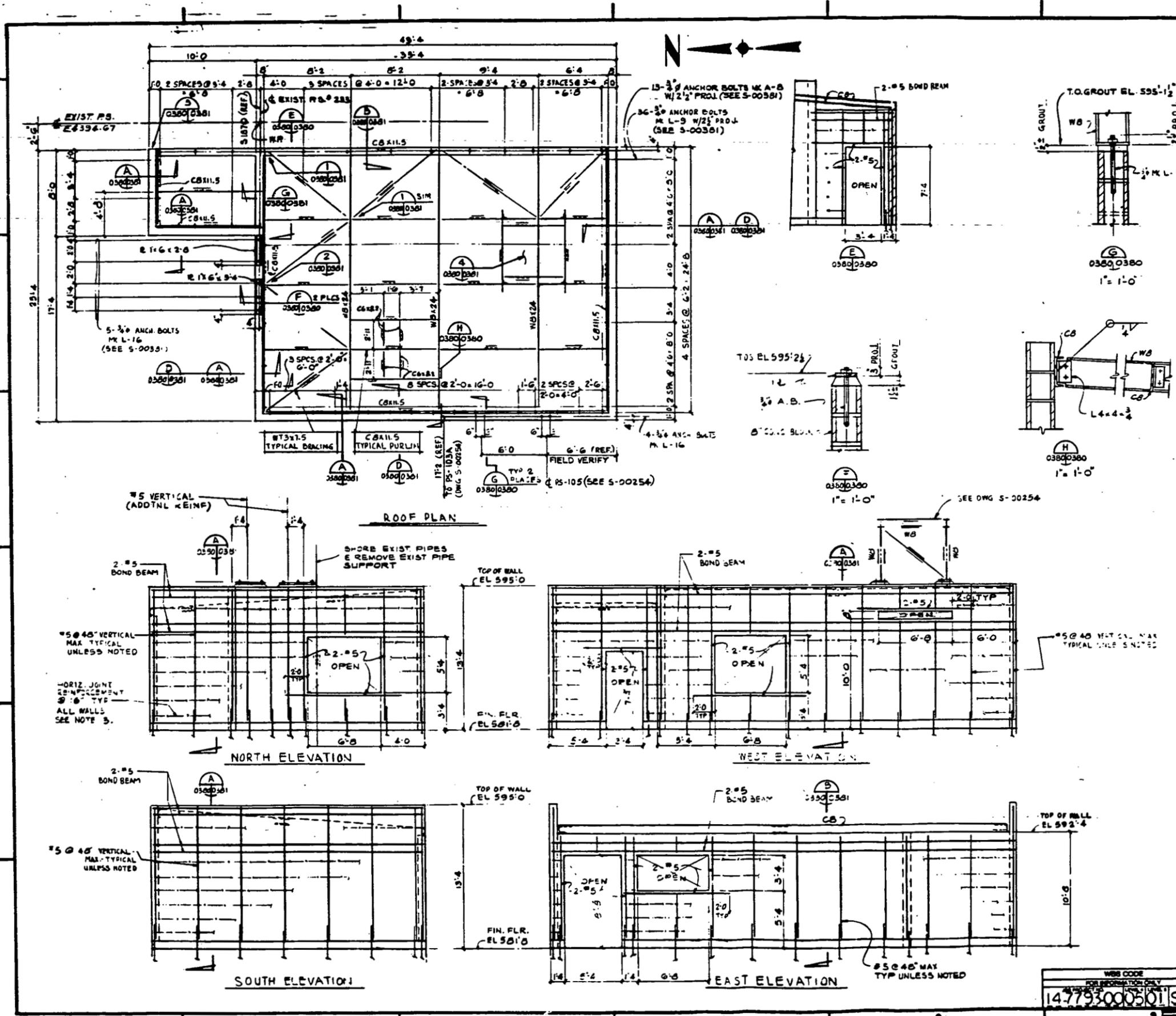
U.S. DEPARTMENT OF ENERGY

TANK FARM COMPLEX
TANK FARM AREA
NO SCALE

12X-5500-X-00471 0

000170

FIGURE D-10 Site Plan, Component 19A, Main Tank Farm, and 19D, Old North Tank Farm

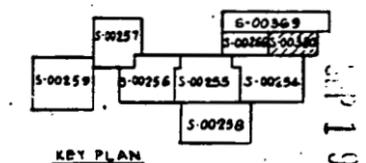


REFERENCE DRAWING	
DRAWING NO.	TITLE
S-00254	BALCONY ELEVATION (PLAN & ELEVATION)
S-00381	CONTROL HOUSE ELEVATIONS (ELEVATION)
SECT. 04230	CONCRETE MASONRY SPEC.

FOR INFORMATION ONLY

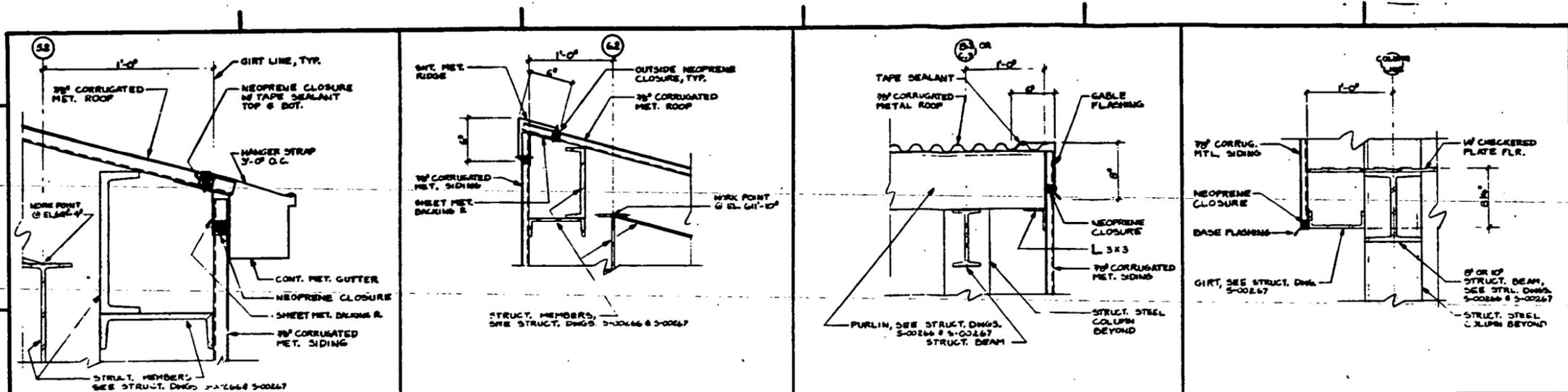
- NOTES**
- FOR STRUCTURAL STEEL NOTES SEE DWG S-00254
 - FOR CONCRETE BLOCK WALLS, SEE CONCRETE MASONRY SPECIFICATION, SECTION 04-230
 - HORIZONTAL JOINT REINFORCEMENT SHALL CONSIST OF 2 #5 @ 16" O.C. CROSS WIRES @ 16" O.C. CENTER-TO-CENTER. REINFORCEMENT SHALL CONTINUE THROUGH A-02 AND SHALL BE APPROVED BY THE INTERNAL CONFERENCE OF BUILDING OFFICIALS. LAP SPLICES 12" MIN.

**DO NOT SCALE
REDUCED DRAWING**

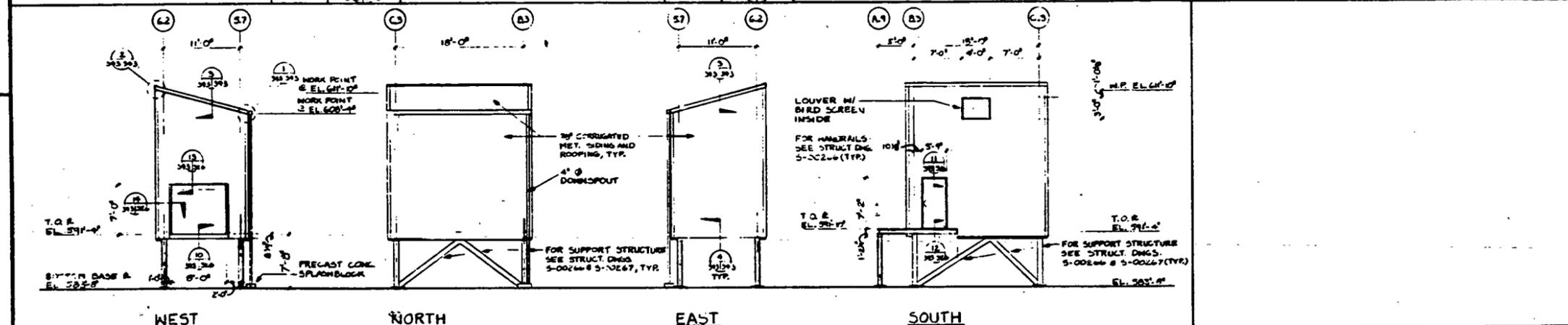


J. CERTIFIED FOR CONSTRUCTION		DATE	BY
REVISION		DATE	BY
ISSUE OR REVISION PURPOSE - DESCRIPTION		DATE	BY
<p align="center">UNITED STATES DEPARTMENT OF ENERGY</p> <p align="center">JACOBS ENGINEERING GROUP INC. PASADENA, CALIFORNIA</p>		DE-AC05-85OR21462 44 3900 PROJECT NAME PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS DRAWING TITLE TANK FARM PROJECT STRUCTURAL TANK FARM AREA CONTROL HOUSE - PLAN & ELEVATIONS	
DRAWN BY J. FOSTER	DATE 3/7/85	DESIGNED CHECKED BY AL. CATCO	DATE 3/15/85
PLANT FMPC	BUILDING FLOOR	SCALE 1/8" = 1'-0"	DATE 3/15/85
SUBMITTED FOR APPROVAL		APPROVAL RECOMMENDED	DRAWING APPROVED
DATE 1-2-87		DATE 1-2-87	DATE 1-2-87
WEB CODE 14-7793000501		PROJECT NO. 85-D-140	DRAWING NUMBER 19X 39C 01S 00380 0

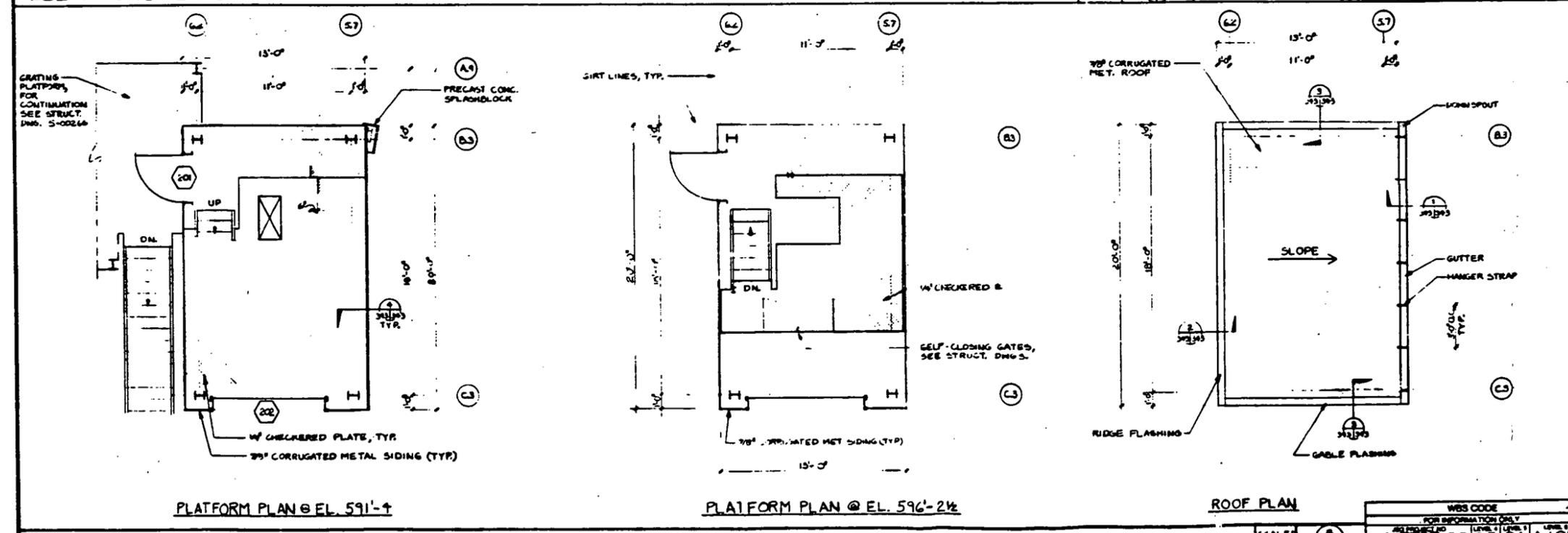
FIGURE D-11 Floor Plan and Elevation, Component 19C, Control House



ROOF @ GUTTER SCALE: 1/2"=1'-0" (1) 3/32/93 ROOF RIDGE SCALE: 1/2"=1'-0" (2) 3/32/93 GABLE SCALE: 1/2"=1'-0" (3) 3/32/93 BASE OF SIDING SCALE: 1/2"=1'-0" (4) 3/32/93



ELEVATIONS-LIME BUILDING (NOTE: ADJACENT PLATFORM OMITTED FOR CLARITY) SCALE: 1/8"=1'-0" (A) 3/32/93



LIME BUILDING PLANS SCALE: 1/8"=1'-0" (B) 3/32/93

**DO NOT SCALE
REDUCED DRAWING**

DATE	BY	DESCRIPTION

**UNITED STATES
DEPARTMENT OF ENERGY**

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO. DE-AC05-85OR21462 A-E NO. 3900

PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS

**TANK FARM PROJECT ARCHITECTURAL
TANK FARM AREA
PLANS AND DETAILS**

DESIGNED BY D. ALLMORTH	DATE 10/85	CHECKED BY S. COHEN	DATE 11/85
PROJECT FRPC	FLOOR 	SCALE NOTED	CLASS
SUBMITTED FOR APPROVAL <i>[Signature]</i>		APPROVAL RECOMMENDED A. O. PETER / S 1-26-87	
PROJECT NO. 14-7793-0005/01		DRAWING APPROVED DATE 1-23-87	

WBS CODE	14-7793-0005/01	19 X 3900	A 00343
SCALE	1/8"=1'-0"		

GENERAL NOTES

TRAP MARKS Used Only As Shown. Approved Traps May Be Substituted.
CONTRACTOR: Provide Any Additional Auxiliary Framing, Dry, ETC. Needed (Whether Shown On Drawing Or Not) To Accommodate Any Trades Employed In The Construction Of This Building.

REFERENCE DRAWINGS

SEE DRAWING NUMBERS:
 3000-AA-01-A FOR FLOOR PLAN
 3000-C-2001-A FOR STRUCTURAL STEEL
 3000-A-01-A FOR CONCRETE
 3000-C-2002-A FOR ARCHITECTURAL DETAILS
 3000-

ABBREVIATIONS

Asbestos Sheet	Asb Sh	No. in	Sh
Building	Blg	On Center	O.C.
Channel	C	Partition	Part
Column	Col	Plate	P
Construction	Const	Similar	Sim
Cor. Capote	Cor. Cap	Staircase	Stc
Drawing	Draw	Steel	Stl
East	E	Typical	Typ
Elevation	Elev	Water	W
Equal	Eq	Water	W
Floor Drain	FD	Water	W
Floor	F	Water	W
Finish	Fin	Water	W
Finish	Fin	Water	W
Glass	G	Water	W
Inventory	Inv	Water	W
Maximum	Max	Water	W
Minimum	Min	Water	W

FOR INFORMATION ONLY

	CONCRETE		STEEL
	ASBESTOS		PART

ALL MATERIAL ON THIS DRAWING FURNISHED BY GEORGE A. FULLER CO.

SEP 19 1977

NO.	DESCRIPTION	DATE
1	REVISIONS	

UNITED STATES ATOMIC ENERGY COMMISSION
 NEW YORK OPERATING OFFICE

CONTRACT # AT(40-0)1000
**FEDERAL MATERIALS PRODUCTION CENTER
 FERNALD AREA**

ARCHITECTURAL
**PLAN & ELEVATIONS PUMP HOUSE & POWER CENTER
 WATER TREATMENT SYSTEM**

DATE: 6-2-76
 SCALE: 1/4" = 1'-0"

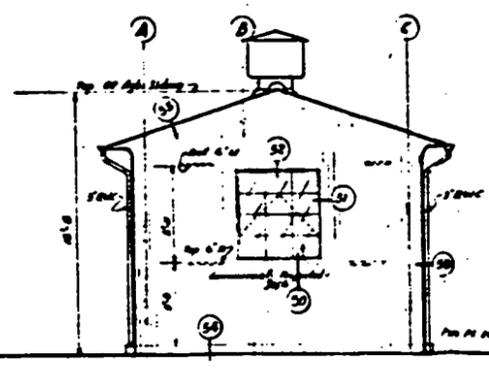
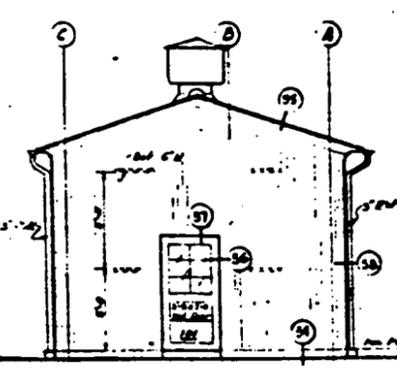
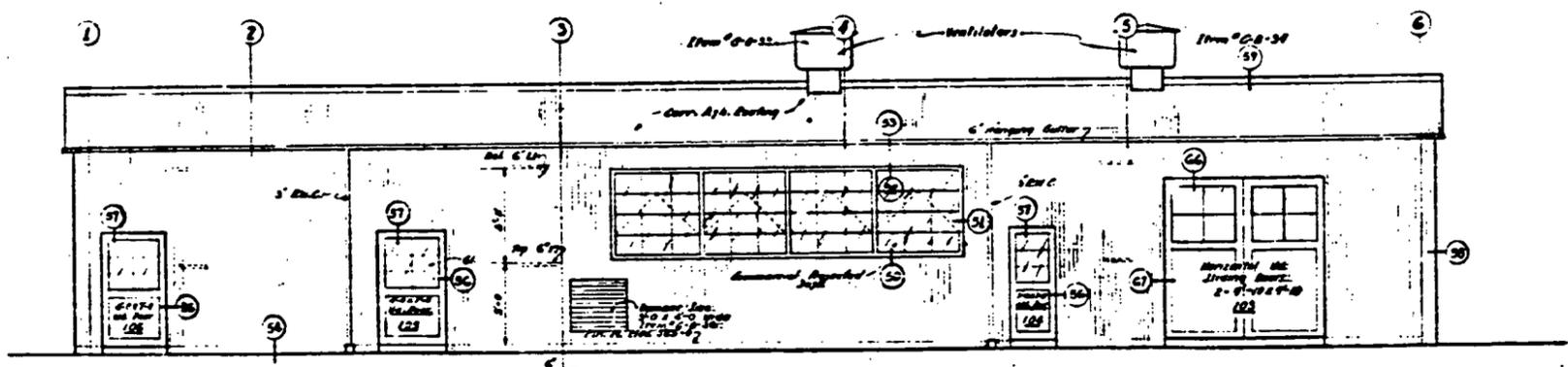
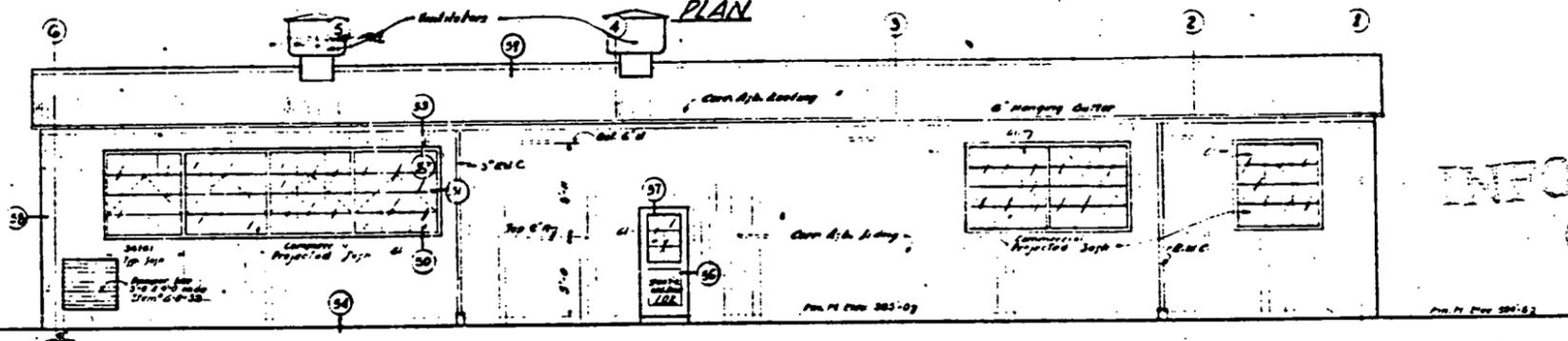
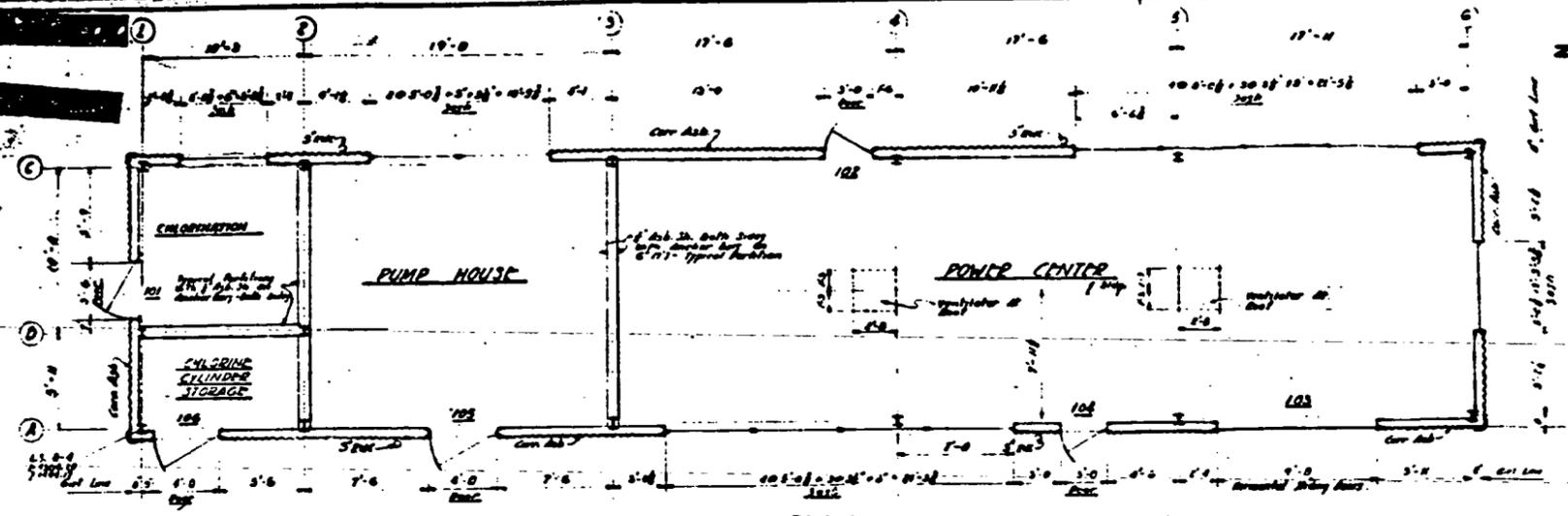
APPROVED FOR CONSTRUCTION

3008-C-2001-A

INDEX CODE
 20X1450A 00010

000173

FIGURE D-13 Floor Plan and Elevation, Component 20A, Pump Station and Power Center



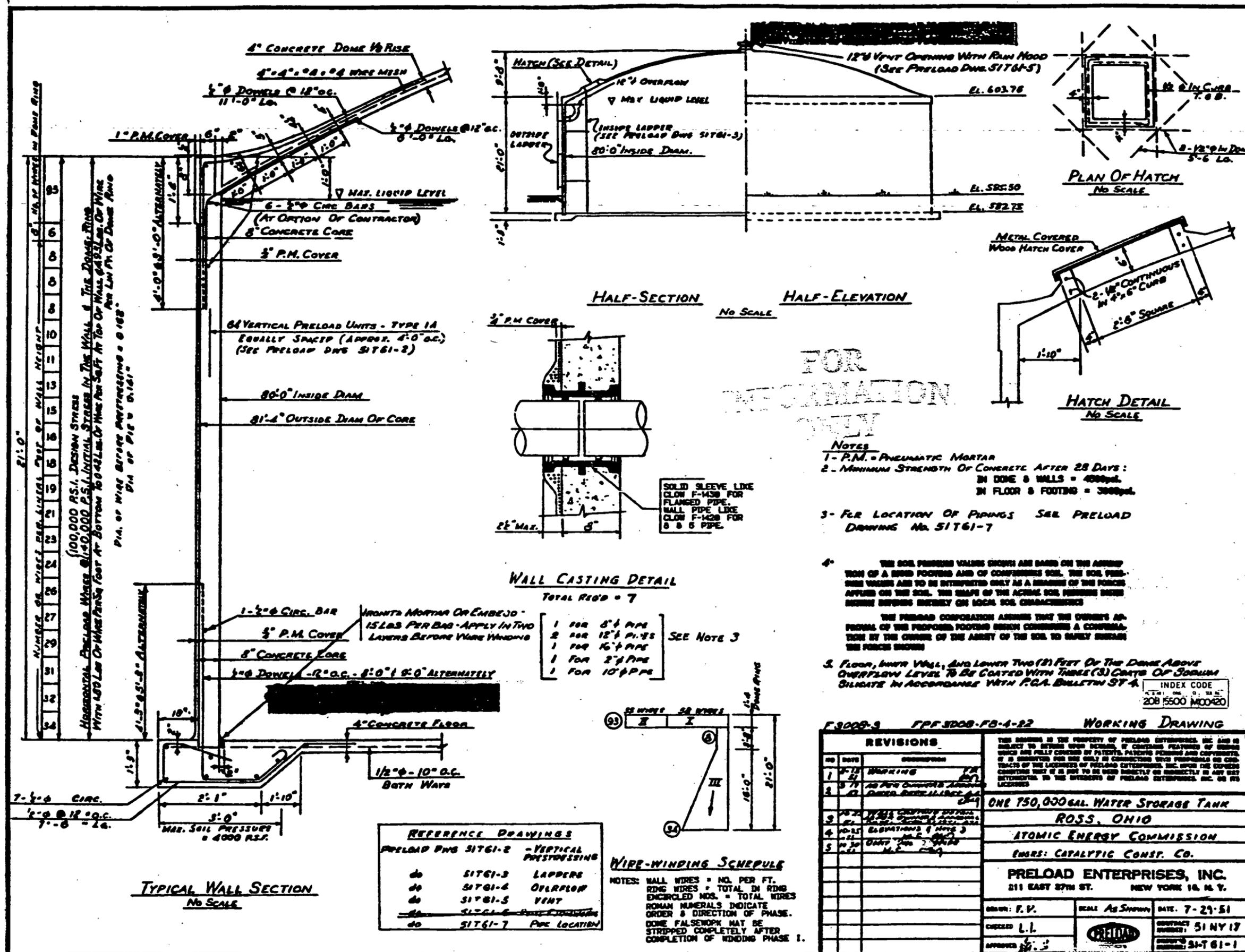


FIGURE D-14 Elevation and Sections, Component 20H Process water Storage Tank

000174

D

R

APPENDIX E
A
PHOTOGRAPHS

F

T

D

R

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F

T

APPENDIX E

PHOTOGRAPHS

D Page No.	Photo No.	Negative No.	Photo Title/Location	
1	1	6689 - 18	Component 12A - Maintenance Building - Exterior	1 2 3
1	2	6689 - 19	Component 12A - Maintenance Building - Exterior	4
2	3	6689 - 20	Component 12A - Maintenance Building - Exterior	5
2	4	6689 - 21	Component 12A - Maintenance Building - Exterior	6
3	5	R 6689 - 49	Component 12A - Maintenance Building - Exterior	7
3	6	6689 - 50	Component 12A - Maintenance Building - Exterior	8
4	7	6689 - 51	Component 12A - Maintenance Building - Interior	9
4	8	6689 - 52	Component 12A - Maintenance Building - Interior	10
5	9	6689 - 54	Component 12A - Maintenance Building - Interior	11
5	10	6689 - 57	A Component 12A - Maintenance Building - Interior	12
6	11	6689 - 24	Component 12A - Maintenance Building - Interior	13
6	12	6689 - 26	Component 12A - Maintenance Building - Interior	14
7	13	6689 - 28	Component 12A - Maintenance Building - Interior	15
7	14	6689 - 31	Component 12A - Maintenance Building - Interior	16
8	15	6689 - 30	Component 12A - Maintenance T Building - Interior	17
8	16	6689 - 34	Component 12A - Maintenance Building - Interior	18
9	1	6689 - 48	Component 12D - Main Building Warehouse - Exterior	19
9	2	6689 - 45	Component 12D - Main Building Warehouse - Interior	20
10	1	6689 - 17	Component 19A - Main Tank Farm	21
10	2	6689 - 16	Component 19A - Main Tank Farm	T 22
11	3	6689 - 12	Component 19A - Main Tank Farm	23

Page No.	Photo No.	Negative No.	Photo Title/ Location	
11	4	6689 - 13	Component 19A - Main Tank Farm	1 2 3
12	1	6689 - 15	Component 19C - Tank Farm Control House	4
13	1	6689 - 9	Component 19D - Old North Tank Farm	5
13	2	6689 - 10	Component 19D - Old North Tank Farm	6
13	3	6689 - 11	Component 19D - Old North Tank Farm	7
14	1	6689 - 14	Component 19E - Tank Farm Lime Slitter Building	8
15	1	6689 - 43	Component 12B - Cylinder Storage Building	9
15	2	6689 - 42	Component 12B - Cylinder Storage Building	10
16	1	6689 - 47	Component 12C - Lumber Storage Building	11
16	2	6689 - 44	Component 12C - Lumber Storage Building	12
17	1	6689 - 66	Component 24B - Railroad Engine House	13
18	1	6689 - 60	Component 38A - Propane Storage	14
18	2	6689 - 61	Component 38A - Propane Storage	15
19	3	6689 - 35	Component 38A - Propane Storage (Exterior of Building)	16
19	4	6689 - 36	Component 38A - Propane Storage (Interior of Building)	17
20	1	6689 - 38	Component 38B - Cylinder Filling Station - Exterior	18
20	2	6689 - 37	Component 38B - Cylinder Filling Station - Interior	19
21	1	6689 - 8	Component 20A - Pump Station and Power Center - Exterior	20
21	2	6689 - 6	Component 20A - Pump Station and Power Center - Interior	21
21	3	6689 - 4	Component 20A - Pump Station and Power Center - Interior	22
22	1	6689 - 7	Component 20H - Process Water storage Tank	23
23	1	6689 - 1	Component G - 008 - Pipe Bridge (Tank Farm - North)	24
24	1	6689 - 3	Component G - 008 - Pipe Bridge (Tank Farm - East)	25

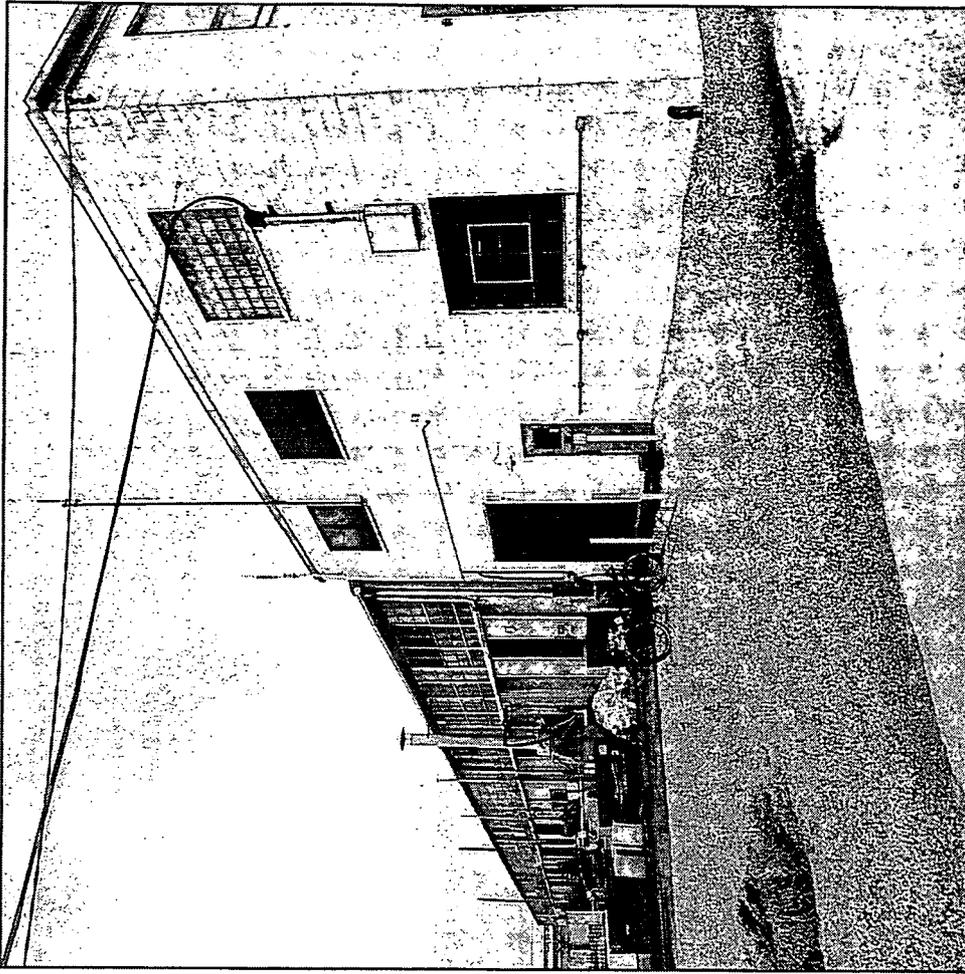
COMPONENT 12A - MAINTENANCE BUILDING

Photo 1



FEMP Neg. No. 6689-18

Photo 2



FEMP Neg. No. 6689-19

000179



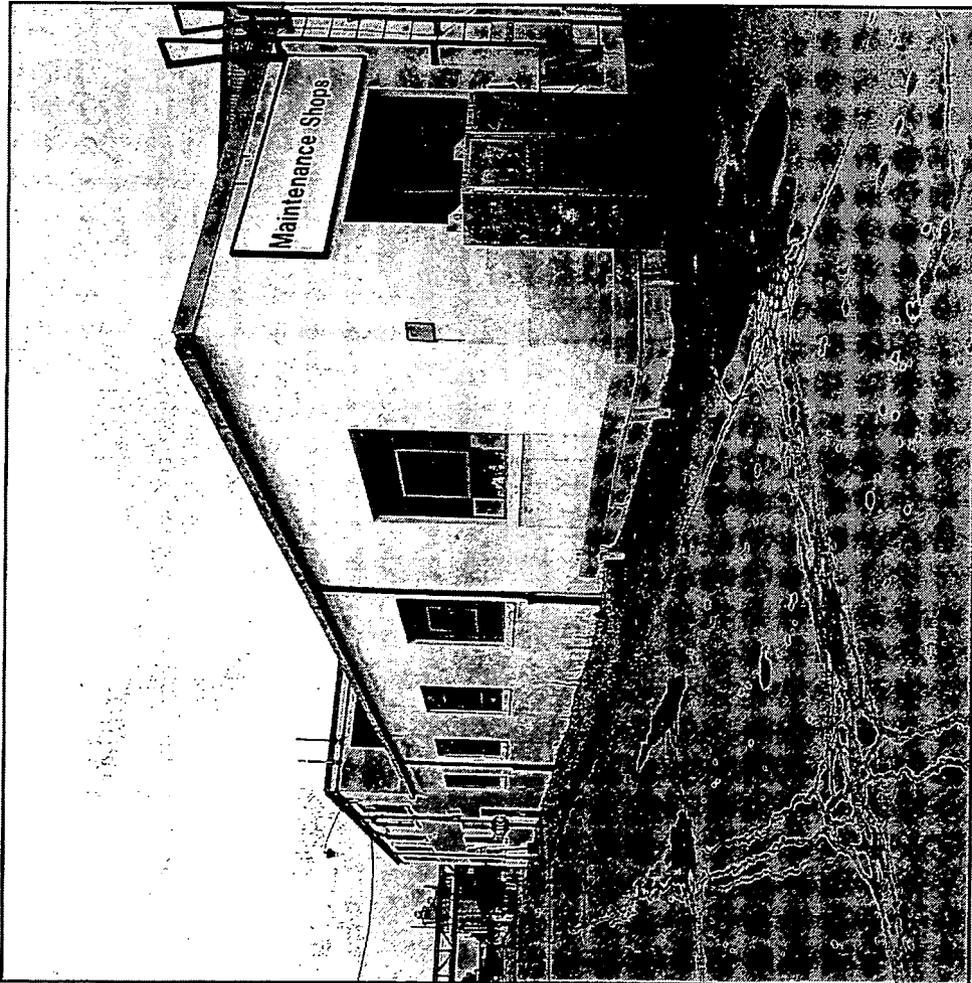
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4752.1 9/97

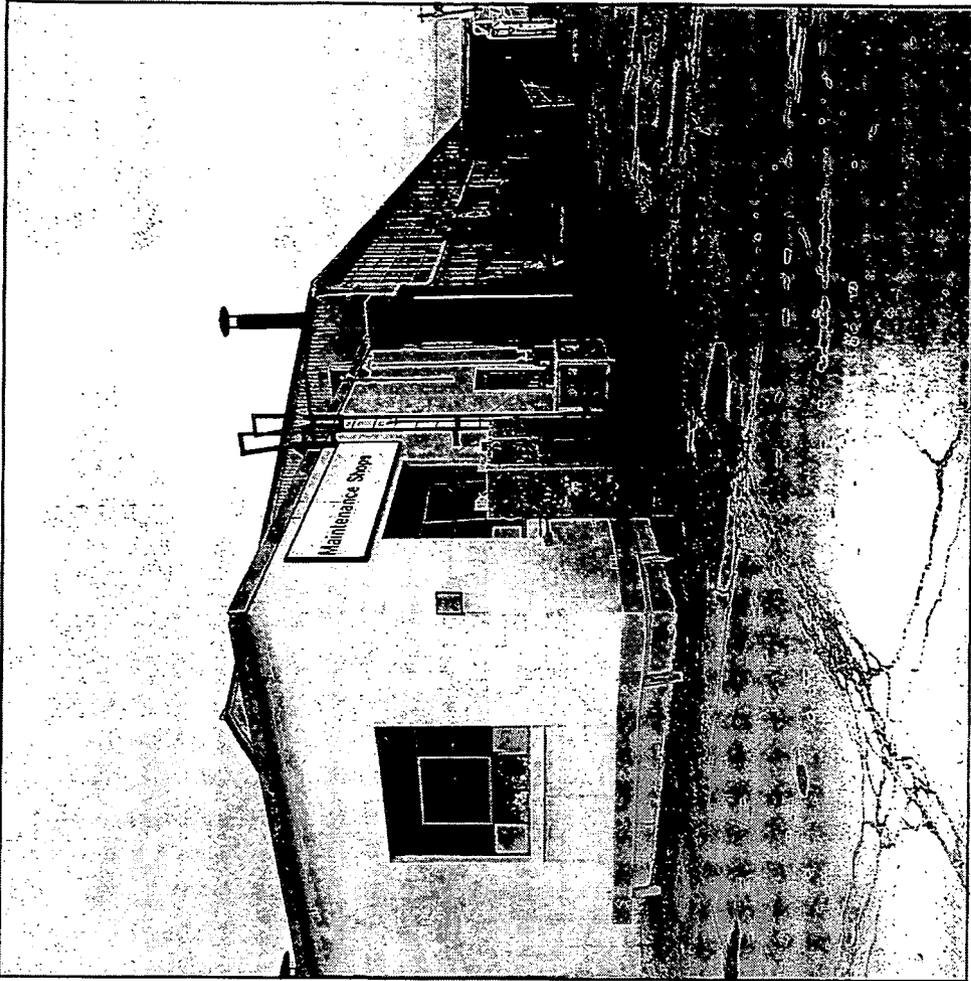
COMPONENT 12A - MAINTENANCE BUILDING

Photo 3



FEMP Neg. No. 6689-20

Photo 4



FEMP Neg. No. 6689-21

000180



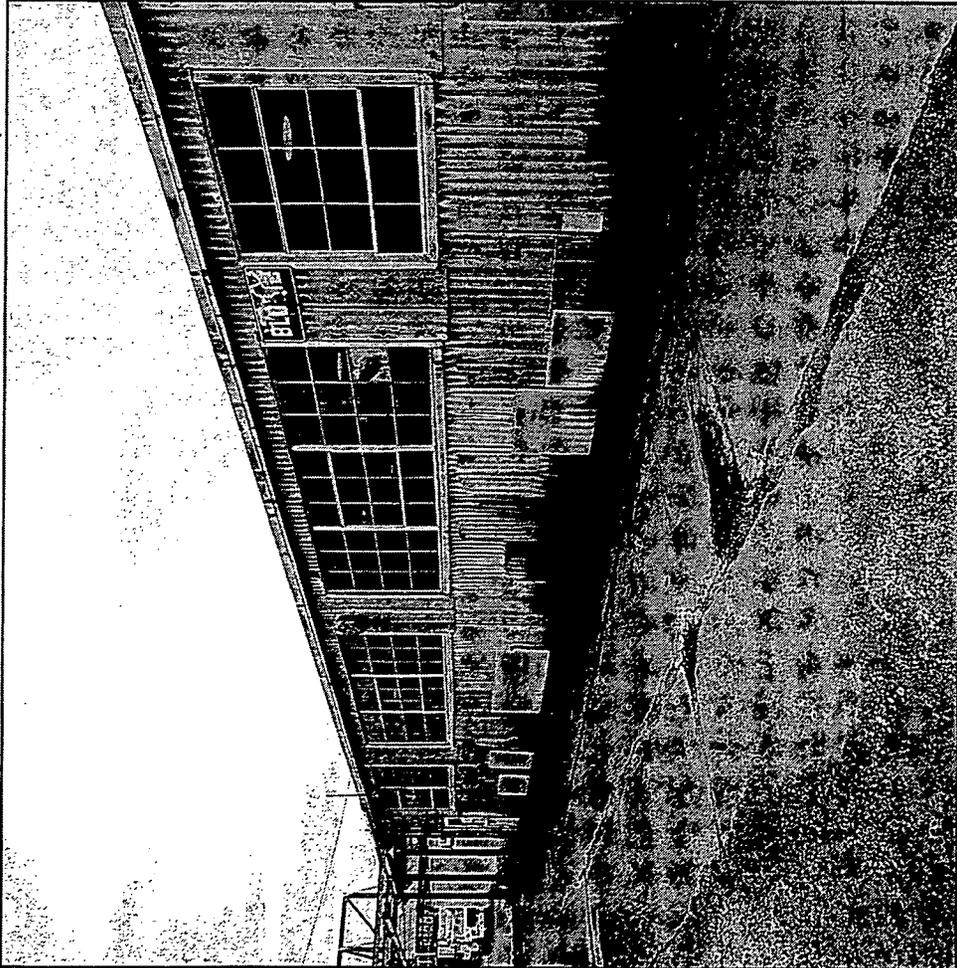
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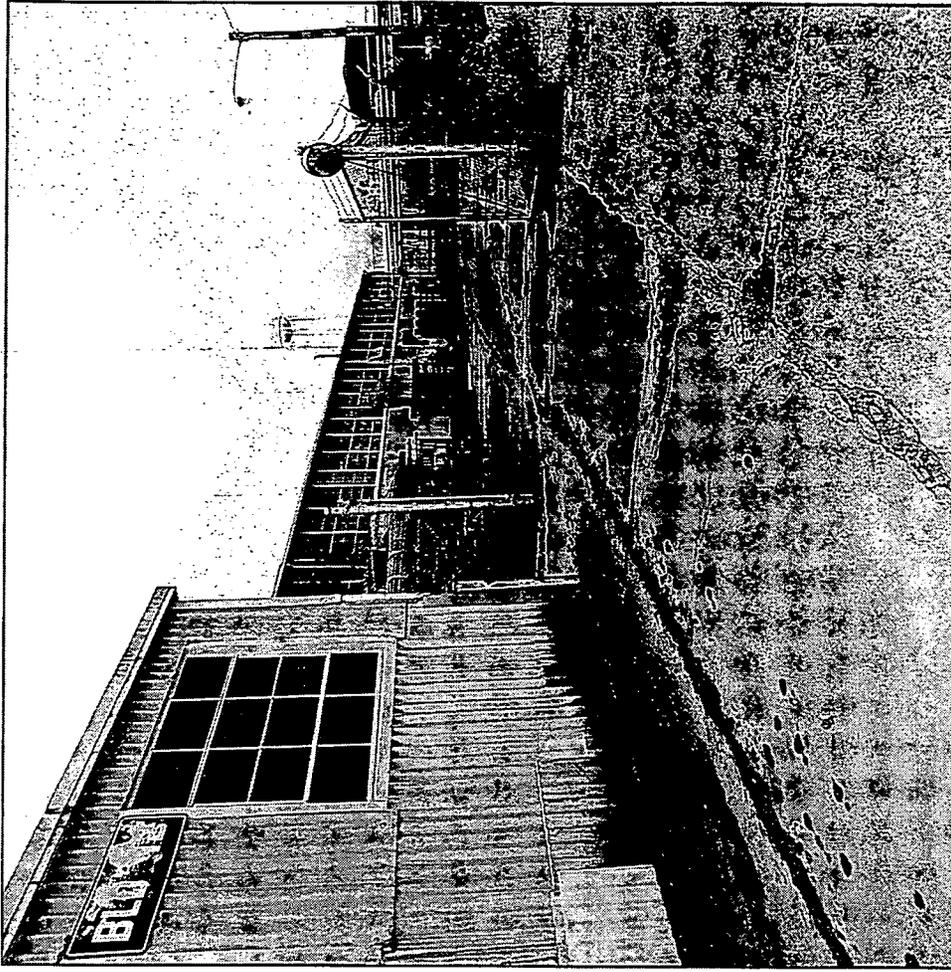
COMPONENT 12A - MAINTENANCE BUILDING

Photo 5



FEMP Neg. No. 6689-49

Photo 6



FEMP Neg. No. 6689-50



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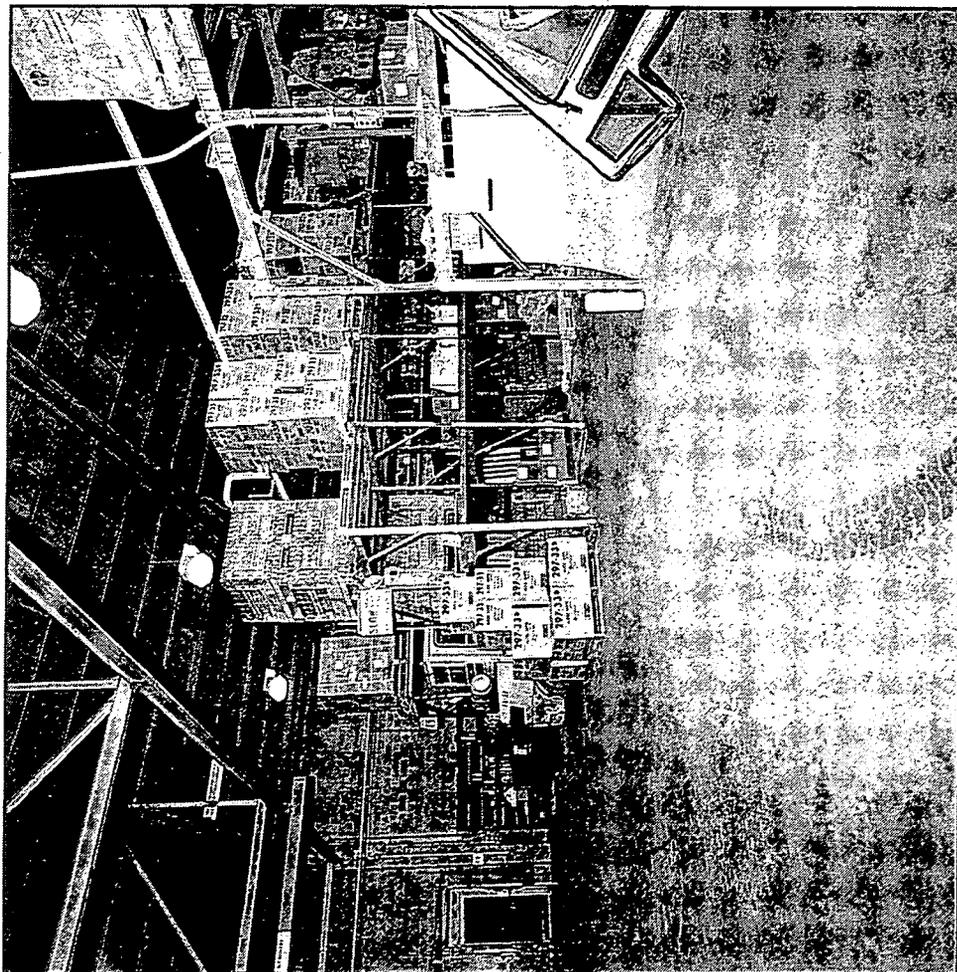
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000181

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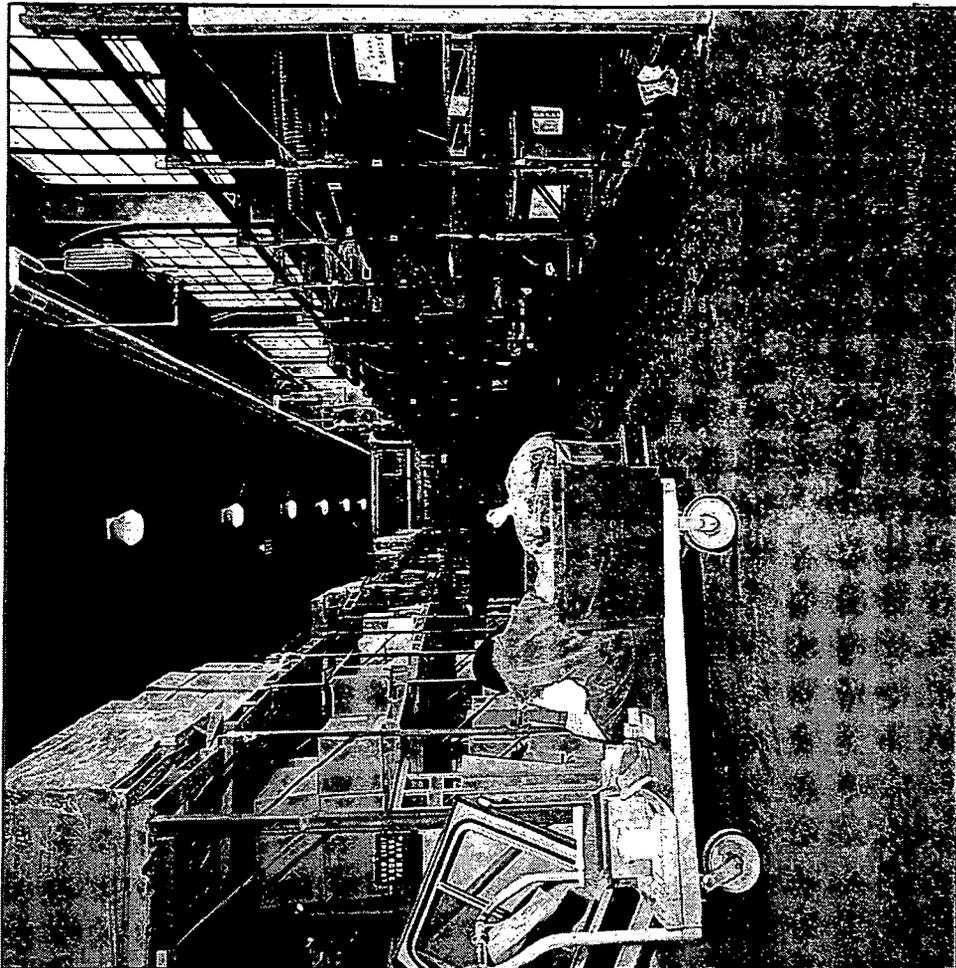
COMPONENT 12A - MAINTENANCE BUILDING

Photo 7



FEMP Neg. No. 6689-51

Photo 8



FEMP Neg. No. 6689-52

000182



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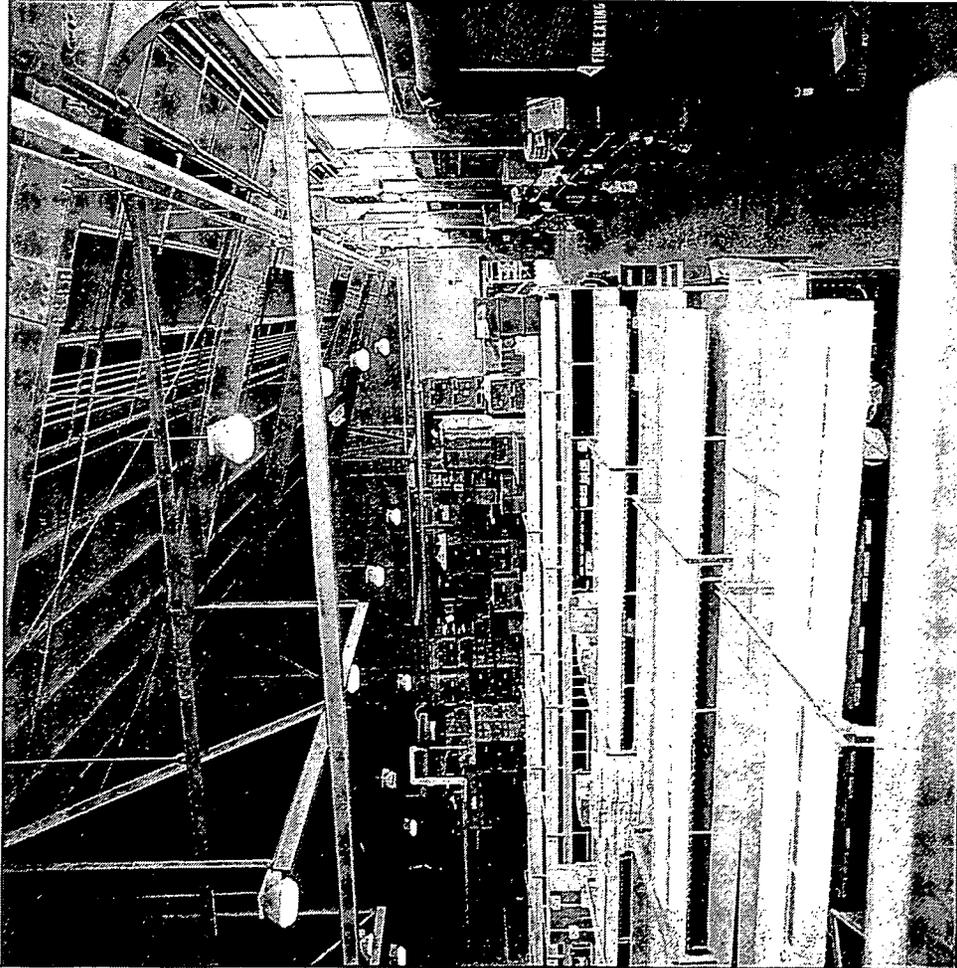
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Page 4

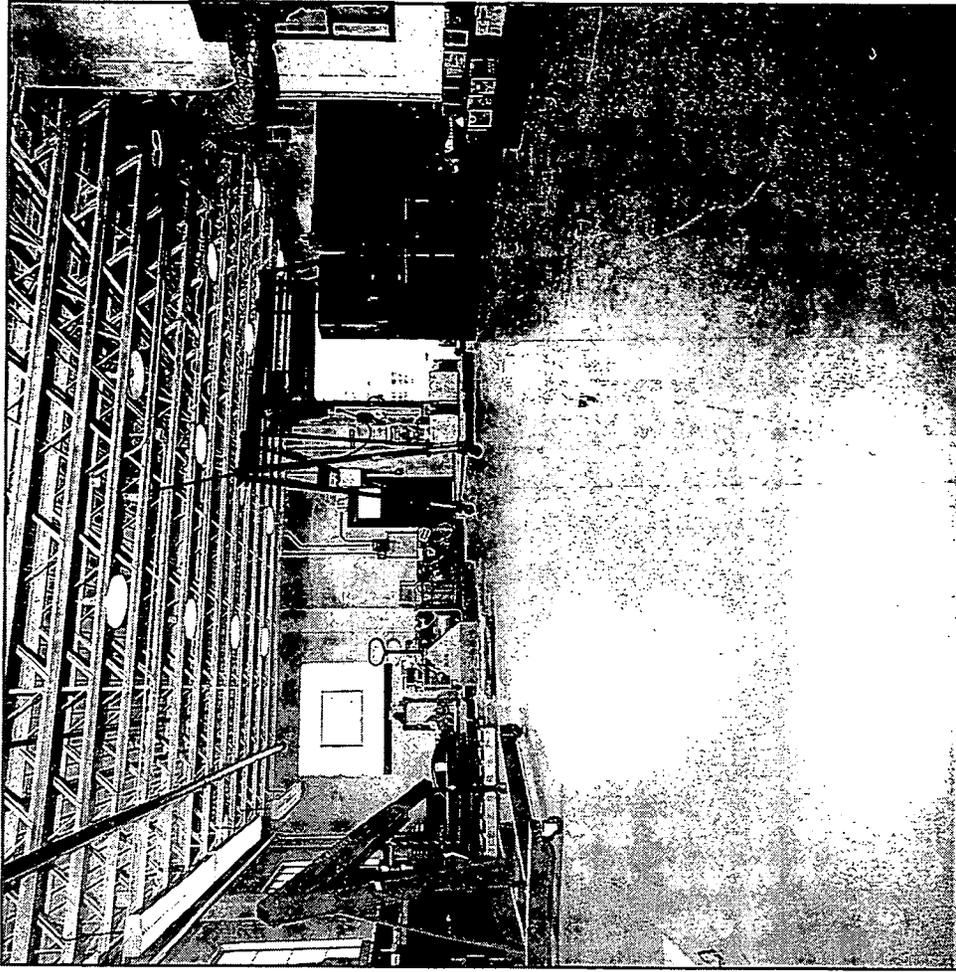
COMPONENT 12A - MAINTENANCE BUILDING

Photo 9



FEMP Neg. No. 6689-54

Photo 10



FEMP Neg. No. 6689-57

000183

4752.5 9/97

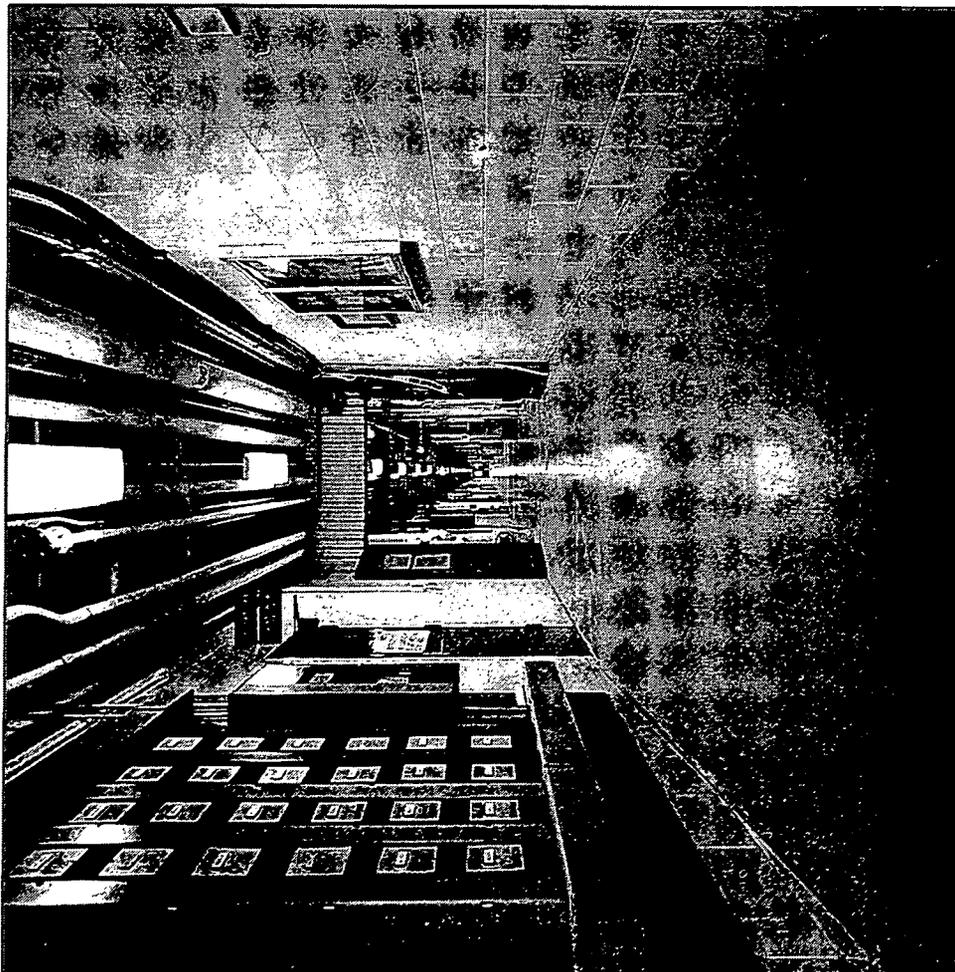


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COMPONENT 12A - MAINTENANCE BUILDING

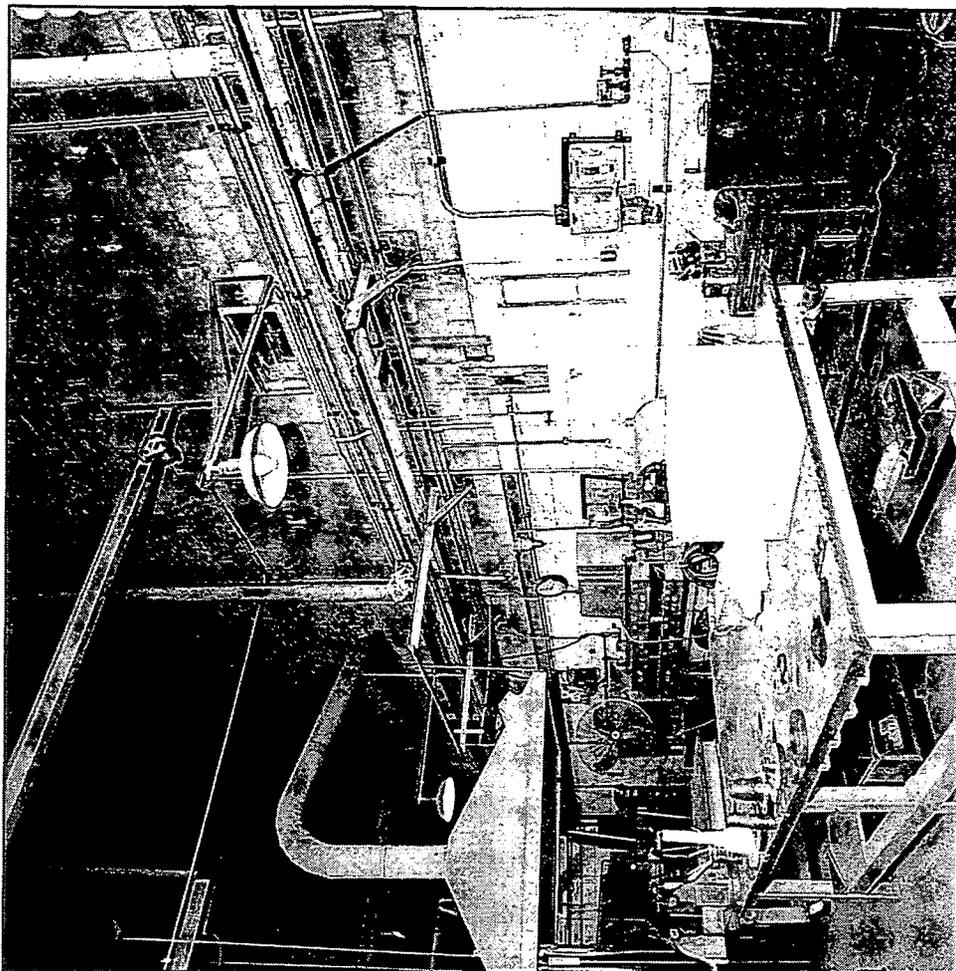
Photo 11



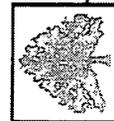
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Photo 12



FEMP Neg. No. 6689-26



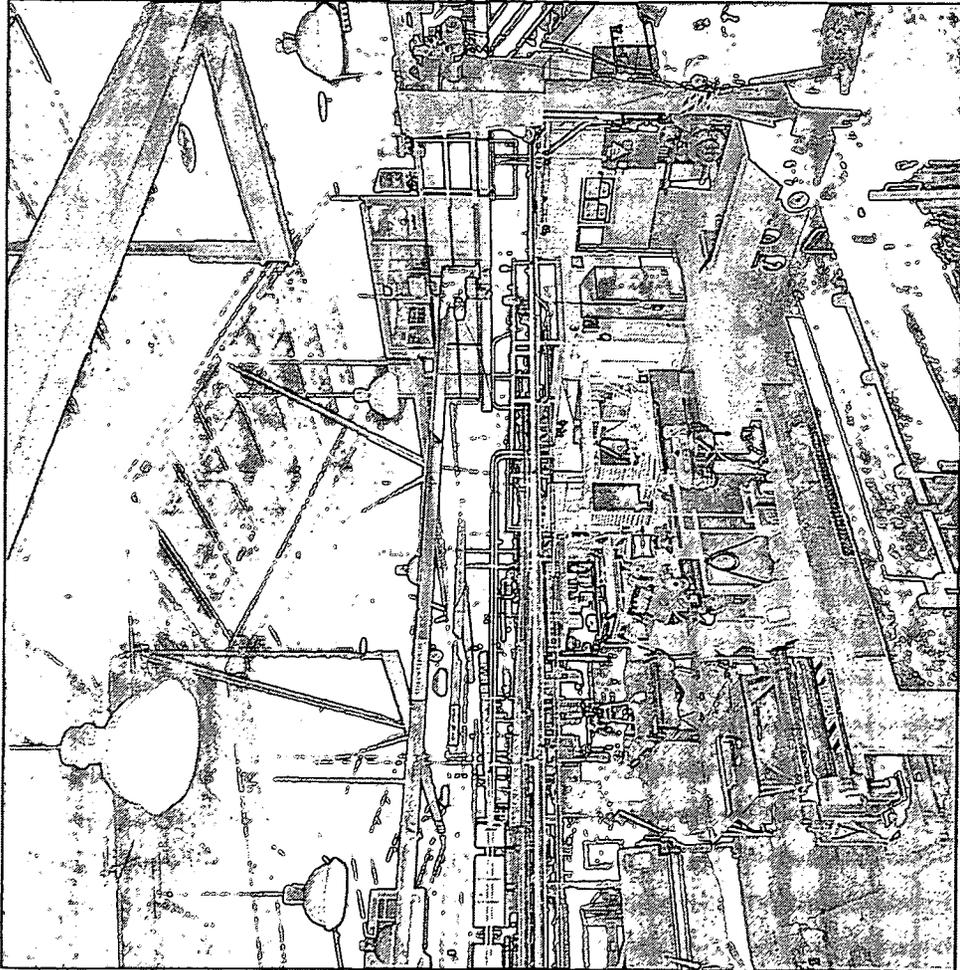
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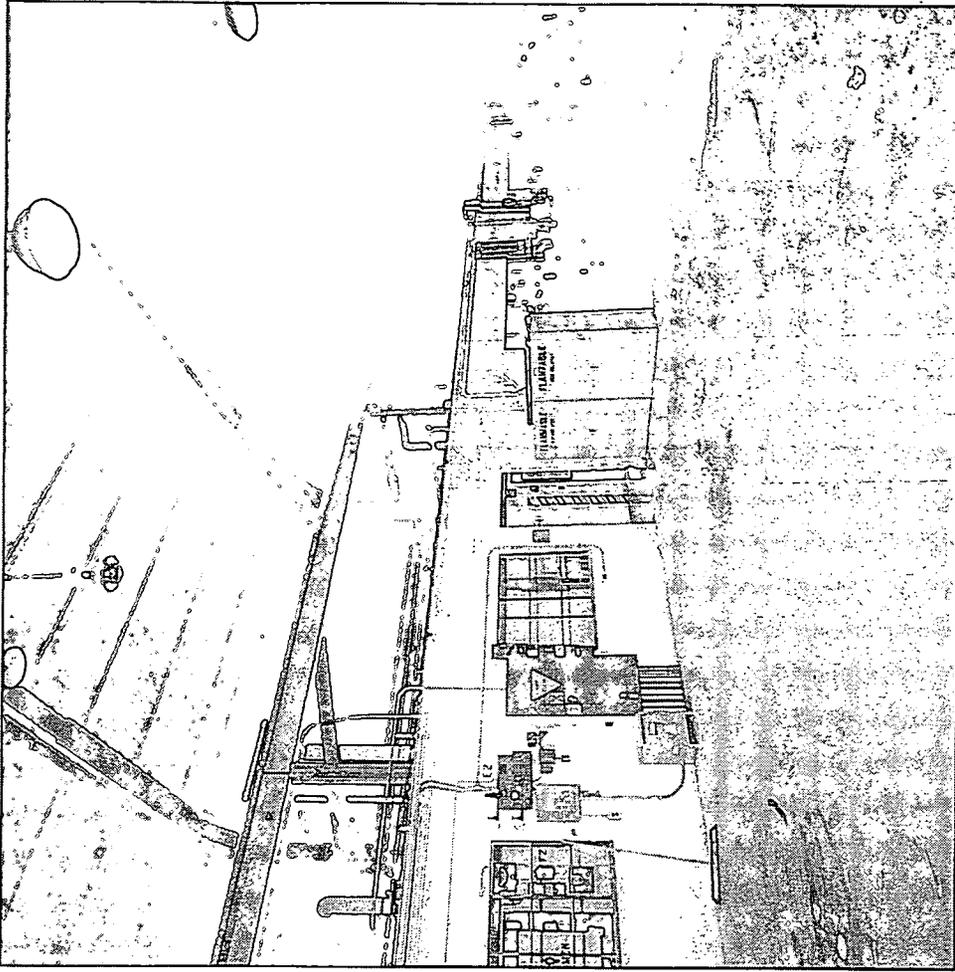
COMPONENT 12A - MAINTENANCE BUILDING

Photo 13



FEMP Neg. No. 6689-28

Photo 14



FEMP Neg. No. 6689-31



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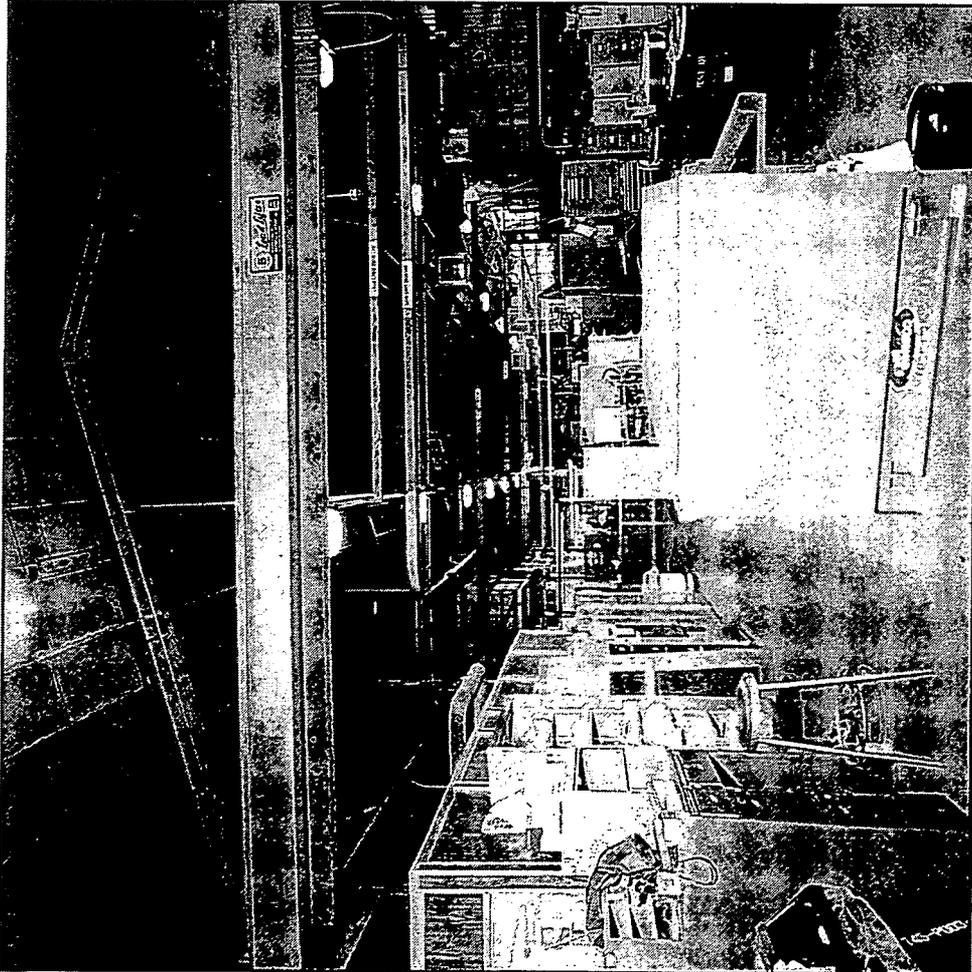
Environmental Management Project

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0001251

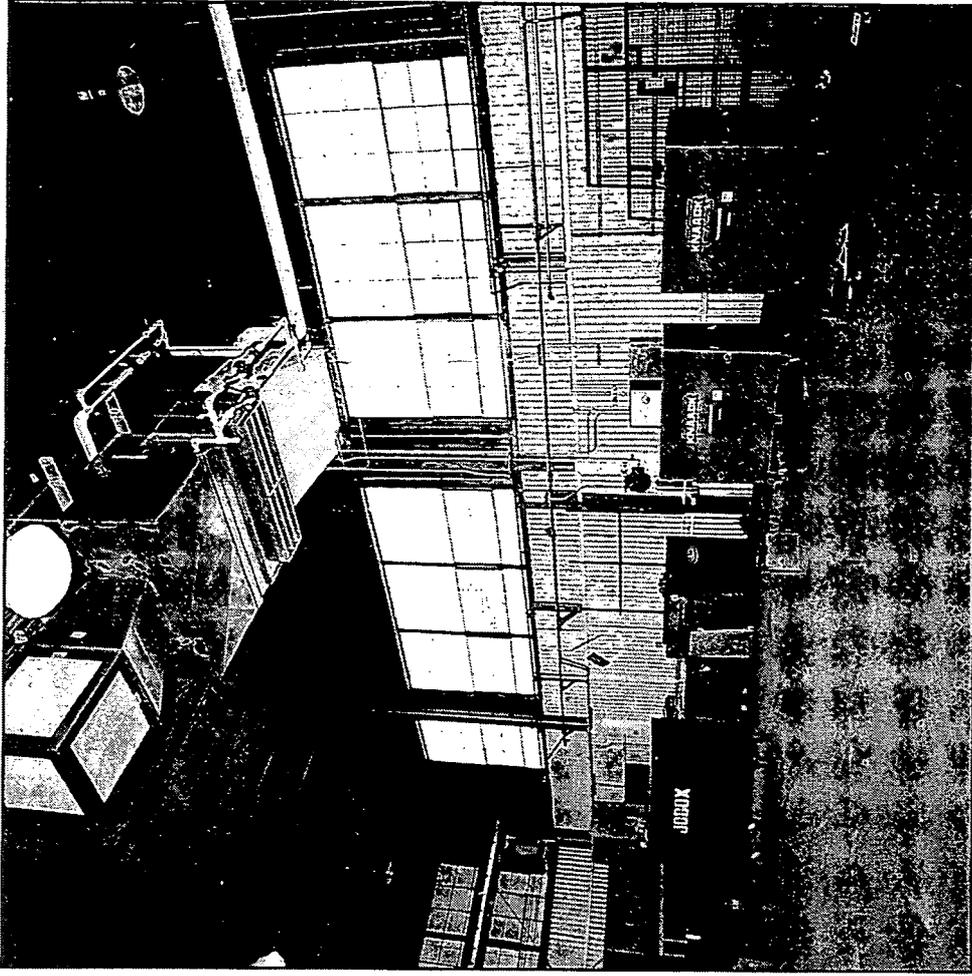
COMPONENT 12A - MAINTENANCE BUILDING

Photo 15



FEMP Neg. No. 6689-30

Photo 16



FEMP Neg. No. 6689-34

000186



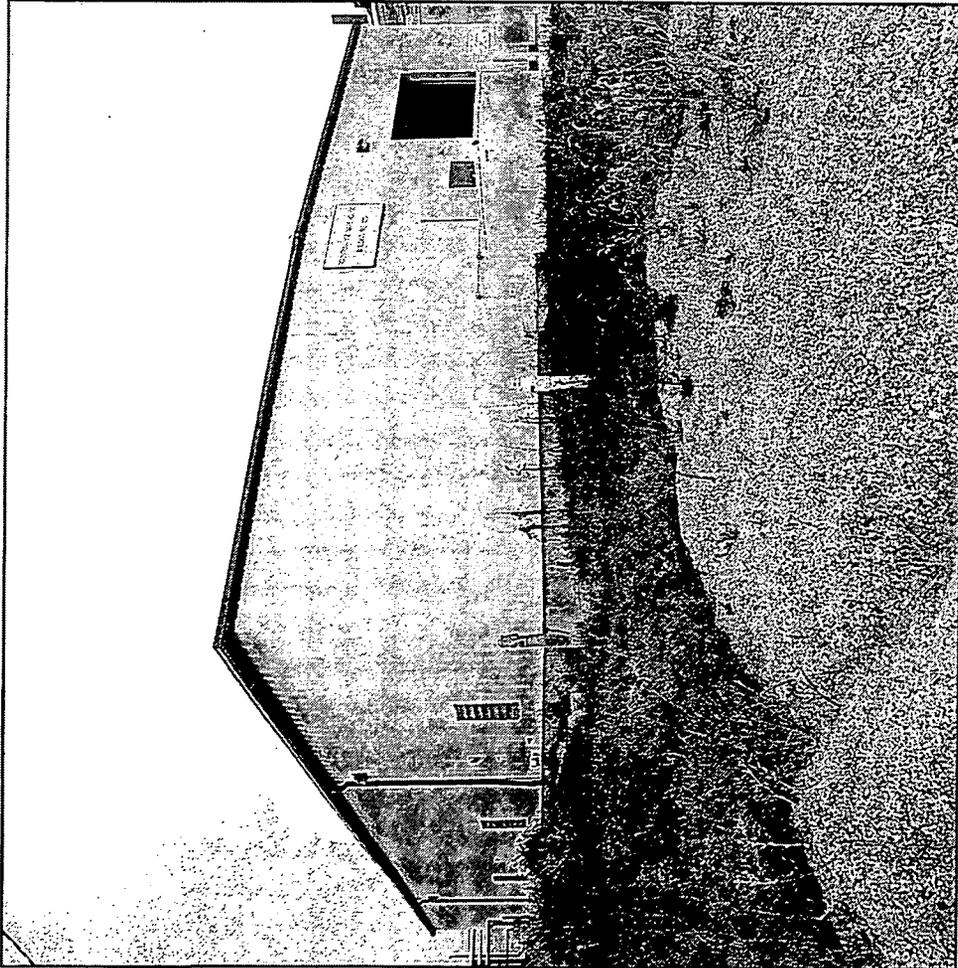
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4752.8 9/97

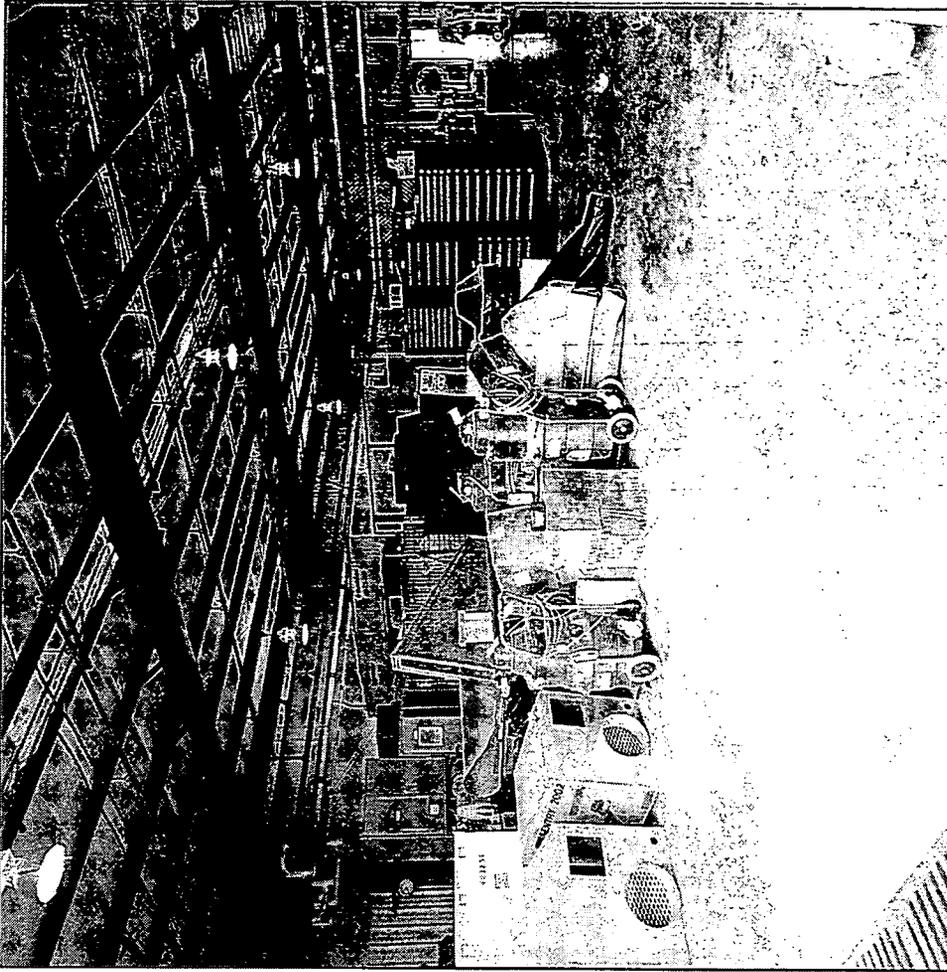
COMPONENT 12D - MAIN BUILDING WAREHOUSE

Photo 1



FEMP Neg. No. 6689-48

Photo 2



FEMP Neg. No. 6689-45



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4752.9 9/97

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Page 9

000187

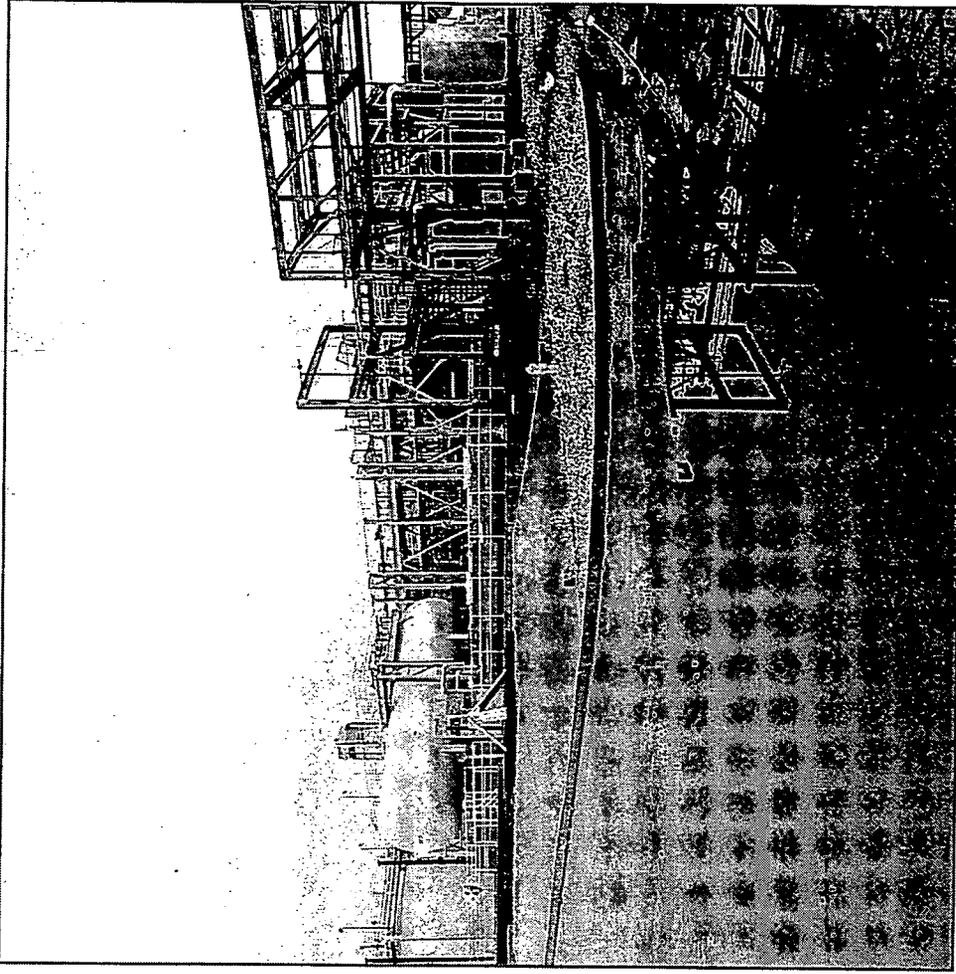
COMPONENT 19A - MAIN TANK FARM

Photo 1



FEMP Neg. No. 6689-17

Photo 2



FEMP Neg. No. 6689-16

000188

4752.10 9/97

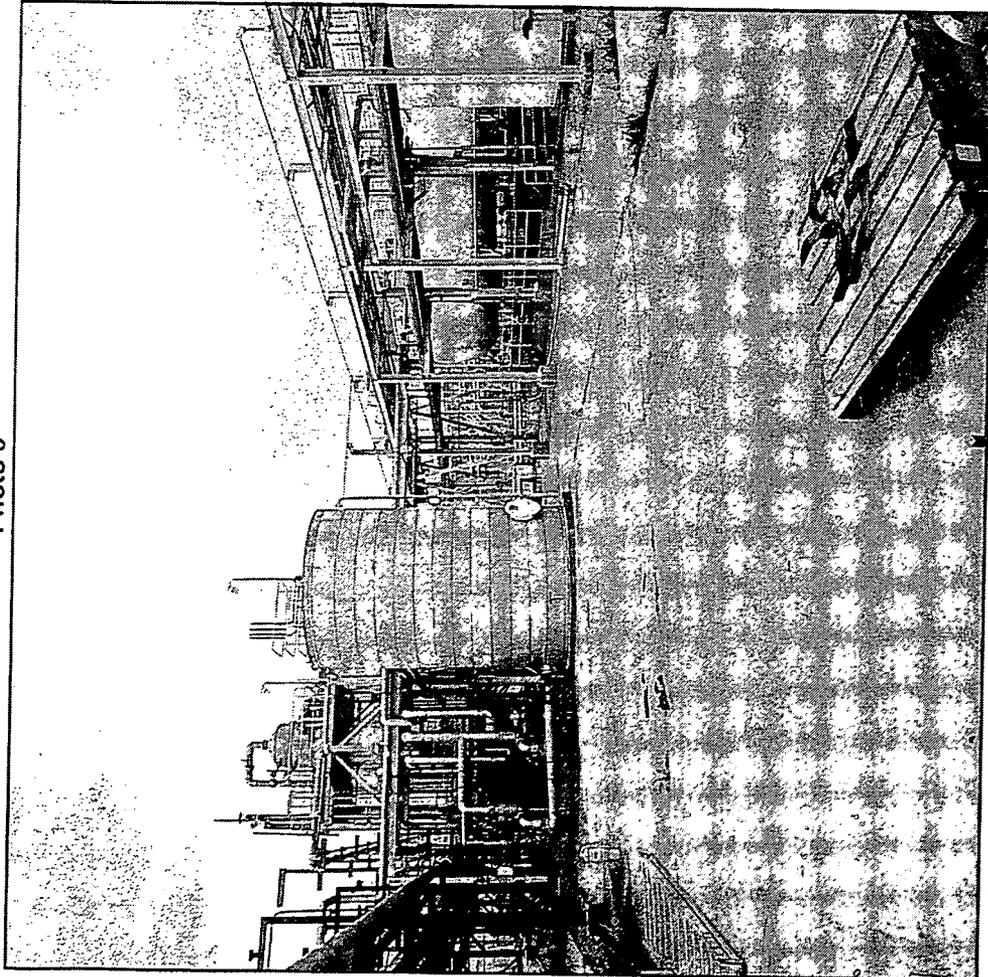


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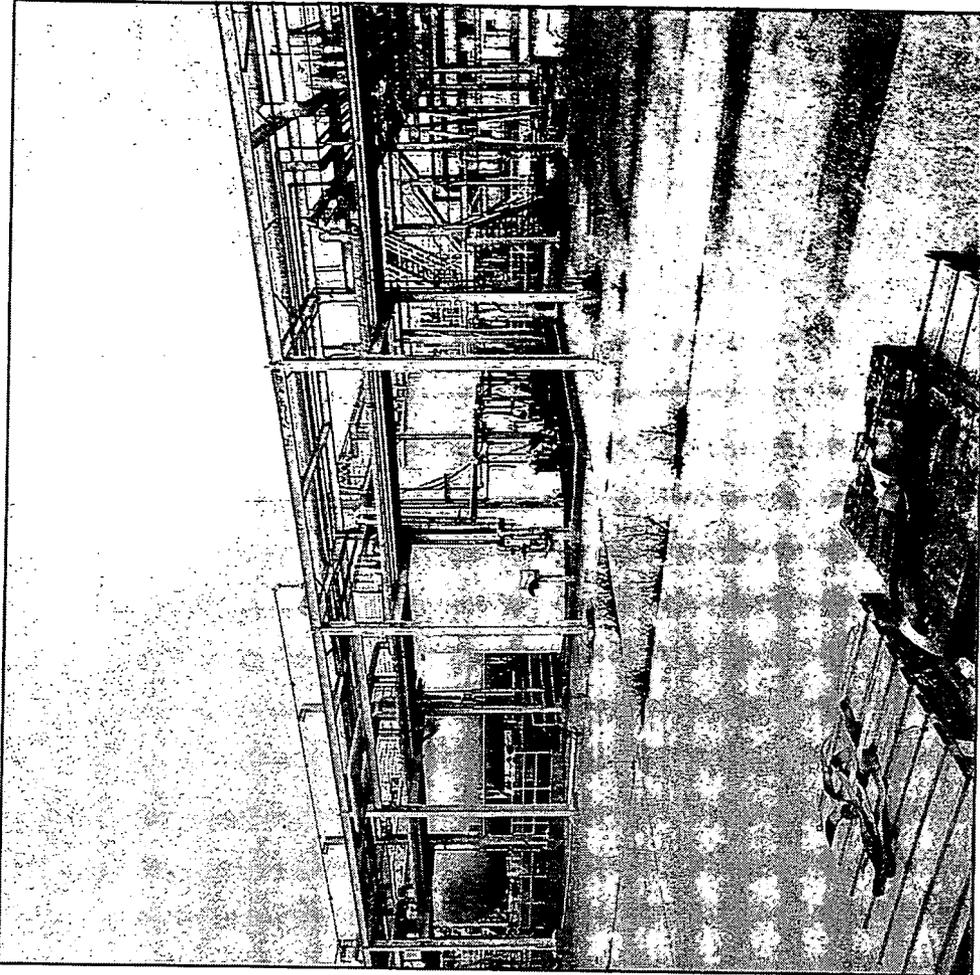
COMPONENT 19A - MAIN TANK FARM

Photo 3



FEMP Neg. No. 6689-12

Photo 4



FEMP Neg. No. 6689-13

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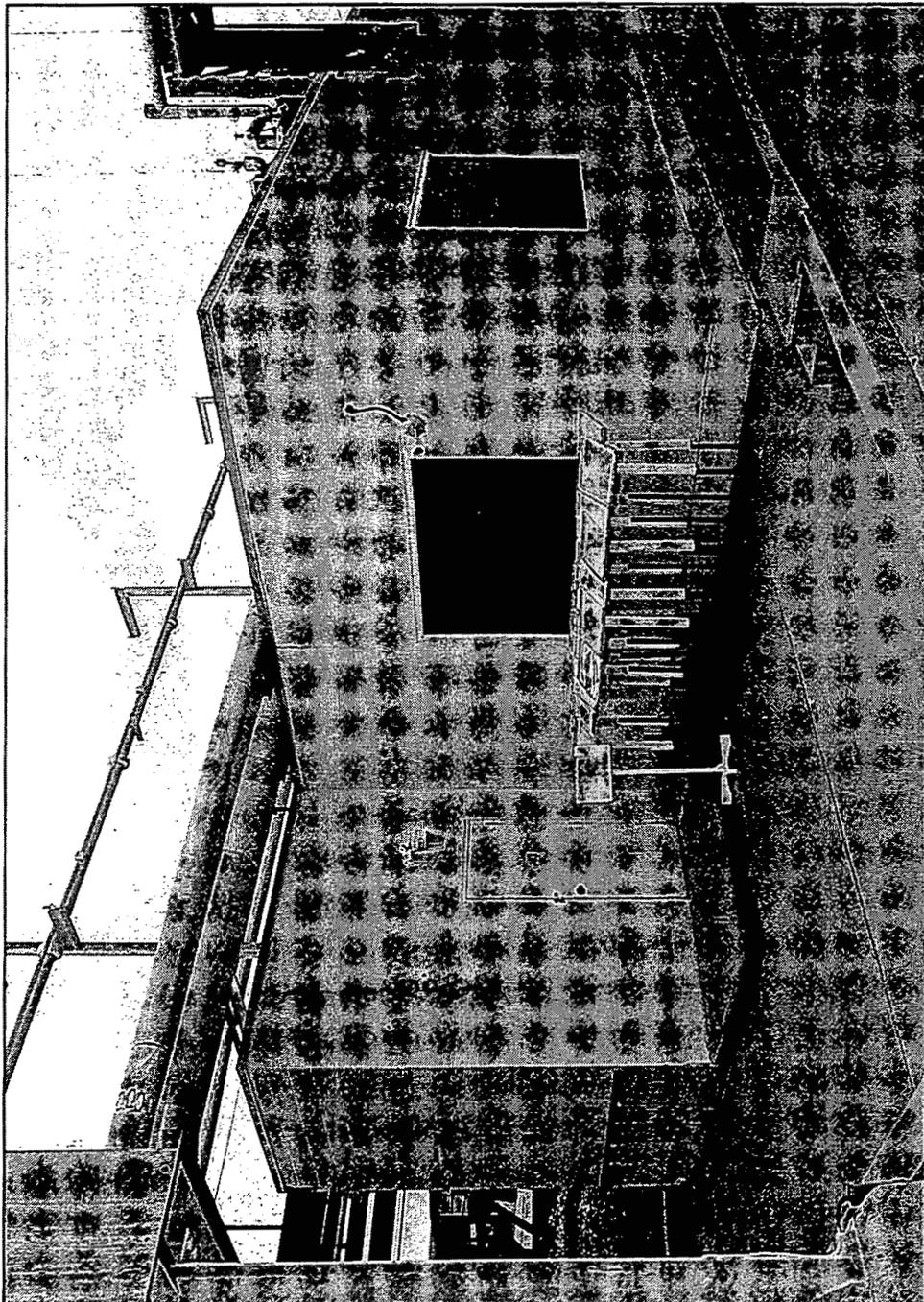
4752.11 9/97

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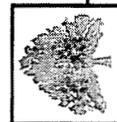
Page 11

COMPONENT 19C - TANK FARM CONTROL HOUSE

Photo 1



FEMP Neg. No. 6689-15



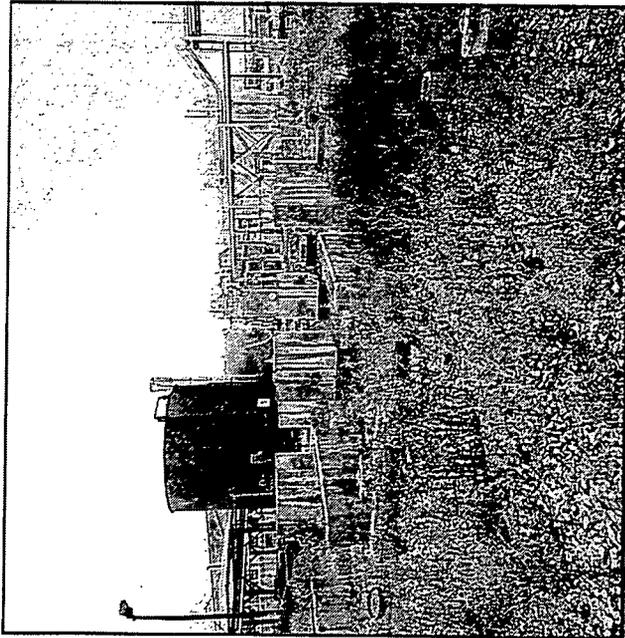
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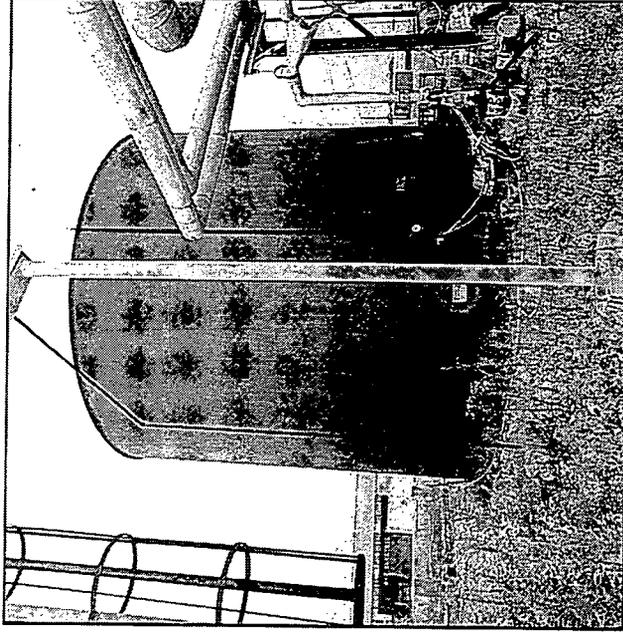
COMPONENT 19D - OLD NORTH TANK FARM

Photo 1



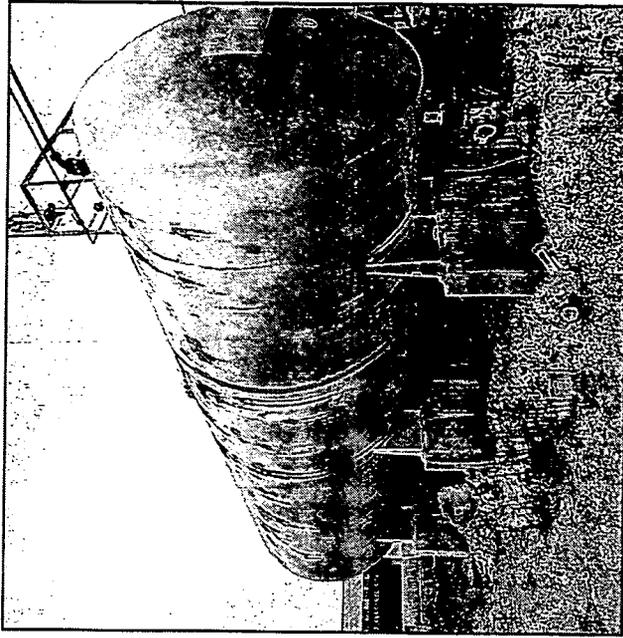
FEMP Neg. No. 6689-9

Photo 2



FEMP Neg. No. 6689-10

Photo 3



FEMP Neg. No. 6689-11

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4752.13 9/97



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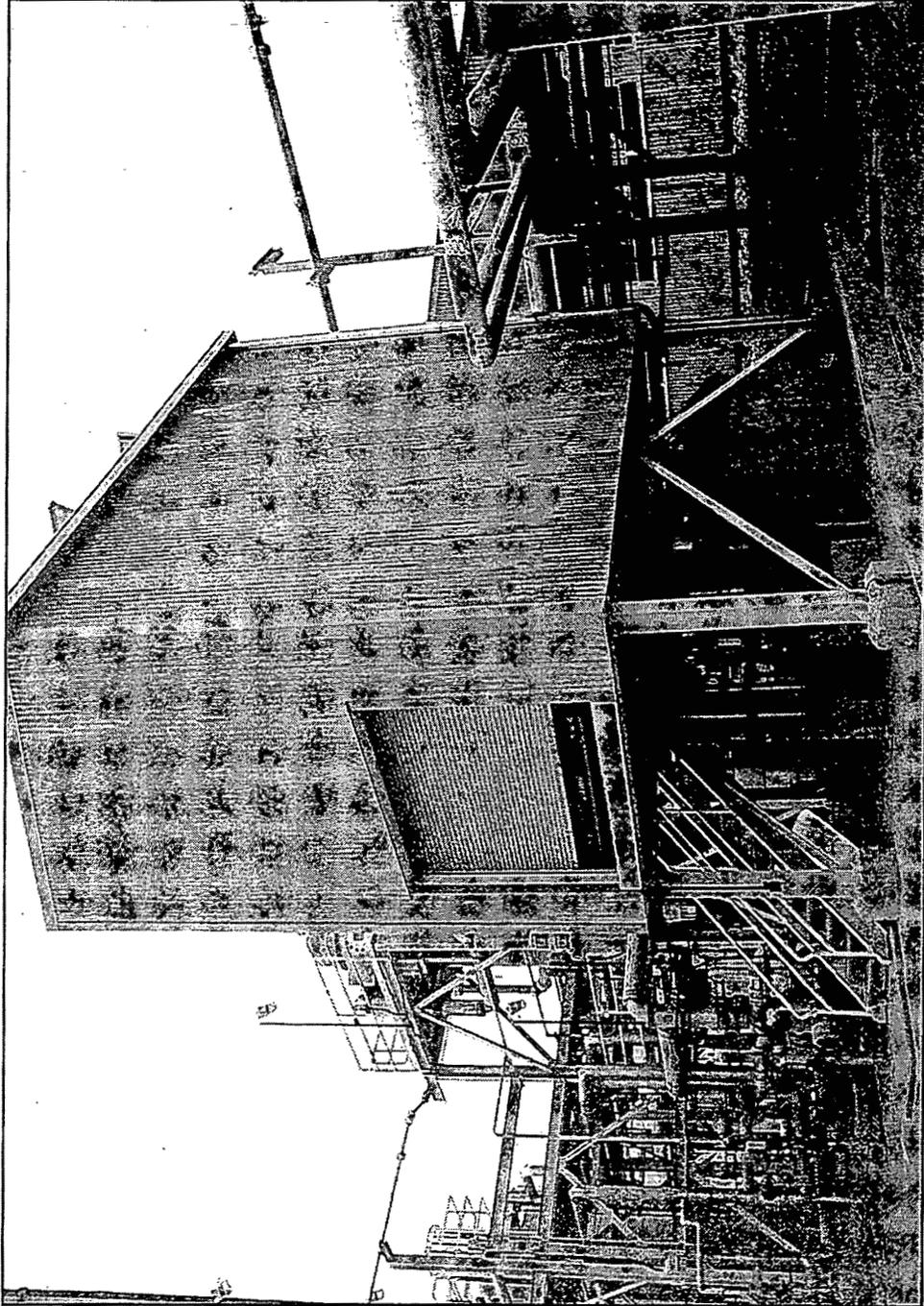
Environmental Management Project

1303

Page 13

COMPONENT 19E - TANK FARM LIME SLITTER BUILDING

Photo 1



FEMP Neg. No. 6689-14

000192

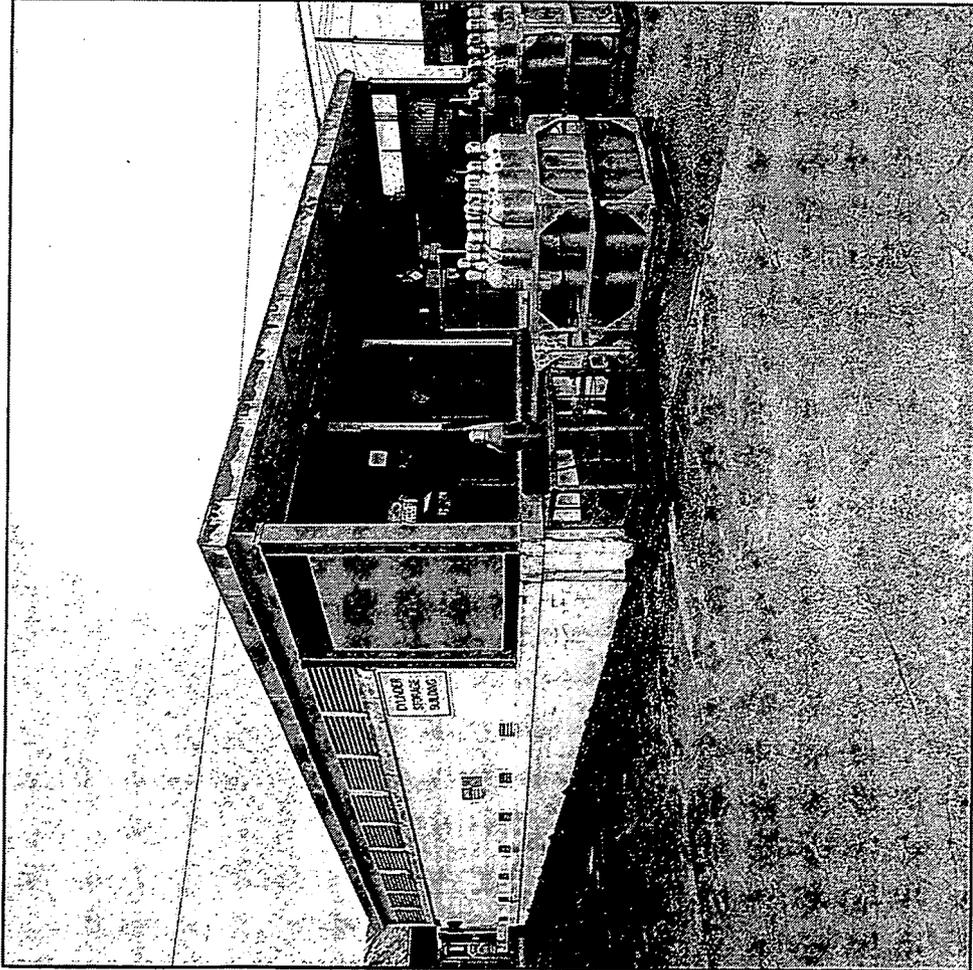


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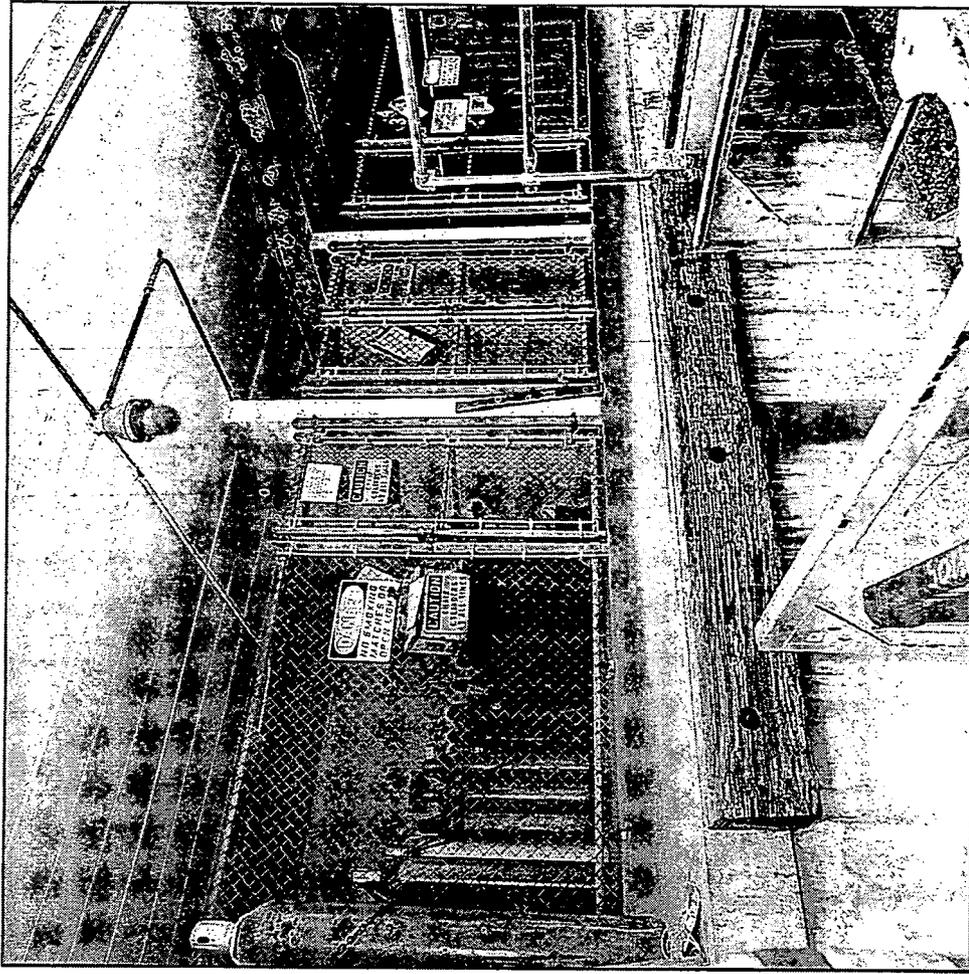
COMPONENT 12B - CYLINDER STORAGE BUILDING

Photo 1



FEMP Neg. No. 6689-43

Photo 2



FEMP Neg. No. 6689-42



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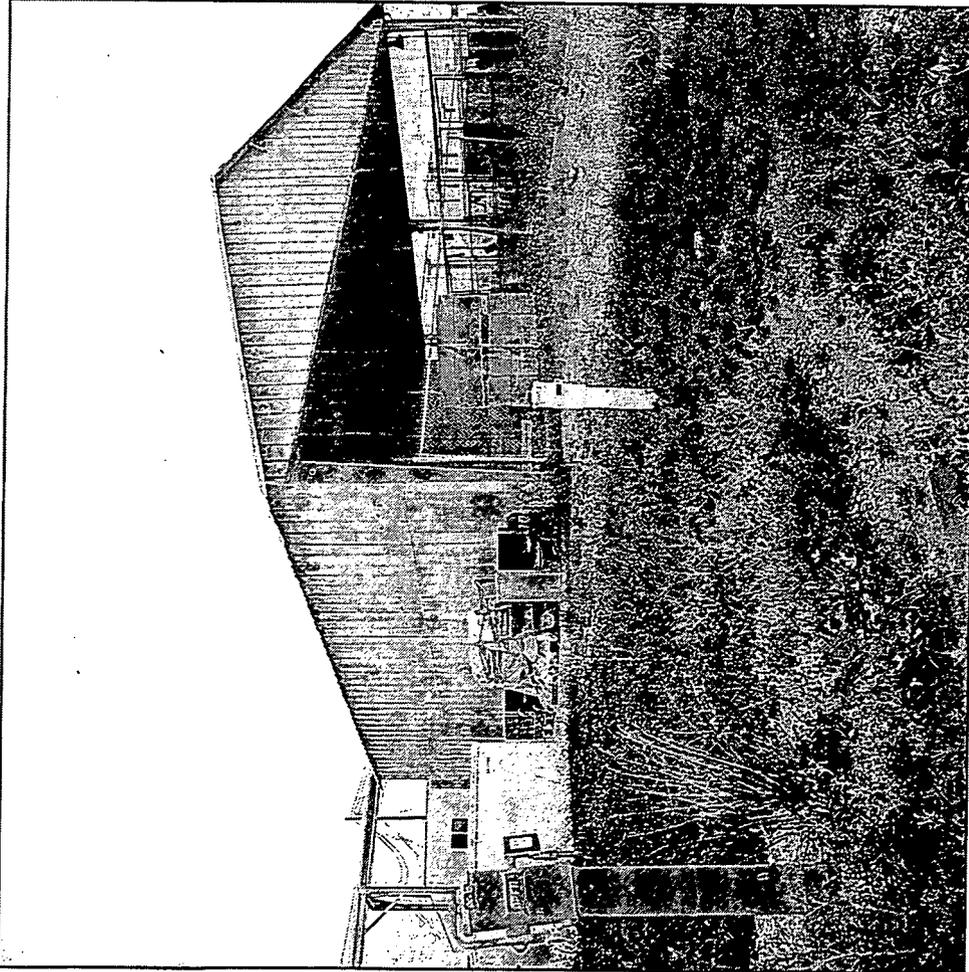
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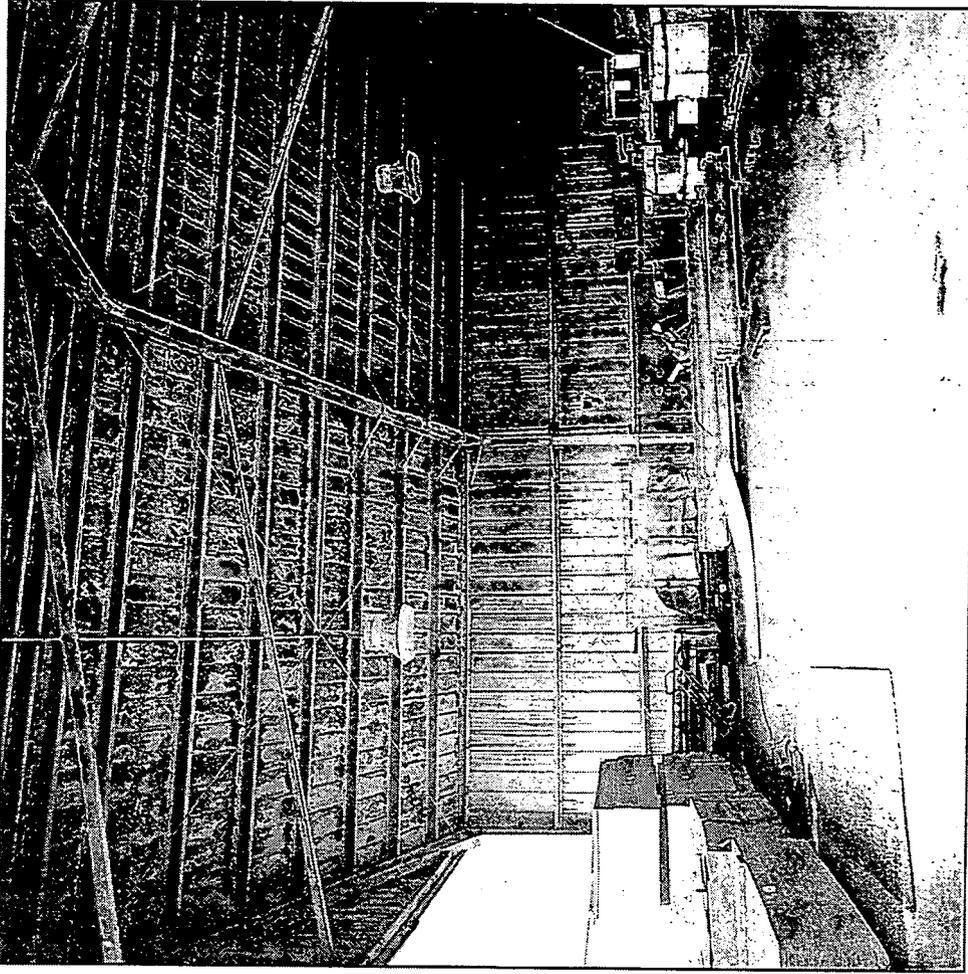
COMPONENT 12C - LUMBER STORAGE BUILDING

Photo 1



FEMP Neg. No. 6689-47

Photo 2



FEMP Neg. No. 6689-44



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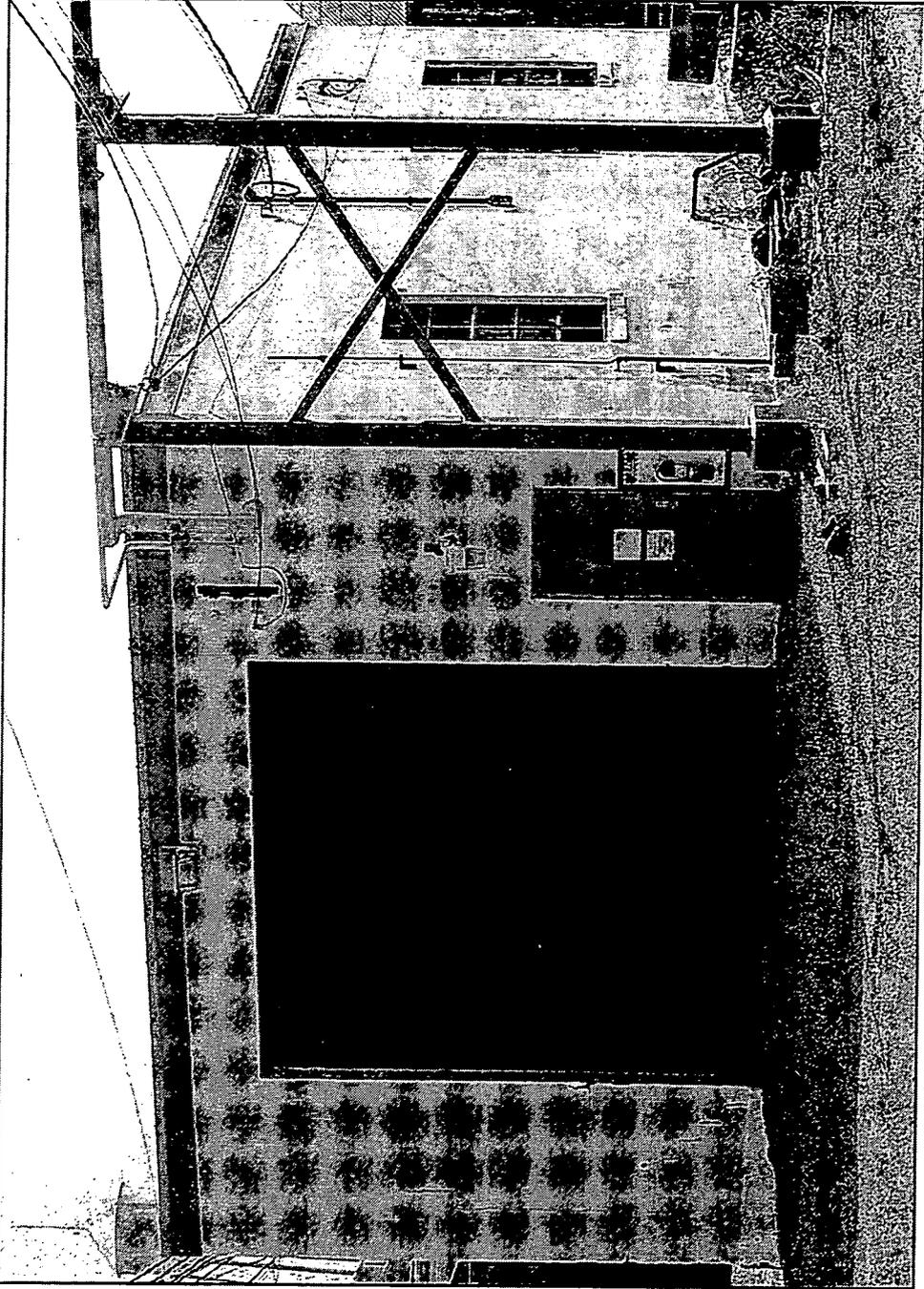
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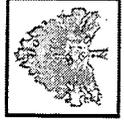
000194

COMPONENT 24B - RAILROAD ENGINE HOUSE

Photo 1



FEMP Neg. No. 6689-66



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4752.17 9/97

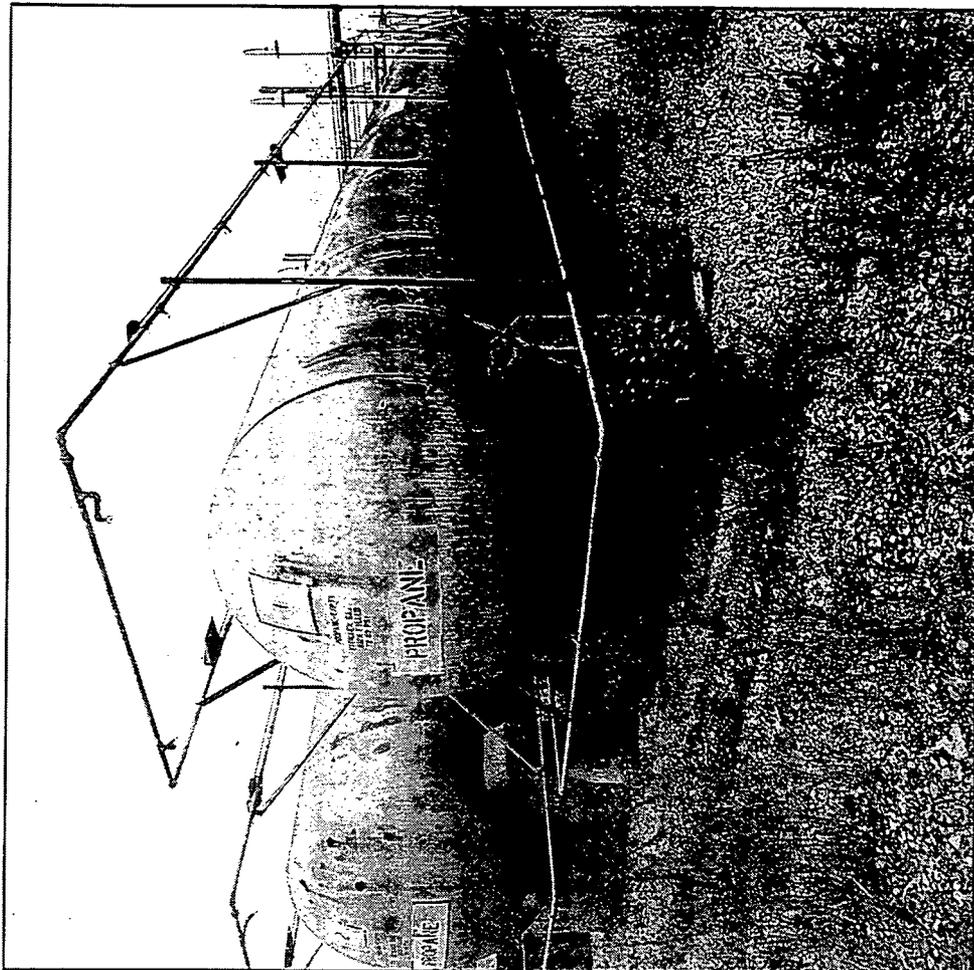
COMPONENT 38A - PROPANE STORAGE

Photo 1



FEMP Neg. No. 6689-60

Photo 2



FEMP Neg. No. 6689-61

000196

4752.18 9/97

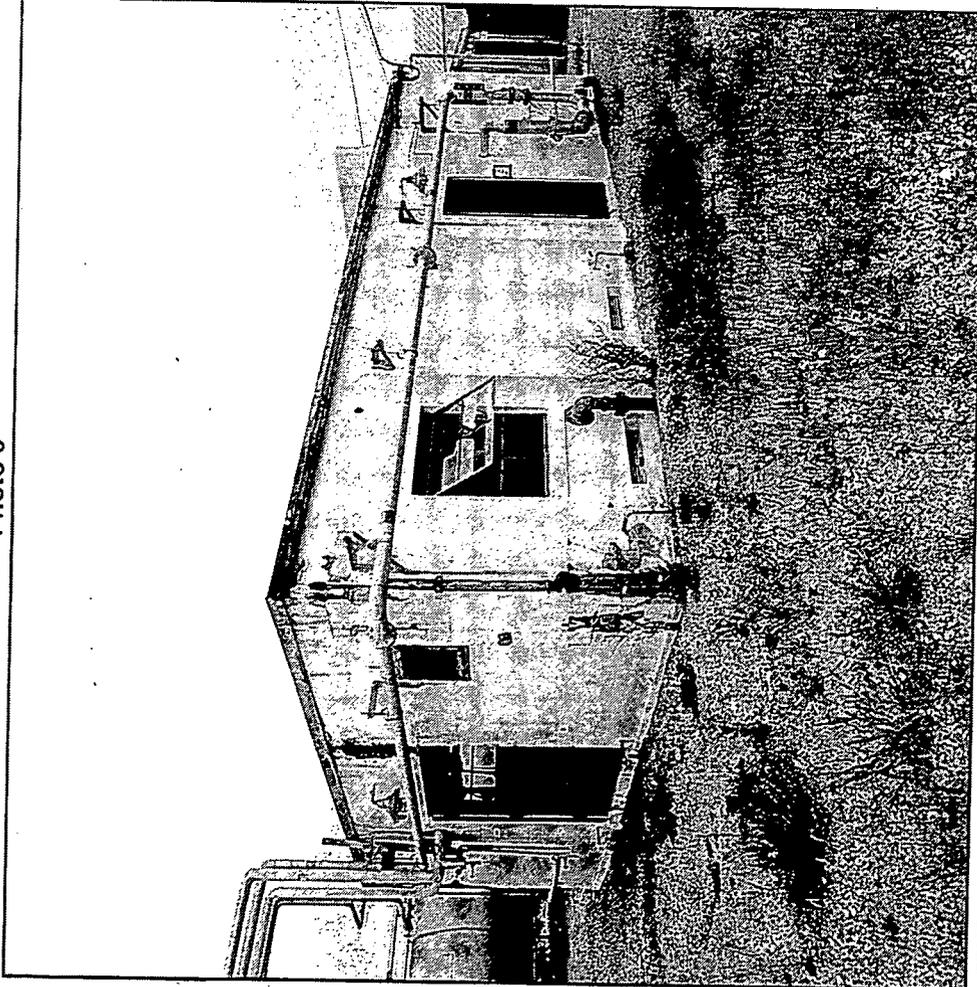


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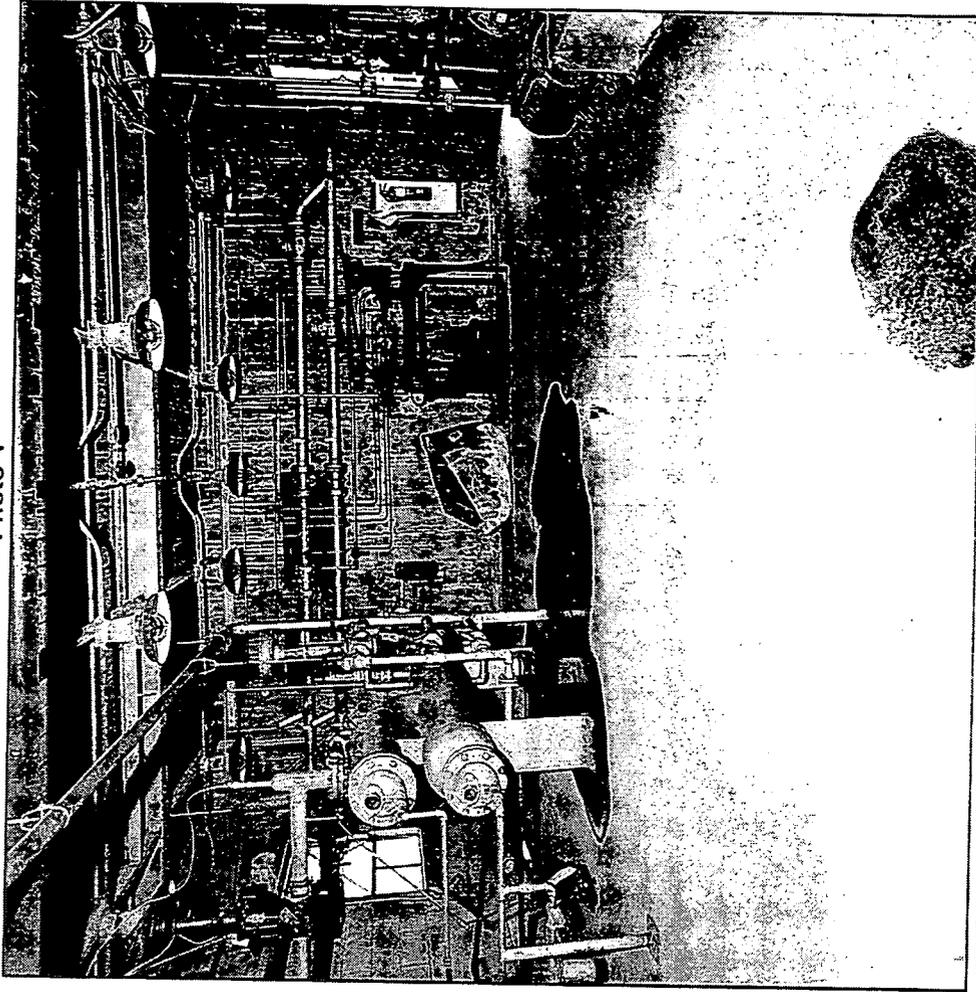
COMPONENT 38A - PROPANE STORAGE

Photo 3



FEMP Neg. No. 6689-35

Photo 4



FEMP Neg. No. 6689-36

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4752.19 9/97



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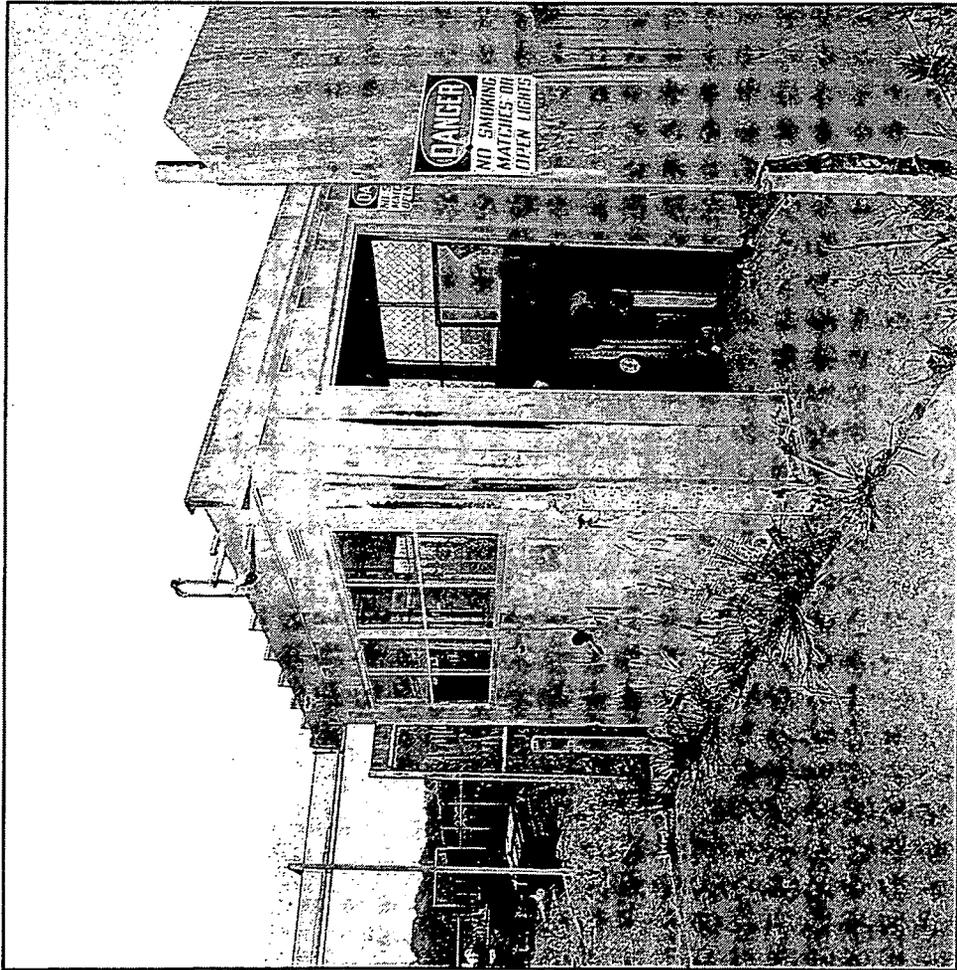
Environmental Management Project

1303

Page 19

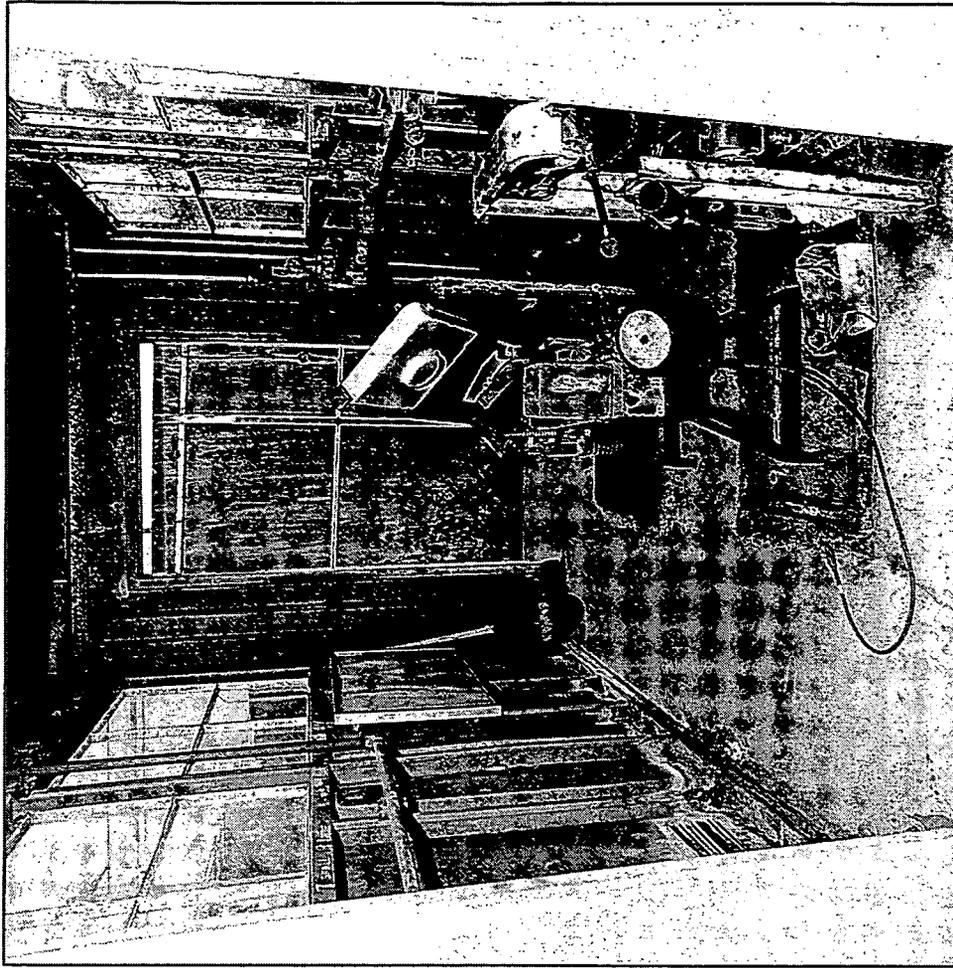
COMPONENT 38B - CYLINDER FILLING STATION

Photo 1



FEMP Neg. No. 6689-38

Photo 2



FEMP Neg. No. 6689-37



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000198

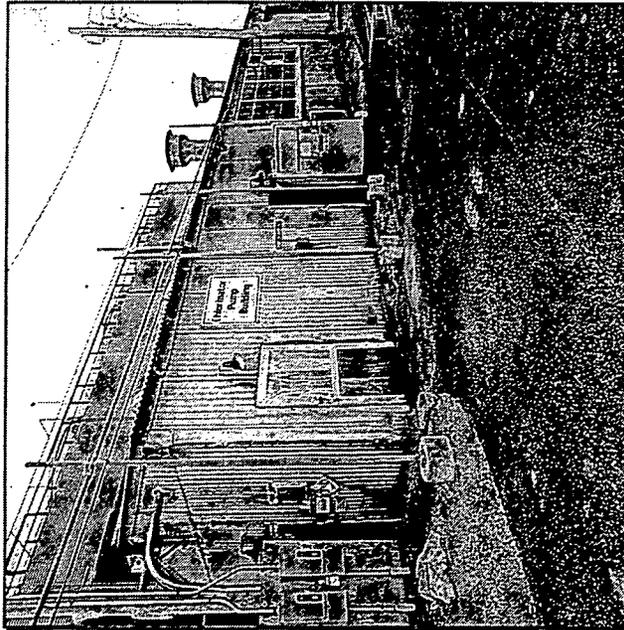
4752.20 9/97

303

Page 20

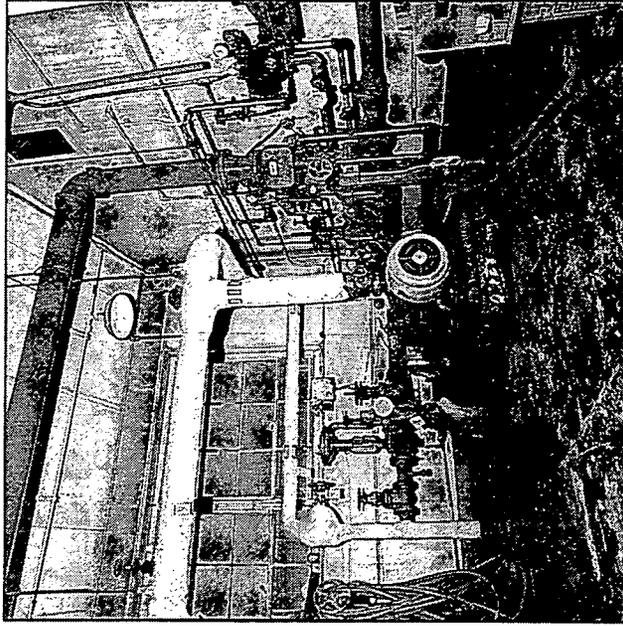
COMPONENT 20A - PUMPING STATION AND POWER CENTER

Photo 1



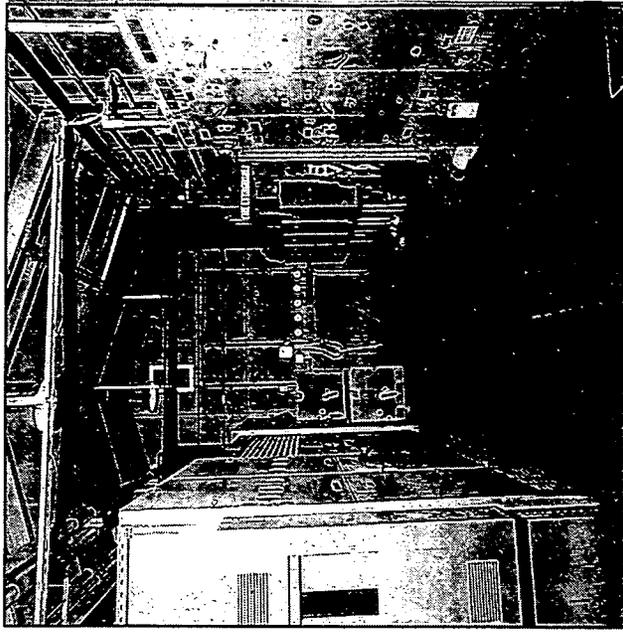
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Photo 2



FEMP Neg. No. 6689-6

Photo 3



FEMP Neg. No. 6689-4

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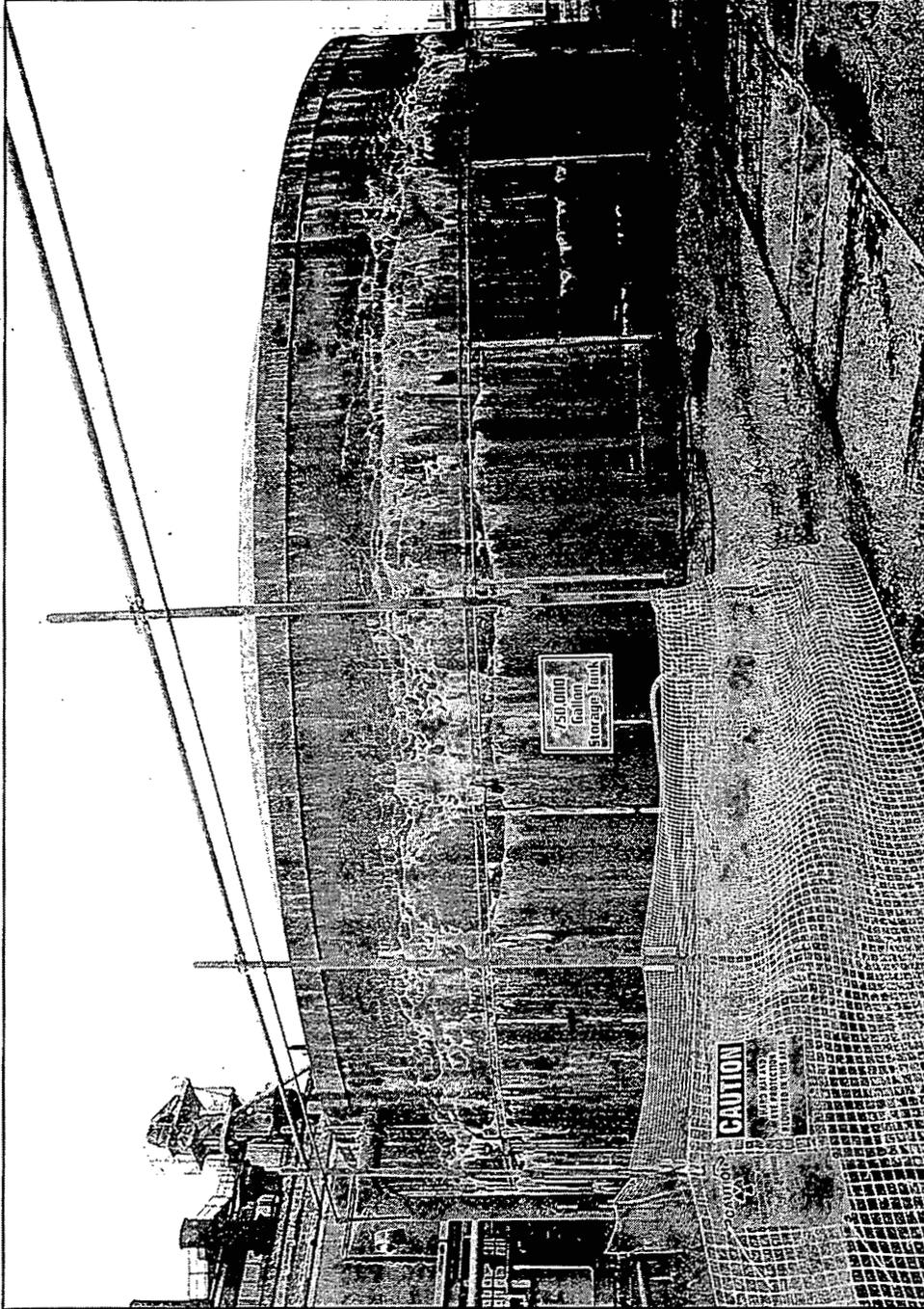
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1303

Page 21

COMPONENT 20H - PROCESS WATER STORAGE TANK

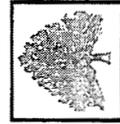
Photo 1



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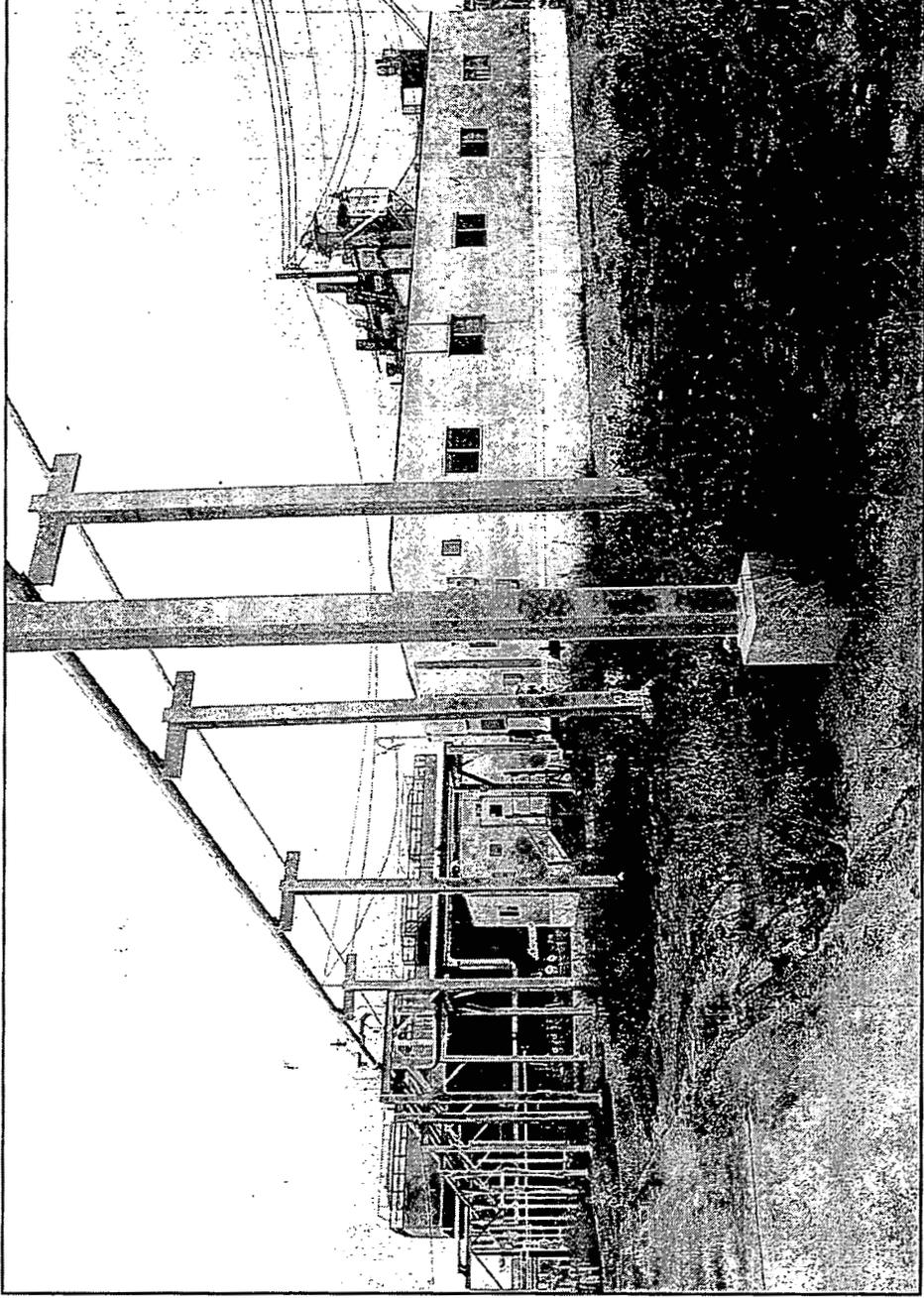


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COMPONENT G-008 - PIPE BRIDGE (TANK FARM - NORTH)

Photo 1



FEMP Neg. No. 6689-1



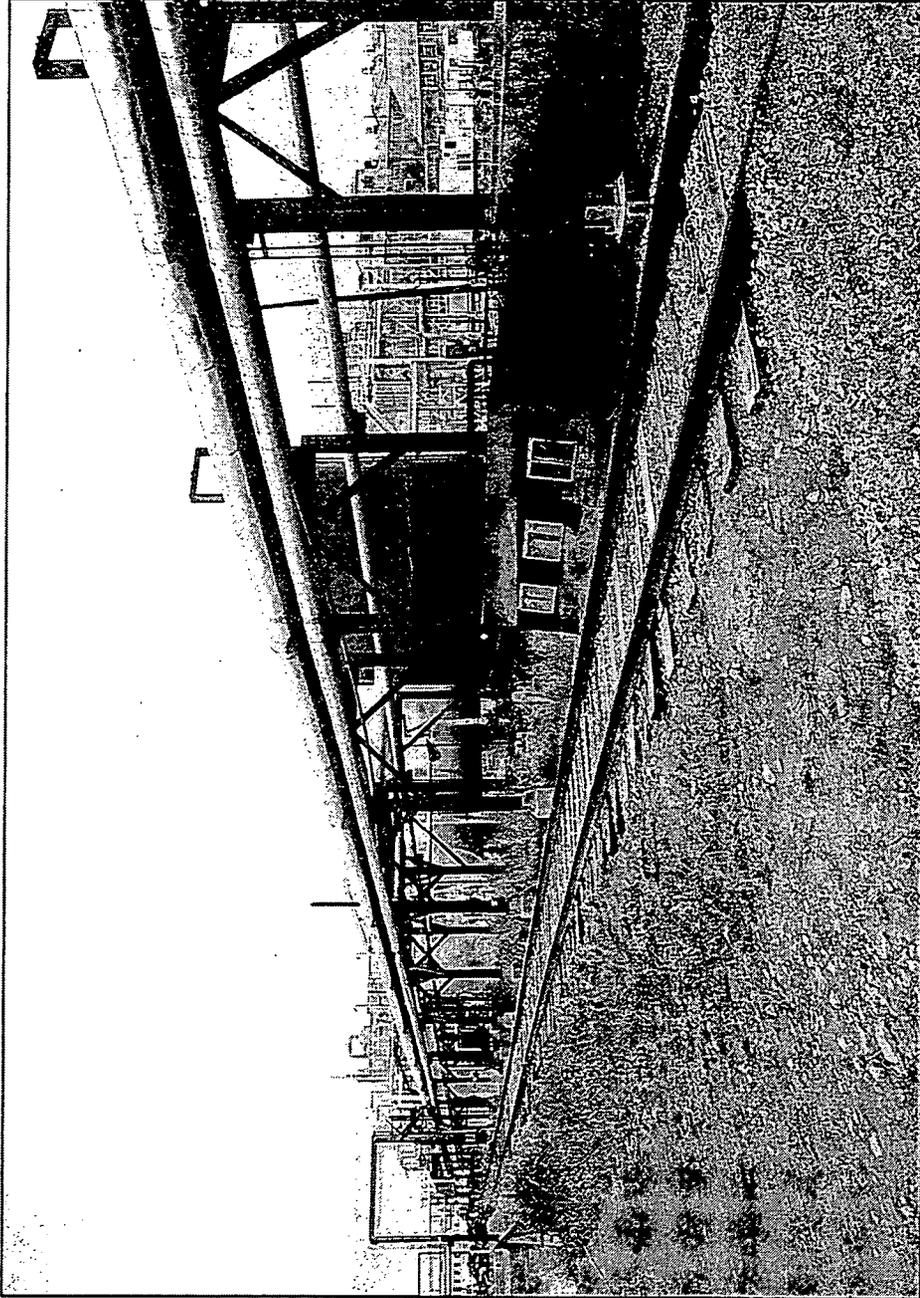
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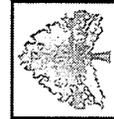
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COMPONENT G-008 - PIPE BRIDGE (TANK FARM - EAST)

Photo 1



FEMP Neg. No. 6689-3



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