

4037

# OPERABLE UNIT 3

## ADMINISTRATION COMPLEX IMPLEMENTATION PLAN FOR ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT



DECEMBER 2001

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT  
FERNALD, OHIO

U. S. DEPARTMENT OF ENERGY  
FERNALD AREA OFFICE

DRAFT

DOCUMENT CONTROL NO. 1789-PL-0002 (REV.A)

000002

**This page left intentionally blank.**

4037

**ADMINISTRATION COMPLEX  
IMPLEMENTATION PLAN FOR ABOVE-GRADE  
DECONTAMINATION AND DISMANTLEMENT**

**TABLE OF CONTENTS**

1  
2  
3  
4  
5  
6  
7  
8  
9 TABLE OF CONTENTS ..... i  
10 LIST OF FIGURES ..... ii  
11 LIST OF TABLES ..... ii  
12 LIST OF APPENDICES ..... ii  
13 NOTATION ..... iii  
14  
15 1.0 INTRODUCTION ..... 1  
16 1.1 Project Statement..... 1  
17 1.2 Scope of Work..... 1  
18 1.3 Plan Organization ..... 4  
19 1.4 Location of the Administration Complex D&D Project Area..... 4  
20 2.0 GENERAL PROJECT REMEDIATION APPROACH..... 6  
21 2.1 Sequencing of Remediation ..... 6  
22 2.2 Characterization of the Administration Complex D&D Project..... 6  
23 2.3 Materials Management..... 8  
24 2.3.1 Primary Materials Management ..... 9  
25 2.3.2 Secondary Waste Management ..... 10  
26 2.3.3 Estimates of Material Volumes ..... 11  
27 2.3.4 Material Handling, Storage, Treatment, and Disposition..... 11  
28 2.3.5 Material Recycling/Reuse ..... 15  
29 2.4 Environmental Monitoring..... 16  
30 2.5 Remediation Activities ..... 19  
31 2.5.1 Preparatory Action: Inventory Removal..... 20  
32 2.5.2 Preparatory Action: Facility Shutdown..... 21  
33 2.5.3 Asbestos Removal ..... 21  
34 2.5.4 Surface Decontamination..... 22  
35 2.5.5 Above-Grade Dismantlement ..... 23  
36 2.6 Use of New Technologies..... 26  
37 3.0 COMPONENT-SPECIFIC REMEDIATION ..... 27  
38 3.1 Building 11 – Service Building..... 27  
39 3.2 Building 14A – Administration Building ..... 29  
40 3.3 Component 14B – Building 14 EOC Generator Set ..... 31  
41 3.4 Component 20K – Administration Area Cooling Towers ..... 32  
42 3.5 Building 31A – Engine House Garage ..... 33  
43 3.6 Building 46 – Heavy Equipment Building ..... 34  
44 3.7 Building 53A – Health and Safety Building..... 36  
45 3.8 Building 53B – In-Vivo Building ..... 37  
46 3.9 Component G-008 – Pipe Bridges..... 39  
47 4.0 SCHEDULE..... 40  
48 5.0 MANAGEMENT ..... 42  
49 REFERENCES ..... 44

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

**FIGURES**

**FIGURE 1-1 Administration Complex Project Area .....5**  
**FIGURE 2-1 FEMP Site Air Monitoring Locations ..... 18**  
**FIGURE 4-1 Administration Complex D&D Project Remediation Schedule.....41**

**TABLES**

**TABLE 2-1 Radiological Contamination Survey Summary .....6**  
**TABLE 2-2 Administration Complex D&D Asbestos Summary .....8**  
**TABLE 2-3 Administration Complex Bulked Material Volume Estimates ..... 12**  
**TABLE 2-4 Administration Complex Unbulked Material Volume Estimates ..... 12**  
**TABLE 2-5 Administration Complex Material Weight Estimates ..... 13**

**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**

**NOTATION**

Abbreviations, Acronyms, and Initials

4037

1		
2		
3	<u>Abbreviations, Acronyms, and Initials</u>	
4		
5	ACM	asbestos-containing material(s)
6	AMS	air monitoring station
7	ARP	Aquifer Restoration Project
8	AWWT	Advanced Waste Water Treatment System
9		
10	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as
11		amended
12	CMU	concrete masonry unit
13		
14	DOE	United States Department of Energy
15	D&D	decontamination and dismantlement
16		
17	FEMP	Fernald Environmental Management Project
18		
19	HEPA	high-efficiency particulate air [filter]
20	HVAC	heating, ventilating, and air conditioning
21		
22	IEMP	Integrated Environmental Monitoring Plan
23	IIMS	Integrated Information Management System
24		
25	MEF	Material Evaluation Form
26	MSCC	Material Segregation and Containerization Criteria
27		
28	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
29	NPDES	National Pollutant Discharge Elimination System
30	NTP	Notice to Proceed
31	NTS	Nevada Test Site
32		
33	Ohio EPA	Ohio Environmental Protection Agency
34	OU3	Operable Unit 3
35		
36	PCB(s)	polychlorinated biphenyl(s)
37	PCDF	permitted commercial disposal facility
38	PPE	personal protective equipment
39	PWID	Project Waste Identification and Disposition [form]
40		
41	RCRA	Resource Conservation and Recovery Act, as amended
42	RD/RA	remedial design/remedial action
43	RI/FS	remedial investigation/feasibility study
44	ROB	roll-off box
45	ROD	Record of Decision

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

2

3	SAP	Sampling and Analysis Plan
4	SWIFTS	Site-Wide Waste Information, Forecasting and Tracking System
5		
6	U.S. EPA	United States Environmental Protection Agency
7		
8	WAC	Waste Acceptance Criteria
9	WPRAP	Waste Pits Remedial Action Project
10	WWTS	waste water treatment system

11

12

13 Units of Measure

14

15	cm.	centimeter(s)
16	cm <sup>2</sup>	square centimeter(s)
17	dpm	disintegration(s) per minute
18	ft.	foot (feet)
19	ft <sup>2</sup>	square foot (feet)
20	ft <sup>3</sup>	cubic foot (feet)

21

22

23 Chemical Symbols

24

25	U	uranium
----	---	---------

1  
2  
3 **1.0 INTRODUCTION**

4037

4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**1.1 Project Statement**

This implementation plan represents the sole remedial design deliverable developed for the Administration Complex decontamination and dismantlement (D&D) project, which has been prepared for regulatory agency approval pursuant to the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (DOE 1997a). This document presents a summary of the remedial design documentation prepared for the D&D of all components included in the Administration Complex D&D project. This D&D project is being implemented pursuant to the authority stipulated in the OU3 Record of Decision for Final Remedial Action (OU3 Final ROD) (DOE 1996b), which covers D&D, waste treatment, and disposition.

The purpose of this document is to summarize the Administration Complex D&D project design in the format and content outlined in the OU3 Integrated RD/RA Work Plan and established by previously approved D&D implementation plans. This document elaborates, as applicable, on programmatic strategies developed for the Contractor's scope of work, and project specifications contained in Appendix C of this document.

**1.2 Scope of Work**

The Administration Complex D&D project includes the following major activities:

- asbestos abatement/removal;
- surface decontamination;
- above-grade component dismantlement;
- environmental monitoring; and
- material management.

1 Inventory Removal and Facilities Shutdown are preparatory actions that are not in the scope  
2 of this D&D project but pertinent information from those activities has been summarized in  
3 Sections 2 and 3. The following components are included in the Administration Complex D&D  
4 project:

- 5 • Building 11 – Service Building
- 6 • Building 14A – Administration Building;
- 7 • Component 14B – Building 14 EOC Generator Set;
- 8 • Component 20K – Administration Area Cooling Towers
- 9 • Building 31A – Engine House Garage
- 10 • Building 46 - Heavy Equipment Building
- 11 • Building 53A – Health and Safety Building;
- 12 • Building 53B – In-Vivo Building.
- 13 • Component G-008 – Pipe Bridges

14  
15 It must be noted that this list of components differs from the list identified in the OU3  
16 Integrated Remedial Design/Remedial Action Work Plan. The difference is a result of the  
17 overall D&D strategic site review that was conducted to integrate Waste Generator Services  
18 activities, Soil Excavation activities and D&D activities to maximize utilization of facilities and  
19 resources. The difference to the list is based on including Components 20K, 31A and 46 while  
20 removing Components 28A, 28B, 16H, 16J, 23, 25J, 28E and 28G. Component 20K  
21 (Administration Area Cooling Towers) is a new structure that was not identified in the OU3  
22 Integrated Remedial Design/Remedial Action Work Plan. Building 31A (Engine House Garage)  
23 and Building 46 (Heavy Equipment Building) are currently identified as part of the Electrical  
24 Substation Complex.

25  
26 Buildings 28A (Security Building) and 28B (Human Resources) have been dismantled under the  
27 Miscellaneous Small Structures D&D project. Components 16H (10-plexes North Substation),  
28 16J (10-plexes South Substation), 23 (10-plex trailer), 25J (10-plexes Sanitary Lift Station)  
29 28 E (Guard Post at Old North Access Road) and 28G (Guard Post relocated and renamed to  
30 T-327) will be included in the Miscellaneous Small Structures D&D Implementation Plan  
31 through an amendment.

32

1 The Administration Complex D&D activities will be performed in two phases. Phase I includes  
2 D&D of Building 53A (Health and Safety Building) and associated Component G-008 (two  
3 sections of pipe bridge located on the east side of Buildings 53A and 53B) which has been  
4 accelerated in advance of the other complex facilities due to premature roof membrane failure  
5 that has resulted in the need to replace the entire roof or abandon the building. The decision  
6 was made to abandon the building based on roof replacement cost estimates. D&D of Building  
7 53A is being accelerated to occur following the relocation of building occupants in order to  
8 preclude the formation of mold resulting from roof leaks that would complicate D&D efforts.  
9 Phase II includes the D&D of Building 11 (Service Building), Building 14A (Administration  
10 Building), Component 14B (Building 14 EOC Generator Set), Component 20K (Administration  
11 Area Cooling Towers), Building 31A (Engine House Garage), Building 46 (Heavy Equipment  
12 Building), Building 53B (In-Vivo Building), and the remaining sections of Component G-008  
13 (Pipe Bridges). The schedule for Phase I and Phase II remediation is shown in Figure 4-1,  
14 "Administration Complex Remediation Schedule".  
15

16 The requirements for remediation of components in the Administration Complex D&D project  
17 were developed using the performance specifications that were originally included in Appendix  
18 B of the OU3 Integrated RD/RA Work Plan. Appendix C of this Implementation Plan contains  
19 the revised D&D standard performance specifications that have incorporated process  
20 improvements and lessons-learned from previous D&D projects at the FEMP.  
21

22 DOE will provide notification to the regulatory agencies of any significant changes to the  
23 design prior to implementation. Should the regulatory agencies have any concerns regarding  
24 any significant design change, DOE will properly address those concerns as soon as practicable  
25 and, if necessary, perform one or more of the following: amend the implementation plan,  
26 amend the OU3 Integrated RD/RA Work Plan, present an explanation of significant difference  
27 to the OU3 ROD, and/or amend the RODs. Significant changes to the design are those that  
28 require formal design modification that would impact the implementation strategies presented  
29 in this document. If necessary, affected activities may be suspended until the revision has  
30 been completed and approved. This course of action adheres to the commitments made in  
31 Section 4.2.2 of the OU3 Integrated RD/RA Work Plan for design changes.  
32

1 **1.3 Plan Organization**

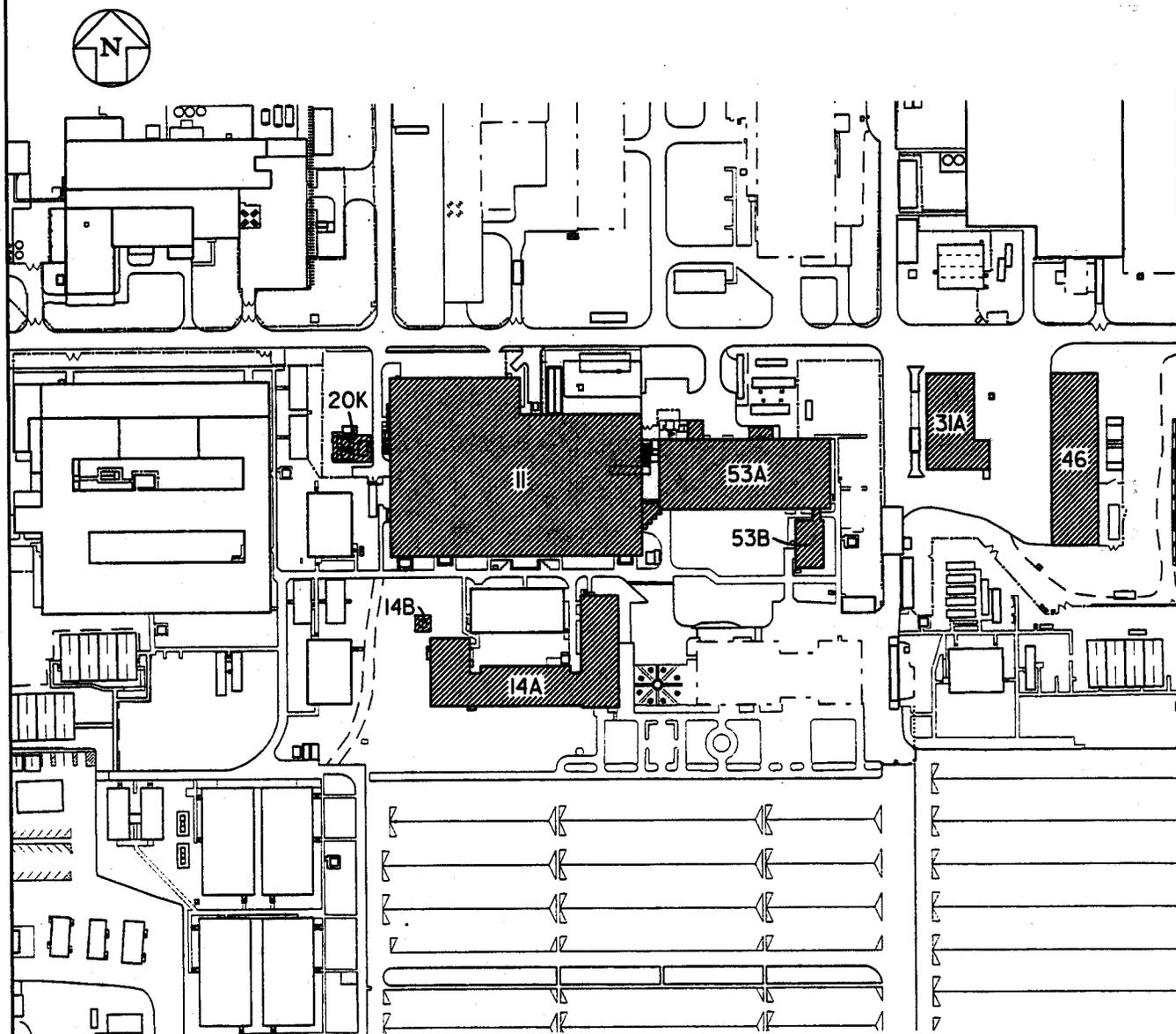
2  
3 This implementation plan is comprised of five sections and five appendices. Section 1  
4 contains the remedial action project statement, scope of work, an overview of this  
5 implementation plan, and a brief description of the Administrative Complex D&D project  
6 components. Section 2 describes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

14  
15 Appendix A contains a discussion of potential environmental and occupational sampling for this  
16 project, based on the assumptions in the Sampling and Analysis Plan (SAP) contained in  
17 Appendix D of the OU3 Integrated RD/RA Work Plan, and on the remediation requirements  
18 presented in this plan. Appendix B provides a summary of the evaluation of material  
19 disposition alternatives for accessible metals and a tabulation of the cost comparison between  
20 the disposition alternatives. Appendix C provides the D&D project performance specifications.  
21 Appendix D provides copies of available drawings, which show floor plans and elevations of  
22 components. Appendix E contains selected photographs of notable features of the  
23 Administration Complex D&D project components.

24  
25 **1.4 Location of the Administration Complex D&D Project Area**

26  
27 The Administration Complex D&D project site is located at the U.S. Department of Energy  
28 (DOE) Fernald Environmental Management Project (FEMP) in Fernald, Ohio. Project  
29 components include the structures south of 1<sup>st</sup> Street and between the imaginary boundaries  
30 of "E" Street (east) and "B" Street (west) since "E" and "B" Streets south end at 1<sup>st</sup> Street.  
31 The Administration Complex D&D project area is illustrated in Figure 1-1.

4037



FILE NAME: /RES4234/ADMIN.DGN

FIGURE 1-1 Administration Complex D&D Project

**2.0 GENERAL PROJECT REMEDIATION APPROACH**

The general approach for above-grade D&D of the Administration Complex D&D project is based on project-specific applications of the programmatic strategies that were described in Section 3 of the OU3 Integrated RD/RA Work Plan. Section 2 of the implementation plan summarizes the project-specific applications of those strategies.

**2.1 Sequencing of Remediation**

The remediation project as a whole includes the following stages: 1) Notice to Proceed (NTP); 2) Premobilization, when Contractor Safe Work Plans are prepared and approved; 3) Mobilization, which includes establishing project support facilities and controls; and 4) D&D field activities for each component. The actual sequence for D&D of buildings/structures will be determined by the Contractor's project schedule, subject to FEMP Project Management approval. Phase I D&D of Building 53A will be performed first, followed by Phase II of Buildings 11, 14A, 14B, 20K, 31A, 46, 53B and pipe bridges.

**2.2 Characterization of the Administration Complex D&D Project**

Historical and recent radiological surveys were compiled during the design. The expected radiological conditions are summarized in Table 2-1.

**TABLE 2-1 Radiological Contamination Survey Summary**

Building/Component	RADIOLOGICAL POSTING STATUS				
	Controlled to ...	Controlled Area	Contamination Area	High Contamination Area	Airborne Radioactive Area
Building 11 – Service Building	U238	X	X (1)		X (1)
Building 14A – Administration Building	U238	X	X (1)		X (1)
Component 14B – Building 14 EOC Generator Set	U238	X			
Component 20K – Administration Area Cooling Towers	U238	X			
Building 31A – Engine House Garage	U238	X	X	X	X
Building 46 – Heavy Equipment Building	U238	X	X	X	X
Building 53A – Health and Safety Building	U238	X	X (1)		X (1)
Building 53B – In-Vivo Building	U238	X			
Component G-008 - Pipe Bridges	U238	X	X		X (1)

Footnotes:

(1) These radiological conditions expected during demolition have been conservatively estimated so that the Demolition Contractor could factor in a worst case, upper limit scenario in estimating project costs. The actual conditions will depend upon the conduct and scheduling of work along with the identification of currently inaccessible radiological contamination during demolition activities in older Administration area components. Additionally, the general work areas may be posted as Controlled or Contamination areas to facilitate the loading and movement of roll-off boxes, as was done during the D&D of Components 28A and 28B.

1 A review of the relevant analytical evaluation data generated from the OU3 Remedial  
2 Investigation/Feasibility Study (RI/FS), as summarized in Section 3.3.1, Table 3-6 of the OU3  
3 Integrated RD/RA Work Plan, revealed that Building 11 contains approximately .15 tons of lead  
4 flashing that is considered potentially mixed waste. Lead flashing is prohibited from disposal  
5 in the On-Site Disposal Facility (OSDF) and as a result, will be segregated and containerized  
6 for off-site disposal. Other materials to be generated from components in the Administration  
7 Complex D&D project are considered low-level radiological waste, which may be disposed in  
8 the OSDF provided that other physical OSDF Waste Acceptance Criteria (WAC) are met.

9  
10 The most significant concerns arising from the review of component characterization data are  
11 the health and safety of the workers during dismantlement of equipment/systems and  
12 personnel who will handle OSDF-bound debris during placement. The presence of loose,  
13 unfixed radiological contamination justifies best available technology to prevent or minimize  
14 generation of airborne dusts. Debris is routinely washed to remove accumulation of easily  
15 dispersible radioactive material. Best available technology also requires the use of high  
16 efficiency particulate air (HEPA) filtration ventilation devices and vacuums.

17  
18 Specific uses of the radiological conditions summarized in Table 2-1 during the remedial design  
19 includes support for the following design efforts:

- 20 • develop the safety assessment documentation to support the proposed  
21 activities;
- 22 • enhance the project-specific health and safety requirements and  
23 determine potential concerns for worker protection based on the  
24 suggested D&D techniques;
- 25 • document expected contamination levels for the Contractor;
- 26 • determine personnel monitoring requirements; and
- 27 • assessment of potential radiological air emissions.

28  
29 The Administration Complex D&D project was evaluated by a State of Ohio-Certified Asbestos  
30 Hazard Evaluation Specialist for asbestos containing materials (ACM). The results of this  
31 evaluation are summarized in Table 2-2.

1 **Table 2-2 Administration Complex D&D Project Asbestos Summary**

Building	Asbestos Material	Location	Asbestos Content
11	Pipe Insulation	Throughout building	1-85% Chrysotile 5-20% Amosite
11	Pipe Fitting Insulation	Throughout building	1-50% Chrysotile 5-25% Amosite
11	Tank Insulation	2 <sup>nd</sup> Floor, hot water tank room	35-50% Chrysotile 3-5% Amosite
11	Floor Tile	2 <sup>nd</sup> Floor, south entrance, rest rooms and Maintenance Shop	5-30% Chrysotile
11	Floor Tile Mastic	2 <sup>nd</sup> Floor, south entrance, rest rooms and Maintenance Shop	25-35% Chrysotile
11	Slip Resistant Flooring Mastic	Stairwells	Assume ACM
11	Cove Base and Adhesive	2 <sup>nd</sup> Floor, south entrance, rest rooms and Maintenance Shop	Assume ACM
14	Pipe Insulation	Throughout building	5-70% Chrysotile 5-40% Amosite
14	Pipe Fitting Insulation	Throughout building	15-60% Chrysotile 2-30% Amosite
14	Tank Insulation	Basement	40% Chrysotile 15% Amosite
14	Floor Tile	Throughout building	1-15% Chrysotile
14	Floor Tile Mastic	Throughout building	20-30% Chrysotile
14	Cove Base and Adhesive	Throughout building	Assume ACM
14	Slip Resistant Flooring Mastic	Both stairwells	Assume ACM
14	Acoustic Ceiling Tile (Black) Mastic	Throughout first floor and Room 222	1 -15% Chrysotile
14	Fire Rated Doors/Vault Doors	Throughout building	Assume ACM
14	Built-Up Roofing	Entire building	Assume ACM
31	Pipe Insulation	Throughout Building	10-95% Chrysotile 15-40% Amosite
31	Pipe Fitting Insulation	Throughout Building	40-60% Chrysotile 20-40% Amosite
31	Floor Tile	Throughout Building	8-17% Chrysotile
31	Floor Tile Mastic	Throughout Building	Assume ACM
31	HVAC Flexible Connector	Mezzanine air handling unit	50% Chrysotile
31	Built-up Roofing	Entire Building	Assume ACM
53A	Tar Fasteners/Mastic	Ceiling of Room 168 above foam glass tile	50% Chrysotile
53A	Floor Tile	Bottom layer of tile in Room 171 and beneath fume hoods in Room 213	Assume ACM
53A	Floor Tile Mastic	Room 171 and beneath fume hoods in Room 213	Assume ACM
53B	No Asbestos Materials Found		
G-008	Pipe Fitting Insulation	Throughout site	Assume ACM

2

3 **2.3 Materials Management**

4

5 Project-specific material management strategies for the Administration Complex D&D project  
6 are based on the overall material management strategies that were presented in Section 3.3  
7 of the OU3 Integrated RD/RA Work Plan and the project-specific requirements presented in  
8 Specification Section 01120. Management of primary and secondary estimated waste

1 materials to be generated during the Administration Complex D&D project are discussed in this  
2 section.

3  
4 Waste minimization will be accomplished, in part, by ensuring that equipment and material are  
5 unpacked prior to entering the FEMP controlled area whenever possible. This administrative  
6 control will limit the amount of trash that could become contaminated and limit quantities of  
7 any hazardous material brought into the project area.

### 9 2.3.1 Primary Materials Management

10  
11 Primary materials refer to the debris that will be generated by the dismantlement of the  
12 components and structures in the Administrative Complex D&D project. During the remedial  
13 design, a Project Waste Identification and Disposition form (PWID – see Section 3.3.1 of the  
14 OU3 Integrated RD/RA Work Plan for description) was developed which identifies all debris to  
15 be generated, quantities, characterization, container requirements, and disposition location.

16 In support of the PWID, each waste stream has been characterized and documented in a  
17 Material Evaluation Form (MEF). To supply the Contractor with the sizing, segregation, and  
18 containerization requirements outlined in the OU3 Integrated RD/RA Work Plan, a Material  
19 Segregation and Containerization Criteria form (MSCC: see Section 3.3.1 and Appendix A of  
20 the work plan for description and example, respectively) was developed.

21  
22 Pursuant to DOE's commitment to evaluating potential opportunities for recycle/reuse, as  
23 described in Section 3.3.6.1 of the OU3 Integrated RD/RA Work Plan, an evaluation of material  
24 disposition alternatives for accessible metals was performed and a summary of the results is  
25 presented in Appendix B.

26  
27 Specification Section 01120 identifies debris/waste-handling requirements for the Contractor.  
28 Debris handling requirements are defined by the following classifications: 1) non-process  
29 debris; 2) process debris; and 3) suspect process debris. Details regarding the handling of  
30 each of these types of debris are described in Article 3.2 of Specification Section 01120. All  
31 debris is required to be sized, segregated, and containerized in accordance with MSCC. To  
32 ensure that debris, which is destined for disposal in the OSDF, meets the OSDF waste  
33 acceptance criteria (WAC), the MSCC identifies specific materials from the project that are

1 known to either meet or not meet the OSDF WAC. When debris are generated, a  
2 representative from the OSDF Waste Acceptance Organization will ensure that debris is  
3 segregated according to the proper debris categories identified on the MSCC, with specific  
4 oversight on the debris being containerized for the OSDF.

5  
6 Regardless of whether or not visible process residues are present, all debris is still considered  
7 to be radiologically contaminated unless otherwise specifically identified. Final visual  
8 inspection will take place following dismantlement and sizing per Specification Section 15065  
9 and relocation to an approved inspection staging area.

### 10 11 2.3.2 Secondary Waste Management

12  
13 Management of secondary wastes includes handling, sampling, storage, and disposition of  
14 secondary waste materials generated during remediation. Secondary waste includes vacuumed  
15 dust, filters, personal protective equipment (PPE), spent consumables, and wastewater from  
16 decontamination and release cleaning.

17  
18 Depending on the DOE-approved methods for equipment/systems dismantlement, it is possible  
19 that up to 75,000 gallons of decontamination wastewater may be generated during the D&D  
20 of Administration Complex D&D project components and Contractor equipment. The projected  
21 volume of wastewater from gross decontamination and release cleaning is only a liberal  
22 estimate based on previous OU3 D&D projects that used high pressure, low volume water  
23 spray. Wastewater will be managed in accordance with the strategies laid out in the OU3  
24 Integrated RD/RA Work Plan. The wastewater collection system will likely include  
25 polyethylene-lined containment structure(s) over which equipment is washed, and filters (20  
26 micron pre-filter and 5 micron filter) to remove entrained particulate during transfer into a  
27 holding tank. Wastewater handling includes sampling and analysis of water and sludges for  
28 constituents of concern (see Section 2.4 for wastewater monitoring), discharge of approved  
29 effluent into the FEMP wastewater treatment system (Advanced Wastewater Treatment  
30 Facility), and sludge removal and containerization. The Wastewater Treatment System  
31 (WWTS) Manager determines the need for wastewater sampling if significant levels of  
32 constituents of concern are present, based on an assessment of relevant OU3 RI/FS analytical  
33 data and process history. Section 2.4 further discusses wastewater monitoring strategies. The

1 ultimate disposition of wastewater into the WWTS is managed in accordance with existing site  
2 procedure EP-005 "Controlling Aqueous Wastewater Discharges into Wastewater Treatment  
3 Systems".

### 4 5 2.3.3 Estimates of Material Volumes

6  
7 Materials to be generated during this project have been categorized using the same  
8 classification system that was developed for and described in the OU3 RI/FS Report (1996a),  
9 and OU3 Integrated RD/RA Work Plan, and are estimated in Tables 2-3, 2-4, and 2-5.

### 10 11 2.3.4 Material Handling, Storage, Treatment, and Disposition

12  
13 Materials generated from the Administration Complex D&D project will be reduced in size,  
14 segregated, and containerized in accordance with the requirements identified in the MSCC  
15 form supplied to the Contractor. Quantities and disposition of specific material categories  
16 were documented in the PWID form for internal use. Tables 2-3, 2-4, and 2-5 summarize the  
17 MSCC and PWID by identifying quantities, containerization, staging/interim storage, and  
18 disposal requirements for each category of material. Debris size requirements are described  
19 in Sections 3.3.2.1 and 3.3.6.2 of the OU3 Integrated RD/RA Work Plan.

20  
21 As stated in Section 3.3.2.2 of the OU3 Integrated RD/RA Work Plan, materials will be  
22 identified according to the OU3 debris categories identified in the MSCC. The MSCC for the  
23 Administration Complex D&D project allows for commingling of OU3 debris categories A, B,  
24 D, and incidental E into the same Roll-Off Boxes (ROBs) since each of these material types  
25 conform to OSDF Impacted Material Category 2. The majority of Debris Category E (concrete),  
26 however, will be placed in separate ROBs. Commingling of OU3 debris categories A, B, D, and  
27 incidental E is being done to conform to the OSDF impacted material categories in order to  
28 facilitate placement. By allowing the commingling of these types of debris into the same ROB,  
29 there will be more efficient use of a limited number of ROBs at the FEMP. Materials will be  
30 containerized inside the project boundaries adjacent to structures being dismantled. Should  
31 any materials be encountered that do not meet the OSDF waste acceptance criteria, they will  
32 be containerized separately from OSDF-bound materials. These materials will follow the same

000019

Implementation Plan for the  
Administration Complex D&D Project (Draft)

ECDC Doc. Control 1789-PL-0002 (Rev. A)  
December 2001

**TABLE 2-3 ADMINISTRATION COMPLEX D&D PROJECT BULKED MATERIAL VOLUME ESTIMATES (CUBIC YARDS)**

Component Number	Cat. A	Th-C - Cat A	Cat. B	Th-C - Cat B	Cat. C	Cat. D	D-Lead	Cat. E	Th-C - Cat E	Cat. F	Th-C - Cat F	Cat. G	Th-C - Cat G	Cat. H	Th-C - Cat H	Cat. I-2	Cat. I-4	Cat. J	TOTAL S
Bldg. 11	249.0	0.0	1950.0	0.0	0.0	1116.0	2.0	6547.0	0.0	0.0	0.0	0.0	0.0	120.0	0.0	4690.0	39.0	0.0	14713.0
Bldg. 14A	99.0	0.0	816.0	0.0	0.0	198.0	0.0	1725.0	0.0	0.0	0.0	166.0	0.0	0.0	0.0	1701.0	32.0	0.0	4737.0
Bldg. 14B	9.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0
Comp. 20K	696	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	696
Bldg. 31A	519.0	0.0	10.6	0.0	0.0	0.0	0.0	194.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	775.7
Bldg. 46	495.0	0.0	59.0	0.0	0.0	79.6	0.0	50.3	0.0	0.0	0.0	0.0	0.0	2.6	0.0	30.2	0.0	0.0	716.7
Bldg. 53A	606.0	0.0	723.0	0.0	0.0	752.0	0.0	1947.0	0.0	0.0	0.0	0.0	0.0	54.0	0.0	2398.0	35.0	0.0	6515.0
Bldg. 53B	45.0	0.0	951.0	0.0	0.0	46.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	266.0	4.0	0.0	1318.0
Adm. Complex Pipe Bridge	324.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	325.0
<b>TOTALS</b>	<b>3042.0</b>	<b>0.0</b>	<b>4536.6</b>	<b>0.0</b>	<b>0.0</b>	<b>2191.6</b>	<b>2.0</b>	<b>10464.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>166.0</b>	<b>0.0</b>	<b>184.0</b>	<b>0.0</b>	<b>9135.8</b>	<b>110.0</b>	<b>0.0</b>	<b>29832.4</b>
Container/Qty.	ROB 102		ROB 152			ROB 74	WMB 2	ROB 349				ROB 6		ISO 6		ROB 305	ROB 4		
Interim Storage	OSDF Trans		OSDF Trans			OSDF Trans	OSDF Trans	OSDF Trans				OSDF Trans		ISO Pit 1 Pad		OSDF Trans	OSDF Trans		
Disposition	OSDF		OSDF			OSDF	Off-Site Com	OSDF				OSDF		OSDF		OSDF	OSDF		

**General Notes:**

OUS Debris Categories: Cat A- Accessories Metals; Cat B- Inaccessible Metals; Cat C - Process Related Metals; Cat D - Painted Light Gage Metals; Cat E- Concrete; Cat. F- Brick; Cat. G- Non-Regulated ACM; Cat. H- Regulated ACM; Materials. Cat. I- Miscellaneous

ROB: Roll-Off Box holds 30 cubic yards (810 cubic feet) and/or 16.95 tons of material; ISO: End-Loading Container/Sea Land boxes, holds up to 36 cubic yards (871 cubic feet) and/or 42,000 lbs. of material. WMB: White Metal Box holds 80 cubic feet with a weight restriction of 8000 pounds.

OSDF Trans: On-site Disposal Facility Transfer area. Refers to direct disposal in the OSDF; however, the ability to deliver debris directly to the OSDF Transfer area is dependent on whether the OSDF is accepting and/or availability of containers (ROBs) for transport. If necessary, Category A, B, D and E debris may be temporarily stockpiled on available building pads or at the On-Site Material Transfer Area at project completion. Off-Site Com: Off-Site Commercial Facility.

**TABLE 2-4 ADMINISTRATION COMPLEX D&D PROJECT UNBULKED MATERIAL VOLUME ESTIMATES (CUBIC YARDS)**

Component Number	Cat. A	Th-C - Cat A	Cat. B	Th-C - Cat B	Cat. C	Cat. D	D-Lead	Cat. E	Th-C - Cat E	Cat. F	Th-C - Cat F	Cat. G	Th-C - Cat G	Cat. H	Th-C - Cat H	Cat. I-2	Cat. I-4	Cat. J	TOTALS
Bldg. 11	83.0	0.0	650.0	0.0	0.0	558.0	1.0	5036.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	1340.0	11.0	0.0	7719.0
Bldg. 14A	33.0	0.0	272.0	0.0	0.0	99.0	0.0	1327.0	0.0	0.0	0.0	138.0	0.0	0.0	0.0	486.0	9.0	0.0	2364.0
Bldg. 14B	3.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0
Comp. 20K	232.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	232.0
Bldg. 31A	155.5	0.0	5.3	0.0	0.0	0.0	0.0	149.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	336.0
Bldg. 46	172.6	0.0	33.8	0.0	0.0	39.8	0.0	38.7	0.0	0.0	0.0	0.0	0.0	1.3	0.0	15.1	0.0	0.0	301.3
Bldg. 53A	202.0	0.0	241.0	0.0	0.0	376.0	0.0	1498.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	685.0	10.0	0.0	3030.0
Bldg. 53B	15.0	0.0	317.0	0.0	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	76.0	1.0	0.0	434.0
Adm. Complex Pipe Bridge	108.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	109.0
<b>TOTALS</b>	<b>1004.1</b>	<b>0.0</b>	<b>1528.1</b>	<b>0.0</b>	<b>0.0</b>	<b>1095.8</b>	<b>1.0</b>	<b>8049.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>138.0</b>	<b>0.0</b>	<b>62.0</b>	<b>0.0</b>	<b>2627.4</b>	<b>31.0</b>	<b>0.0</b>	<b>14537.3</b>

**General Notes:**

Refer to Table 2-3 General Notes for Debris Waste Category descriptions

**TABLE 2-5 ADMINISTRATION COMPLEX D&D PROJECT MATERIAL WEIGHT ESTIMATES (TONS)**  
Weights reported in tons

Component Number	Cat. A	Th-C - Cat A	Cat. B	Th-C - Cat B	Cat. C	Cat. D	D- Lead	Cat. E	Th-C - Cat E	Cat. F	Th-C - Cat F	Cat. G	Th-C - Cat G	Cat. H	Th-C - Cat H	Cat. I-2	Cat. I-4	Cat. J	TOTALS
	Bldg. 11	66.4	0.0	143.0	0.0	0.0	60.0	1.0	4200.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	500.0	5.0	0.0
Bldg. 14A	26.4	0.0	59.8	0.0	0.0	5.0	0.0	1125.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	100.0	4.0	0.0	1395.2
Bldg. 14B	2.4	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4
Bldg. 20K	185.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	185.6
Bldg. 31A	124.4	0.0	1.2	0.0	0.0	0.0	0.0	133.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	13.0	0.0	0.0	271.8
Bldg. 46	138.1	0.0	7.4	0.0	0.0	2.3	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	7.8	0.0	0.0	190
Bldg. 53A	161.6	0.0	53.0	0.0	0.0	36.0	0.0	1399.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	233.0	10.0	0.0	1898.6
Bldg. 53B	12.0	0.0	69.7	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	21.0	1.0	0.0	105.9
Adm. Cpx Pipe Br.	86.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.4
<b>TOTALS</b>	<b>803.3</b>	<b>0.0</b>	<b>336.1</b>	<b>0.0</b>	<b>0.0</b>	<b>105.3</b>	<b>1.0</b>	<b>6892.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>75.0</b>	<b>0.0</b>	<b>19.8</b>	<b>0.0</b>	<b>874.8</b>	<b>20.0</b>	<b>0.0</b>	<b>9127.3</b>

General Notes:  
Refer to Table 2-3 General Notes for OUS Debris Category descriptions

000020

4037

1 load-out and transportation procedures and be packaged for off-site disposal at either the Plant  
2 1 Storage Pad, Storage Pad 7 Waste Pits Remedial Action Project (WPRAP) or a material  
3 packaging area that would be established within the project boundaries.

4  
5 The current project strategy for managing debris is to deliver containerized debris directly to  
6 the OSDF Transfer Area; however, short-term debris stockpiling (staging) of Category A, B,  
7 D and E debris is likely to occur due to the limited number of ROB's at the FEMP during months  
8 when the OSDF is not placing debris. Staging of debris in temporary stockpiles, if needed, will  
9 follow the strategies provided under Section 3.3.2.3 of the OU3 Integrated RD/RA Work Plan,  
10 which requires best available storage configuration for OU3 Debris Categories A, B, D, and E.  
11 The strategy for staging debris in temporary stockpiles also requires removing or encapsulation  
12 of contaminants. Specification Section 01517 debris release criteria requires that gross  
13 contamination be removed or encapsulated on debris surfaces prior to their removal from a  
14 building enclosure or local containment. To the maximum extent practicable, debris will be  
15 containerized following sizing when sufficient containers are available. Should the best  
16 available storage configuration (i.e., containers with lids or tarps) be temporarily unavailable,  
17 temporary stockpiling of debris on pads with run-off controls would be performed.

18  
19 Debris estimates for the Administration Complex D&D project have been provided to OSDF and  
20 waste management integrators for the purpose of optimizing types and quantities of debris  
21 that are available or will be generated from all D&D projects for OSDF placement. The OSDF  
22 Optimization Plan was developed originally in June 1999 and provided to the U.S. EPA. It is  
23 continually updated based on the latest schedules and debris projections. The OSDF  
24 Optimization Plan integrates schedules and estimates for soil and debris generation to allow  
25 for efficient use of site resources and cell construction. Complicating the scheduling of debris  
26 transfers will be the concurrent implementation of other D&D projects (Plant 6/East  
27 Warehouse, Multi-Complex, Pilot Plant Complex, Plant 1 Complex - Phase II, and Laboratory  
28 Complex.)

29  
30 Material tracking is performed using the Site-Wide Waste Information, Forecasting and  
31 Tracking System/Integrated Information Management System (SWIFTS/IIMS) through the FEMP  
32 waste management organization. Project-specific reporting on material disposition will be  
33 provided by a SWIFTS/IIMS summary in the Project Completion Report. Section 3.3.2.2

1 (Segregation, Containerization, Tracking) of the OU3 Integrated RD/RA Work Plan describes  
2 material tracking and reporting using SWIFTS. OU3 Debris Categories A, B, D, and E debris  
3 are classified as OSDF Category 2 material. Therefore, commingled Debris Categories A, B,  
4 D, and E quantities will be tracked in SWIFTS/IIMS under a discreet profile that corresponds  
5 to Impacted OSDF Category 2 debris in interim storage. OU3 Debris Category I (Miscellaneous  
6 Materials) is also OSDF Category 2 but will not be commingled and therefore actual volumes  
7 will be easily obtained. Debris Category G (Transite) and Debris Category H (Regulated ACM)  
8 are regarded as OSDF Categories 3 and 5, respectively, and will also be handled separately.  
9 Since the volume of commingled debris will represent a combination of waste streams,  
10 proportions of OU3 debris categories within that total volume will be derived based on original  
11 estimates to identify and track waste volumes by OU3 debris category. These derived  
12 quantities will be documented in the Project Completion Report for the Administration Complex  
13 D&D project. Other than tracking debris specifically for the purpose of OSDF placement,  
14 project-specific material tracking and reporting strategies for the Administration Complex D&D  
15 project do not differ from the strategies laid out in the OU3 Integrated RD/RA Work Plan and  
16 therefore no additional details were developed during the remedial design process.

17  
18 The disposition strategy for Administration Complex D&D project materials is consistent with  
19 the requirements stated in the OU3 Record of Decision for Final Remedial Action (OU3 Final  
20 ROD) and strategies presented in the OU3 Integrated RD/RA Work Plan. Table 2-2 identifies  
21 the debris disposition routes, including either onsite (OSDF) or offsite (which includes either  
22 the NTS or a Permitted Commercial Disposal Facility). No treatment will be necessary for  
23 those materials destined for the OSDF since all chemical-based waste acceptance criteria are  
24 met based on OU3 RI/FS data.

### 25 26 2.3.5 Material Recycling/Reuse

27  
28 Accessible metals (Category A) from the Administration Complex D&D project have been  
29 evaluated for potential recycling options and a detailed summary of that evaluation is available  
30 in Appendix B. Using the Decision Methodology for Fernald Material Disposition Alternatives  
31 (the "Decision Methodology"), 804 tons of potentially recyclable accessible metals (OU3  
32 Debris Category A) from all Administration Complex D&D project components were evaluated  
33 by comparing the four leading alternatives to on-site disposal. Of the three phases of the

1 Decision Methodology (Threshold Phase, Life Cycle Analysis Phase, and Decision Phase), only  
2 the first phase was applied since the comparative evaluation of project costs for each  
3 alternative showed that the total costs for each of the recycling options greatly exceed the 25  
4 percent total cost criteria compared to OSDF disposal.

## 6 **2.4 Environmental Monitoring**

7  
8 Environmental monitoring for the Administration Complex D&D project will only include  
9 wastewater monitoring. Groundwater monitoring is not needed to support this project but  
10 would be employed if necessary, as described in Section 3.6.2.3 of the OU3 Integrated RD/RA  
11 Work Plan.

12  
13 Project-specific stormwater management includes the diversion of stormwater to appropriate  
14 site collection drains surrounding the project and protection of these drains from excessive  
15 siltation and debris.

### 17 Surface Water (Wastewater) Monitoring

18 Section 2.3.2 of this Implementation Plan describes the wastewater management strategies  
19 that have been developed for the D&D of the Administration Complex D&D project. The OU3  
20 Integrated RD/RA Work Plan describes the overall strategies to be implemented for project  
21 monitoring of wastewater. Listed below are the specific references in the Work Plan:

- 22 • **Section 3.2.5 Surface Decontamination:** Wastewater collection and  
23 management strategies.
- 24 • **Section 3.3.3 Management of Secondary Waste:** The overall strategy for  
25 managing wastewater, as one of the primary aspects of secondary waste,  
26 through the site wastewater treatment system.
- 27 • **Section 3.5.2 Management of Contaminated Water:** References site  
28 procedure to be used for the evaluation and management of contaminated  
29 wastewater.
- 30 • **Sampling and Analysis Plan (SAP)/Section 2 General Sampling and Data  
31 Collection Approach:** Focuses on wastewater sampling, among other  
32 aspects of sampling.
- 33 • **SAP/Section 3 Specific Sampling Programs:** Sampling for disposition of  
34 wastes, including wastewater. Determination of hazardous, radiological, and  
35 other waste characteristics.

36  
37 The WWTS manager will be provided with a spreadsheet containing OU3 RI/FS analytical data  
38 from intrusive sampling of the Administrative Complex D&D project components to determine

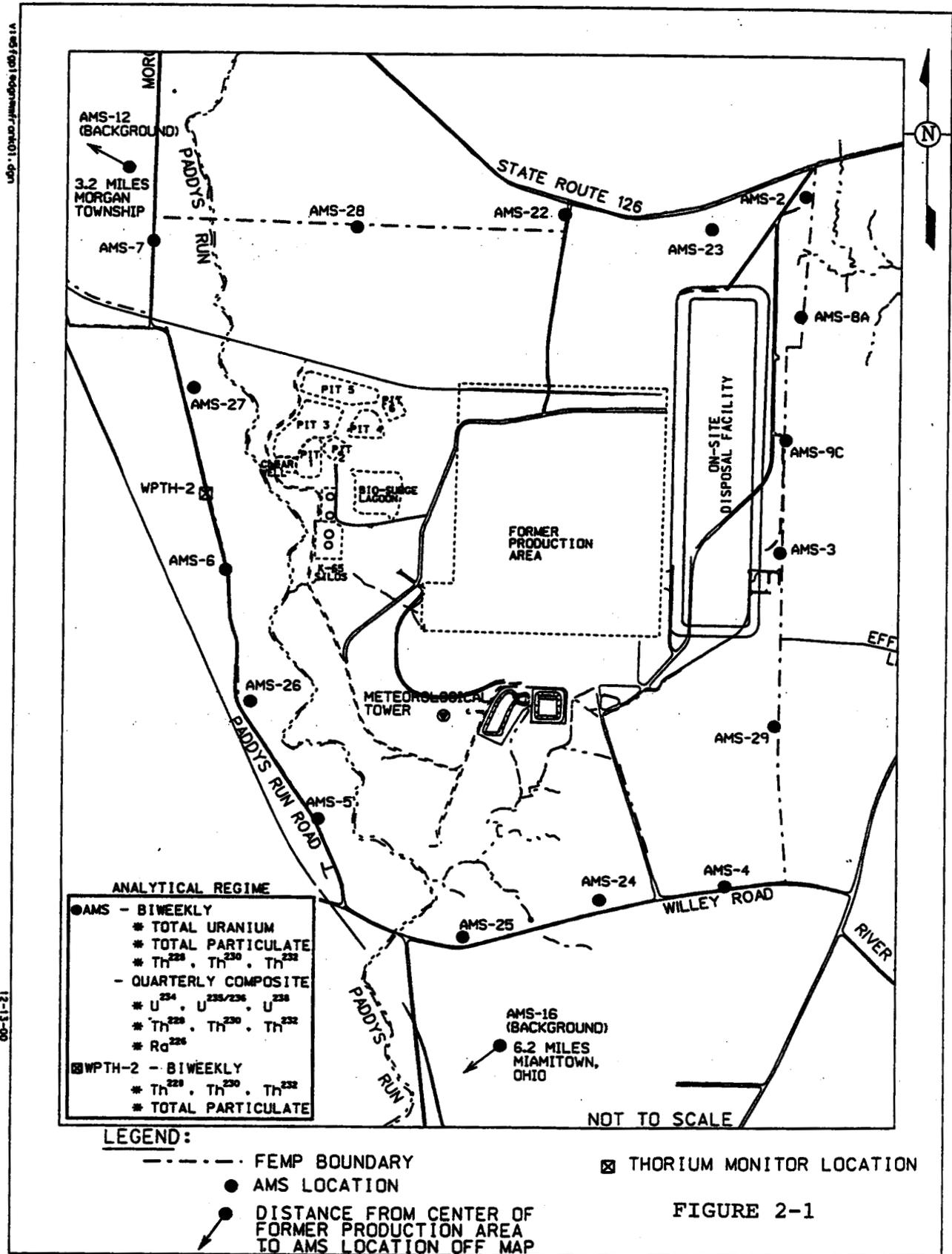
1 whether potential elevated levels of contaminants of concern may be present. Constituents  
2 to be sampled will be based on the contaminants of concern potentially present in the D&D  
3 water. Based on an estimated 75,000 gallons of potential washwater, it is anticipated that 25  
4 samples will be taken to determine isotopic radiological and heavy metals concentrations prior  
5 to discharge into the Advanced Wastewater Treatment Facility. Of those 25 samples, two will  
6 be duplicates for quality assurance/quality control purposes. The purpose of the sampling is  
7 to ensure the adequacy of treatment capacity so that National Pollutant Discharge Elimination  
8 System (NPDES) permit requirements are met.

9  
10 Project-specific reporting for wastewater will be provided in the project completion report. The  
11 report will include a summary of the data generated during the project. For wastewater, the  
12 report will include a summary of the results from sampling and analysis prior to its discharge  
13 into the WWTS.

#### 14 15 Radiological Air Monitoring

16 Occupational radiological air monitoring will be performed using personal and workplace air  
17 samplers in the work areas to ensure worker protection and will also serve as an indication of  
18 the effectiveness of engineering controls. Since Administration Complex D&D project buildings  
19 will be contained (i.e., enclosed) during D&D, any potential emissions that could affect the  
20 outside environment would be detected first by occupational radiological air monitoring.  
21 Section 8.1 of the OU3 RD/RA Health and Safety Plan (Appendix E of the OU3 Integrated  
22 RD/RA Work Plan) describes the occupational air monitoring program.

23  
24 Environmental radiological air monitoring during the Administration Complex D&D project will  
25 consist of the Fernald Site Environmental Monitoring Program described in the site-wide  
26 Integrated Environmental Monitoring Plan (IEMP) (DOE 1997b), and discussed in Sections 3.5.1  
27 and 3.6.2.1 of the OU3 Integrated RD/RA Work Plan. FEMP boundary monitors are shown in  
28 Figure 2-1.



LOCATION MAP FOR AIR MONITORING STATIONS

FIGURE 2-1

1 Justification for not providing project specific air monitors comes from analysis of data from  
2 the Plant 7 Dismantling - Removal Action No. 19 Final report (DOE 1995), the Project  
3 Completion Report for Building 4A (DOE 1997c), the Plant 1 Complex - Phase I Project  
4 Completion Report (DOE 1997d) and the Thorium/Plant 9 Complex Project Completion Report  
5 (DOE 1999a), which have shown that dismantlement activities resulted in negligible airborne  
6 radiological contaminant emissions. Results for airborne uranium contamination during those  
7 projects have been approximately 5 percent of the DOE maximum off-site guidelines of 0.1  
8 pCi/m<sup>3</sup>. The relationship between pCi/m<sup>3</sup> and mrem/year may be understood by the  
9 conversion factor used to equate the two terms at the FEMP: if inhaled continuously (24  
10 hours/day, 365 days/year), 0.1 pCi/m<sup>3</sup> of uranium in air will result in a dose of 100  
11 mrem/year. It should be noted that various assumptions have been incorporated into this  
12 conversion factor. Mitigative measures that might be employed in the event the set criterion  
13 are exceeded would include an increase in engineering and administrative controls during a  
14 particular task that has been identified as the cause or possible cause of the elevated  
15 radiological levels. Such controls could include negative pressure within an enclosed work area  
16 using additional HEPA filtration units or additional surface cleaning (wash) steps before  
17 removing material from the containment area.

## 19 2.5 Remediation Activities

20  
21 A general approach to the D&D of the Administration Complex D&D project is described in the  
22 following subsections. Section 3 elaborates on this discussion by identifying component-  
23 specific interests concerning the remedial tasks listed below, as applicable. The remedial tasks  
24 that apply to the Administration Complex D&D project include the following:

- 25 • Preparatory Action: Inventory Removal;
- 26 • Preparatory Action: Facility Shutdown;
- 27 • Asbestos Removal;
- 28 • Surface Decontamination; and
- 29 • Above-Grade Dismantlement.

30  
31 As required by Specification 01515 (Mobilization), the remediation contractor will mobilize in  
32 preparation for the D&D activities by establishing the construction zone boundary and material  
33 handling and containerization area(s), providing portable support facilities as needed, extending

1 water and electrical utilities from designated tie-ins, and establishing stormwater controls. Site  
2 preparation will be performed by the contractor including installing the necessary break and  
3 control point trailers to the designated area prior to contractor mobilization. The contractor  
4 will also supply an asbestos hygiene trailer/facility.

5  
6 Equipment that are potentially contaminated due to a history of use at another radiological  
7 facility will be inspected by FEMP Project Management and surveyed by radiological control  
8 technicians to ensure that no contamination or items prohibited by the FEMP are brought on-  
9 site. A sign-in station will be established at the entrance to the job site for posting of permits  
10 and health and safety plans. Additional radiological control boundaries will be established in  
11 various areas as necessary prior to starting remediation activities in those areas. These  
12 boundaries will be established prior to starting in order to locate contaminated material staging  
13 areas as well as access and egress points to and from contaminated areas.

14  
15 As required in the performance specifications, the remediation contractor will develop and  
16 submit for FEMP Project Management approval safe work plans detailing work activities.  
17 Examples of such plans include details relative to where the remediation contractor will erect  
18 barriers and fences for radiological control (Specification Section 01515), controlling fugitive  
19 emissions (Specification Section 15067), stormwater run-off protection (Specification Section  
20 01515), and controlling erosion (Specification Section 01515). Throughout the remediation  
21 activities, the remediation contractor will be responsible for notifying FEMP Project  
22 Management of conditions in the field (e.g., chemical spills, leaking containers) that require  
23 environmental response. All conditions that necessitate a response will be dealt with  
24 immediately.

#### 25 26 2.5.1 Preparatory Action: Inventory Removal

27  
28 Waste/product inventories have been removed from Administration Complex D&D project  
29 components and were transported to interim storage facilities or off-site disposal facilities  
30 under the decisions and procedures adopted from Removal Action No. 9, Removal of Waste  
31 Inventories. For those components that had inventory removed, a summary of inventory types  
32 and quantities has been provided in the respective Section 3 component-specific remediation  
33 details.

1 2.5.2 Preparatory Action: Facility Shutdown

2

3 Facilities Shutdown activities will be performed by FEMP personnel in accordance with  
4 applicable Facilities Shutdown procedures. The Facility Shutdown scope will consist of the  
5 following activities:

- 6 • removal of all salvageable equipment;
- 7 • removal of loose, gross contamination;
- 8 • general clean-up; and
- 9 • disconnection of all utilities.

10

11 All steam, potable water, electrical power, fire protection alarms and systems, compressed air,  
12 and communication systems will be disconnected at the equipment or at the building exterior  
13 to establish the known condition of each energy source within the remediation area. Section  
14 3.2.2 of the OU3 Integrated RD/RA Work Plan further discusses the scope of this preparatory  
15 action.

16

17 2.5.3 Asbestos Removal

18

19 The removal of ACM from components will be conducted by a contractor qualified to conduct  
20 asbestos abatement operations. This activity will involve removing all friable types of  
21 asbestos, typically consisting of thermal system insulation (TSI) on pipes, tanks, and  
22 equipment and non-friable ACM such as floor tile, mastic, gaskets, etc.). Component-specific  
23 details of asbestos removal, including estimated quantities, are provided in Section 3, as  
24 applicable. ACM removal strategies that will be applied to this project were discussed in depth  
25 in Section 3.2.4 of the OU3 Integrated RD/RA Work Plan while overall project specific  
26 requirements for the D&D Contractor are detailed in Specification Section 01516.

27

1 2.5.4 Surface Decontamination

2  
3 Surface decontamination, also known as release cleaning, refers to the removal of loose  
4 surface contamination and, if necessary, the encapsulation of remaining contaminants. The  
5 goal of surface decontamination is to minimize the potential for release of contaminants during  
6 handling and disposal. Specification Section 01517 addresses the removal and/or fixing of  
7 radiological contamination and generally covers the following activities:

- 8 • cleaning low-level uranium contaminated materials and/or building surfaces  
9 by contaminant removal or encapsulation to meet debris and/or structure  
10 release criteria;
- 11 • controlling and moving effluent produced during the removal and/or  
12 encapsulation of contamination.

13  
14 To identify materials/surfaces that may require surface cleaning, existing radiological surveys  
15 were reviewed. These surveys provide Radiological Engineers with an indication of the extent  
16 of alpha removable, and beta-gamma removable, and total beta-gamma radiological  
17 contamination.

18  
19 Decontamination efforts are not anticipated since process operations did not occur in these  
20 structures. If necessary, applicable details from Specification Section 01517 will be  
21 incorporated into the project work scope for these structures. Specification Section 01517  
22 identifies the requirements for removing/fixing of contamination, including DOE-approved  
23 methods, while Specification Section 01120 identifies the level of decontamination needed to  
24 meet material handling criteria. Among other requirements, these specifications require  
25 removal of surface contamination and sealing of all openings of equipment and debris that are  
26 potentially contaminated internally with removable contamination. For large items such as  
27 ductwork, the Contractor may encapsulate all internal surfaces in lieu of sealing. Acceptable  
28 methods for removing surface contamination include, but are not limited to: low volume hydro-  
29 blasting with a minimum of 1,000 psi, steam-cleaning, sponge blasting, CO<sub>2</sub> blasting, etc.  
30 FEMP Project Management will be notified prior to encapsulation of debris to allow for  
31 inspection for visible residues. Acceptable methods for encapsulating contamination, which  
32 is not readily removed by the above-identified methods include, but are not limited to,  
33 encapsulating coatings, non-strippable coatings as referenced in Article 2.2 of Specification

1 Section 01517, and reinforced polyethylene sheeting which is sealed prior to movement to  
2 prevent migration of potential contaminants.

3  
4 Prior to opening the structures that require decontamination to the environment, the Contractor  
5 is required to remove and/or fix radiological contamination on all surfaces in the facility until  
6 the detected radioactivity levels are below the facility release criteria identified in Part 8.C. of  
7 the contract (Radiological Requirements). FEMP Project Management will perform a  
8 radiological release survey to ensure the radioactivity criteria are met.

9  
10 **2.5.5 Above-Grade Dismantlement**

11  
12 All above-grade dismantlement activities to be performed during the Administration D&D  
13 project are described in Section 3.2.6 of the OU3 Integrated RD/RA Work Plan. The  
14 specification sections listed below describe various project applications of structural  
15 building/component dismantlement:

- 16 • Bulk Removal: includes removal of electrical components, piping,  
17 construction debris, and heating, ventilation and air conditioning (HVAC)  
18 systems: (Specification Section 15065);
- 19 • Equipment/System Dismantlement: Specification Section 15065;
- 20 • Structural Steel Dismantlement: Specification Section 05126; and
- 21 • Concrete/Masonry Removal: Specification Section 03315.

22  
23 The remediation contractor is required by each of the above-referenced specifications to  
24 submit a Safe Work Plan for approval by FEMP Project Management. Content, such as  
25 methods, and submittal requirements for Safe Work Plans are described in each of the  
26 performance specification sections. Based on these and other supporting specifications, a  
27 general description of above-grade dismantlement tasks is described below, while building-  
28 specific above-grade dismantlement tasks are discussed in Section 3.

29  
30 **Bulk Removal**

31 Prior to breaching any system, the remediation contractor and FEMP Project Management will  
32 verify that all the systems are de-energized.

33

1 The majority of piping, valves, electrical components, conduit, wire, cable trays, construction  
2 debris, and HVAC systems will be removed and reduced in size. During removal of HVAC  
3 ductwork, internal surfaces will be visually inspected to ensure the absence of free liquids or  
4 solid materials. If free liquids or solid materials are found, an evaluation will be initiated by the  
5 FEMP Project Manager to determine the requirements for material handling and removal. The  
6 evaluation will identify the contents and requirements for containerization, storage, and  
7 disposal.

8

9 Methods such as reciprocating saws, portable band saws, and shears are the preferred  
10 methods for bulk removal. Surface wiping or HEPA filtered vacuuming may be required for  
11 contaminated surfaces where cuts are planned in order to minimize transferable contamination.  
12 Methods that minimize volatilization and release of paint constituents and other contamination  
13 are preferred; however, alternative methods may be proposed provided that HEPA-filtered local  
14 ventilation and adequate respiratory protection are used. Continuous workplace air monitoring  
15 for radioactivity will be performed to ensure that engineering controls employed by the  
16 Contractor are adequate.

17

#### 18 Equipment/System Dismantlement

19 As equipment/systems are removed, the previously inaccessible surfaces will be visually  
20 inspected to ensure the absence of free liquids or debris. If these materials are found, an  
21 evaluation will be initiated by FEMP Project Management to determine the appropriate removal  
22 and handling requirements for the material (Specification Section 15065).

23

24 The Contractor will detail in its Safe Work Plan for equipment removal the sequence, methods  
25 of removal and dismantlement, equipment required, catalog cut sheets, drawings and methods  
26 and materials to control generation of airborne contaminants from cutting operations, etc.  
27 Staging of removed equipment and size reduction will be proposed by the Contractor and  
28 approved by FEMP Project Management.

29

#### 30 Structural Steel Dismantlement

31 Specification Section 05126 addresses structural steel dismantlement requirements. All items,  
32 such as non-load bearing steel members, windows and frames, doors, gutters and down  
33 spouts, will be removed using mechanical means. As these items are removed, the exposed

1 component surfaces have the potential of holding debris and contamination. These areas will  
2 be visually and radiologically surveyed as required to determine if these surfaces meet the  
3 decontamination requirements of Specification Section 01517.

4  
5 For all of the components in the Administration D&D project, hydraulic shears or oxy-acetylene  
6 torches are expected to dismantle and size reduce the structural steel. Prior to and during  
7 structural dismantlement, the area surrounding the structure will be sprayed with water as  
8 necessary to reduce fugitive dust emissions.

9  
10 The D&D Contractor will be required, pursuant to Specification Section 05126, to specify in  
11 a Safe Work Plan for structural steel removal the following methods:

- 12 • Detailed sequence of dismantlement and method of cutting, including  
13 equipment to be used;
- 14 • Methods for contaminant control, including fugitive emissions during cutting;
- 15 • Detailed plan for protecting lay down and cutting areas from contamination  
16 by lead paint chips and for controlling airborne radiological emissions;
- 17 • Methods and materials used for cutting lead-painted steel;
- 18 • If structural steel is removed in sections, verify the structural adequacy of  
19 the remaining structure. Calculations and drawings to verify the structural  
20 integrity of the partially dismantled structure must bear the stamp of a  
21 Registered Professional Engineer; and
- 22 • Plans for personnel tie offs, use of pick boards and walking on or near roof  
23 purlins/girders.

24  
25 Furthermore, Specification Section 05126 requires that the remediation contractor apply  
26 mechanical means of cutting to remove the structural steel to the largest extent possible while  
27 also avoiding damage to adjacent structures, components, equipment, and utilities.

28  
29 Concrete Masonry Unit (CMU) Removal

30 Specification Section 03315 requires the remediation contractor to develop a Safe Work Plan  
31 for concrete/masonry removal that contains the following information:

- 32 • Detailed method and sequence of dismantlement, including equipment to be  
33 used;
- 34 • Methods for control of contaminants, including control of fugitive emissions;
- 35 • Materials, such as non-woven geotextile fabrics and surfactants, to be used;
- 36 • Methods of cutting, including equipment to be used;

- 1           •       Calculations to verify structural adequacy of partially dismantled structure,  
2                    as applicable; and
- 3           •       If dismantlement method requires personnel on the roof, the Contractor shall  
4                    provide calculations verifying the structural adequacy of the roof to support  
5                    personnel and equipment. These calculations shall be stamped by a  
6                    Registered Professional Engineer.

7

8   The CMU walls will be radiologically surveyed prior to removal to determine the need for  
9   engineering controls, such as an enclosure with ventilation or water sprays to minimize fugitive  
10  dust, during removal operations. When controls are necessary, best available control  
11  technologies will be applied to CMU removal operations.

12

13  Specification Section 01515 addresses requirements relative to the preparation of the base  
14  slab during demobilization. Specifically, small openings in the slab will be filled with granular  
15  material or soils and grout to provide a flat uniform surface to mitigate potential safety  
16  hazards. Larger openings will be barricaded to prevent potential safety hazards. Wire and cable  
17  will be cut away to grade from the conduit embedded in the concrete. Conduit and other slab  
18  obstructions will be cut away to grade, plugged, and covered with grout to grade level for  
19  positive drainage control.

20

21  **2.6 Use of New Technologies**

22

23  While the performance specifications provide an avenue for the D&D Contractor to propose  
24  new and innovative technologies, FEMP Project Management can only encourage use of  
25  particular technologies by apprising them of approved technologies. The FEMP Technology  
26  Programs department will provide the D&D Contractor with information on the latest approved  
27  innovative technologies that have been shown through site technology demonstrations to  
28  provide safer, quicker, and/or less expensive remediation.



1 process area, clothes are monitored to ensure that all articles are radiologically clean.  
2 Tetrachloroethylene has not been used in the operation in several years.

3  
4 **Maintenance:** The maintenance shop, located near the southwestern corner of the first floor,  
5 handles malfunctions associated with laundry facilities and provides storage for small items  
6 used for any maintenance or repair work on the administration side of the FEMP. Service fluids  
7 are stored in one area of the maintenance office. Although this storage area has a concrete  
8 floor, it does not have a dike or any other form of containment. Very little work on equipment  
9 is done within the room itself; any work that is done must be radiologically clean upon entry.

10  
11 **Locker Room (Changing Room):** Changing rooms are located on most of the first floor.  
12 Separate rooms are available, according to sex, employment status (visitor or permanent  
13 employee) and radiological contamination. This area provides lockers and shower facilities.  
14 Numerous drainage pipes carry wastewater to the laundry sump. Like the laundry area, these  
15 facilities were refurbished and enlarged in 1987.

16  
17 **Cafeteria/Kitchen:** Although the kitchen is no longer in service, this area provides a lunchroom  
18 area with vending machines for FEMP employees and subcontractors.

19  
20 **Remedial Tasks**

21 Four remedial tasks apply to Building 11 and are described below.

22  
23 **Preparatory Action: Facility Shutdown**

24 No hold-up legacy waste (inventory) was ever present in Building 11. The kitchen ductwork  
25 is contaminated and has been sealed. Other than standard facility shutdown work such as  
26 utility disconnections and removal of salvageable equipment, no preparatory actions will be  
27 necessary.

28  
29 **Asbestos Removal**

30 Standard asbestos abatement practices are planned for the removal of friable ACM piping and  
31 floor tile/mastic identified in Table 2-2 for Building 11. Friable ACM on the 2<sup>nd</sup> floor hot water  
32 tank will be removed inside a negative pressure enclosure. ACM removal work will be

1 performed in accordance with the work scope condition/specification for asbestos removal  
2 (Specification Section 01516 – Asbestos Abatement).

3  
4 Surface Decontamination

5 Efforts to remove radiological contamination are not anticipated since no production processes  
6 occurred in the building. Areas found to have fixed contamination will be locked down to  
7 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
8 (HVAC) system and other building cavities will be surveyed for removable radiological  
9 contaminants that may have been deposited. Applicable details from Specification Section  
10 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
11 work scope for the D&D of this structure.

12  
13 Above-Grade Dismantlement

14 Equipment/systems removal activities will be performed in accordance with the work scope  
15 conditions from applicable requirements for Specification Section 15065 (Equipment/Systems  
16 Removal) and actual building demolition work will be performed in accordance with the  
17 requirements for Specification Section 01526 (Structural Steel Dismantlement) and  
18 Specification Section 03315 (Concrete/Masonry Removal). The preferred methods for  
19 structural dismantlement are use of a trackhoe shear, track hoe excavator and front end  
20 loader. Due to the potential for fugitive dust emissions during structural dismantlement the  
21 building surfaces will be pre-wetted and continually wetted during demolition.

22  
23 **3.2 Building 14A – Administration Building**

24  
25 Background

26 Building 14A (Administration Building) is an irregularly shaped two-level structure measuring  
27 143 X 240 X 24 Feet high. Building 14A is located south of the Service Building (Building 11)  
28 and the 10-Plex Trailer Complex (T-23). Building 14A is constructed of cinder block walls  
29 supported on reinforced concrete footers with poured concrete floors. The building comprises  
30 a central hallway with east and west wings and a partial basement is located under the west  
31 wing.

32

1 **Process Area Description**

2 Building 14A houses the main offices for site management, the main mailroom, central  
3 reproduction, central computing and the Emergency Operations Center (EOC). The building is  
4 also equipped with several restrooms/locker rooms.

5  
6 **Remedial Tasks**

7 Four remedial tasks apply to Building 14A and are described below.  
8

9 **Preparatory Action: Facility Shutdown**

10 No hold-up legacy waste (inventory) was ever present in Building 14A. Other than standard  
11 facility shutdown work such as utility disconnections and removal of salvageable equipment,  
12 no preparatory actions will be necessary.  
13

14 **Asbestos Removal**

15 Standard asbestos abatement practices are planned for the removal of friable ACM piping and  
16 floor tile/mastic identified in Table 2-2 for Building 14A. Friable ACM on the basement hot  
17 water tank will be removed inside a negative pressure enclosure. ACM removal work will be  
18 performed in accordance with the work scope condition/specification for asbestos removal  
19 (Specification Section 01516 – Asbestos Abatement).  
20

21 **Surface Decontamination**

22 Efforts to remove radiological contamination are not anticipated since no production processes  
23 occurred in the building. Areas found to have fixed contamination will be locked down to  
24 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
25 (HVAC) system and other building cavities will be surveyed for removable radiological  
26 contaminants that may have been deposited. Applicable details from Specification Section  
27 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
28 work scope for the D&D of this structure.  
29

30 **Above-Grade Dismantlement**

31 Equipment/systems removal activities will be performed in accordance with the work scope  
32 conditions from applicable requirements for Specification Section 15065 (Equipment/Systems  
33 Removal) and actual building demolition work will be performed in accordance with the

1 requirements for Specification Section 01526 (Structural Steel Dismantlement) and  
2 Specification Section 03315 (Concrete/Masonry Removal). The preferred methods for  
3 structural dismantlement are use of a track hoe shear, track hoe excavator and front end  
4 loader. Due to the potential for fugitive dust emissions during structural dismantlement the  
5 building surfaces will be pre-wetted and continually wetted during demolition.

### 6 7 **3.3 Component 14B – Building 14 EOC Generator Set**

#### 8 9 Background

10 Component 14B (Building 14 EOC Generator) is a diesel powered electrical generator located  
11 near the northwest corner of the Administration Building (Building 14A). The component  
12 contains a diesel-powered engine, a diesel fuel tank, an electrical generator and a cement built  
13 dike under and around the diesel fuel tank.

#### 14 15 Process Area Description

16 Component 14B was installed in 1986 to provide electrical power to the site Emergency  
17 Operations Center in the event of a primary power loss. The anticipated contaminants are  
18 radiological elements and diesel fuel.

#### 19 20 Remedial Tasks

21 Three remedial tasks apply to Component 14B and are described below.

#### 22 23 Preparatory Action: Facility Shutdown

24 No hold-up legacy waste (inventory) was ever present in the Component 14B area. Other than  
25 standard facility shutdown work such as utility disconnections and removal of salvageable  
26 equipment, no preparatory actions will be necessary.

#### 27 28 Surface Decontamination

29 Efforts to remove radiological contamination are not anticipated since no production processes  
30 occurred in the area of this component. Applicable details from Specification Section 01517  
31 (Removing/Fixing Radiological Contamination) have been incorporated into the project work  
32 scope for the D&D of this component.

1 **Above-Grade Dismantlement**

2 Equipment/system removal activities are planned for Component 14B. The preferred method  
3 for dismantlement is use of a track hoe shear, track hoe excavator and front end loader.

4

5 **3.4 Component 20K – Administration Area Cooling Towers**

6

7 **Background**

8 Component 20K (Administration Area Cooling Towers) consists of two towers, measures  
9 approximately 30 x 30 x 20 ft. high and is a steel structure on a concrete base. It includes  
10 a single story, pre-fabricated steel out-building that measures approximately 15 x 25 x 10 ft.  
11 high.

12

13 **Process Area Description**

14 Component 20K provides air cooling for the administrative area process water.

15

16 **Remedial Tasks**

17 Three remedial tasks apply to Component 20K and are described below.

18

19 **Preparatory Action: Facility Shutdown**

20 No hold-up legacy waste (inventory) was ever present in the Component 20K area. Other than  
21 standard facility shutdown work such as utility disconnections and removal of salvageable  
22 equipment, no preparatory actions will be necessary.

23

24 **Surface Decontamination**

25 Efforts to remove radiological contamination are not anticipated since no production processes  
26 occurred in the building. Areas found to have fixed contamination will be locked down to  
27 ensure containment. Loose material contained in building cavities will be surveyed for  
28 removable radiological contaminants that may have been deposited. Applicable details from  
29 Specification Section 01517 (Removing/Fixing Radiological Contamination) have been  
30 incorporated into the project work scope for the D&D of this structure.

31

1 **Above-Grade Dismantlement**

2 Equipment/systems removal activities will be performed in accordance with the work scope  
3 conditions from applicable requirements for Equipment/Systems Removal (Specification Section  
4 15065) and actual building demolition work will be performed in accordance with the  
5 requirements for Structural Steel Dismantlement (Specification Section 01526). The preferred  
6 methods for structural dismantlement are use of a track hoe shear, track hoe excavator and  
7 front end loader. Due to the potential for fugitive dust emissions during structural  
8 dismantlement the building surfaces will be pre-wetted and continually wetted during  
9 demolition.

11 **3.5 Building 31A – Engine House Garage**

13 **Background**

14 Building 31A (Engine House Garage) is a single-story building located in the southeastern  
15 corner of the intersection of 1<sup>st</sup> Street and D Street. It is an irregular shaped building,  
16 measuring approximately 62 x 123 x 17 ft. high. The building is constructed of cinder blocks  
17 with a concrete roof and floor.

19 **Process Area Description**

20 Building 31A is operated as a garage for performing general maintenance on the on-site  
21 vehicles. The garage also houses the facility's ambulance and fire engine. The garage is  
22 considered a wet process area because of the frequent use of solvents and oils.

24 **Remedial Tasks**

25 Four remedial tasks apply to Building 31A and are described below.

27 **Preparatory Action: Facility Shutdown**

28 No hold-up legacy waste (inventory) was ever present in the Component 31A area. Other than  
29 standard facility shutdown work such as utility disconnections and removal of salvageable  
30 equipment, no preparatory actions will be necessary.

31

1 **Asbestos Removal**

2 Standard asbestos abatement practices are planned for the removal of friable ACM piping and  
3 floor tile/mastic identified in Table 2-2 for Building 31A. ACM removal work will be performed  
4 in accordance with the work scope condition/specification for asbestos removal (Specification  
5 Section 01516 – Asbestos Abatement).

6  
7 **Surface Decontamination**

8 Efforts to remove radiological contamination are not anticipated since no production processes  
9 occurred in the building. Areas found to have fixed contamination will be locked down to  
10 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
11 (HVAC) system and other building cavities will be surveyed for removable radiological  
12 contaminants that may have been deposited. Applicable details from Specification Section  
13 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
14 work scope for the D&D of this structure.

15  
16 **Above-Grade Dismantlement**

17 Equipment/systems removal activities will be performed in accordance with the work scope  
18 conditions from applicable requirements for Equipment/Systems Removal (Specification Section  
19 15065) and actual building demolition work will be performed in accordance with the  
20 requirements for Concrete/Masonry Removal (Specification Section 03315). The preferred  
21 methods for structural dismantlement are use of a track hoe shear, track hoe excavator and  
22 front end loader. Due to the potential for fugitive dust emissions during structural  
23 dismantlement the building surfaces will be pre-wetted and continually wetted during  
24 demolition.

25  
26 **3.6 Building 46 – Heavy Equipment Building**

27  
28 **Background**

29 Building 46 (Heavy Equipment Building) is a single-story building, measuring approximately 220  
30 x 59, located just east of the Engine House Garage. It is a pre-engineered facility consisting  
31 of a structural steel frame on a reinforced, poured concrete base, sloped steel roof panels,  
32 steel siding panels and glass windows.

1 Process Area Description

2 Building 46 stores forklifts, trucks and other heavy equipment associated with site operations.  
3 The building is considered a single process area.

4  
5 Remedial Tasks

6 Three remedial tasks apply to Building 46 and are described below.

7  
8 Preparatory Action: Facility Shutdown

9 No hold-up legacy waste (inventory) was ever present in the Building 46 area. Other than  
10 standard facility shutdown work such as utility disconnections and removal of salvageable  
11 equipment, no preparatory actions will be necessary.

12  
13 Surface Decontamination

14 Efforts to remove radiological contamination are not anticipated since no production processes  
15 occurred in the building. Areas found to have fixed contamination will be locked down to  
16 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
17 (HVAC) system and other building cavities will be surveyed for removable radiological  
18 contaminants that may have been deposited. Applicable details from Specification Section  
19 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
20 work scope for the D&D of this structure.

21  
22 Above-Grade Dismantlement

23 Equipment/systems removal activities will be performed in accordance with the work scope  
24 conditions from applicable requirements for Equipment/Systems Removal (Specification Section  
25 15065) and actual building demolition work will be performed in accordance with the  
26 requirements for Structural Steel Dismantlement (Specification Section 01526). The preferred  
27 methods for structural dismantlement are use of a track hoe shear, track hoe excavator and  
28 front end loader. Due to the potential for fugitive dust emissions during structural  
29 dismantlement the building surfaces will be pre-wetted and continually wetted during  
30 demolition.

1 **3.7 Building 53A – Health and Safety Building**

2

3 **Background**

4 Building 53A (Health and Safety Building) is a rectangular, multilevel building measuring  
5 approximately 89 feet x 221 feet x 22 feet high, with two floors and a partial basement  
6 under the west section. The building consists of cement block construction on reinforced  
7 poured concrete footers and floors, flat reinforced poured concrete roofs and glass  
8 windows.

9

10 **Process Area Description**

11 Building 53A contained three process areas: offices, medical services and security  
12 communications headquarters. Offices and conference areas existed on both main floors. The  
13 medical services area of the building housed equipment for emergency medical attention,  
14 routine examination and testing, X-ray testing, medical laboratory and offices. Site security  
15 used much of the basement as a communications headquarters.

16

17 **Remedial Tasks**

18 Four remedial tasks apply to Building 53A and are described below.

19

20 **Preparatory Action: Facility Shutdown**

21 No hold-up legacy waste (inventory) was ever present in the Building 53A area. Other than  
22 standard facility shutdown work such as utility disconnections and removal of salvageable  
23 equipment, no preparatory actions will be necessary.

24

25 **Asbestos Removal**

26 Asbestos Removal - Building 53A contains a number of tar-insulated (ACM) fasteners on the  
27 ceiling of the old mechanical room - Room #168. ACM floor tile is present in Room 171(X-ray  
28 room) under the X-ray equipment and in Room 213 (Bio-assay lab) under the fume hoods.  
29 There is evidence the floor tile mastic throughout the east two-thirds of Building 53A was not  
30 removed at the time of the building renovation. There is no evidence that this mastic has ever  
31 been sampled for asbestos content. The floor tile mastic throughout the eastern portion of  
32 Building 53A should be treated as asbestos containing. ACM removal work will be performed

1 in accordance with the work scope condition/specification for asbestos removal (Specification  
2 Section 01516 – Asbestos Abatement).

3  
4 **Surface Decontamination**

5 Efforts to remove radiological contamination are not anticipated since no production processes  
6 occurred in the building. Areas found to have fixed contamination will be locked down to  
7 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
8 (HVAC) system and other building cavities will be surveyed for removable radiological  
9 contaminants that may have been deposited. Applicable details from Specification Section  
10 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
11 work scope for the D&D of this structure.

12  
13 **Above-Grade Dismantlement**

14 Equipment/systems removal activities will be performed in accordance with the work scope  
15 conditions from applicable requirements for Equipment/Systems Removal (Specification Section  
16 15065) and actual building demolition work will be performed in accordance with the  
17 requirements for Structural Steel Dismantlement (Specification Section 01526) and  
18 Concrete/Masonry Removal (Specification Section 03315). The preferred methods for  
19 structural dismantlement are use of a track hoe shear, track hoe excavator and front end  
20 loader. Due to the potential for fugitive dust emissions during structural dismantlement the  
21 building surfaces will be pre-wetted and continually wetted during demolition.

22  
23 **3.8 Building 53B – In-Vivo Building**

24  
25 **Background**

26 Building 53B is located on the south side of the Health and Safety Building (53A) and consists  
27 of a cement block wall with concrete floor construction and approximate dimensions of 36 X  
28 72 X 15 feet in height.

29  
30 **Process Area Description**

31 Building 53B is a radiologically shielded structure housing highly sensitive radiation detection  
32 equipment. The facility is utilized to obtain internal radiation measurements of on-site  
33 employees. The measurements are generally for uranium content of the lungs. An inspection

1 indicated no visible chemical contamination. A tank of liquid nitrogen is located directly west  
2 of the building. The only anticipated contaminant is germanium.

3  
4 **Remedial Tasks**

5 Three remedial tasks apply to Component 53B and are described below.

6  
7 **Preparatory Action: Facility Shutdown**

8 No hold-up legacy waste (inventory) was ever present in Building 53B. Other than standard  
9 facility shutdown work such as utility disconnections and removal of salvageable equipment,  
10 no preparatory actions will be necessary.

11  
12 **Surface Decontamination**

13 Efforts to remove radiological contamination are not anticipated since no production processes  
14 occurred in the building. Areas found to have fixed contamination will be locked down to  
15 ensure containment. Loose material contained in the heating, ventilation, air-conditioning  
16 (HVAC) system and other building cavities will be surveyed for removable radiological  
17 contaminants that may have been deposited. Applicable details from Specification Section  
18 01517 (Removing/Fixing Radiological Contamination) have been incorporated into the project  
19 work scope for the D&D of this structure.

20  
21 **Above-Grade Dismantlement**

22 Equipment/systems removal activities will be performed in accordance with the work scope  
23 conditions from applicable requirements for Equipment/Systems Removal (Specification Section  
24 15065) and actual building demolition work will be performed in accordance with the  
25 requirements for Structural Steel Dismantlement (Specification Section 01526) and  
26 Concrete/Masonry Removal (Specification Section 03315). The preferred methods for  
27 structural dismantlement are use of a track hoe shear, track hoe excavator and front end  
28 loader. Due to the potential for fugitive dust emissions during structural dismantlement the  
29 building surfaces will be pre-wetted and continually wetted during demolition.

1 **3.9 Component G-008 – Pipe Bridges**

2

3 **Background**

4 The pipe bridges are steel structures which support the steam lines and other lines required  
5 for support activities which take place in the Administration Complex components. The pipe  
6 bridges included in the Administration Complex D&D project scope include the following four  
7 sections:

- 8 ● the north to south pipe bridge located on the east side of the In-Vivo Building will be  
9 dismantled under Phase I;
- 10 ● the south to north section of the pipe bridge that starts at the northeast corner of the  
11 Health and Safety Building will be dismantled under Phase I;
- 12 ● the section of pipe bridge that extends from the southwest corner of the Services  
13 Building to the northwest corner of the Administration Building will be dismantled under  
14 Phase II;
- 15 ● the section of pipe bridge that extends west from the northwest corner of the Services  
16 Building and forks to the Administration Area Cooling Towers (south) and the east/west  
17 pipe bridge just beyond 1<sup>st</sup> Street (north) will be dismantled under Phase II.

18

19 **Remedial Tasks**

20 Three remedial tasks apply to Component G-008 and are described below.

21

22 **Preparatory Action: Facility Shutdown**

23 Facility Shutdown activities will consist of de-energizing all electrical utility services,  
24 disconnection and isolation of steam lines and disconnecting water/condensate lines. No hold-  
25 up materials are present in this component.

26

27 **Surface Decontamination**

28 Standard methods for removal/fixing of surface contamination will be incorporated if  
29 required. However, radiological contamination is not anticipated since no production  
30 processes occurred in these areas.

31

32 **Above Grade Dismantlement**

33 Material take-off estimates reveal that structural steel and miscellaneous steel pipe and  
34 conduit will constitute the majority of the waste stream from the pipe bridges. Use of  
35 hydraulic shears or oxy-acetylene torch are the preferred methods for structural  
36 dismantlement after asbestos has been removed.

37

1  
2  
3  
4  
5  
6  
7  
8  
9

**4.0 SCHEDULE**

This section presents the planning and implementation schedules for the Administration Complex D&D project. Figure 4-1 presents the schedule for implementation of field activities beginning with the Contractor's Notice To Proceed (NTP) and ending with the submittal of the Project Completion Report. The primary milestones of the project include the following: 1) NTP and 2) Completion of Field Activities, and the submittal of the Project Completion Report to U.S. EPA and Ohio EPA. The content for the Project Completion Report is outlined in Section 4.5 of the OU3 Integrated RD/RA Work Plan.

Activity Description	Early Start	Early Finish	Orig Dur	Fiscal Year						
				FY02	FY03	FY04	FY05	FY06	FY07	FY08
<b>ADMINISTRATION COMPLEX D&amp;D - PHASE 1</b>										
NOTICE TO PROCEED - PHASE 1	01APR02*		0	◆						
FIELD REMEDIATION OF ADMIN COMPLEX - PHASE 1	01APR02	27DEC02	271	<div style="background-color: black; width: 20px; height: 10px; display: inline-block;"></div> (Includes: premobilization, mobilization and demobilization)						
COMPLETION OF FIELD ACTIVITIES - PHASE 1		27DEC02	0	◆						
<b>ADMINISTRATION COMPLEX D&amp;D - PHASE 2</b>										
NOTICE TO PROCEED - PHASE 2	03OCT05*		0	◆						
FIELD REMEDIATION OF ADMIN COMPLEX - PHASE 2	03OCT05	01NOV06	395	<div style="background-color: black; width: 20px; height: 10px; display: inline-block;"></div> (Includes: premobilization, mobilization and demobilization)						
COMPLETION OF FIELD ACTIVITIES - PHASE 2		01NOV06	0	◆						
<b>ADMINISTRATION COMPLEX D&amp;D - COMPLETION REPORT</b>										
PREPARE PROJECT COMPLETION REPORT	02NOV06	31DEC06	60	■						
SUBMIT PROJECT COMPLETION REPORT TO US/OEPA		31DEC06	0	◆						
Start Date: 01OCT97 Finish Date: 31DEC06 Data Date: 31DEC97 Run Date: 06DEC01 11:08	<b>OPERABLE UNIT 3 D&amp;D SCHEDULE</b>  <b>ADMINISTRATION COMPLEX D&amp;D</b>			<b>FLUOR FERNALD</b>						
© Primavera Systems, Inc.										

41

000048

FIGURE 4-1 Administration Complex D&D Project Remediation



- 1 • verifying work is performed in compliance with approved health and
- 2 safety plans; and
- 3 • performing pre-final and final inspections.
- 4

5 The Contractor will perform D&D of the components, material sizing, segregation, and loading  
6 into containers and/or stockpiling. FEMP Waste Management personnel will perform container  
7 transport to and from the project area.



## APPENDIX A

### PROPOSED SAMPLING

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

#### Characterization Screening

Lead screening was conducted during the OU3 RI/FS using X-Ray Fluorescence (XRF) screening of media for lead based paint. No additional XRF screening was required to support D&D design; however, the D&D Contractor will be required to assess surfaces of steel proposed to be cut using hot methods to address potential lead emissions. XRF screening is the preferred method for lead sampling. Radiological surveying has been conducted for fixed and removable radioactive contamination using Geiger-Mueller radiological contamination meters and will continue to be used throughout D&D activities to verify that radiological facility release criteria (i.e., release from containment) are met on equipment and materials being removed from the project contamination.

#### Asbestos

This category represents samples that have been collected to verify whether a certain material is considered ACM and whether the ACM is regulated or non-regulated. Asbestos surveys were conducted prior to the design of this D&D project and the results were incorporated. Section 2.2 presents a summary of materials found to contain friable ACM. It is not anticipated that additional asbestos bulk samples will be needed during D&D. Asbestos air sampling will be performed during asbestos abatement.

#### Secondary Waste (Decontamination Water)

Based on worst-case wash-down calculations, up to 75,000 gallons of decontamination washwater could be generated during equipment cleaning. Samples will be used to

determine the need for treatment prior to discharge into the AWWT. Based on this worst-case washwater volume estimate, 25 samples would be needed to characterize washwater for isotopic radionuclides and heavy metals, up to 36 samples would be needed to evaluate enrichment (i.e., levels of U-235 to total Uranium).

A project-specific sampling plan for the decontamination washwater will be developed after decontamination washwater is generated but prior to actual 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**

To qualify debris for NTS shipment, one percent of each material/waste stream going to NTS will be sampled. For each container that makes up the one percent, three samples will be taken and analyzed in accordance with the NTS Waste Acceptance Criteria (WAC).

#### **Permitted Off-site Commercial Disposal Facility**

Sampling is anticipated from potential mixed waste sludge that will be collected from the settling of decontamination washwater and associated filtercake. Mixed waste may result from the collection of lead-based paint in the filtrate. 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 be necessary since friable and non-friable ACM will be removed prior to dismantlement under controlled abatement methods per Specification Section 01516 and 07415. Occupational air sampling for asbestos will be performed as required by OSHA standards.

### **Radiological Air Monitoring**

Data from the IEMP site-wide routine environmental air monitoring program will be used to complement the occupational air monitoring program. Per the FF Radiological Control Requirements Manual, occupational air (i.e., breathing zone) samplers will be worn by approximately twenty-five percent (25%) of the workers in each work group/crew (minimum of one worker) when performing uranium airborne generating activities in a contamination area, high contamination area, or an airborne radioactivity area. Per the FF Radiological Control Requirements Manual, occupational air (i.e., breathing zone) samplers will be worn by one hundred percent (100%) of the workers in each work group/crew when performing thorium airborne generating activities in a contamination area, high contamination area, or an airborne radioactivity area.

Fluor Fernald reviews safe work plans to ensure that they include the appropriate engineering and administrative controls to mitigate the spread of radiological contamination and limit airborne radioactivity concentrations to levels at or below those specified in the IFB/RFP. Fluor Fernald performs an occupational ALARA review or evaluation (as appropriate) for each component undergoing D&D.

**This page left intentionally blank.**

**APPENDIX B**

**EVALUATION OF MATERIAL DISPOSITION ALTERNATIVES  
FOR THE ADMINISTRATION COMPLEX**

4037

Per the OU3 Record of Decision for Final Remedial Action, the selected disposition route for the majority of OU3 radiologically contaminated material, including accessible metals, is placement in the On-Site Disposal Facility (OSDF). However, in support of DOE's commitment to evaluate recycling on a case-by-case basis during each above-grade D&D project design (per Section 3.3.6.1 of the OU3 Integrated Remedial Design/Remedial Action Work Plan under the subheading of Unrestrictive Release Recycling/Reuse), an evaluation of disposition alternatives was performed for potentially recyclable/reusable materials estimated to be generated from the Administration Complex. Using the Decision Methodology for Fernald Material Disposition Alternatives (the "Decision Methodology"), which was finalized in July 1997 following extensive stakeholder involvement and subsequent reevaluation of unit costs using 1998 recycling data from the Recycling Supplemental Environmental Project, 804 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all Administration Complex components was evaluated by comparing the four leading alternatives to on-site disposal.

The Decision Methodology consists of three phases: 1) Threshold Phase; 2) Life Cycle Analysis Phase; and 3) Decision Phase. The first phase, the Threshold Phase, includes a comparative evaluation of project costs for each alternative. The cost estimates which were established under the Plant 4 Case Study (presented during July 8, 1997 public meeting; cost data dated from September 27, 1996) were utilized for the 804 tons of structural steel from the Administration 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 Administration Complex alternative disposition alternative evaluation. The total cost comparison of the disposition alternatives is shown in Table B-1.

**TABLE B-1 Total Cost Comparison for Disposition Alternatives**

Disposition Alternative	Cost per Ton	Total Cost	Percentage of Threshold
On-Site Disposal Facility	\$ 0.04	\$64,320	--
Vendor Material Release Facility	\$ 0.41	\$659,280	1,025%
FEMP Material Release Facility	\$ 0.97	\$1,559,760	2,425%
"Recycle 2000"	\$ 1.20	\$1,929,600	3,000 %
Privatized FEMP Material Release Facility	\$ 0.56	\$900,460	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 disposition decision the estimated, 804 tons of accessible metals is disposal in the OSDF. Should vendor or market conditions change significantly prior to OSDF disposal of the structural steel, whereby the total costs of any of the recycling alternatives approach the cost threshold for further evaluation, then an re-evaluation of the disposition alternatives would be considered.

**APPENDIX C**

**4037**

**PERFORMANCE SPECIFICATIONS**

The project specification included in this appendix represent a modified version of the original set of performance specifications contained in the May 1997 final version of the OU3 Integrated RD/RA Work Plan. These project-specific specifications incorporate lessons-learned from previous D&D projects at the FEMP and identify new and innovative technologies and methods that are applicable to the Administration Complex D&D project.

**This page left intentionally blank.**



**DEMOLITION CLOSURE PROJECT**

**SPECIFICATIONS**

PROJECT: 01789  
SPEC 01789-TS-0001  
FLUOR FERNALD ENGINEERING SUPPORT  
REVISION 0B

---

PREPARED BY: \_\_\_\_\_  
Joseph S. Stoner Date

APPROVED BY: \_\_\_\_\_  
Dave G. Balzen Date

---

**U. S. DEPARTMENT OF ENERGY  
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

Fluor Fernald, Inc.  
P.O. Box 538704  
Cincinnati, Ohio 45253-8704

This page left intentionally blank.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Table of Contents</b>	<b>Rev 0B</b>

**4037**

**ISSUE AND REVISION SUMMARY**

<b><u>Revision</u></b>	<b><u>Date</u></b>	<b><u>Description of Issue or Revision</u></b>
0	09/04/01	Issued CFC
0A	11/08/01	Verbiage formats and conflicts with the IFB corrected. Initiated by Joyce Leslie. HEPA Vacuum and /Air Filtration Device specifications updated. Initiated by Joe Stoner.
0B	11/29/01	Implemented comment resolutions made on HEPA Vacuum/Air Filtration Device specifications. Initiated by Joe Stoner.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Table of Contents</b>	<b>Rev 0B</b>

**Table of Contents**

<b><u>Revision</u></b>	<b><u>Section</u></b>	<b><u>Description of Issue or Revision</u></b>
0A	01010	General Requirements
0A	01120	Debris/Waste Handling Criteria
0A	01515	Mobilization, Demobilization and General Site Requirements
0A	01516	Asbestos Abatement
0A	01517	Removing/Fixing Radiological Contamination
0A	01519	Decontamination of Contractor Provided Tools, Equipment and Material
0A	03315	Concrete/Masonry Removal
0A	03920	Concrete Surface Removal
0A	05125	New Structural Steel/Metals
0A	05126	Structural Steel Dismantlement
0A	07415	Transite Removal
B	11010	HEPA Vacuum Cleaner Requirements
0A	15065	Equipment/System Dismantlement
0A	15067	Ventilation and Containment
B	15860	HEPA Air Filtration Device Requirements

**END OF SECTION**

<b>Title: DEMOLITION CLOSURE PROJECT</b>	<b>Specification No: 1789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01010</b>	<b>Rev 0A</b>

4037

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

## SECTION 01010

### GENERAL REQUIREMENTS

#### PART I GENERAL

##### 1.1 SUMMARY

- A. The intent of these Specifications is to establish technical requirements necessary to support the above-grade decontamination and dismantlement (D&D) of the structures and components at the Fernald Environmental Management Project (FEMP).
- B. In all cases where the terms "Vendor", "Seller", "Manufacturer", or similar terms appear in 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 Fernald, Inc.
- 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. 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. Section: Separate numbered section of a Specification (e.g., Section 16020)
- 2. Article: Separate numbered article of a Subsection (e.g., Article 2.1)
- F. 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," Shall be as directed, authorized, or permitted by Fluor Fernald.
  - "Authorized,"
  - "Permitted":

000064

<b>Title: DEMOLITION CLOSURE PROJECT</b>	<b>Specification No: 1789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01010</b>	<b>Rev 0A</b>

4. "Selected": Shall be as selected by the Contractor or Fluor Fernald.
5. "Satisfactory,"  
"Acceptable": Satisfactory or acceptable to Fluor Fernald.
6. "Necessary,"  
"Required,"  
"Suitable": As necessary, required, or suitable for the intended purpose as determined by Fluor Fernald.
7. "Submit": Submit to Fluor Fernald unless otherwise specified.
8. "Above-grade": Refers to first, second, third, etc., stories of a facility, and accessible materials/equipment in basements, sumps, pits, and trenches of a facility.
9. At- and Below-grade: Slab, and/or basement, foundation, loading docks, etc.
10. In all cases where the words "or equal" appear in these specifications, they shall be understood to mean "or approved as equal by Fluor Fernald."
11. Where the Sections refer to Parts 6, 7, 8 or 9, the reference will be the Information for Bid/Request for Proposal (IFB/RFP) or the Contract, whichever is applicable.

**1.2 REFERENCES, CODES, AND STANDARDS** All work shall be accomplished in accordance with the code requirements listed below. References to specific codes, regulations, standards, or other criteria documents in these Sections are indicated as the latest edition or revision of each document, as of the date when these Sections were prepared. Invoking all or any part of these standards is to be accomplished in accordance with normal industry practices. Standards listed in these Sections can be used in their entirety or applicable Sections depending on their application to the services being rendered by the Contractor.

- A. Ohio Basic Building Code (OBBC) 1994
- B. Life Safety Code 101 - 1998
- C. Other applicable National Fire Protection Association (NFPA) Codes - All inclusive, including 1998 revisions
- D. 29 CFR 1910 - Occupational Safety and Health Administration - Department of Labor
- E. 29 CFR 1926 - Occupational Safety and Health Administration (OSHA)
- F. 40 CFR - United States Environmental Protection Agency (U.S. EPA)
- G. DOE Order 440.1 - Worker Protection Management for DOE Federal and Contractor Employees
- 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

**000065**

<b>Title: DEMOLITION CLOSURE PROJECT</b>	<b>Specification No: 1789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01010</b>	<b>Rev 0A</b>

**1.3 SUBMITTALS**

4037

- A. An Installation, Operation, and Maintenance (IOM) Manual shall be prepared that provides optimum operation and maintenance of any equipment and systems required.
- B. The cover of the IOM Manual shall include the following information:
  - 1. Project Title - \_\_\_\_\_,
  - 2. Contractor,
  - 3. Construction Manager - Fluor Fernald, and
  - 4. Subtier Contractor (name, if any).
- C. 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, etc.), 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.

**1.4 QUALITY REQUIREMENTS**

- A. The Contractor shall provide written procedures for Fluor Fernald's review and approval of all tests to be performed as identified in the specifications and in other sections of the contract. 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 Fluor Fernald.
- C. All test instruments shall be calibrated within 12 months prior to use on this contract or at intervals as recommended by the 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.

**1.5 ABBREVIATIONS FOR REFERENCED STANDARDS AND SPECIFICATIONS**

The following list denotes abbreviations used in the technical portions of these Sections:

<u>Abbreviation</u>	<u>Authority or Title</u>
AASHTO	American Association of State Highway Transportation Officials
AGA	American Gas Association

000066

<b>Title: DEMOLITION CLOSURE PROJECT</b>	<b>Specification No: 1789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01010</b>	<b>Rev 0A</b>

<u>Abbreviation</u>	<u>Authority or Title</u>
AGC	Associated General Contractors of America
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
CFR	Code for Federal Regulations
ERDA	Energy Research and Development Administration
IFB	Invitation for Bid
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
RFP	Request for Proposal
UL	Underwriters Laboratories, Inc.

**END OF SECTION**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

4037

**Approved:**

Joseph S. Stoner

Date

## SECTION 01120

### DEBRIS/WASTE HANDLING CRITERIA

#### PART I GENERAL

##### 1.1 SUMMARY

This Section provides the requirements for handling, containerization and stockpiling of debris/waste generated during the dismantlement of FEMP processing and support facilities. Debris/waste shall be segregated into established categories and containerized as directed in this Section. This includes, but is not limited to, the following:

- A. Classification of materials by segregation category,
- B. Segregation of materials,
- C. Containerization/loading,
- D. Movement of containers within the construction zone,
- E. Tagging containers,
- F. Debris stockpiling, and
- G. Collection and containerization of controlled area office trash from Contractor-owned office trailers.

##### 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/System Dismantlement
- I. Section 15067 - Ventilation and Containment

##### 1.3 REFERENCE MATERIALS

See Parts 6 and 7 for the following:

- A. Index of Drawings,
- B. Contractor Safe Work Plan Format Requirements, and
- C. The Material Segregation and Containerization Criteria (MSCC) form identifies anticipated waste streams to be generated and their respective waste categories. In addition, the MSCC identifies containers (where applicable) for the waste streams, size criteria, and special waste handling criteria. Debris is defined as dismantled piping, equipment, systems, components,

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

asbestos-containing materials (ACM), etc., that is contained within the project boundaries.

#### 1.4 REFERENCES, CODES AND STANDARDS

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

- A. DOE Order 460.1A      Packaging and Transportation Safety, and
- B. 10 CFR 835              Occupational Radiation Protection.

#### 1.5 SUBMITTALS

The Contractor shall submit the following for approval by Fluor Fernald:

- A. Debris/Waste Handling Safe Work Plan

Prior to mobilization, the Contractor shall submit a detailed debris/waste handling Safe Work Plan for approval by Fluor Fernald, in accordance with the Contractor Safe Work Plan Format Requirements contained in Part 7 - ACR-002. The Safe Work Plan shall include the Contractor's:

1. Method of cutting to meet debris size requirements (if different from methods used for dismantlement),
2. Proposed equipment for loading and handling containers,
3. Method to verify that the weight capacity of each container is not exceeded,
4. Method for loading containers,
5. Method for segregating waste categories,
6. Method for moving debris in and around project area (debris flow),
7. Proposed container staging areas, as required by this Section, and
8. Material inspection area.

- B. Monthly Container Report

A report shall be submitted identifying the current waste container stock listing of drums and all metal boxes delivered to and staged at the project site. This report shall be by inventory number; shall be issued on a monthly basis; and shall describe the usage and/or contents of the waste containers under control by the Contractor.

#### 1.6 PROJECT CONDITIONS

- A. 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 Fluor Fernald. Alternatives to hazardous materials shall be used whenever possible.
- B. The Contractor shall notify Fluor Fernald immediately when hazardous or mixed wastes are found or, whenever possible, before they are generated. Further management of these wastes shall be coordinated with Fluor Fernald.
- C. All waste and debris designated for placement in the OSDF from thorium-contaminated areas

**000069**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/08/01	Section 01120	Rev 0A

shall be free of visible material. The Contractor shall high-pressure rinse and lock down these items. The *exterior* surfaces of roll-off boxes used to transport these items to the OSDF shall be decontaminated as necessary and released from thorium controls prior to their pick-up for movement to the OSDF.

- D. Requests for containers shall be made to Fluor Fernald in writing at least 4 calendar days in advance of need.

## PART II PRODUCTS

### 2.1 EQUIPMENT

- A. The Contractor shall supply all equipment required for:
1. Sizing debris and moving containers within the construction zones [except End Loading Container Sea Land Boxes International Standards Organization (ISO) containers], and
  2. Loading containers.
- B. Fluor Fernald will move Roll-off Boxes (ROBs) and ISO containers.

### 2.2 MATERIALS - FURNISHED BY OWNER (FLUOR FERNALD)

- A. Fluor Fernald will provide appropriate containers for debris/waste categories as identified on the MSCC\* (except liquid storage tanks, as noted in Section 01517) and as otherwise specified. These containers include, but are not limited to, the following:

Container Designation	Nominal Exterior Dimensions (H x W x L)	Maximum Gross Weight (lbs)
Large metal boxes (LMB) (top load)	8' x 8' x 20'	42,000
ISO containers (top load)	8' x 8' x 20'	42,000
ISO containers (end load)	8' x 8' x 20'	42,000
Small metal boxes	Various	8,000
55-gallon drums with lid	---	882
Roll-off boxes (ROB)	6' x 8' x 22'	42,000

- B. Fluor Fernald will deliver empty ("prepped", if required) containers, pallets (possibly radiologically contaminated), dunnage, and miscellaneous materials, as required, to the container staging (also referred to as "queuing") area.

\* NOTE: The MSCC can be found in Part 6, Exhibit E

000070

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

### 2.3 MATERIALS - FURNISHED BY CONTRACTOR

- A. 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.
- B. The Contractor shall furnish 8" x 11" weatherproof removable tags.
- C. The Contractor shall furnish 3.5'- 4' high woven metal fencing consisting of 14 gauge 2 inch x 4 inch galvanized welded mesh with 7 foot painted steel "T" posts embedded to a depth of 2 feet and placed at 10 foot intervals.

## PART III EXECUTION

### 3.1 PREPARATION

#### A. Roll-Off Box Staging Area:

The Contractor shall establish and maintain a ROB staging area(s), as needed, which shall be proposed by the Contractor unless otherwise specified by Fluor Fernald on reference site drawings. To define and control access to this area, woven metal fencing will be erected around the perimeter of the staging area. One section of the fence will be open for access and egress. The fencing must be maintained in good condition. This area shall be used for temporary staging of empty and full ROB containers. If the staging 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. Other Container Staging Areas:

The Contractor shall prepare other container staging areas as needed. Areas will either be used to store empty drums and metal boxes (includes ISO Containers), or will be used for full drums and metal boxes which shall be proposed by the Contractor (unless otherwise specified by Fluor Fernald on reference site drawings). Woven metal fencing will be erected around the perimeter of each staging area. One section of the fence for each area will be open for access and egress. The fencing must be maintained in good condition.

#### C. Material Inspection Area:

The Contractor shall establish a material inspection area for each contamination area, for access of Fluor Fernald personnel to inspect debris and/or perform radiological surveying. Each material inspection area shall be proposed by the Contractor and approved by Fluor Fernald. The inspection area shall be arranged such that routine access will be prevented by means of fencing and/or barrier tape, with appropriate posting to identify that the items contained are being held for visual inspection or radiological survey. The inspection area will be off-limits to individuals other than Fluor Fernald/Contractor waste technicians and radiological survey personnel.

### 3.2 APPLICATION

000071

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/08/01	Section 01120	Rev 0A

A. Debris handling requirements are defined by the following Fluor Fernald classifications: 1) non-process debris and 2) process debris. All debris shall be sized, segregated, rinsed with high-pressure water, and containerized in accordance with the MSCC.

1. Non-Process Debris:

Non-process debris will be exempt from the inspection requirement for *visible process residues* as described in Article 3.2.A.3 of this Section. Non-process debris would include, but are not limited to, piping for utility systems (i.e., steam, condensate, drinking water, air, and others), electrical systems (i.e., conduit, motors, electrical panels, and others), and obvious non-process items such as structural steel (Debris Category A), concrete (Debris Category E), transite (Debris Category G), and most miscellaneous materials categorized as Debris Category I.

2. Process Debris:

Process debris is defined as debris that fails the inspection for *visible process residues* per Article 3.2.A.3, and debris listed in the MSCC as Debris Category C.

3. Visible Process Residue Inspection Requirements:

The definition of *visible process residues*, (green salt, yellow cake, black oxide, etc.) including films and precipitates, is "hold-up/materials on the interior or exterior surfaces of debris that is obvious". Dirt, oil, grease, stains, rust, corrosion, and flaking do NOT qualify as visible process residues; however, dirt, oil, grease, stains, rust, corrosion, and flaking require decontamination for radiological control purposes prior to removing the debris from the enclosure or prior to opening a building to the environment, per Technical Specification Section 01517. Regardless of whether or not visible process residues are present, all debris are still considered to be radiologically contaminated unless otherwise specifically identified.

Fluor Fernald visual inspection will take place following dismantlement, sizing, and surface decontamination in accordance with Section 01517 Article 3.1, and relocation to the Fluor Fernald-approved Material Inspection Area referenced in Article 3.1.C of this Section.

a. Debris That Fails Inspection for Visible Process Residues:

Debris that fails the inspection criteria for visible process residues will be identified with yellow paint by Fluor Fernald, and the Contractor shall attempt to remove the visible process residues at least one time in accordance with Section 01517 prior to Fluor Fernald re-inspection. If the debris fails the second inspection for visible process residues, it shall be deemed as "Process Debris" (Debris Category C) and will be identified with red paint by Fluor Fernald.

b. Debris That Passes Inspection for Visible Process Residues:

Debris that passes the Fluor Fernald inspection for visible process residues shall be rinsed with high pressure water, and containerized or staged according to Article 3.3 of this Section.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

- B. The Contractor shall be responsible for retrieving empty containers from the container staging areas (except for ISO containers), segregating debris/waste, loading, securing containers, tagging for on-site movement, and scheduling the movement of containers back to the designated container staging area. The Contractor shall use the MSCC as the basis of all containerizing activities, and shall be responsible for minimizing debris/waste generation by limiting the amount of material brought on site.
- C. Equipment, material or debris requiring movement outside the enclosed building to be sized, containerized or palletized, must meet the requirements for removal/fixing of radiological contamination per Section 01517. If the removal/fixing requirements cannot be met, the material may be encapsulated or wrapped in fiber-reinforced sheeting and sealed prior to movement to prevent the migration of radioactive contamination as follows:
1. Place fiber-reinforced sheeting over pallet, position material on pallet, and wrap the sheeting over material,
  2. Secure fiber-reinforced sheeting over material to prevent migration of contamination, and
  3. Secure material to pallet with vinyl or metal banding material as needed.

### 3.3 PERFORMANCE

- A. For containerization, the Contractor shall:
1. Ensure that Fluor Fernald personnel are present during the loading and securing of containers identified in the MSCC, and provide notice to Fluor Fernald within 24 hours prior to containerization.
  2. Provide a debris/waste handling supervisor to supervise operations.
  3. 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, work on the handling of this debris/waste shall stop, and Fluor Fernald shall be contacted for further direction.
  4. Commingle Debris Categories A, B, D (except for lead), and incidentally generated E in the designated container or stockpile, as directed by the MSCC. Debris Category I shall be segregated and containerized according to two subcategories: I2 - Non-compressible and/or Non-organic Misc. Debris, and I4 - Compressible and/or Organic Misc. Debris.
  5. Upon receipt of containers, the Contractor shall perform a visual inspection to ensure that the containers do not contain any of the prohibited items identified in Section 01120.3.3.A.8. Fluor Fernald will remove any free liquids upon removal from the work zone, as necessary.
  6. 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 in order to minimize load shifting or damage to container during movement.

000073

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/08/01	Section 01120	Rev 0A

7. Ensure that , empty metal boxes and drums must remain in the established empty container staging area, except during loading activities.
8. Ensure that the following "Prohibited Materials List" is displayed in the containerization area or on each container. Notify Fluor Fernald if any of the prohibited materials are identified for specific material handling directions.

#### PROHIBITED MATERIALS LIST

- a. Gas cylinders that are able to be pressurized
  - b. Explosives
  - c. Materials containing free liquids. The intent of the exclusion of free liquids is to prevent contaminated liquid waste (e.g., a drum of solvent) from being directly disposed of in the On-Site Disposal Facility (OSDF). Materials that contain rainwater or that have an inherent moisture content (e.g., sludge) are not excluded.
  - d. Fine particulates (respirable fines)
  - e. Hazardous waste (Characteristic or Listed)
  - f. Corrosive materials
  - g. Etiologic agents
  - h. Flammable liquids or combustible solids
  - i. Whole or shredded scrap tires
  - j. Material from any off -site source, including any other DOE site
  - k. Product, residues, and other special materials (Category J materials)
  - l. Process-related metals (Category C)
  - m. Intact containers (i.e., containers must be empty and crushed)
  - n. Acid brick (Category F material)
  - o. Transformers, which have not either been crushed or had their void spaces filled with grout
  - p. HEPA filters
  - q. Used oils
  - r. Materials not accompanied by a manifest
  - s. Solvent saturated soils
  - t. Material not meeting physical WAC
9. Install weatherproof removable tags on each debris/waste container prior to loading. Tags shall identify container contents, using indelible ink, 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.
  10. Containerize Thorium contaminated debris/waste separately from non-Thorium contaminated debris/waste.

#### B. Security and Movement of Containers:

To ensure security and movement of containers, the Contractor shall:

1. Schedule the movement of containers to the specific task location from the container staging area.
2. Ensure that the lid, doors, or tarps on debris/waste containers are secured when no

000074

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

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. Damaged containers shall be reported to Fluor Fernald. Any container damage beyond normal wear and tear that is Contractor-caused shall be the Contractor's responsibility to repair or to provide compensation for such repairs.
4. Secure full containers.
  - a. End-loading ISO containers shall be secured by closing and latching doors, ensuring that all latching mechanisms are engaged.
  - b. Drums shall 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  $45 \pm 5$  foot-pounds, and
    3. Drums shall be securely strapped together on pallets, using at least one strap.
  - c. Top-Loading Metal boxes (large and small) shall be secured as follows:
    1. Inspect gasket for damage and repair, if required, and
    2. Place gasket and lid on the box and secure with clamping device or pins.
  - d. Roll-Off Boxes (ROBs) shall be secured as follows:
    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, and
    4. Ensure that containers have not been damaged during loading.
  - e. Prior to securing lid or doors on containers holding asbestos-containing materials (ACM), fold fiber-reinforced sheeting over ACM and seal with tape.
  - f. Return full, secured containers to the staging area (except for ISOs, which will be removed by Fluor Fernald).
  - g. Filled ROBs must remain inside the established staging area until they can be removed by Fluor Fernald.
  - h. Filled drums and metal boxes must remain inside the established full container staging area until they can be removed by Fluor Fernald.
  - i. The Contractor shall decontaminate waste containers, equipment, tools, etc., prior to exiting the construction zone or staging area as necessary in accordance with Section 01519.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

**C. Stockpiling of Materials:**

1. The Contractor shall establish/construct and manage debris stockpile area(s) on concrete or asphalt surfaces with run-off controls (as required by Section 01515), and fencing. The Contractor shall ensure that run-off controls are constructed and used in accordance with Section 01515. Stockpiled materials shall be sized and segregated in accordance with the MSCC. A five foot buffer area shall be maintained between the footprint of the stockpile(s) and the perimeter of the pad(s) and the stockpile area fencing. The Contractor shall inspect the stockpile area(s) and report any deficiencies to Fluor Fernald. Inspections shall be documented in the Contractor's Daily Work Activities Report and shall include at least the following:
  - a. Daily and after storm events with heavy rains and/or strong winds to ensure that piles remain in a safe and controlled configuration,
  - b. Covers of catch basins to ensure that they remain unclogged and free of obstructions,
  - c. Diking to ensure that controls are in good condition, permitting easy flow of runoff, and
  - d. Perimeter fencing, gates, and other materials required for maintaining project control of the stockpile area(s).
2. Fluor Fernald will perform routine radiological contamination surveys and airborne radioactivity monitoring, as deemed to be appropriate. If deemed necessary by Fluor Fernald, the Contractor shall take measures to mitigate the spread of contamination to areas outside of the staging area and to maintain airborne radiological levels within allowable limits. These measures may include area decontamination, application of fixatives, or other measures proposed by the Contractor and accepted by Fluor Fernald.
3. Floor Load Capacity:

If the Contractor chooses to stage any debris on a floor other than a slab-on-grade, a structural 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 Fluor Fernald, signed and stamped by a Professional Engineer (PE) registered in the State of Ohio, to ensure that the load capacity is not exceeded.

**D. Collection and Containerization of Controlled Area Office Trash from Contractor-Owned Office Trailers**

Office trash from Contractor-owned office trailers shall be collected and managed in accordance with the following requirements:

1. Collect office trash from Contractor-owned office areas for participation in the controlled area Office Trash Program.
2. Prohibited items, items that are suspected to be contaminated, or items not normally discarded into office area trash containers shall be segregated from typical office trash. Prohibited items include, but are not limited to: tools, equipment, mop heads, hose clamps,

000076

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/08/01</b>	<b>Section 01120</b>	<b>Rev 0A</b>

floor sweepings, aerosol cans, high density material, protective clothing (Anti-C's, gloves, booties, coveralls), yellow maslin, yellow tape/RadCon tape, yellow herculite, yellow shoe covers, radiological smears, radiological safety signs, plastic sample bottles, and instrument survey cords.

3. If any prohibited or suspect materials are found (with the exception of tools and equipment), they shall be disposed of as contaminated material in accordance with the MSCC.
4. If tools or equipment are found in office area trash containers, contact the Fluor Fernald Construction Manager for radiological evaluation and the procedure for decontamination or disposition.
5. Package office trash in green tinted translucent plastic bags provided by Fluor Fernald. Green tinted translucent plastic bags are mutually exclusive to the Controlled Area Office Trash Disposal Program.
6. Seal each clear trash bag and green trash bag with tape (not yellow in color) and indicate the building or area where the trash was generated directly on each trash bag with a paint stick or permanent marker.
7. Place office trash in a designated area agreed upon by Fluor Fernald and the Contractor. Fluor Fernald will collect office trash daily, unless stated otherwise by the Demolition Closure Project Contract.

### 3.4 QUALITY ASSURANCE

The Contractor and Fluor Fernald shall inspect filled containers upon their return to the container staging area to verify that no damage has occurred during the filling of the container.

**END OF SECTION**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

## SECTION 01515

### MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

#### PART I GENERAL

##### 1.1 SUMMARY

This Section consists of the work related to Contractor mobilization, demobilization, and general site requirements. The principal items included in this Section are:

- A. Site access,
- B. Slab Repair,
- C. Construction utilities,
- D. Signs and barriers,
- E. Potential use of existing overhead bridge cranes,
- F. Gravel pads for access and queuing areas,
- G. Protecting adjacent facilities and components,
- H. Stormwater control,
- I. Debris chutes,
- J. Remediation equipment, and
- K. Ventilation and containment.

##### 1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria
- B. Section 01519 - Decontamination of Contractor Provided Tools, Equipment and Materials
- C. Section 03315 - Concrete/Masonry Removal
- D. Section 05126 - Structural Steel Dismantlement
- E. Section 07415 - Transite Removal
- F. Section 15065 - Equipment/System Dismantlement
- G. Section 15067 - Ventilation and Containment

##### 1.3 REFERENCE MATERIALS

Fluor Fernald will provide access to existing site drawings at the Fluor Fernald office located at:

175 Tri-County Parkway  
Cincinnati, OH 45246-3222

Drawings will be provided on an information only basis.

000078

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

**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 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 101A-98 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): 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

**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: 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)

000079

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

- I. American Water Works Association (AWWA): AWWA C506-78 C Backflow Prevention Devices-Reduced Pressure Principle and Double Check Valve Types
- J. Ohio State Plumbing Code: 4104:26:105 Backflow

## 1.5 SUBMITTALS

The Contractor shall submit a Mobilization Safe Work Plan for approval by Fluor Fernald that shall include the following:

### A. Drawings and Data:

1. Detail and layout drawings showing locations of any barriers and/or fencing the Contractor will use for construction zones, radiological control boundaries, container staging areas, debris stockpiling areas, and barriers to be used for protection of adjacent structures.
2. 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). This shall include personnel and flow patterns into and within the construction zone.
3. 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.
4. Detail and layout drawings showing lay down areas, building vestibule sizes and locations, cutting areas and, as required by Section 01120, container staging areas, material inspection area, and debris stockpiling area(s).
5. Shop drawings for all debris chutes to be used.
  - a. 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.
  - b. Debris chute drawings and calculations submitted must bear the stamp of a Professional Engineer registered in the State of Ohio.

- B. Temporary utilities (such as water, steam, electric power) from the point source location to end use locations, as identified on the reference site drawing.
- C. Portable heating systems.
- D. Verification that the patching grout compressive and bond strengths are in accordance with ASTM C109 and ASTM C1042, respectively.
- E. 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).

000080

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

- F. Written statement that the Contractor accepts that all electric, gas, water, steam, sewer, and/or other service lines to the structures have been disconnected and/or capped.

**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:

- a. Masterflow 713, by Masters Builders
- b. SikaGrout 212, by Sika Corp
- c. Sealtight 588, by W. R. Meadows
- d. Approved equal

2. The "approved equal" products shall be approved by Fluor Fernald prior to use at the FEMP.

- B. Construction Zone fencing shall meet the requirements for permanent fencing in Article 2.1.C, Gates, shall be plastic yellow chain fixed to stanchions. Stanchions shall be located on grade.

- C. Permanent Fencing: Permanent fencing shall be a distance of 10 feet outside of the areas to be protected and shall consist of 14 gauge 2"x4" galvanized welded wire mesh 48" high with 7 foot high painted steel "T" posts embedded to a depth of 2 feet and placed at 10 foot intervals.

- D. If filling of slab openings is required per Article 3.2.B of this Section, clean granular fill is used to fill large openings in the base slab, including pits, large sumps, etc. The Contractor will supply this material. Use of fine aggregate shall be natural river sand, bank sand or sand manufactured from stone or air-cooled blast furnace slag; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; within the following limits:

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

- E. Gravel Pads for Access and Container Staging Areas

The aggregate shall be 6 - 8 inches of crushed limestone or gravel and compacted to form a 12 inch base.

**000081**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 01515	Rev 0A

F. Wood Utility Poles:

1. ANSI 05.1; treated southern pine poles.
2. Select poles for straightness, minimum sweeps and short crooks. Fluor Fernald shall be notified of any sweeps or crooks prior to installation for determination of acceptance.
3. Preservative: ANSI 05.1 and AWPA C4, Pentachlorophenol.
4. Apply preservative to AWPA C4 with minimum net retention of 12 lbs/ft<sup>3</sup> (285 kg/m<sup>3</sup>). Obtain complete sapwood penetration.

G. 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: Preformed dead-end grip clamp type
6. Guy Guards: 8 foot (2 m) long plastic, colored yellow
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 or Triple Eye

H. Line Conductors:

Secondary Conductors: Aluminum or copper, triplex (three) cable with 600 volt cross-linked polyethylene insulation for phase conductors. Use bare messenger for grounding conductor.

I. 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
4. Grounding Conductor: Size to meet NFPA 70 requirements

J. Pole Anchors: Helical screw anchor type sized for load; galvanized steel; ASTM A36/36M

K. Backflow Prevention for Temporary Water Conditions (Reduced Pressure Type):

1. The backflow preventor shall meet Ohio State Plumbing Code 4101:26:105 Backflow and the American Water Works Association (AWWA) Standard (AWWA C506-78) for Backflow Prevention Devices.
2. Acceptable products and suppliers:
  - a. WATTS 909 Backflow Preventor (Fluor Fernald recommended product)
  - b. Approved equal

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

L. **Portable Heating Systems:** 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.

M. **Materials Supplied by Owner:**

Fluor Fernald shall supply signs, barriers, yellow snow fencing, and tape indicating radiological control zones for Contractor installation.

N. **Materials Supplied by Contractor:**

The Contractor shall supply all materials (other than those listed in M. above) required for mobilization, demobilization, and other site requirements identified herein.

## 2.2 EQUIPMENT

The Contractor shall supply all equipment necessary for mobilization, demobilization, and other site requirements.

## 2.3 UTILITIES

Fluor Fernald will provide electrical power and water according to Part 6, Section 7.

# PART III EXECUTION

## 3.1 EXAMINATION

The Contractor shall perform an Engineering Survey in accordance with the requirements of OSHA 29 CFR 1926.850 and obtain approval from Fluor Fernald prior to mobilization.

## 3.2 PREPARATION

A. **Site Access:**

1. Vehicle, equipment and pedestrian access/egress shall be directed through the designated radiological control points.
2. Provide for emergency vehicles to enter the construction zone at all times.

B. **Slab Repair:**

1. Except for areas noted, on the Work Area Site Layout Drawing (which is found in the Contractor's Mobilization/Demobilization Work Plan), permanent fencing is required to prevent access to particular subsurface voids (e.g., basements, pits, trenches). The Contractor shall fill large openings (e.g., pits, sumps, etc.) with granular fill material to within 2 inches of grade. Alternatively, the Contractor may propose to use engineered covers that are capable of supporting anticipated loads during D&D. Fluor Fernald shall approve alternatives.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

2. Portions of the building slab, which are not identified on the Work Area Site Layout Drawing (which is found in the Contractor's Mobilization/Demobilization Work Plan) as areas to be protected with permanent fencing are potential locations for interim storage, stockpiling of contaminated debris, or for staging of contaminated equipment. In those areas, the slab openings (i.e., conduit, piping, drain openings, etc.) shall be filled and covered with patching grout. Additional requirements for potential stockpiling areas include the following:
  - a. Drain water and remove loose debris from large openings in the base slab including pits, sumps, trenches, etc., prior to filling.
  - b. All grease, oil, dirt and other deleterious materials shall be completely removed from slab openings and handled in accordance with Section 01120.
  - c. Follow the 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.
  - e. Concrete reinforcements, such as rebar, shall be cut flush with the slab.

**C. Construction Utilities:**

1. Prior to mobilization, the Contractor shall conduct a physical survey to verify that all utilities are capped and/or controlled to the Contractor's satisfaction.
2. The Contractor shall determine if the capacities that can be provided by Fluor Fernald are adequate for their needs; if not, the Contractor shall notify Fluor Fernald in writing of needs for evaluation.
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. 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 Fluor Fernald. All portable continuous running of gas fired heating systems require 24 hour coverage by the Contractor.
5. The Contractor shall extend construction water from the point source location to support operations or provide portable facilities. Tie-in to water point source shall require a backflow preventor in accordance with the Ohio State Plumbing Code, as referenced in Article 1.4. Installation, maintenance, and inspection of the backflow preventor shall be by a licensed plumber. The licensed plumber shall be certified in the State of Ohio as a Backflow Preventor Tester.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

The individual who provides only the hook-up of a backflow preventor need not be a certified and licensed plumber provided that the hook-up is inspected by a certified and licensed plumber prior to system operation.

- a. The Contractor shall supply, install, and maintain all backflow prevention devices (in accordance with Article 2.1 of this Section), fittings, and valves for point source connections.
  1. The contractor shall provide Fluor Fernald with the backflow prevention device at least two weeks prior to installation for inspection.
  2. Fluor Fernald will test and approve the backflow preventor for contractor installation.
- b. Every 12 months after installation, Fluor Fernald will inspect the assemblies. The Contractor shall coordinate water hook-up with Fluor Fernald. Fluor Fernald will activate hydrants.
- c. At project completion, the Contractor shall turn all backflow prevention devices, fittings, and valves over to Fluor Fernald in good working order at no additional costs.
- d. Backflow devices shall have freeze protection and be accessible for inspection.

**D. Signs and Barriers:**

1. The Contractor shall 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 any are displaced or lost, the Contractor shall replace or repair at no additional cost to Fluor Fernald.
2. The Contractor shall post construction safety signs at 50 feet intervals around the defined construction area. Fencing must be supported by posts driven into the ground. The Contractor shall regularly inspect all fences and barriers for integrity in a prompt manner throughout the D&D project and repair as necessary.
3. The fencing described in 2.1.B., 2.1C, and 3.2.D.2 may serve as both a construction work zone boundary fence and the radiological control fence in outdoor areas. However, the Contractor shall install additional radiological control fencing as required to delineate areas discussed below. The preferred fencing is as per 2.1.C; however, yellow snow fence may be used.
  - a. The yellow fencing shall be used to designate the following boundaries:
    - 1). Contamination Area/Controlled Area;
    - 2). High Contamination Area/Contamination Area;
    - 3). Adjacent Contamination Areas controlled for different radionuclides; and/or

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

4). Any other boundaries between different levels of radiological control.

b. Existing physical barriers, such as permanent fences or building walls, may serve as part of the radiological boundary where appropriate.

4. Fencing for short-term work, i.e., work within the project construction zone boundary, may be supported with portable stanchions placed at 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).

5. Permanent Fencing: Upon completion of D&D activities, the Contractor shall install permanent fencing around specific areas as identified on the Work Area Site Layout Drawing (which is found in the Contractor's Mobilization/Demobilization Work Plan). Article 2.1.C of this Section defines the material and placement specifications. An access gate, using the same fence material, shall be installed at one location along the perimeter fencing, this allows subsequent access by Fluor Fernald. The gate shall have a latch that can be locked.

**E. Potential Use of Existing Overhead Bridge Cranes:**

Use of Existing Overhead Bridge Cranes shall be in accordance with the requirements specified in Part 8, Section B.6.0 of the IFB. Existing Overhead Bridge Cranes or other existing hoisting devices shall not be allowed without prior approval from the Fluor Fernald Construction Manager.

**F. Gravel Pads for Access and Queuing Areas:**

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.

**G. Stormwater Control:**

Storm water control will be required for activities that could disturb soils or otherwise allow for release of contaminants from stockpiled debris. Storm drainage systems within the construction zone shall be maintained free and clear of debris and sediments by use of control devices, such as staked silt fences, and be maintained throughout the project. Hay/straw bales are not acceptable control devices.

**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.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01515</b>	<b>Rev 0A</b>

4. Fluor Fernald 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 Part 8, Section B.12.

**J. Ventilation and Containment:**

1. If release cleaning for structures is required, as specified in the Radiological Requirements Plan contained in Part 8, Section C 2.0, 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.
2. Enclose structure and ensure that all holes, gaps, openings in exterior building structure walls and roofs are sealed with duct tape, fiber-reinforced sheeting, plywood or foam material (including where doors or windows are missing) in accordance with Section 15067. Enclosed structures shall allow for emergency exits.

**3.3 DEMOBILIZATION AND FINAL PROJECT SITE ACCEPTANCE**

- A. Demobilization includes the decontamination and removal of all contractor tools, equipment, facilities, materials, and construction zone perimeter fencing.
- B. Final project site acceptance shall be conducted by Fluor Fernald, and will consist of verification of completion of all work activities relating to the work scope.

**END OF SECTION**

4037

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

## SECTION 01516

### ASBESTOS ABATEMENT

#### PART I GENERAL

##### 1.1 SUMMARY

This Section specifies the requirements for an asbestos abatement program; methods to be used for removal, movement, and disposition of friable asbestos-containing material (ACM); and other materials contaminated with asbestos. This Section does not cover transite unless panels exhibit significantly deteriorated surfaces where surfaces become friable.

##### 1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria
- B. Section 01517 - Removing/Fixing Radiological Contamination
- C. Section 07415 - Transite Removal
- D. Section 11010 - HEPA Vacuum Cleaner Requirement
- E. Section 15067 - Ventilation and Containment
- F. Section 15860 - HEPA Air Filtration Device Requirement

##### 1.3 REFERENCE MATERIALS

- A. See Part 7 for the following:
  - 1. Index of Drawings
  - 2. Contractor Safe Work Plan Format Requirements
- B. ACM summary information on the project is provided in Part 6, Exhibit F; however, the contractor is responsible for estimating quantities for bid/proposal and regulatory purposes.

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

000088

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

## 1.5 SUBMITTALS

The Contractor shall submit to Fluor Fernald the following for approval:

- A. An Asbestos Abatement Safe Work Plan, prepared by an Ohio Certified Asbestos Abatement Project Designer, in accordance with Part 7, ACR-002, Contractor Safe Work Plan Format Requirements, and Part 8, Section B.3.3 - Asbestos Abatement Safe Work Plan Requirements and Safety and Health and Training Requirements. Included are the procedures proposed for use in complying with the requirements of this Section.
- B. Prior to initiation of ACM work, the Contractor shall submit the following items to Fluor Fernald:
  - 1. Ohio Department of Health/OSHA-required documentation for Asbestos Removal Contractors:
    - a. Documentation of training
    - b. Medical surveillances
    - c. Respirator fit-test
    - d. Employee exposure assessments
  - 2. State of Ohio certificates and licenses for the Contractor
  - 3. State of Ohio certification for all personnel as required by law
- C. Two (2) weeks or ten (10) working days (minimum) prior to submittal of notification to government agencies, the Contractor shall provide a copy of the notification to Fluor Fernald for concurrence.
- D. Product Data: The Contractor shall submit manufacturer's technical information including application instructions for each material proposed for use.

## 1.6 PROJECT CONDITIONS

- 1. Transite that has deteriorated to a friable condition shall be considered friable ACM and therefore be removed in accordance with this Section.
- 2. ACM-containing materials such as floor tile, mastic, woven cloth-covered electric wire, and gaskets may become friable during handling; therefore, such materials shall be removed pursuant to the requirements of this Section.

## PART II PRODUCTS

### 2.1 MATERIAL

- A. Polyethylene sheeting: Fire retardant, clear, and have a minimum of 6 mils thickness as manufactured by Blueridge Films, Inc. or equal.
- B. Polyethylene bags: clear and have a minimum of 6 mils thickness.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

- C. Outside containments: Clear, reinforced and have a minimum of 6 mils thickness as manufactured by Blueridge Films, Inc. or equal.
- D. Surfactants (wetting agents), encapsulates, and lockdowns shall be mixed in a proportion specified by the manufacturer, applied according to manufacturer's specifications (including temperature), and contain a colorant to make coverage areas readily apparent. Products that have been acceptable to Fluor Fernald include those listed below. Equivalent or better products may be acceptable and shall be approved by Fluor Fernald.
1. Surfactants:
    - a. CP-225 CHIL-SORB by Childers
    - b. Approved equal
  2. Encapsulates/Lockdowns:
    - a. Control – Grayling Ind.
    - b. Foster 32-60 – Foster Products Corp.
    - c. Fiberset PM – Fiberlock Technologies
    - d. ACC 22-P – American Coatings Corp.
    - e. Serpiloc
    - f. Approved equal
  3. Bridging Encapsulates:
    - a. Asbestos Binding Compound – Fiberlock Technologies
    - b. Leadlock – Global Encasement Systems
    - c. Foster 32-80, Foster Products Corp.
    - d. Approved equal
- E. 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

## 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.
- 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.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

- 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.
- E. The Contractor shall supply a Portable Asbestos Hygiene Facility (see Figure 1). 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.

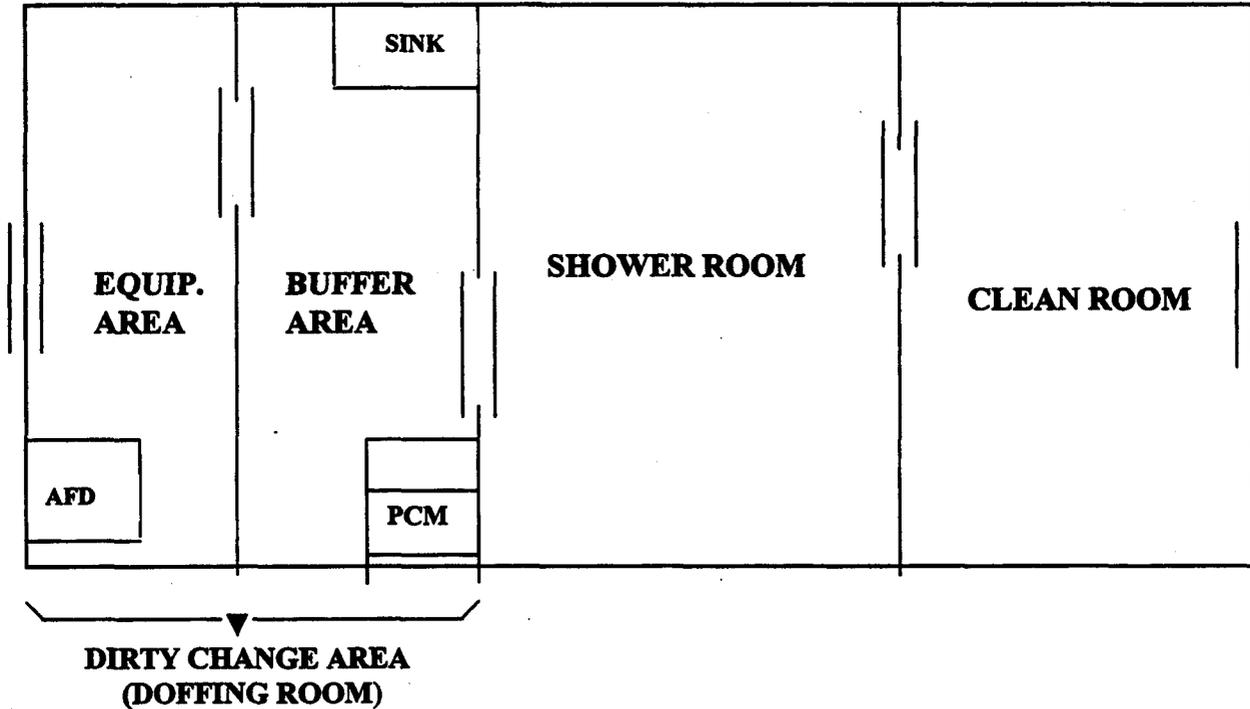
The requirements for hygiene facility compliance with radiological controls are as follows:

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 the equipment area 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 change 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 shall 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 Personnel Contamination Monitor (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 with a spray attachment for the rinsing of respirators prior to doffing.
5. Water shall be collected from the shower room and the buffer area sink, and be filtered down to 5 microns for asbestos fibers prior to discharge to the site wastewater treatment facility.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

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

**FIGURE 1 ASBESTOS HYGIENE FACILITY (EXAMPLE)**



### **PART III EXECUTION**

#### **3.1 PREPARATION**

##### **A. Regulatory:**

The Contractor shall:

1. Notify the Ohio Department of Health (ODOH) ten (10) working days or two (2) weeks prior to start of ACM removal; coordinate with Fluor Fernald prior to submitting ODOH notification (Note: Fluor Fernald will be responsible for notifying the EPAs and all other applicable governmental agencies before start of work).
2. Comply with work practices and procedures set forth in all applicable Federal, State, and local codes, regulations, and standards.
3. Obtain certifications and licenses.
4. Take precautions to prevent creation of friable ACM during handling.

##### **B. Work Area (for containment work):**

1. Isolate the work area
2. Establish hygiene facility/equipment room
3. Install primary containment barriers

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

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

**D. Work Area (floor tile removal)**

1. Isolate work area
2. Establish hygiene facility/equipment room
3. Install critical barriers
4. Post the required asbestos hazard warning signs

### **3.2 APPLICATION**

**A. Wet methods and 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.**

**B. 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 MSCC, located in Part 6, Exhibit E.
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. These containers are required to be "see-through", so Fluor Fernald personnel can

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01516</b>	<b>Rev 0A</b>

visually inspect contents. When bagging floor tile, ensure that waste bags are not overloaded such that the weight makes them difficult to handle.

6. After completion of all stripping work, surfaces from which ACM has been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible ACM residue.
- C. Cleanup procedures:
1. Remove and containerize all visible accumulations of ACM and asbestos-contaminated material.
  2. HEPA vacuum and 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 ACM as determined by Fluor Fernald.
  6. Apply lockdown to all surfaces in the work area.
  7. For containment work, aggressive clearance testing shall be performed by Fluor Fernald and the acceptable limit shall be <0.01 f/cc by Phase Contrast Microscopy.
  8. Upon successful completion of aggressive clearance testing by Fluor Fernald, the Contractor shall remove containment and dispose of it as ACM waste per Part 6, Exhibit E. If clearance sampling is unacceptable, repeat Section 3.2.C.
  9. Wastewater associated with asbestos abatement shall be handled in accordance with Article 3.1.E of Section 01517.
- D. Floor tile, mastic, woven cloth-covered electric wire, built-up roofing, and gaskets may become friable during removal; therefore, the Contractor shall remove such material in a manner that does not allow it to become friable while also adhering to all applicable government, state, and local asbestos abatement regulations.
- E. All ACM material shall be dispositioned in accordance with the MSCC located in Part 6, Exhibit E.

**3.3 QUALITY ASSURANCE**

The Contractor and Fluor Fernald shall inspect removal methods and filled containers to ensure compliance with the requirements of this Section.

**END OF SECTION**

**000094**

**This page left intentionally blank.**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 01517	Rev 0A

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

## SECTION 01517

## REMOVING/FIXING RADIOLOGICAL CONTAMINATION

## PART I GENERAL

## 1.1 SUMMARY

- A. The scope of this Section is decontamination of dismantled equipment or the structure to a level that permits removal of the debris 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 and thorium 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, and
  5. Fixing contamination.
- B. Project Conditions
1. Process material (i.e., green salt, yellow cake, black oxide) in excess of films and precipitates has been removed from process equipment to the maximum extent practical by Fluor Fernald prior to D&D activities. If process material in excess of films and precipitates is found during D&D activities, Fluor Fernald shall be notified prior to disturbing the condition.
  2. See Section 01120 for requirements to establish an inspection area.
  3. Removing/fixing radiological contamination on multiple layers of transite roof panels is addressed in this Section; handling of transite panels is addressed in Section 07415.
  4. Hazardous Waste Management Units (HWMUs) shall be decontaminated pursuant to the specific conditions included in Part 6, Section 3.5 .
- C. Fluor Fernald will perform all effluent sampling, analysis, and transportation.

## 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

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

- E. Section 15065 - Equipment/System Dismantlement
- F. Section 15067 - Ventilation and Containment

**1.3 REFERENCE MATERIALS**

See Part 7 for the following:

- A. Index of Drawings
- B. 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 Safe Work Plan in accordance with Part 7, ACR-002, Contractor Safe Work Plan Format Requirements, describing the system design for removing and/or fixing contamination. This includes the methods and equipment for: removing contamination; fixing contamination; and controlling, and filtering effluent produced during removal and/or fixing activities.
- B. Product Data: The Contractor shall submit manufacturer's technical information including the material to be used, its intended use, and its application instructions.

**1.6 DELIVERY, STORAGE, AND HANDLING**

The Contractor shall deliver materials in original, new and unopened containers bearing the manufacturer's name, label, and the following information:

- A. Name or title of material
- B. Manufacturer's stock number and date of manufacture
- C. Manufacturer's Name
- D. Application instructions
- E. Material Safety Data Sheets

**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 supply all equipment required to control, filter, and move effluent produced during removal and/or encapsulation of contaminants.

000097

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

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 tackage.
2. The Contractor shall construct all holding tank systems and secondary containment systems as specified in Articles 3.1.D and 3.1.E of this section.

## 2.2 MATERIALS

- A. Encapsulating coatings: 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, and products by Sherwin-Williams and International Protective Coatings.
- B. If non-strippable coatings are employed, they shall include Polymeric Barrier System (Bartlett), or a Fluor Fernald-approved equal.
- C. Plastic sheeting: Where encapsulation by clear plastic sheet wrapping is allowed, the wrapping shall be a minimum of 6-mil reinforced fire-retardant polyethylene sheeting.

## PART III EXECUTION

### 3.1 APPLICATION

- A. Requirements for managing non-process debris and process debris are described in Section 01120, Articles 3.2.A.1 and 3.2.A.2.
- B. Requirements specific to debris decontamination and their removal from a building enclosure or local containment:
  1. Prior to removing debris from a building enclosure or local containment, all internal and external surfaces shall be free of gross removable surface contamination, films and precipitates. Acceptable methods for removing surface contamination, films, and precipitates include but are not limited to: hydro-blasting with a minimum of 1,000 psi, steam-cleaning, sponge blasting, CO<sub>2</sub> blasting, or other methods approved by Fluor Fernald.
  2. Debris and equipment/systems shall be managed in accordance with Section 01120, Article 3.2.
  3. Thorium-contaminated items or debris cannot be released from the building enclosure or local containment areas unless they meet thorium-specific release limits (as referenced in Part 8, Section C 2.4.3). If items do not meet release limits, then they shall be either:
    - a. decontaminated, wrapped and brought directly to containers labeled as containing thorium-contaminated items (not for re-packaging), or
    - b. containerized prior to removal from the enclosure as determined by Fluor Fernald.

In all cases where a thorium-contaminated area is separated from a uranium-contaminated area by a wall, the Contractor shall anticipate that the interstitial spaces in the wall will be thorium-contaminated.

4. Equipment/systems identified by Fluor Fernald as being contaminated with uranium with an enrichment over 2 percent will be removed, wrapped, and containerized by the

000098

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

Contractor for disposition as contaminated material without decontamination (such items shall be identified in the MSCC, Part 6, Exhibit E). These items shall not be allowed to get wet.

C. Requirements Specific to Decontamination of Structures and Outdoor Process Tanks/Pipes:

1. Structures:

Prior to opening contaminated structures to the environment (by removing the exterior siding or structural dismantlement), the Contractor shall remove and/or fix radiological contamination on all surfaces within the facility until the detected radioactivity levels are below release criteria identified in Part 8, Section C 2.4.3. Fluor Fernald will perform a radiological release survey to ensure the radioactivity criteria are met.

2. Transite Roof and Wall Panels:

Exterior panels shall be removed in a manner that minimizes the possibility of loose contamination becoming airborne (visible) when the panel is removed. A HEPA vacuum shall be used to remove any loose contamination which may be exposed when the exterior panel is removed (e.g., the under side of the outer panel and the upper surface of the lower roof panel). After the roof or wall panels have been vacuumed, all newly exposed surfaces shall be encapsulated to fix any contamination that remains. Vacuumed residues shall be handled as Debris Category J, in accordance with Part 6, Exhibit E (Debris Category J).

3. Outdoor Process Tanks and Pipe:

a. Prior to demolition of outdoor process (or suspect process) tanks, all surfaces (interior and exterior) shall be decontaminated to meet the radiological release criteria for outdoor process tanks contained in Part 7. If outdoor tanks do not meet the release criteria in Section 01519, they shall be demolished within a containment, either constructed or existing, in accordance with Section 15067 unless one of the following methods are implemented:

1. Encapsulate and mechanically cut (e.g., shear, saw, etc.):

Prior to tank demolition, the interior of the tank shall be empty and fully encapsulated. During tank demolition, the work area shall be misted with water to minimize release of airborne contamination.

2. Torch or other "hot cutting" methods:

The Contractor shall propose methods that minimize "hot cutting" (e.g., oxy/gas and oxy/acetylene torch cutting). If approved by Fluor Fernald, "hot cutting" of surfaces that exceed 25,000 dpm/100cm<sup>2</sup> beta-gamma total contamination or are thorium contaminated shall be performed within containment per Section 15067.

Hot cutting of tank surfaces may be considered by Fluor Fernald as a proposed method of dismantlement for tanks and pipe located outside of containment, provided that:

000099

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

- a). HEPA filtered ventilation is maintained, and/or
- b). point-of-cut ventilation can be provided such that fugitive emissions captured and project boundary airborne radioactivity levels are maintained according to limits specified in Part 8, Section C 2.4.2.

The ventilation/containment requirements of Section 15067 apply.

- 3. Hot cutting may be performed on contaminated surfaces less than 25,000 dpm/100cm<sup>2</sup> beta-gamma total contamination with local HEPA ventilation. (Note: this clause applies only to uranium-contaminated outdoor process tanks and pipe.)
  - b. Internal surfaces of process piping are assumed to exceed both the removable and total contamination limits for uncontained demolition. However, removal and transport to the debris decontamination area of process piping that is located outside of the building structures may be performed outside of containment if the methods of cutting inherently minimize fugitive emissions.
- 4. Acceptable methods for removing surface contamination on structures and outdoor tanks/pipes include, but are not limited to: hydro-blasting with a minimum of 1,000 psi, steam-cleaning, sponge blasting, CO<sub>2</sub> blasting, or other Fluor Fernald-approved method.
- 5. Encapsulation of surfaces is required if the release criteria specified in Part 8, Section C 2.4.3 have not been met and decontamination has been attempted at least once. Fluor Fernald shall be notified prior to encapsulation to allow for inspection for visible process residues. Acceptable methods for encapsulating contamination, which is not readily removed by the above-identified methods include, but are not limited to, encapsulating coatings, non-strippable coatings as referenced in Article 2.2, and wrapping in reinforced sheeting and sealed prior to movement to prevent migration of potential contaminants. 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.
- 6. If stabilizer or non-strippable coatings are used as fixatives, they will meet the requirements of this specification (see Article 2.2).
- 7. Down posting of thorium contaminated areas requires that contamination levels meet the thorium-specific release limits of Section 01519, Table 1.
- 8. If hydro-blasting or steam cleaning is employed, the Contractor shall:
  - a. Seal floor cracks/seams, openings, and building cracks using sealants to protect the environment from migration of contaminants.
  - b. Contain effluents to the building interior/outdoor tank containment system and subsequently to collection systems.
- 9. 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 levels as stated in Article 3.1.D.

000100

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

10. The Contractor shall take precautions to prevent the spread of contamination from other more-contaminated areas of the facility to less contaminated areas.
11. Acceptable methods for decontamination of Hazardous Waste Management Units (HWMUs) to meet RCRA/CERCLA closure Ohio Environmental Protection Agency guidance are hydro-blasting or steam cleaning with a minimum of 1,000 psi, unless otherwise stated in Part 6, Section 3.5 for that particular component.

**D. Rinseate/Effluent Handling:**

1. 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 Articles 3.1.D and 3.1.E.
2. For rinseate/effluent generated from decontamination of a structure containing uranium and/or thorium contamination, or from decontamination washwater generated from contact with outdoor pads with process tanks and pipes:
  - a. The Contractor shall supply all effluent collection equipment (e.g., pumps, secondary containment, tanks).
  - b. Effluent tanks require secondary containment with a minimum of 10 percent of the combined capacity of the effluent tanks housed and not less than the volume of one full tank, whichever is greater.
3. Enriched Equipment/Material (if listed in Part 6, Section 3.0): In addition to effluent tanks, the washing of enriched equipment/material requires the use of smaller tanks to permit safe quantities to be maintained (for nuclear criticality safety purposes). There are no mass restrictions for rinseates or sludges with a U-235 enrichment less than 1 percent.
  - a. For enrichments greater than 1 percent and less than or equal to 1.25 percent, 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 Article 3.1.B.3. The Contractor shall supply effluent storage tanks no greater than 30 - gallon capacity and in numbers sufficient to permit 15 calendar days storage, without impact to Contractor operations.
  - c. The Contractor shall store sludge, resulting from enriched equipment/material cleaning, in 55-gallon drums. Filled drums may be stored no closer than 2 feet apart.
  - d. Should equipment be discovered with uranium enrichment greater than 1 percent then equipment/material washing operations and effluents shall be maintained separate, based on enrichment and type, by the following: 1) uranium less than or equal to 1 percent enrichment; 2) uranium greater to 1 percent enrichment but less than or equal to 1.25 percent enrichment; 3) uranium greater than 1.25 percent enrichment but less than or equal to 2 percent enrichment; and 4) thorium. Wash systems can be maintained separate by campaign or by physically separate systems.

000101

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01517</b>	<b>Rev 0A</b>

4. The Contractor shall devise a system that uniquely identifies each tank of generated wastewater. Prior to filling, a unique number shall be determined for the tank contents and this number shall be identified in the field, on the sampling plan, and on the wastewater discharge request.
5. Approval to commingle the effluents and sludges is required from Fluor Fernald. Approval to transfer effluents to large effluent tanks is required from Fluor Fernald.
6. The Contractor shall notify Fluor Fernald when the effluent tanks are filled. Fluor Fernald will sample, empty the tanks, and transport the effluent to the FEMP Advanced Wastewater Treatment Facility. Upon testing and approval of laboratory analysis from Fluor Fernald, Fluor Fernald shall empty the contents of the effluent storage tanks and transport the effluent to the FEMP AWWT. The Contractor shall keep additional tanks in reserve, as the tank(s) will be out of commission until the sample results are received and water is dispositioned. The Contractor shall allow six weeks for this process.
7. Effluent generated from the decontamination and/or rinsing of HWMUs shall be collected and temporarily stored separately from general, non-HWMU effluent. Fluor Fernald will notify the Contractor when commingling of HWMU and non-HWMU effluent may occur.
8. The Contractor shall supply storage tanks and secondary containment with a minimum liquid effluent storage capacity to allow 20 days storage without impacting the Contractor operations.
9. The Advanced Wastewater Treatment Facility (AWWT) of the Fernald Environmental Management Project (FEMP) is not designed to process heavy oils, greases, or other stratified organic layers. Should such contaminants exist, Fluor Fernald shall be responsible for their removal from the wastewater prior to delivery to the AWWT. The contaminants shall be containerized and delivered to Fluor Fernald personnel, who will be responsible for disposal.

**E. Sludge Drumming**

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

**END OF SECTION**

**This page left intentionally blank.**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 01519	Rev 0A

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

## SECTION 01519

DECONTAMINATION OF CONTRACTOR PROVIDED TOOLS,  
EQUIPMENT AND MATERIAL

## PART I GENERAL

## 1.1 SUMMARY

- 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, and
  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 Section 3.0, shall be considered contaminated with radioactive material.
  2. All items are considered potentially contaminated if they have been used or stored in Controlled Areas that could contain unconfined radioactive material.
  3. The Contractor shall establish a holding/inspection area to allow Fluor Fernald 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 such that the area is off limits to individuals other than Fluor Fernald/Contractor radiological survey personnel.
    - b. Only those items which meet the requirements (as described in this Section) for leaving the work zone should enter the inspection area.
  4. 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.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

5. Hand and portable tools used in controlled areas for performance of the subcontract are to be considered expendable as specified in Part 4 - Special Terms and Conditions, DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIALS THAT HAVE BECOME CONTAMINATED (SC-33).

## 1.2 RELATED SECTIONS

Work related to this Section shall also be accomplished in accordance with the following Sections:

- A. Section 01120 - Debris/Waste Handling Criteria,
- B. Section 01517 - Removing/Fixing Radiological Contamination, and
- C. Section 15067 - Ventilation and Containment.

## 1.3 REFERENCE MATERIALS

- A. Part 4 - "Special Terms and Conditions, DISPOSITION OF CONTAMINATED TOOLS, EQUIPMENT, AND MATERIALS" (SC-33).
- B. Part 6 - Section 1.0, "Scope of Work"
- C. Part 7 - ACR-002, "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 Fluor Fernald 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:
  1. Previous use of the equipment,
  2. Dates of use,
  3. Levels of contamination, and
  4. Radioisotopes involved.

This list must be submitted as soon as known in advance of bringing the item onsite. Fluor Fernald reserves the right to reject the Contractor's request to bring these items on site. Any tools or equipment contaminated with a radioactive material greater than 1 percent enriched uranium or thorium-232 will be rejected. 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:

000105

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 01519	Rev 0A

1. Material to be used,
  2. Intended use,
  3. Application instructions, and
  4. 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 - ACR-002 ("Contractor Safe Work Plan Format Requirements"), describing the following:
1. Preventative measures to be employed,
  2. The design and construction of the decontamination area,
  3. The methods to be utilized for decontamination (see Article 3.1.C of this Section),
  4. The methods and equipment for controlling and handling effluent and/or secondary waste produced during decontamination activities, and
  5. 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 that Fluor Fernald 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:
    - a. Name or title of material,
    - b. Manufacturer's stock number and date of manufacture,
    - c. Manufacturer's Name, and
    - d. 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. ALARA
1. For the purposes of meeting the "As Low As Reasonably Achievable" (ALARA) goal for tools, equipment, and materials, it is expected that:
    - a. 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.
    - b. There is no increase in the level of contamination on items that were previously contaminated.
  2. The ALARA efforts include, but are not limited to, the following:
    - a. Protective measures prior to use of items,
    - b. Preventative measures while items are being used, and

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

c. Decontamination upon completion of work activities.

3. In support of the ALARA initiative, all Contractor furnished tools, vehicles, equipment, and material may be inspected for radioactive contamination by Fluor Fernald personnel prior to initial entry and upon removal from the radiological controlled area.

### **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, Special Terms And Conditions, SC-33 - "DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIALS THAT HAVE BECOME CONTAMINATED") should incorporate appropriate precautions to prevent contamination. These precautions should be implemented prior to and during use. Precautionary measures may include the following, which are expected to be implemented as described in the Safe Work Plan:
  - a. Internal combustion equipment subject to contamination should make use of pre-filters or have a separate source of outside air on the intake.
  - b. 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.
  - c. 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.
  - d. 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.

**000107**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

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

- a. Utilize an existing concrete pad with run-on and run-off controls.
- b. 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 grade without penetrations. Containment used must be adequate to maintain its integrity.

**C. Methods of Decontamination Activities:**

1. Where decontamination is needed, the Contractor shall at a minimum use the following as applicable:
  - a. Dry cleaning.
  - b. Steam cleaning.
  - c. 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 that 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, Special Terms And Conditions, SC-33 - "DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIAL THAT HAVE BECOME CONTAMINATED".
  - a. The contaminated components are subject to the cleaning criteria stated in Article 3.2.B.
  - b. The contaminated components will be managed and handled per Section 01120 and Part 6, Exhibit E subsequent to the cleaning as directed by Fluor Fernald.

**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 Sections 01120 and 01517.
2. Management of wastes generated during decontamination activities shall be in accordance with Section 01120 and the Demolition Closure Project MSCC located in Part 6, Exhibit E.

**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. Fluor Fernald shall perform final verification surveying.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

**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 <sup>2</sup>	15,000 dpm /100 cm <sup>2</sup>	1,000 dpm/100 cm <sup>2</sup>
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm <sup>2</sup>	300 dpm/100 cm <sup>2</sup>	20 dpm/100 cm <sup>2</sup>
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm <sup>2</sup>	3,000 dpm/100 cm <sup>2</sup>	200 dpm/100 cm <sup>2</sup>
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 <sup>2</sup>	15,000 dpm /100 cm <sup>2</sup>	1,000 dpm /100 cm <sup>2</sup>

- (a) Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.
- (b) As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.
- (c) Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.
- (d) The maximum contamination level applies to an area of not more than 100 cm<sup>2</sup>.
- (e) The amount of removable radioactive material per 100 cm<sup>2</sup> 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.

2. The Contractor shall provide notice to Fluor Fernald of intent to remove tools and equipment from the contamination area, in accordance with Part 6, SC-33 - DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT, TOOLS, AND MATERIALS THAT HAVE BECOME CONTAMINATED.
3. Release of tools, equipment, and material from Contamination Areas to the Controlled Area:

**000109**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

- a. If removable contamination in excess of the limits of Table 1 is present on the tools, equipment or material, then:
- 1). The items must remain in the contamination area for decontamination, or
  - 2). 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 Fluor Fernald and released to the Controlled Area.
4. **Unrestricted Release Criteria:**
- Tools and equipment with detectable radioactivity may be released from the controlled area with the approval of a Fluor Fernald Radiological Control Technician if all of the following have been met:
- a. Both removable and total surface contamination (including contamination on and under any coating) are in compliance with the levels given in Table 1 above and the item has been subjected to the ALARA process described in Article 2.1.B.
  - b. 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 above, 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.
  - c. Upon approval from Fluor Fernald, 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, the 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

000110

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 01519</b>	<b>Rev 0A</b>

to Fluor Fernald for compliance review prior to removal of the contaminated equipment. A copy of all Bills of Lading shall be submitted to Fluor Fernald prior to shipment.

- b. The Contractor is to provide 24 hours notice to Fluor Fernald prior to shipping radioactive tools, equipment, and/or material.

### 3.2 UNSUCCESSFUL/IMPRACTICAL CONTRACTOR DECONTAMINATION

- A. If Fluor Fernald 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 - Special Terms And Conditions, DISPOSITION OF CONTRACTOR PROVIDED EQUIPMENT AND TOOLS THAT HAVE BECOME CONTAMINATED (SC-33 ) for action to be taken.
- B. 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.
- C. All tools, material, vehicles, and equipment accepted by Fluor Fernald for disposition must have been cleaned to meet the visual inspection requirements defined in Section 01517 and handled as defined in Section 01120 and the MSCC located in Part 6, Exhibit E.

### 3.3 QUALITY ASSURANCE

All QA requirements required to be met by the Subcontractor are stated in Part 9.

**END OF SECTION**

**000111**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 03315	Rev 0A

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

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

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

- A. Elevated floor and roof slabs,
- B. Cast-in-place walls,
- C. Pre-cast concrete components,
- D. Foundations, piers, and selected curbs,
- E. Concrete encasement (e.g., fireproofing),
- F. Interior and exterior masonry,
- G. Control of fugitive emissions, and
- H. 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
- F. Section 03920 - Concrete Surface Removal

**1.3 REFERENCE MATERIALS**

See Part 7 for the following:

- A. Index of Drawings
- B. Contractor Safe Work Plan Format Requirements

**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

000112

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03315</b>	<b>Rev 0A</b>

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 101A-98 Code for Safety to Life from Fire in Buildings and Structures
2. NFPA 241-93 Standard for Safeguarding Construction, Alteration, and Demolition Operations

**C. DOE N441-1 Radiation Protection of the Public and the Environment**

**D. 10 CRF 835 Occupational Radiation Protection**

**E. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust**

**1.4 SUBMITTALS**

The Contractor shall submit for approval a Concrete/Masonry Removal Safe Work Plan in accordance with Part 7 - ACR-002, Contractor Safe Work Plan Format Requirements, which contains the following information:

- A. Detailed method and sequence of dismantlement, including equipment to be used.
- B. Methods for control of contaminants, including control of fugitive emissions.
- C. Materials, such as non-woven geotextile fabrics and surfactants, to be used.
- D. Methods of cutting, including equipment to be used.
- E. Calculations: Verification of the structural adequacy of partially dismantled structures, as applicable, shall be stamped by a Professional Engineer registered in the State of Ohio.
- F. 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. A Professional Engineer registered in the State of Ohio shall stamp these calculations.
- G. If controlled explosive methods are proposed to be used on building structures that are constructed of precast columns and roof beams, a detailed Safe Work Plan containing the following information shall be prepared:
  1. Methods and materials to be used.
  2. Means to protect adjacent structures, equipment, material, and underground utilities from damage, including protection from projectiles.
  3. Methods and materials to control fugitive emissions.
  4. Contingency plan for detonation failure.

**000113**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03315</b>	<b>Rev 0A</b>

5. Proof of permit, issued by the Bureau of Alcohol, Tobacco and Firearms, to use explosives.
  6. Methods and materials to store explosives according to the requirements of 29 CRF 55 Subpart K.
  7. 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.
- H. Detailed method and sequence of dismantlement of Technetium-99 contaminated concrete, including equipment to be used, method of removal, equipment/method to control, filter and store waste produced during Tech-99 Concrete removal.

## **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. Must be approved by Fluor Fernald.

#### **B. Encapsulants/Lockdowns:**

1. Control – Grayling Ind.
2. Foster 32-60 – Foster Products Corp.
3. Fiberset PM – Fiberlock Technologies
4. ACC 22-P – American Coatings Corp.
5. Serpiloc
6. Approved equal

#### **C. Bridging Encapsulants:**

1. Asbestos Binding Compound – Fiberlock Technologies
2. Leadlock – Global Encasement Systems
3. Foster 32-80, Foster Products Corp.
4. Approved equal

## **PART III EXECUTIONS**

### **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:

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03315</b>	<b>Rev 0A</b>

1. Amended water (with surfactant), and
  2. Finely atomized water spray.
- C. Concrete and masonry shall have contamination fixed or removed prior to dismantlement and prior to removing local containment or building enclosures, in accordance with Section 01517.

### 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. If concrete dust is generated as a result of removal operations (due to crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Removal of Above-Grade Concrete/Masonry:

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), which shall remain in place.

C. Removal of At-Grade Concrete/Masonry:

1. Concrete slabs, pedestals, columns, miscellaneous foundation piers, walls, and curbs shall be sealed and may remain intact during and after structural dismantlement.
2. Cut all reinforcing (e.g., rebar) and anchors flush with base slab for areas designed on the Contractor Safe Work Plan for potential debris stockpiling. For all other areas, reinforcements and anchors need only be cut down to within one inch of the base slab.

D. Cutting:

1. All material shall be reduced in size as required for containerization in accordance with Section 01120 and the MSCC located in Part 6, Exhibit E.
2. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.
3. Because of contamination levels, some concrete may require local containment for cutting activities in accordance with Section 15067. Any currently known areas requiring local containment are identified in Part 6, Section 3.0; however, new or additional areas may be identified during dismantlement activities.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03315</b>	<b>Rev 0A</b>

**E. Explosives:**

1. Interior non-load bearing masonry walls shall be removed using non-explosive methods prior to opening the shell of the structure. For interior poured concrete walls, the Contractor shall have the option to leave them in place during structural dismantlement provided that facility release criteria are met prior to structural dismantlement and the method of dismantlement in the Concrete/Masonry Removal Safe Work Plan is approved by Fluor Fernald personnel.
2. Any bituminous roofs felled by explosives are to be dropped in a single unit and impact the ground in a horizontal plane.

**3.3 SPECIAL INSTRUCTIONS**

The following special instructions apply to concrete/masonry removal:

**A. Windows and Doors**

1. The Contractor shall remove all windows in one piece and place them in appropriate containers.
2. The Contractor shall remove all doors (wood and/or steel) and place them in appropriate containers.

**B. Lead Materials**

1. The Contractor shall segregate all lead materials (e.g., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 and the WMP located in Part 6.
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 (e.g., 4 inches on each side of 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.

**C. Wall and Roof Louvers**

The Contractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers.

**END OF SECTION**

**This page left intentionally blank.**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03920</b>	<b>Rev 0A</b>

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

**SECTION 03920****CONCRETE SURFACE REMOVAL****PART I GENERAL****1.1 SUMMARY**

This Section defines the work related to the removal of a surface layer from the existing concrete pads utilizing surface removal technologies. Principals included in this Section are:

- A. Removing surface layer,
- B. Controlling and transporting waste produced during the removal of concrete,
- C. Controlling the spread of radiological contamination in the operating area, and
- D. Equipment types and usage.

**1.2 RELATED SECTIONS**

- A. Section 01120 - Debris/Waste Handling Criteria
- B. Section 01517 - Removing/Fixing Radiological Contamination
- C. Section 15067 - Ventilation and Containment
- D. Section 01519 - Decontamination of Contractor Provided Tools, Equipment, and Materials

**1.3 REFERENCE MATERIALS**

- A. See Part 7 for the following:
  - 1. Index of Drawings
- B. See Part 8 – Section C 2.0 for the Radiological Requirements.

**1.4 REFERENCES, CODES, AND STANDARDS**

See General Per Section 01010.

**1.5 SUBMITTALS**

- A. Before start of concrete surface removal work, the Contractor shall submit for approval a work plan describing the system design for removing concrete. The work plan shall describe methods and equipment for removing concrete, including equipment used for controlling, filtering, and transporting waste generated during removal activities. The work plan shall also describe methods and equipment used to control the generation and spread of contamination.

000118

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 03920</b>	<b>Rev 0A</b>

- B. **Product Data:** The Contractor shall submit manufacturer's technical information on all materials to be used, including there intended use and application instructions.
- C. See Part 6, Section 11.0 for additional submittal requirements.

**1.6 QUALITY ASSURANCE**

Prior to commencement of work, the Contractor shall demonstrate the methods for removing concrete on a sample area of a concrete floor selected by Fluor Fernald.

**1.7 PROJECT CONDITIONS**

- A. Radiological contamination has been detected on concrete pads, as identified in Part 6, Section 3.1.6. The Contractor is to remove surface layers of concrete in the locations and to the depth specified. This may require concrete removal adjacent to curbs and foundations.

**PART II PRODUCTS**

**2.1 MANUFACTURERS/EQUIPMENT**

- A. The Contractor shall supply a system with all equipment required to remove concrete, including equipment to control, filter, and transport waste produced during concrete removal.
- B. The concrete removal system (equipment) shall include, but not be limited to, the following features:
  1. Integral vacuum system with pre- and HEPA filters.
  2. Controlled, dustless process with personnel exposure below DAC limits as defined in Part 8.
  3. Simultaneous collection of waste in 55-gallon drums.
  4. No use of water where technetium-99 contamination is of concern.
  5. Equipment shall be portable.
  6. Consideration shall be used to select equipment that can be easily decontaminated for free release after use. For details on releasing tools and equipment, refer to Section 01519.
  7. Equipment shall implement waste management technology that minimizes secondary waste.
  8. Vacuum design shall allow operator to fill, seal, remove, and replace the waste drum under negative pressure vacuum conditions/enclosures.
- C. Fluor Fernald will provide standard 55-gallon drums for collection of waste. The Contractor shall provide all replacement filters.
- D. Vendor shall provide method(s) for concrete removal adjacent to areas such as curbs and around foundations.
- E. Erection of any necessary local containment shall be defined by the vendor in accordance with the requirements of Section 15067.

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 03920	Rev 0A

### PART III EXECUTION

#### 3.1 APPLICATION

- A. All concrete removal activities shall be performed in accordance with 10 CFR 835.
- B. All work is to be performed according to Fluor Fernald's health and safety requirements. Personnel in the controlled area shall be required to wear personal protective equipment as detailed in the health and safety matrix.
- C. The Contractor shall control dust and debris generated while removing concrete. Fluor Fernald shall monitor the area for airborne contamination. The Contractor shall be required to make changes to operating methods and equipment if unacceptable levels of airborne contamination are found in the operating area.
- D. The Contractor shall collect all waste generated while removing concrete. Waste and effluent shall be packaged in accordance with the requirements in the MSCC , located in Part 6, Exhibit E.
- E. Once the concrete has been removed, the Contractor shall take precautions to prevent the further spread of radiological contamination to the area.
- F. The Contractor shall not remove more than one-half (1/2) inch.

#### 3.2 QUALITY ASSURANCE

The Contractor and Fluor Fernald shall verify that the removal depths indicated in Part 6, Section 3.0 are met. The removal depths are the minimum requirements for concrete removal. Acceptable performance is achieved when the minimum removal has occurred over the work area specified.

**END OF SECTION**

**This page left intentionally blank.**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 05125	Rev 0A

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

**SECTION 05125****NEW STRUCTURAL STEEL/METALS****PART I GENERAL****1.1 SUMMARY**

Design, fabrication, and installation 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**

See Part 7 for the following:

- A. Index of Drawings

**1.4 REFERENCES, CODES, AND STANDARDS**

## A. American Society for Testing and Materials (ASTM):

- 1. ASTM A36-94 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 A325-94 Standard Specification for Bolts, Structural Steel, Heat Treated, 120/105 KSL Minimum Tensile Strength

## B. American Welding Society (AWS):

- 1. ANSI/AWS A2.4-93 Standard Symbols for Welding, Brazing, and Nondestructive Examination
- 2. ANSI/AWS D1.1-96 Structural Welding Code, Steel
- 3. ANSI/AWS D1.2-90 Structural Welding Code, Aluminum
- 4. ANSI/AWS D1.3-89 Structural Welding Code, Sheet Steel

000122

<b>Title:</b> Demolition Closure Project	<b>Specification No:</b> 01789-TS-0001		
	<b>Date:</b> 11/8/01	<b>Section</b> 05125	<b>Rev</b> 0A

C. American Institute of Steel Construction (AISC):

1. AISC Manual of Steel Construction - Allowable Stress Design (ASD), 9th Edition
2. AISC Manual of Steel Construction - Load and Resistance Factor Design (LRFD), 2nd Edition

D. American National Standards Institute (ANSI):

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 Fernald:

1. Calculations: Indicate design method, assumptions, loads, member forces, allowable stresses, and connection designs.
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 ANSI/AWS A2.4 welding symbols. Indicate net weld lengths. Submit copies of welder's certifications with shop drawings.
4. A plan for conducting and documenting field quality testing and inspection including test methods and reports required under Field Quality Assurance.
5. Provide Material Safety Data Sheets for primer and finish coatings to be applied to new structural steel, and for welding materials.
6. Contractor's AWS Welding Program for approval.
7. Mill Test Reports for structural steel

B. For additional submittal requirements see Part 6, Section 11.0.

## 1.6 DELIVERY, STORAGE, AND HANDLING

ASTM A325 high strength bolts shall be delivered to the site in the original labeled containers and once onsite 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 and plates: ASTM A36

000123

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 05125	Rev 0A

- B. Structural Fasteners: Bolts shall be hardened and meet ASTM A325; nuts shall be heavy hex type meeting ASTM A563, Grade C; and washers shall be hardened and meet ASTM F436, Grade 1.
- C. Miscellaneous Fasteners: Shall meet ASTM A307.
- D. 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, or
  - 4. Fluor Fernald approved equal.
- E. Welding Materials: ANSI/AWS D1.1 - Structural Welding Code. Use E70XX electrodes.
- F. Abide by requirements of Federal Fastener Act.
- G. Shop Primer: Short-oil alkyd that is VOC compliant.

## 2.2 FABRICATION

- A. For delivery to site, fit and ship assembled in largest practical sections.
- B. Supply components required for connecting and anchorage of fabricated structural assemblies.
- C. All welding procedures, welder's certification, and visual acceptance criteria must be in accordance with ANSI/AWS D1.1, Chapter 5.
- D. Clean surfaces of rust, scale, grease, and foreign matter prior to applying shop primer. Prepare surface in accordance with paint manufacturer's instructions.
- E. Shop prime with one coat of short-oil alkyd primer per manufacturer's instruction for primer (dry film) coat thickness.
- F. Do not prime surfaces in direct contact with concrete or within three inches of where field welding is required.
- G. All coatings shall be free of lead and chromium.

## PART III EXECUTION

### 3.1 PREPARATION

Prior to fabrication, the Contractor shall verify field dimensions.

### 3.2 INSTALLATION - GENERAL

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for installation loads and provide temporary bracing to maintain true alignment until

000124

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 05125</b>	<b>Rev 0A</b>

completion of installation.

- C. Field weld components as indicated on the approved drawings. Field welding shall be in accordance with ANSI/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 Fluor Fernald.
- F. After installation, prime field welds and abrasions. Any steel embedded in concrete is an exception.
- G. All steel shall be fabricated and installed in accordance with the AISC Manual of Steel Construction.
- H. After use, all steel shall be dismantled and cut for containerization in accordance with Section 01120 and Section 05126.

### 3.3 QUALITY ASSURANCE

- A. Calculations and shop drawings must bear the stamp of a Professional Engineer registered in the State of Ohio.
- B. The Contractor shall inspect high-strength bolted connections for all shop-fabricated steel, and perform tests and prepare test reports in accordance with the AISC specifications. All test results shall be submitted to Fluor Fernald.
- C. The Contractor shall conduct tests and shall state in each test report whether test specimens comply with requirements, and shall specifically state any deviations. Fluor Fernald must approve deviations in writing.
- D. Shop and Field Welding
  - 1. The Contractor shall: inspect and test, during fabrication and installation of structural steel assemblies in accordance with ANSI/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 Fluor Fernald.
    - b. Perform visual inspection of all welds per AWS D.1.1.
    - c. All welds that fail shall be repaired per approved Contractor AWS Welding Program.
    - d. Reworked areas shall be re-tested using the same method as used to find original indications.
  - 2. Perform nondestructive tests of welds per AWS D.1.1. 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 Fluor Fernald for approval.

**000125**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 05125</b>	<b>Rev 0A</b>

- a. All welds that fail testing shall be repaired per approved Contractor AWS Welding Program.
- b. Reworked areas shall be re-tested using the same method as used to find original indications.

**E. Correction of Substandard Work:**

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**

**This page left intentionally blank.**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 05126	Rev 0A

Approved: \_\_\_\_\_  
 Joseph S. Stoner                      Date

**SECTION 05126**

**STRUCTURAL STEEL DISMANTLEMENT**

**PART I GENERAL**

**1.1 SUMMARY**

This Section includes dismantling and containerization of:

- A. Structural steel,
- B. Bar joists,
- C. Floor plate/decking,
- D. Grating,
- E. Stairs, ladders, and handrail,
- F. Metal siding and roofing, including doors, louvers, and windows,
- G. All other miscellaneous steel, and
- H. 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**

See Part 7 for the following:

- A. Index of Drawings
- B. Contractor's Safe 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
  - 2. ANSI A10.8-88                      Construction and Demolition Operations - Scaffolding - Safety Requirements
  - 3. ANSI A10.13-89                      Construction and Demolition Operations - Steel Erection

**000128**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 05126</b>	<b>Rev 0A</b>

**B. National Fire Protection Association (NFPA):**

1. NFPA 241-96 Standard for Safeguarding Construction, Alteration, and Demolition Operations

**C. United States Occupational Safety and Health Administration:**

2. 29 CFR 1926.858 Removal of Steel Construction.

**1.5 SUBMITTALS**

The Contractor shall submit to Fluor Fernald for conformance review a structural steel removal Safe Work Plan in accordance with Part 7, ACR-002, Contractor Safe Work Plan Format Requirements, that contains the following information:

- A. Detailed sequence of dismantlement and method of cutting, including equipment to be used.
- B. Methods for contaminant control, including fugitive emissions during cutting.
- C. Detailed plan for protecting lay down and cutting areas from contamination by lead paint chips and for controlling airborne radiological emissions.
- D. Methods and materials used for cutting lead-painted steel.
- E. If structural steel is removed in sections, verify the structural adequacy of the remaining structure. Calculations and drawings to verify the structural integrity of the partially dismantled structure must bear the stamp of a Professional Engineer registered in the State of Ohio.
- F. Plans for personnel tie-offs, use of pick boards and walking on or near roof purlins/girders.
- G. If controlled explosive methods are used for structural steel dismantlement, a detailed Safe Work Plan containing the following information shall be prepared:
  1. Methods and materials to be used.
  2. Means to protect adjacent structures, equipment, material, and underground utilities from damage, including protection from projectiles.
  3. Methods and materials to control fugitive emissions.
  4. Contingency plan for detonation failure and safe recovery of all undetonated charges.
  5. Proof of permit, issued by the Bureau of Alcohol, Tobacco and Firearms, to use explosives.
  6. 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.
  7. If non-load bearing interior concrete/masonry walls are to be removed, refer to concrete/masonry removal specifications in Section 03315.

000129

<b>Title:</b> Demolition Closure Project	<b>Specification No:</b> 01789-TS-0001		
	<b>Date:</b> 11/8/01	<b>Section</b> 05126	<b>Rev</b> 0A

8. Identify locations of all cuts and charges and detonation sequence on composite drawings which will be provided by Fluor Fernald.
9. Provision of adequate protection of charges to prevent shrapnel from damaging the non-electric detonation system or persons near the exclusion boundary.
10. 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. Fluor Fernald-approved equal products
- B. Surfactants:
  1. CP-225 CHIL-SORB by Childers.
  2. Fluor Fernald-approved equal products

## **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. Building contents, steel, and siding shall have contamination removed or fixed prior to exposing interior surfaces including steel and siding to the environment in accordance with Section 01517.
- 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 Article 1.4 of this section of the specifications.
- B. The Contractor shall apply mechanical means of cutting and removing the structural steel to the largest extent possible while also avoiding damage to adjacent structures, components, equipment, and utilities.

000130

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 05126</b>	<b>Rev 0A</b>

- C. The roof, exterior wall, and decking shall also be demolished with the structure wherever possible. Asbestos containing material (ACM) shall not be demolished with structural steel.
- D. The Contractor shall dismantle, shear and segregate the structural steel to avoid damage to adjacent structures, component, equipment, and utilities. 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 designed and stamped by a State of Ohio Professional Engineer, then submitted with calculations to Fluor Fernald for review and approval.
- G. Cut all reinforcing (e.g., rebar) and anchors flush with base slab for areas designated on the Contractor's Safe Work Plan for potential debris stockpiling. For all other areas, reinforcements and anchors shall be cut down to within one inch of the base slab. Fill in damaged areas of base slab with patching grout as described in Section 01515.
- H. Lead-based paint chips and debris, released during structural steel dismantlement, shall be collected and managed in accordance with Section 01120 and the MSCC located in Part 6, Exhibit E.

### 3.3 SPECIAL INSTRUCTIONS

- A. The following items are also included (where applicable) in the sequence of structural steel dismantlement:
  - 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 and the MSCC located in Part 6, Exhibit E.
    - 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 (i.e., 4 inches on each side).
    - 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 cut to meet sizing criteria and be managed in accordance with the MSCC located in Part 6, Exhibit E.

000131

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 05126</b>	<b>Rev 0A</b>

**3.4 QUALITY ASSURANCE**

The Contractor shall inspect debris generation, stockpiling, and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with the MSCC located in Part 6, Exhibit E.

**END OF SECTION**

**This page left intentionally blank.**

**000133**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

**Approved:**

\_\_\_\_\_  
 Joseph S. Stoner                      Date

**SECTION 07415**

**TRANSITE REMOVAL**

**PART I GENERAL**

**1.1 SUMMARY**

The work includes:

- A. Removal of all interior and exterior transite panels.
- B. Use of vacuuming, encapsulants, and/or surfactants on the transite panels to prevent airborne asbestos fibers and airborne radioactivity.

**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 11010 - HEPA Vacuum Cleaner Requirements
- F. Section 15065 - Equipment/System Dismantlement
- G. Section 15067 - Ventilation and Containment
- H. Section 15860 - HEPA Air Filtration Device Requirements

**1.3 REFERENCE MATERIALS**

See Part 7 for the following:

- A. Index of Drawings
- B. Contractor's Safe Work Plan Format Requirements

**1.4 REFERENCES, CODES AND STANDARDS**

- A. 29 CFR 1926.850            Demolition Preparatory Operations
- B. 29 CFR 1926.1101        Asbestos (Construction Industry)
- C. 29 CFR 1910.134         Use of Respirators
- D. 29 CFR 1910.1001        Asbestos (General Industry)
- E. Ohio Department of Health Asbestos Hazards Abatement Rules Chapter 3701-34, OAC (Ohio Department of Health)

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

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

### 1.5 SUBMITTALS

- A. The Contractor shall submit to Fluor Fernald a detailed Safe Work Plan (SWP) for approval in accordance with Part 7, ACR-002, "Contractor Safe Work Plan Format Requirements" and "Asbestos Abatement Safe Work Plan Requirements". The submittal shall include the procedures proposed for use in complying with the requirements of this Section. An Ohio Certified Asbestos Abatement Project Designer shall prepare and approve the SWP. The SWP shall include the following information:
  - 1. The location and layout of storage and queuing areas.
  - 2. The method of applying vacuuming, encapsulants, and/or surfactants.
  - 3. The methods and sequencing of interior and exterior panel removal.
  - 4. The interface of trades involved in the performance of work.
  - 5. A detailed description of the methods to be employed to prohibit visible emissions in the work area.
  - 6. A detailed description of the methods for removing transite panels from the structures and moving them to the laydown location for containerization ((per the Material Segregation and Containerization Criteria (MSCC)) is located in Part 6, Exhibit E. The description of methods shall include methods to be employed to ensure transite panels are removed without cutting, abrading, or breaking.
  - 7. 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.
  - 8. 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 Professional Engineer registered in the State of Ohio, consistent with Section 01515.
  - 9. 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 Fluor Fernald:
  - 1. Documentation of training,
  - 2. Medical surveillance,
  - 3. Respirator fit-test, and
  - 4. Employee exposure assessments.
- C. Five (5) days prior to submittal of notification to government agencies, the Contractor shall provide a copy to Fluor Fernald for concurrence.
- D. Product Data: The Contractor shall submit for approval manufacturer's technical information, including application instructions for each material proposed for use.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

## 1.6 HANDLING AND STORAGE

- A. The Contractor shall manage transite in accordance with Section 01120 and the MSCC, located in Part 6, Exhibit E. Corrugated transite panels shall be stacked separately from flat transite panels.
- B. The Contractor shall take precautions to prevent breakage of transite panels during handling.

## 1.7 PROJECT CONDITIONS

Multiple layers of transite roof and wall panels require specific methods for removal/fixing of radiological contamination, which is likely to exist between the layers of transite. Section 01517 contains specific instructions for removing/fixing contamination during removal of transite roof or wall panels.

Whenever transite (or transite fastener) removal is occurring on roofs, no one will be allowed within the footprint of the building until such work activities are completed.

As exterior transite panels are removed, the associated structural steel shall be considered to be contaminated with asbestos fibers, and therefore shall require encapsulation with lockdown material.

Refer to Section 01516 for information regarding the handling of deteriorated transite.

## 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, and
  - 4. Thinning and application instructions.
- B. Encapsulants/Lockdowns:
  - 1. Control – Grayling Ind.
  - 2. Foster 32-60 – Foster Products Corp.
  - 3. Fiberset PM – Fiberlock Technologies
  - 4. ACC 22-P – American Coatings Corp.
  - 5. Serpiloc
  - 6. Approved equal

**Note:** Encapsulants shall have a coloring agent or dye so that, when applied, there is obvious verification that a coating has been applied.

- C. Surfactants:

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

1. CP-225 CHIL-SORB by Childers
  2. Fluor Fernald-approved equal products
- 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 Fluor Fernald.

### **PART III EXECUTION**

#### **3.1 PREPARATION**

- A. Regulatory:
1. When applicable, the Contractor shall notify the Ohio Department of Health (ODOH) and Fluor Fernald 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. The Contractor shall obtain certifications and licenses if transite becomes friable.
- B. Consistent with Section 01517, prior to opening a building to the environment by removing the exterior siding (e.g., transite, metal siding, roof panels), the Contractor shall remove and/or fix radiological contamination on all surfaces within the facility until the detected radioactivity levels are below the criteria defined in Part 8, Section 8-C 2.4.

#### **3.2 APPLICATION**

- A. The Contractor shall apply encapsulants, and/or surfactants according to the product manufacturer's specifications for application conditions (e.g., temperature).
- B. Where transite panels show significant deterioration, which results in potentially friable surfaces, panels shall be removed in accordance with Section 01516.
- C. Apply encapsulant and/or surfactant to areas around fasteners of transite panels before removal of fasteners.
1. Fasteners are required to be removed or cut without damaging 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 of surfactant becomes dried out before or during removal or handling, apply a second application.
- D. Prior to removal of transite panels, all surfaces of the panels shall be thoroughly encapsulated.
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.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

4. Removed transite panels shall be encapsulated on both sides by the end of the work shift.
- E. Removal of transite roof panels shall be sequenced to minimize exposed underlying surfaces.
- F. Cleanup procedures:
  1. Remove and containerize all visible accumulations of asbestos containing material (ACM) and asbestos-contaminated material.
  2. Wet clean all surfaces in the work area.
  3. Inspect the work area for visible residue.
  4. The work area shall be cleaned until visual inspection reveals no evidence of any ACM as determined by Fluor Fernald.

### 3.3 SPECIAL INSTRUCTIONS

#### A. Single and Multiple Transite Layers:

Surfaces adjacent or between transite layers shall be considered radiologically contaminated. Refer to the requirements contained in Section 01517 for removing/fixing radiological contamination on transite panels.

#### B. Gutters:

The Contractor shall collect all ACM from gutters using wet methods, and shall apply an encapsulant and/or surfactant to the gutters before their removal.

#### C. Insulation:

1. The Contractor shall remove the mineral wool insulation between the transite panels and/or other materials.
2. The Contractor shall use dust control techniques (minimum of applying amended water) to minimize airborne contaminants generated during insulation removal.

#### D. Windows and Doors:

1. The Contractor shall remove all windows in one piece and place them in appropriate containers.
2. The Contractor shall remove all doors (wood and/or steel) and place them in appropriate containers.

#### E. 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 and the MSCC located in Part 6, Exhibit E.
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

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 07415</b>	<b>Rev 0A</b>

straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

- F. All material shall be managed in accordance with the MSCC located in Part 6, Exhibit E.

### 3.4 QUALITY ASSURANCE

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

**END OF SECTION**

**000139**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 11010</b>	<b>Rev B</b>

**4037**

Approved: \_\_\_\_\_

Joseph S. Stoner

Date

**SECTION 11010**

**HEPA VACUUM CLEANER REQUIREMENTS**

**PART 1 GENERAL**

**1.1 SUMMARY**

A. The subcontractor shall include but not be limited to performing the following work (not, all inclusive):

1. General cleaning in a contaminated area(s),
2. Post job cleanup and decontamination in a contaminated area(s),
3. Cleanup and decontamination following a spill of radioactive or hazardous material except for mercury spills,
4. Removal of debris from contaminated plant systems following maintenance operations, and
5. Providing negative pressure for small glove bag or glove box containments.

B. The subcontractor shall supply the following:

1. **EQUIPMENT**

- a. HEPA Vacuum Cleaners;

**(NOTE: Only High Efficiency Particulate Air (HEPA) rated vacuums will be permitted at the Fluor Fernald site where the potential for vacuuming hazardous or the spreading of radiological contaminants exists.)**

- b. All consumables (Pre-filters, HEPA Filters, hoses, accessories, etc.)

2. **SERVICES**

- a. The subcontractor shall connect, maintain and operate each vacuum in accordance with vendor supplied/Fluor Fernald approved Operations and Maintenance Manual requirements and checklists.
- b. Upon completion of each task, the subcontractor shall empty the contents of the

**000140**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 11010</b>	<b>Rev B</b>

vacuum in accordance with Fluor Fernald approved Manufacturer Recommended Practices and the Fluor Fernald Radiation Worker Permit. Disposition of all wastes shall be in accordance with the each projects waste disposal requirements.

- c. All suction line openings shall be sealed after use to prevent the spread of contamination or friable asbestos during movement of the equipment.

**1.2 RELATED SECTIONS**

- A. Section 01516 – Asbestos Abatement.
- B. Section 07415 – Transite Removal.
- C. Section 15067 – Ventilation and Containment.
- D. Section 15065 – Equipment and System Dismantlement.

**1.3 REFERENCES, CODES, AND STANDARDS**

- A. American National Standards Institute (ANSI)/Underwriters Laboratories (UL)  
ANSI/UL 586-1996 - High-Efficiency, Particulate, Air Filter Units.
- B. American Society of Mechanical Engineering (ASME)  
ASME AG-1a-00: Code on Nuclear Air and Gas Treatment.

**1.4 DELIVER DETAILS**

Site Delivery - Upon receipt of any portable HEPA vacuum at the Fluor Fernald site, the vacuum will be delivered to the Maintenance "DOP" Shop for inspection and testing. Failure of any Poly Alpha Olfin (PAO) test performed by Fluor Fernald Maintenance personnel will result in the vacuum being rejected for use. The method of rejection will be evaluated by Fluor Fernald "PAO" trained personnel. If necessary, accessories will be exchanged. Then the equipment will be retested. If the equipment has to be removed from the Fluor Fernald site, all shipping of the equipment back to the subcontractor's or manufacturer's facilities shall be the responsibility of the subcontractor.

**PART 2 PRODUCTS**

**2.1 MANUFACTURERS**

- A. HEPA Vacuum units that are provided shall be one of the following manufacturers and models, or Fluor Fernald approved equal:

<u>MANUFACTURER</u>	<u>UNIT TYPE</u>	<u>MODEL</u>	<u>CFM</u>
Hako	Dry	C82915-09*	110 with wet adapter assembly (P/N 800420) and inlet plug (P/N 390038)
Power Products	Wet/Dry	RAD VAC 2000	

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 10/30/01	Section 11010	Rev B

4037

\*HAKO Minuteman Model

HEPA Vacuum units larger than the models listed shall be submitted to Fluor Fernald for approval.

Any additional requirements shall be included with the purchase order for HEPA Vacuum Cleaners:

**2.2 LABELING**

A. Any HEPA filters supplied any the subcontractor shall be clearly labeled, certifying:

1. The manufacturer's name,
2. Manufacturer's unique UL registration number indicating compliance with UL 586,
3. Filter efficiency based on "PAO" testing,
4. Resistance at the test airflow rate,
5. Filter part number and serial number, and
6. Test airflow direction.

B. The HEPA filter shall be tested at a flow rate equal to or greater than the flow rate of the vacuum cleaner.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

A. PAO Tests - Prior to use, Fluor Fernald will provide a filter integrity test (PAO test) following installation of a HEPA filter to ensure that the filter is in good working condition and is properly installed. Failure to pass the test will result in the HEPA filter being rejected. The project supporting the work shall assume ownership of all waste generated by these vacuums. The filter integrity test shall be repeated every six (6) months or anytime the vacuum cleaner is opened, if opening breaks the HEPA seal.

B. Hoses and Extensions - All hoses and extensions used on the vacuum shall employ clamps or locking connectors to prevent hoses from pulling loose while in use. All joints should employ seals, such as rubber O-rings to prevent leakage or be taped.

C. Segregation of Contaminants - Vacuum cleaners are most commonly used for radioactive or asbestos work and shall be marked with the predominant waste to be cleaned up, such as "For Radioactive Use Only" or "For Asbestos Use Only". Vacuums used for asbestos shall not be used for general non-asbestos work. Radiological and Asbestos Work Permit provisions shall apply for this use (see Sections 01516 and 01517). Other contaminants or hazardous materials, such as mercury, may require the exclusive use of a HEPA vacuum unit with special accessories (e.g. cyclone separator, special treated charcoal filters, etc.) to maintain a segregation of the contaminant or hazardous material and to provide additional protection of personnel using the equipment. All HEPA vacuums shall be stored in a secure area to prevent unauthorized use.

D. Non-Contaminated Area Use - HEPA Vacuums may be specifically designated and marked for use only in areas in which no contamination is expected. Only these vacuum cleaners shall be used in clean areas. The vacuum cleaners may be surveyed by Fluor Fernald periodically to verify that they have not been contaminated.

000142

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 11010</b>	<b>Rev B</b>

- E. Liquid Use - Vacuuming liquids or wet solids can result in damage to the HEPA filter or motor and can present an electrical safety problem if an electric vacuum cleaner is used. To prevent such problems, only a HEPA vacuum specified for wet/dry use shall be used (for vacuuming liquids refer to Section 01517; Part 3.1.D., and 3.1.E.).

**NOTE: The preferred method of collecting liquids is by the use of a catch tank or knockout drum connected to the vacuum cleaner suction line. The catch tank should be removed and emptied when full to minimize liquids entering the vacuum cleaner. Anytime an electric vacuum cleaner is used to collect liquids, it shall be fitted with a float switch to de-energize the motor before it fills up to the point where the motor will become wet. Electric vacuum cleaners shall not be used to collect flammable or combustible liquids.**

- F. Vacuum Cleaner Head Removal - Removal of the vacuum cleaner head shall take place in a room, containment, bag, or tent established to control the spread of airborne contamination. The area should include complete physical boundaries to isolate it from surrounding area and should be equipped with a HEPA-filtered ventilation system. The type of containment device should be adequate for the expected radiological or other contaminant conditions. During the dumping process Fluor Fernald may take general area or personal air samples. The Radiation Work Permit (RWP) required to perform the work shall specify protective clothing and respiratory protection equipment (reference Part 8; Sections B.2.5 and C.2.6). If removal of the head breaks the HEPA filter seal or exposes the HEPA filters, then a filter integrity test will have to be performed, before the unit is used.

**3.2 ERECTION/INSTALLATION/APPLICATION**

- A. HEPA filter elements are to operate from ambient temperature up to 250°F.

**3.3 QUALITY CONTROL**

- A. Provide in-service inspection hold and witness points and record the results of test performed.

**END OF SECTION**

**000143**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15065</b>	<b>Rev 0A</b>

**4037**

**Approved:**

\_\_\_\_\_  
Joseph S. Stoner

\_\_\_\_\_  
Date

## SECTION 15065

### EQUIPMENT/SYSTEM DISMANTLEMENT

#### PART I GENERAL

##### 1.1 SUMMARY

- 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.
- B. Segregation of demolition debris into various waste streams and preparation for containerizing shall be completed in accordance with the MSCC.

##### 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 11010 - HEPA Vacuum Cleaner Requirements
- F. Section 15067 - Ventilation and Containment
- G. Section 15860 - HEPA Air Filtration Device Requirements

##### 1.3 REFERENCE MATERIAL

See Part 7 for the following:

- A. Index of Drawings
- B. Contractor's Safe 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, and
- B. 29 CFR 1926.302 Power Operated Hand Tools.

##### 1.5 SUBMITTALS

The Contractor shall submit the following for approval:

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15065</b>	<b>Rev 0A</b>

- A. Detailed removal Safe Work Plan in accordance with Part 7, ACR-002, Contractor Safe Work Plan Format Requirements for dismantlement of equipment/systems.
- B. Proposed location, and method of installation of all hoisting equipment, and specialized construction equipment submitted for approval by Fluor Fernald with the Safe Work Plan.
- C. Safe Work Plan specific to the dismantlement of outdoor process or suspect process tanks and pipes in accordance with Part 7, ACR-002, Subcontractor Safe Work Plan Format Requirements, including:
  - 1. Sequence of work,
  - 2. Methods and materials to control spills and possible generation of fugitive emissions from opening and cutting operations,
  - 3. Method to access tanks and pipes, including health and safety issues,
  - 4. Methods of dismantlement,
  - 5. Method to size reduce and segregate,
  - 6. Locations of cutting and interim storage areas,
  - 7. Equipment required,
  - 8. Methods to seal equipment and pipe openings for each equipment type,
  - 9. Method to be used if piping or equipment contains nitric acid,
  - 10. Location for interim storage,
  - 11. Allowable floor loads,
  - 12. Catalog cut sheets, and
  - 13. Drawings.

**1.6 PROJECT CONDITIONS**

Process material (i.e., green salt, yellow cake, black oxide) has been removed from process equipment to the maximum extent practical by Fluor Fernald prior to D&D activities. If process material in excess of films and precipitates is found during D&D activities, Fluor Fernald project management shall be notified for evaluation and determination of the existing condition, prior to disturbing the process material.

**PART II PRODUCTS**

**2.1 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 Fluor Fernald-approved equal.

**PART III EXECUTION**

**3.1 APPLICATION**

- A. The Contractor shall supply all tools, materials, and equipment necessary for the performance of

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15065</b>	<b>Rev 0A</b>

the work.

4037

- B. The Contractor shall use mechanical means of cutting whenever possible.
- C. Prior to equipment/system dismantlement, the Contractor shall take the necessary actions to preclude spillage of residual material, if encountered. This shall include the temporary sealing of openings, pipe ends, etc. For liquid processing systems perform the following actions:
  - 1. Piping shall be walked down before dismantlement;
  - 2. Piping shall be nicked at identified low points and at other cut points
  - 3. Piping will be secured to allow pipe to remain level during cut process
  - 4. If liquid residual material is encountered,
    - a. immediately stop
    - b. contain the spillage in a container compatible with the liquid
    - c. avoid making physical contact with liquid/material
    - d. notify RCT and Industrial Hygiene (IH)
- 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. Fluor Fernald Radiological Control shall be contacted prior to performing any torch cutting on contaminated surfaces.
- G. Prior to cutting into piping or equipment known or suspected of containing nitric acid or other corrosive, toxic, flammable or combustible material, such systems shall be purged to remove any potentially explosive or otherwise potentially harmful gases.
- H. Equipment that can be removed in one piece during dismantlement of the building will be identified in Part 6, Section 3.1; however, handling of such equipment must still follow all other applicable requirements in Section 01120.
- I. Uncontrolled dropping of equipment and materials is not allowed.
- J. Piping insulated with asbestos may be removed in its entirety per the requirements of Section 01516.
- K. The Contractor shall take the necessary actions to preclude spillage of residual material, if encountered.

000146

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15065</b>	<b>Rev 0A</b>

- L. Debris segregation, sizing, and management shall be in accordance with Section 01120 and the MSCC located in Part 6, Exhibit E.
- M. HEPA-filtered local ventilation shall be implemented for disassembly and sizing of process and suspect process pipe and equipment and for all burning (e.g., torch cutting) activities on contaminated surfaces.

### 3.2 SPECIAL INSTRUCTIONS: REMOVAL OF PERCHLORIC ACID FUME HOOD DUCTING

Perchloric acid hoods are located in the Laboratory (Building 15) in rooms 157, 165, 168, 169, 192, 206, 207, 209, 213, and C-31; and also in room 213 of the Health and Safety Building (Building 53A).

These hoods were designed for the exclusive use of perchloric acid. There is a possibility that other chemicals were used in these hoods, and that the water washdown system was not used during all operations. Therefore, there exists a potential for the formation of explosive perchlorate compounds.

It is because of this potential that a process must be used to minimize the possibility of an explosive decomposition occurring during the demolition process.

Therefore, in addition to those listed in Article 3.1 above, the following specifications apply:

- A. Obtain a Safe Work Permit and Radiation Work Permit.
- B. Ensure that each hood is both electrically and mechanically isolated.
- C. Establish personnel control access; Signs, rope barriers, etc. (both in rooms and on roof).
- D. Set up polyethylene sheets, drain tubes and bottles for water spray control, diking and drainage.
- E. Using an "amended water" supply, spray the exhaust duct stack cover and damper. Continue for a minimum of two hours, keeping all joints, bolts, nuts, etc. wet. Continuously check drainage. Wet surfaces of ductwork until perchlorate crystals have dissolved and/or been rinsed away. Rinseate will be collected in accordance with Specification 01517. Allow surfaces to dry for inspection by Fluor Fernald. If crystals are no longer visible, the material can be disposed in accordance with uranium contaminated metal requirements. If crystals are still visible, the surface shall be cleaned again. If the visual inspection fails a second time, then the metal shall be disposed as process debris.
- F. Set up electrically powered tools with ground fault circuit interrupters.
- G. Cut plastic ducting with an "all type" saw. Keep water spray applied near thekerf of the saw blade. The first cut should be near the duct top, removing the damper and cover.
- H. Repeat steps 5 though 8 for removal/cutting of ducting down to required distance.
- I. Securely wrap/seal ducting with poly sheet/duct tape. Ensure that the duct is wet prior to wrapping.
- J. Dispose of materials in accordance with Section 01120.

000147

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 15065	Rev 0A

### 3.3 SPECIAL INSTRUCTIONS: REMOVAL OF LABORATORY DRAINS

- A. The Contractor shall contact Fluor Fernald for direction on containerization and disposition of mercury contaminated materials. The waste is treated as RCRA hazardous waste. Before commencing removal operations of laboratory drains, ensure that the drain trap has been filled with water for at least the past two hours
- B. Insert a stick into the drain, withdraw it, and touch it to a strip of litmus paper. Verify that the drain water is not significantly different from neutral pH by comparing the paper with the color chart enclose with the litmus paper. Record the indicated pH for each drain on the work permit.
- C. Fluor Fernald personnel will check each drain to ensure that mercury vapor levels are not elevated.
- D. If mercury is present, the workers shall wear mercury vapor cartridges or combination HEPA/mercury cartridges (if radiological concern). Also, personnel shall wear nitrile gloves. Mercury and radiation contamination monitoring is required at the job's conclusion. All workers in the room must wear safety glasses and face shields when unscrewing drain fittings, drilling, or hacksawing drains. Fluor Fernald personnel shall handle disposal of all recovered mercury.
- E. If mercury is present, try to remove it from the bottom of the drain trap. Unscrewing a drain fitting from the trap is permitted; however, it is NOT permitted if crystals of any kind are evident on the cap threads. To catch the mercury and any water in the drain, a plastic tub should be used. After the drain is removed, inform Fluor Fernald personnel that the waste contains mercury. The waste is treated as RCRA hazardous waste
- F. Outside of drain pipes:
  1. Wash off all drain fittings with soapy warm water.
  2. If any crystals are evident on drain pipes or fittings (especially around lead or brass drains which may have formed lead peroxide from perchloric acid use), it is imperative that the drain not be disturbed in any way until the crystals are dissolved with warm water.
  3. Crystals on the outside of the drain shall be removed by first soaking with a sponge, followed by brushing beneath a water spray.
  4. If the crystals on the outside are dissolved, the drain may be removed by cutting it by mechanical means such as with a multi-turn pipe cutter, or hacksaw.
  5. For removing drains, leather palm gloves worn over disposable vinyl plastic inner gloves must be worn and face protection is required from a face shield with safety glasses or full-face respirator. If there is a respirator requirement from a radiological safety standpoint, combination HEPA/mercury cartridges should be selected.

### 3.4 SPECIAL INSTRUCTIONS: REMOVAL OF LEAD MATERIALS

- A. The Contractor shall segregate all lead materials (e.g., flashing, vent stacks) and place them in appropriate containers in accordance with Section 01120 and the MSCC located in Part 6, Exhibit E.
- B. There is lead shielding in Buildings 30A, 53A, and 53B. There is also cadmium shielding in Building 53B.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15065</b>	<b>Rev 0A</b>

- C. 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.
- D. 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.

**3.5 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 Section 01120.
- B. Damaged areas within facilities identified by the Contractor's Engineering Survey shall not be used for interim material storage.

**3.6 QUALITY ASSURANCE**

Calculations submitted on maximum allowable floor loading must bear the stamp of a Professional Engineer registered in the State of Ohio.

**END OF SECTION**

Title: Demolition Closure Project	Specification No: 01789-TS-0001		
	Date: 11/8/01	Section 15067	Rev 0A

Approved:

\_\_\_\_\_  
Joseph S. Stoner

\_\_\_\_\_  
Date

## SECTION 15067

### VENTILATION AND CONTAINMENT

#### PART I GENERAL

##### 1.1 SUMMARY

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, and
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 building forming the containment.

##### 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 11010 - HEPA Vacuum Cleaner Requirements
- G. Section 15065 – Equipment/System Dismantlement
- H. Section 15860 - HEPA Air Filtration Device Requirements

##### 1.3 REFERENCE MATERIALS

See Part 7 for the following:

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15067</b>	<b>Rev 0A</b>

A. Index of Drawings

#### 1.4 REFERENCES, CODES, AND STANDARDS

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

A. United States Department of Energy (DOE):

1. DOE 5400.5 Radiation Protection of the Public and the Environment
2. DOE/EH 0256T Radiological Control Manual, April 1994

B. Energy Research and Development Administration (ERDA):

1. ERDA 76-21-79 Nuclear Air Cleaning Handbook

C. American Conference of Governmental Industrial Hygienists (ACGIH):

2. ACGIH Industrial Ventilation (latest edition)

D. American Society of Civil Engineers (ASCE):

3. OBBC Ohio Basic Building Code

#### 1.5 SUBMITTALS

The Contractor shall submit a Safe Work Plan (SWP) in accordance with Part 7, ACR-002, Contractor SWP Format Requirements, with the following information to Fluor Fernald for approval:

A. Drawings and Data:

1. 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.
2. Provide air flow diagrams for local containment and vestibule ventilation.
3. 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.
4. If any part of the above 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 SWP.

B. Submit vendor information for performance, operation and maintenance on all ancillary ventilation equipment that will be used.

C. Provide building-specific SWPs on the use of portable HEPA units including replacement of HEPA filters and prefilters.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15067</b>	<b>Rev 0A</b>

**PART II PRODUCTS**

**2.1 MATERIALS**

- A. The Contractor shall provide:
  - 1. Air cleaning devices,
  - 2. HEPA elements,
  - 3. Prefilter elements, and
  - 4. All other ventilation accessory equipment for the completion of this project in accordance with Part 6, Section 4.0.
  
- B. Polyethylene sheeting shall be clear and have a minimum of 6 mils thickness as manufactured by Blueridge Films, Inc. or Fluor Fernald approved equal.
  - 1. Fire retardant polyethylene shall be used.
  - 2. All outside containments shall be constructed of reinforced polyethylene.

**PART III EXECUTION**

**3.1 EXAMINATION**

- A. All vestibules, equipment, and/or structure containment material shall be 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. The typical design for various local containments should include the following features, where applicable:
  - 1. Windows and mountings,
  - 2. Glove ports,
  - 3. Ease of cleaning,
  - 4. Interior illumination per 29CRF 1926.56,
  - 5. Connections for services lines, conduits, instrument leads, and ductwork,
  - 6. 6 mil polyethylene sheeting,
  - 7. Pressure differential readouts, and
  - 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 following load capacities:
  - 1. Interior: 5 psf lateral load, and
  - 2. Exterior: per Ohio Basic Building Code (OBBC).

000152

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15067</b>	<b>Rev 0A</b>

### 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 INSTALLATION/APPLICATION

- A. The Contractor shall block, tie-down, or wheel lock all portable HEPA units.
- B. The following guidelines for localized ventilation and in-place cutting control measures shall be adhered to 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 As Low As Reasonably Achievable (ALARA).
  - 2. For activities outside of enclosures, nuclear grade HEPA filters with a flexible ventilation duct shall be used as follows:
    - a. Exhaust rate of the HEPA filters with a flexible ventilation duct shall maintain sufficient airflow capture velocity to prevent entry of fumes into the room. A minimum face velocity of 150 fpm is required.
    - b. Each HEPA filter with a flexible ventilation duct in the cutting area should be capable of being isolated by means of control dampers to prevent backflow through a hood when it is not in service.
    - c. The Contractor shall ensure that all local containments can maintain negative pressures. The exhaust volume rate shall be as required to attain 0.1 inch negative pressure within the containment. The exhaust air stream 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 QUALITY ASSURANCE

Final acceptance of local containments, building enclosures, and vestibule structures shall be

- 4037

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 11/8/01</b>	<b>Section 15067</b>	<b>Rev 0A</b>

obtained from Fluor Fernald.

**END OF SECTION**

**This page left intentionally blank.**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

**4037**

**Approved:** \_\_\_\_\_

**Joseph S. Stoner**

**Date**

**SECTION 15860**

**HEPA AIR FILTRATION DEVICE REQUIREMENTS**

**PART 1 GENERAL**

**1.1 SUMMARY**

A. The subcontractor shall provide:

1. Portable 1,000/2,000 cfm air filtration devices,
2. All services and consumables, pre-filters, exhaust ducts, differential pressure gauges and accessories needed to operate. Poly Alpha Olefin (PAO) testing is an exception to this requirement.

**Note: Air filtration devices purchased, leased and/or used at the FEMP will meet the minimum requirements of this specification.**

**1.2 RELATED SECTIONS**

- A. Section 01516 – Asbestos Abatement.
- B. Section 07415 – Transite Removal.
- C. Section 11010 – HEPA Vacuum Cleaner Requirements.
- D. Section 15067 – Ventilation and Containment.
- E. Section 15065 – Equipment and System Dismantlement.

**1.3 REFERENCES, CODES, AND STANDARDS**

- A. Department of Energy (DOE)  
DOE O6430.1A-89                      General Design Criteria
- B. Code of Federal Regulations (CFR)  
10CFR830.120                      Quality Assurance Program
- C. Air Movement and Control Association (AMCA)  
AMCA 210-99                      Laboratory Method for Testing Fans for Aerodynamic  
Performance Rating
- D. American Society of Mechanical Engineering  
ASME AG-1a-00                      Code on Nuclear Air and Gas Treatment

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

- E. National Fire Protection Association (NFPA)  
     NFPA 70-99                      National Electric Code
  
- F. Underwriters Laboratories (UL)  
     UL 586                          Standard for Safety/HEPA Filter Units  
     UL 900                          Standard for Safety/Test Performance of Air Filter
  
- G. American National Standards Institute/American Society of Heating, Refrigeration and Air-Conditioning Engineering (ANSI/ASHRAE)  
     ANSI/ASHRAE 52.1-92              Gravimetric and Dust Spot Procedures for Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter

**1.4 SUBMITTALS**

- A. Submit for Compliance Review
  - 1. Shop Drawings: Shop Drawings shall include assembly drawings,
  - 2. Fan airflow performance curves,
  - 3. Motor ratings for one hundred percent (100%) continuous operation duty cycle,
  - 4. Unit power requirements including voltage and current requirements,
  - 5. Electrical components and controls used by operator, and
  - 6. Warranty.
  
- B. The Subcontractor shall submit:
  - 1. For each air filtration device provided a certification of compliance with this specification.
  - 2. Documentation that the filters are designed, manufactured, and tested under a Quality Assurance program meeting all requirements of 10CFR830.120.
  - 3. The manufacturer's warranty on the HEPA filter, including the maximum allowable shelf life.
  
- C. Submit with the Delivery:
  - 1. Manufacturer shall provide with the shipment:
    - a. Complete installation instructions.
    - b. An operations and maintenance manual, including instructions for changing the filters, periodic cleaning, lubrication, and motor and drive assembly replacement.
    - c. A complete spare parts list.
    - d. Electrical wiring diagrams.

**1.5 QUALITY ASSURANCE**

- A. Certificate(s) of Conformance: The Manufacturer shall certify that the supplied product meets or exceeds the requirements of this Fluor Fernald specification. Unit(s) submitted for purchase shall pass the site PAO test with a minimum in-place efficiency of 99.97%. Failure to pass this site test shall be cause for rejection of the unit. The unit shall be shipped back to the manufacturer or supplier at no cost to Fluor Fernald.
  
- B. The 1,000/2,000 cfm. HEPA filter element(s) shall be nuclear grade, UL 586 approved and certified, and manufactured in accordance with ASME AG-1a. HEPA filters shall be PAO

000157

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

smoke efficiency tested and certified by the filter manufacturer at one hundred percent (100%) and twenty percent (20%) of the rated flow.

- C. Fan Performance Ratings: All fans shall conform to AMCA 210 and bear the AMCA Certified Rating Seal with a certificate of compliance.
- D. All operation and testing of filter materials shall be in compliance with NFPA 70, UL 900, and UL 586, as referenced.
- E. Both interior and exterior surfaces of the HEPA filter housing and fan assembly must be cleaned of weld flux, oil, grease, shop soil, and visible rust.
- F. Each air filtration device shall be fully warranted for a period of one year.
- G. Fluor Fernald shall reserve the right to inspect these units at the point of manufacture.
- H. The filter bulkhead inside the air-handling equipment shall be flat, clean, smooth and free of defects. Gaskets and/or caulking shall not be an acceptable fix of defects with the bulkhead.

**PART 2 PRODUCTS**

**2.1 SUGGESTED MANUFACTURERS (OR APPROVED EQUAL)**

**A. Local**

- |   |   |
|---|---|
| Abatement Cooperatives<br>Cincinnati, OH<br>(513) 860-3444            | Aerospace America, Inc.<br>Bay City, Michigan<br>(517) 884-2121 |
| American Air Filter, Inc.<br>Cincinnati, Ohio<br>(513) 825-6565       | Charcoal Services Inc.<br>Cincinnati, Ohio<br>(513) 771-2820    |
| Control Resource Systems, Inc.<br>Michigan City, IN<br>(800) 272-3786 | Flanders Filters, Inc.<br>Washington, N.C.<br>(919) 946-8081    |

**B. Other's**

- |  |  |
|--|--|
| Elgin, IL<br>Local: CSE 769-3400<br>(708) 695-5822<br>NFS/RFS<br>Connecticut<br>(203) 434-0660<br>ADVEX Corp.<br>Hampton, Virginia<br>(804) 865-0920 | IONEX Research Corp.<br>Colorado<br>(303) 666-4400<br>Power Products and Services Co. Inc.<br>Forest, VA<br>(804) 525-8120 |
|--|--|

**C. Recommended Air-Handling Equipment**

The following equipment has been purchased in the past for use at the Fluor Fernald site and has consistently met the requirements:

**Note: Do not order a ventilation device by model number only. The requirements must be stated in order to ensure that the specifications are met.**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

1. AIRHOG Model HV-2000-BI/BO  
Power Products and Services Co. Inc.

Remarks: Reliable, high flow rates at moderate pressures, can be supplied weatherproof.

2. NFS-RPS Model PFB-1600  
NFS-RPS

Remarks: Reliable can be supplied weatherproof.

3. CSC Model 1H1W-012-1NB-3S  
Charcoal Service Corporation

Remarks: Reliable can be supplied weatherproof.

4. Aero-Clean 2000/1000 - Model # 9103  
Aerospace America, Inc

Remarks: Weather proofing or bag-in/bag-out technology cannot be supplied. This equipment can not be used outdoors. A differential pressure alarm must be specified or it will not be provided.

## 2.2 PRODUCTS/EQUIPMENT

### A. Disposable Pleated Prefilter:

1. Media:
  - a. Shall be UL 900 Class I or II, with an effective open area of not less than ninety percent (90%).
  - b. The media filtering surface shall be a minimum of seventeen square feet (17 ft<sup>2</sup>).
  - c. A six-inch to twelve-inch (6" to 12") pre-filter to protect the HEPA Filter with an efficiency rating of eighty-five percent (85%) shall also be provided.
2. Frame:
  - a. A housing that accommodates two stages: a Prefilter; and, a High Efficiency Particulate Air (HEPA) filter.
  - b. Heavy duty, rigid construction, fire retardant, moisture resistant, with diagonal support members bonded to the air entering and exit sides of each pleat. The inside periphery of the enclosing frame shall be bonded to the air filter pack.
  - c. The actual frame size shall be twenty-four inches high by twenty-four inches wide by two inches deep (24" high x 24" wide x 2" deep; tolerance + 0, -0.125" (610 mm high x 610 mm wide x 50 mm deep; +0, -3mm)).
3. Rating, ASHRAE 52.1-92:
  - a. The dust spot efficiency shall have a rated average efficiency of not less than thirty percent (30%) for two-inch or four inch (2" or 4") filters and eighty-five percent (85%) for six inch or twelve inch (6" or 12") filters.

000159

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

- b. The initial resistance shall not exceed three-tenths inch (0.3") water gauge at one-thousand cubic feet per minute (1,000 cfm), nominal.

4037

## 2.3 MATERIALS

### A. HEPA Filters:

#### 1. Filter Construction:

- a. The 1,000-2,000 cfm HEPA filter element shall be a "nuclear grade", and the media shall meet the requirements of UL 586 and ASME AG-1a.
- b. The holding frame shall be stainless steel.
- c. The construction of the filter and media to frame side bond shall meet the UL 586 and ASME AG-1a standards.
- d. The face gasket shall be Neoprene expanded rubber with dovetail or butterfly joints. The gasket can be on both sides but, at least, located on the sealing face of the filter.
- e. The actual size shall be twenty-four inches high by twenty-four inches long by eleven and one-half inches deep plus zero inches, minus one-eighth inches (24" x 24" x 11.5", +0", - 1/8" (610 mm high x 610 mm wide x 292 mm deep; +0, -3 mm)). Squareness of the filter shall be plus or minus one-eighth ( $\pm 1/8$ ") and a depth of plus and minus one-sixteenth ( $\pm 1/16$ ").
- f. Filters shall have face guards on both open faces of the filter in accordance with ASME AG-1a.
- g. The HEPA filter frame shall be labeled, certifying:
  - The manufacturer's name,
  - Manufacturer's unique code Underwriter's Laboratory (UL) registration number indicating compliance with UL 586,
  - Filter efficiency based on PAO testing,
  - Resistance at the test airflow rate,
  - Filter part number and serial number,
  - Test airflow direction, and
  - Filter Grade, i.e., "Nuclear Grade".

### B. Performance Rating:

1. The minimum certified efficiency should be ninety-nine and ninety-seven one hundredths percent (99.97%), when PAO tested with three-tenths micron particles (0.3  $\mu$ ) at one-hundred percent (100%) and twenty percent (20%) of the rated flows.
2. The rated clean resistance shall not exceed one-inch (1.0") water gauge at one thousand cubic feet per minute (1,000 cfm) and two and two tenths inch (2.2") water gauge at two thousand cubic feet per minute (2,000 cfm).
3. The HEPA filter shall withstand a ten-inches (10") water gauge pressure drop.
4. The HEPA filter shall be capable of continuous twenty-four hour-per-day (24-hr/day) use

000160

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

at two hundred degrees Fahrenheit (200°F).

**C. Air Filter Housing Construction:**

1. The cabinet housing shall be:
  - a. Reinforced and capable of handling two thousand cubic feet per minute (2,000 cfm) at ten-inches (10") water gauge negative pressure air flow.
  - b. Ruggedly constructed and made of durable materials, such as sixteen gauge (16 Ga.) aircraft aluminum, sixteen gauge (16 Ga.) stainless or cold rolled steel. All cold rolled steel shall be coated with manufacturer's standard rust inhibiting paint.

**NOTE: Chromium or Cadmium plated metals shall not be used.**

  - c. Designed and constructed in a manner that does not require the airflow to change direction through the housing as it enters or exits the housing.
  - d. A standard size to provide for interchange ability of the prefilter and HEPA filter media from other manufacturers. All filter media shall meet the dimensions of this specification. Prefilter media shall be mounted upstream from HEPA filter media.
2. The cabinet housing shall:
  - a. Have a steel filter-mounting frame to allow the filters to be self-supporting and easily installed and serviced from a front or side servicing arrangement.
  - b. Have all joints and seams welded air tight and free from all burrs and sharp edges.
3. The exhaust ports shall provide for flexible ductwork connections. An attachable hood shall be provided for each inlet flexible duct connection to allow for localized ventilation applications.
4. The air filtration unit shall be able to pass through a thirty-four inch (34") wide opening.
5. Each assembly unit shall be a portable type with two fixed and two locking swivel casters to secure the unit when in operation.
6. The Fan shall be installed downstream from the HEPA filter.
7. The unit shall be a bag-in/bag-out type for the pre-filters and HEPA filters for outdoor use.

**D. Centrifugal Fan:**

1. Minimum Performance:
  - a. The actual airflow shall be eighteen hundred cubic feet per minute (1800 cfm) at one and one-half inch (1.5") water gauge minimum with all filters installed.
  - b. The fan motor shall be a one and one-half horsepower (1.5 hp); one hundred twenty Volts Alternating Current (120VAC), fifteen amperes (15A), single phase, sixty-hertz (60 Hz), multi-speed, high efficiency, standard "plug-in" (grounded plug) unit.
  - c. The fan motor shall have a one hundred percent (100%) continuous duty cycle rating with thermal overload protection.

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

4037

**E. Control Panel:**

1. A direct reading dial type magnahelic or photohelic differential pressure gauge with a range of zero inch to five inches (0" to 5") water gauge, in a weatherproof housing. The Differential Pressure Gauge shall be piped to read the pressure drop across the HEPA and prefilters. The Differential Pressure Gauge shall be factory mounted and located on the control panel. The Differential Pressure Gauge shall have an easy access front to rear calibration adjustment.
2. Each air filtration device will be equipped with a "power on" indicator light, high and low differential pressure alarm indicator light and audible alarms for all alarm conditions.
3. The unit shall have a running time meter with a range of ten thousand hours (10,000 hrs.) to monitor service use.

**F. Safety Controls**

1. The unit shall have an automatic shutdown system that detects an adjustable low or high differential pressure condition.
2. An electrical or mechanical lockout shall prevent the fan from operating when the HEPA filter is not in place.

**G.** Any air filtration device used for local ventilation shall have the appropriately sized flexible duct for the required transport velocity, attachable hood, spark arrestor, and hood positioning device as manufactured for the unit.

**H.** The air filtration device shall be the bag-in/bag-out style.

**2.4 LABELING**

- A.** Each air filtration device shall be permanently labeled with the manufacturer's name and serial/model number on the housing.
- B.** The HEPA filter frame shall be labeled as described in Section 2.3.A.1.g of this specification.

**PART 3 EXECUTION**

**3.1 ERECTION/INSTALLATION/APPLICATION**

**A. Subcontractor's Responsibility**

1. When there is no longer a need for the air filtration device at the Fluor Fernald site, the subcontractor shall turn-over the unit to Fluor Fernald Project Manager in good operating condition, except for normal wear and tear including painting, cleaning, and lubrication.
2. The subcontractor shall inspect and document air filtration devices operations per requirements of the Manufacturer's Operating and Maintenance instructions and subcontract provisions.
3. Air filtration devices are required in all work areas at the Fluor Fernald site. This equipment shall be used only for ventilation tasks approved by Radiological Protection and/or Industrial Hygiene for which a Radiation Work Permit, Asbestos Permit or Chemical Hazardous Material Work Permit has been prepared. These permits will specify any precautions or limitations required on the use of this equipment.

**000162**

<b>Title: Demolition Closure Project</b>	<b>Specification No: 01789-TS-0001</b>		
	<b>Date: 10/30/01</b>	<b>Section 15860</b>	<b>Rev B</b>

4. The subcontractor shall be responsible for the efficiency and effectiveness of the ventilation equipment during operation. A minimum cross sectional face velocity of one-hundred twenty-five feet per minute plus or minus twenty-five feet per minute (125 ft/min  $\pm$  25 ft/min) shall be maintained at all times through all openings as identified in DOE O 6430.1A; Division 11.

**B. Fluor Fernald Responsibilities**

1. Fluor Fernald shall provide a PAO test(s) following installation of a HEPA filter to ensure that the filter is in good condition and is properly installed. The PAO test shall be repeated anytime the air filtration device is opened or dropped, when the HEPA seal is broken, and at least every six (6) months. A tag or label showing the date that a PAO test has been performed and the date the test expires shall be affixed to the filter housing and shall not be removed by the subcontractor. Any air filtration device found with seals broken or other evidence of tampering shall be removed from service until it has been inspected and PAO tested by Fluor Fernald to ensure proper installation of the pre-filter and HEPA filter. The subcontractor shall provide forty-eight hours (48-hr.) notice for a new HEPA filter and PAO test services.
2. Fluor Fernald will provide any subsequent HEPA filters and PAO testing, not pre-filters, that the subcontractor may need on a cost recovery basis for the filter.

**END OF SECTION**

**000163**

APPENDIX D

4037

DESIGN DRAWINGS

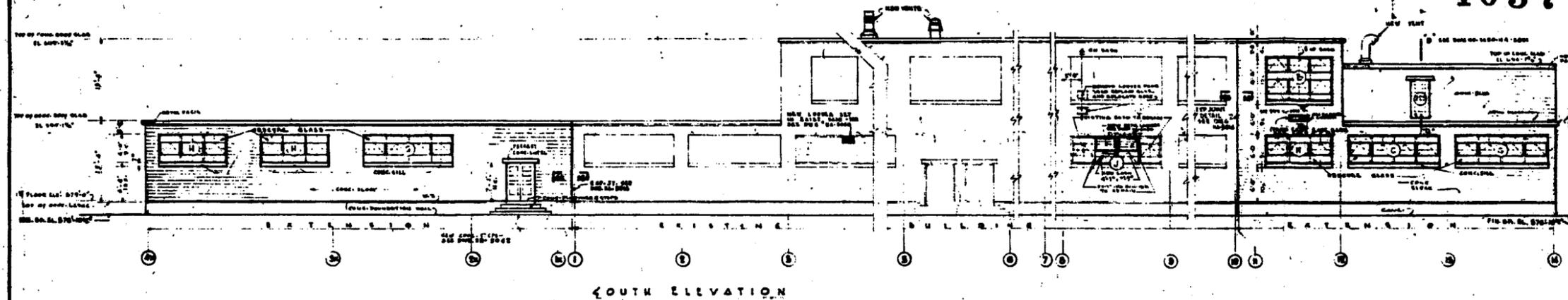
Representative architectural design drawings are presented in this appendix. Table D-1 lists the drawings included in this appendix. Additional detail drawings may be obtained per request, if needed. Descriptions of the buildings systems and process may be found in Section 3 of this Implementation Plan.

TABLE D-1 Administration Complex D&D Drawings

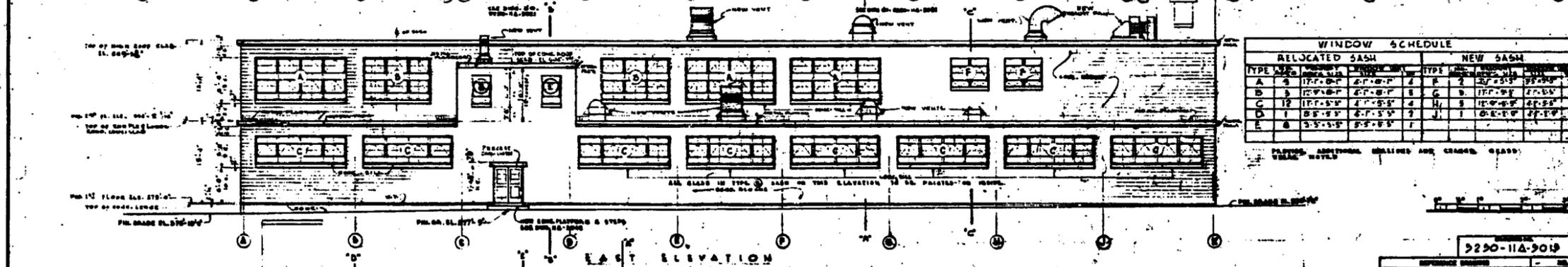
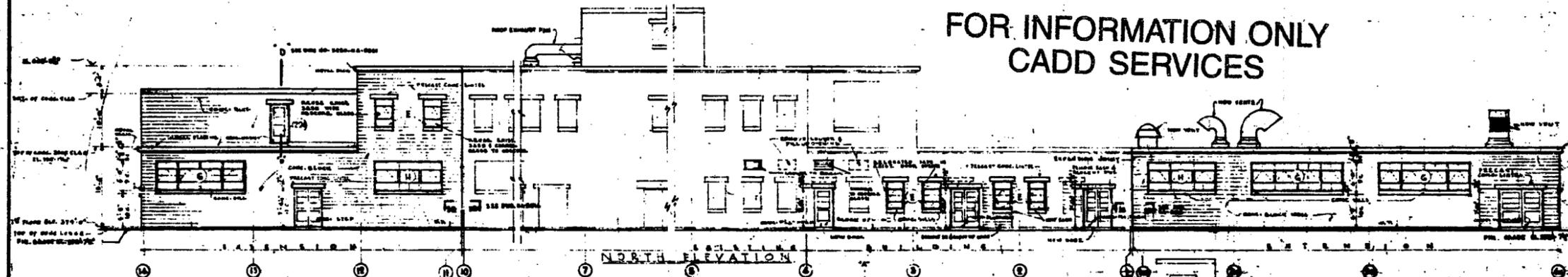
DRAWING NO./ INDEX CODE	REV.	DESCRIPTION
11X-7000-A-00056	2	Service Building Elevations (Building 11)
11X-5500-A-00644	4	Service Building Floor Plan, First Floor
11X-5500-A-00645	5	Service Building Floor Plan, Second Floor
14X-1450-A-00003	1	Architectural Elevations Main Office Bldg C14-1
14X-5500-A-00309	8	Administration Building Floor Plan, First Floor
14X-5500-A-00310	8	Administration Building Floor Plan, Second Floor
53B-8600-A-00257	3	Exterior Elevations (Building 53A)
53B-8600-A-00251	2	First Floor Plan (Building 53A)
53B-8600-A-00252	1	Second Floor Plan (Building 53A)
53B-8600-A-00250	1	Basement Floor Plan (Building 53A)
53B-8600-A-00265	1	ESH Building – Expansion & Upgrade (Building 53A)
53B-8600-A-00266	1	ESH Building Connector Plans (Building 53A)
53B-8600-A-00290	1	Canopy Plans
53C-8600-A-00199	1	Elevations, IN-VIVO Monitoring Facility (Building 53B)
53C-8600-A-00198	1	Architectural Floor Plan, IN-VIVO (Building 53B)
20H-5500-P-00435	0	Cooling Tower System Vendor Drawing
20H-5500-P-00437	0	Cooling Tower System Vendor Drawing
31X-3115-A-00013	10	Garage C-31 Architectural Layout
31X-5500-A-00051	2	Engine House and Garage Floor Plan
46X-1450-A-00018	0	Heavy Equipment Service Building
46X-5500-A-00039	5	Heavy Equipment Building Floor Plan

**This page left intentionally blank.**

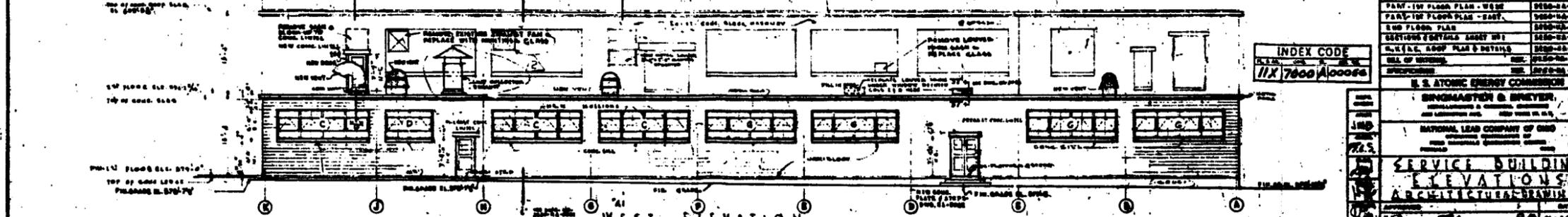
4037



FOR INFORMATION ONLY  
CADD SERVICES



WINDOW SCHEDULE			
RELOCATED SASH		NEW SASH	
TYPE	QTY	TYPE	QTY
A	3	F	2
B	3	G	3
C	12	H	5
D	1	I	1
E	3	J	1



INDEX CODE  
11X 7800 100000

5250-11A-9018 2

REFERENCE SYMBOL	DESCRIPTION
1	PART-100 FLOOR PLAN - WEST
2	PART-100 FLOOR PLAN - EAST
3	100 FLOOR PLAN
4	SECTION SYMBOLS SHEET SET
5	CLASH, ROOF PLAN & DETAILS
6	ALL OF SYMBOLS
7	DESCRIPTION

U. S. ATOMIC ENERGY COMMISSION

BINGMASTER & BRYNER  
ARCHITECTS & ENGINEERS  
1130 W. 10TH STREET  
DENVER, COLORADO 80202

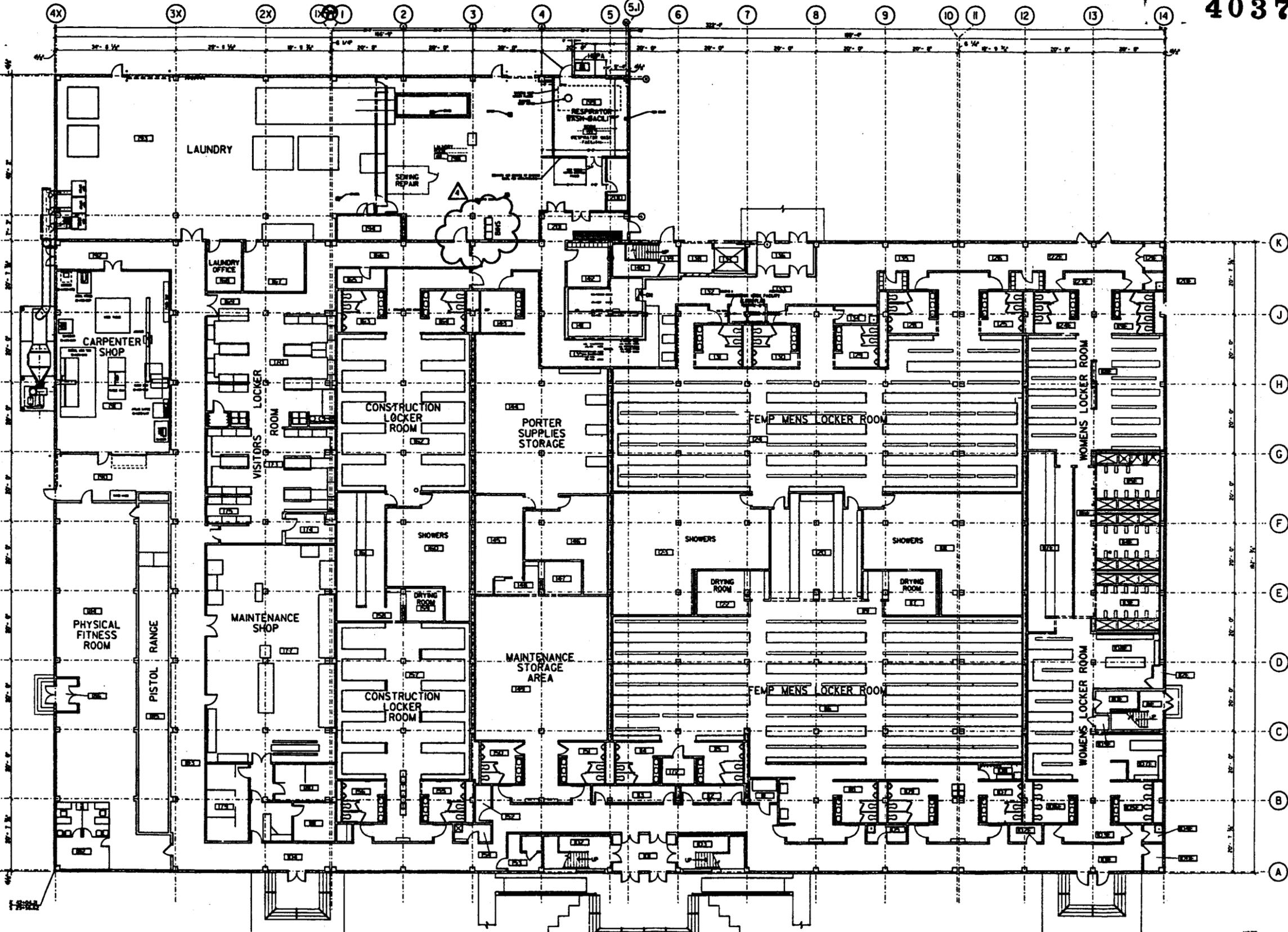
NATIONAL LEAD COMPANY OF GIBB  
GENERAL CONTRACTORS  
1130 W. 10TH STREET  
DENVER, COLORADO 80202

SERVICE BUILDING  
ELEVATIONS  
ARCHITECTURAL DRAWING

DATE: 7/1/68  
BY: JMB  
CHECKED: JMB  
SCALE: AS SHOWN

NO.	REVISIONS	DATE	BY	CHKD.
1	ISSUED FOR CONSTRUCTION	7/1/68	JMB	JMB
2	REVISION			
3	REVISION			
4	REVISION			
5	REVISION			

4037



1	REST ROOM
2	REST ROOM
3	REST ROOM
4	REST ROOM
5	REST ROOM
6	REST ROOM
7	REST ROOM
8	REST ROOM
9	REST ROOM
10	REST ROOM
11	REST ROOM
12	REST ROOM
13	REST ROOM
14	REST ROOM
A	REST ROOM
B	REST ROOM
C	REST ROOM
D	REST ROOM
E	REST ROOM
F	REST ROOM
G	REST ROOM
H	REST ROOM
J	REST ROOM
K	REST ROOM
L	REST ROOM
M	REST ROOM

FOR INFORMATION ONLY  
CADD SERVICES

NO.	REVISIONS	DATE/DWN. BY/APPR.	NO.	REVISIONS	DATE/DWN. BY/APPR.	REF. Dwg. NO.
4	REVISED PER RES #3722					
3	REVISED PER RES #3280					
2	UPDATED					
1	ADDED LOCATION BOX					

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

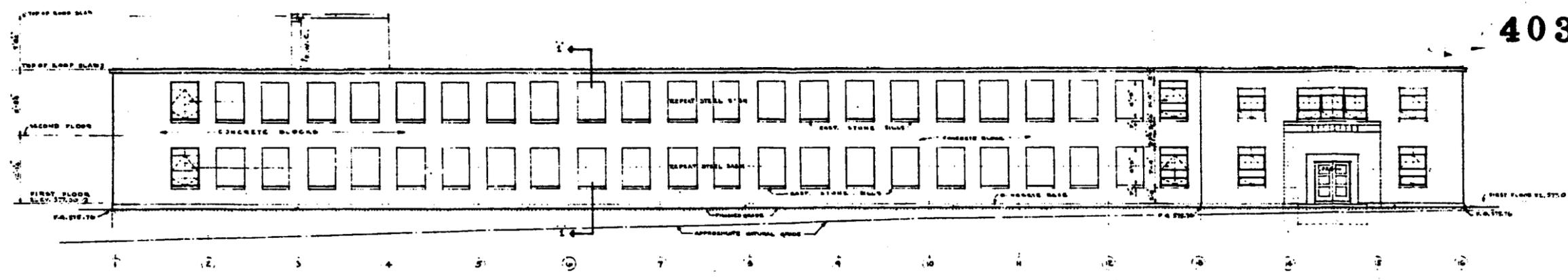
DESIGNED BY	CHECKED BY	DATE	APPROVED BY	DATE

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

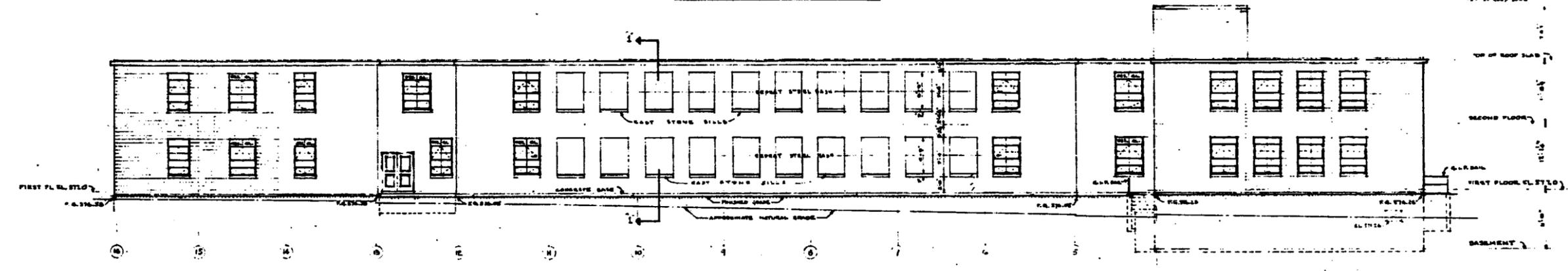
BLDG. # SERVICE BUILDING  
FIRST FLOOR  
FLOR PLAN  
1/2" = 1'-0"  
IIX-5500-A-00644 4

000167

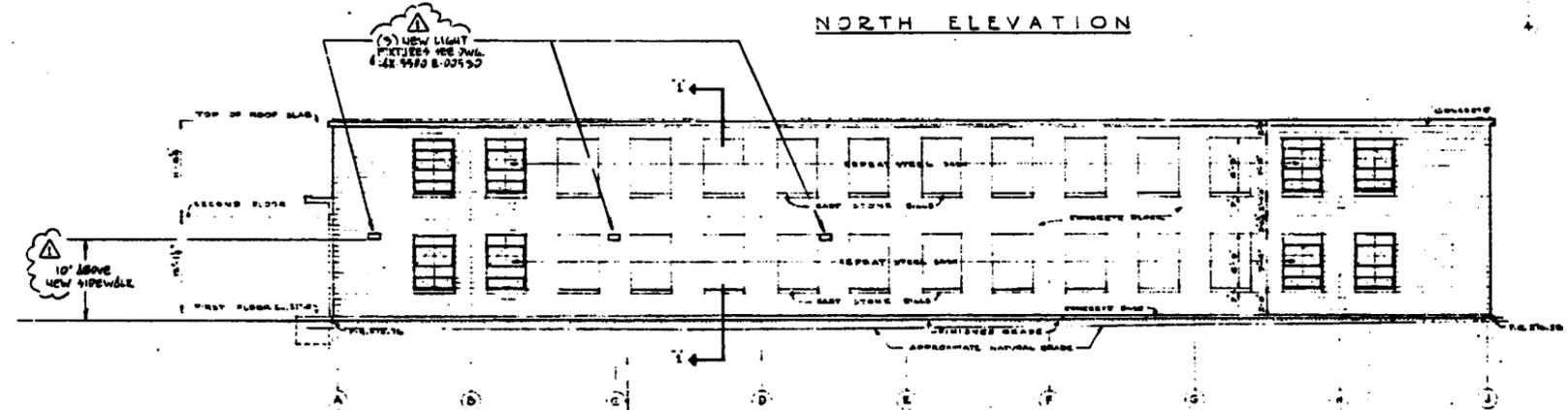




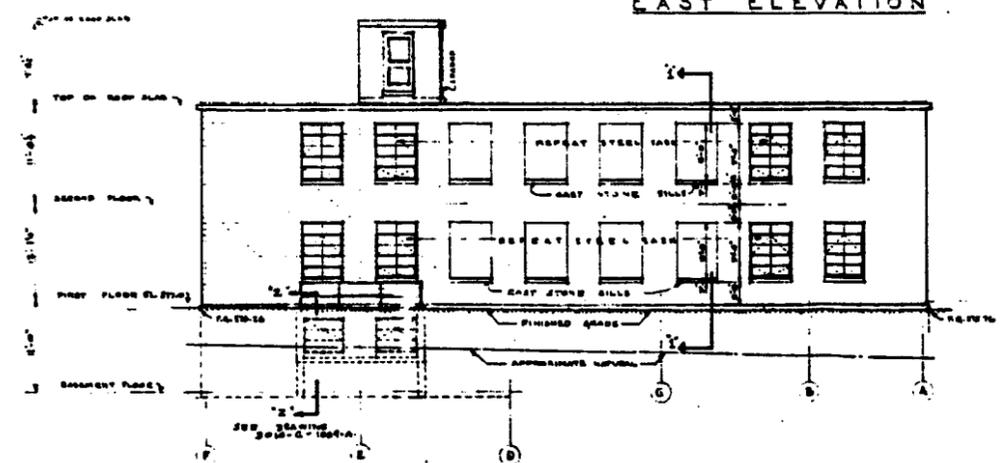
SOUTH ELEVATION



NORTH ELEVATION



EAST ELEVATION



WEST ELEVATION

GENERAL NOTES

1. ALL WINDOWS MARKED PER E.L. ARE TO BE ENTIRELY GLAZED WITH OBSCURE GLASS.

REFERENCE DRAWINGS

1. FOR DETAILS OF EXTERIOR DOORS SEE DRAWING NO. 3014-C-1007-A  
2. FOR STRUCTURAL CONCRETE BELUM GRADE SEE DRAWING NO. 3014-A-1001-A  
3. FOR WALL SECTION 45 SEE DRAWING NO. 3014-C-1007-A

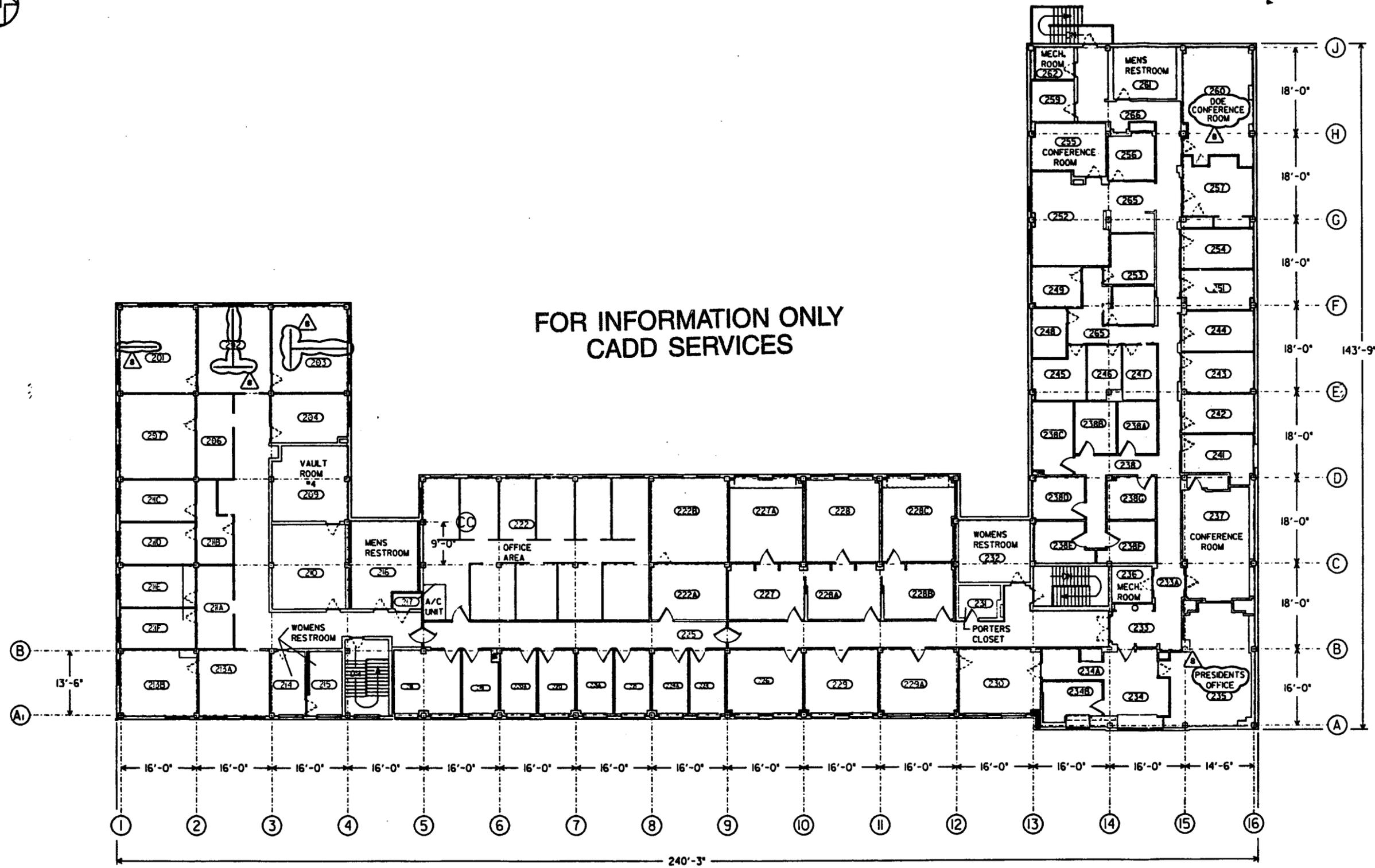
FOR INFORMATION ONLY  
CADD SERVICES

1. 5'x8' NEW LIGHTS PER EDD# 417, DCA# 417-201 APPROVED FOR I. F. C. BY DATE	
UNITED STATES ATOMIC ENERGY COMMISSION NEW YORK OPERATIONS OFFICE	
CONTRACT NO. AT 10-1070 FEED MATERIALS PRODUCTION CENTER FERNALD AREA	
ARCHITECTURAL ELEVATIONS MAIN OFFICE BLDG. C-4-1	
DATE: 7-12-51 DRAWN BY: [Signature] CHECKED BY: [Signature]	SCALE: AS SHOWN APPROVED FOR CONSTRUCTION DATE: 7-12-51
INDEX CODE 16X/1450/00003	
3014-C-1007-A	





FOR INFORMATION ONLY  
CADD SERVICES



NO.	REVISIONS	DATE	BY	APPRO.	NO.	REVISIONS	DATE	BY	APPRO.	NO.	REF. DWG. NO.
8	GENERAL UPDATE				18-8	F.R.	HW				
7	REVISED ROOMS 222, 222A & 222B				18-8	GEP	GEP				
6	ADDED ROOM 234B & REVISED ROOM 252 & 253				14-8	J.M.	GEP				
5	UPDATED FLOOR PLAN				14-8	D.J.M.	GEP				
4	ADDED OFFICE UPGRADE PER RES #1395				14-8	J.M.	GEP				
3	UPDATE DRAWING (REDRAW)				14-8	J.R.ZON	GEP				

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

APPROVALS	
DESIGNER	SAFETY ENG.
CHECKER	MAINTENANCE
APPROVED	

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

BLDG. 14 SECOND FLOOR  
ADMINISTRATION BUILDING  
FLOOR PLAN  
1/8" = 1'-0"  
14X-5500-A-00310 | 8

DRAWING NOTES

- 1) CMU TO MATCH EXISTING IN MATERIAL AND COURSING.
- 2) CMU FILLED IN EXISTING OPENING, AS INDICATED, TO MATCH EXISTING CMU IN MATERIAL AND COURSING.
- 3) CANOPY WITH METAL PANEL FASCIA.
- 4) EXISTING CONCRETE COPING.
- 5) PRECAST CONCRETE COPING TO MATCH EXISTING COPING PROFILE.
- 6) EXPANSION JOINT.
- 7) EXISTING PRECAST CONCRETE SILL.
- 8) PRECAST CONCRETE SILL TO MATCH EXISTING SILL PROFILE.
- 9) ALUMINUM WINDOW/DOOR FRAME SYSTEM.
- 10) ALUMINUM DOOR.
- 11) CONCRETE LANDING AND STAIRS, SEE DETAIL E ON SHEET C-00247.
- 12) STEEL PIPE RAIL.
- 13) AUTOMATIC SLIDING DOORS.
- 14) LINE OF EXISTING SUMP.
- 15) GAS CYLINDER STORAGE BUILDING.
- 16) CONCRETE RAMP.
- 17) STEEL PIPE GUARD POSTS FILLED WITH CONCRETE.
- 18) EXPLOSION RELIEF DOORS.
- 19) NEW LINTEL WITH CMU TO MATCH EXISTING TOOTH INTO EXISTING CMU WALL TO MATCH COURSING.
- 20) NEW 6" VENT FROM EXISTING SUMP BRACKETED TO EXIST 2'-0" ABOVE ROOF LINE, INSTALLED BY MECHANICAL CONTRACTOR, TO BE COORDINATED WITH GENERAL CONTRACTOR. SEE DRAWING P-0034 FOR LOCATION.
- 21) 36" X 16" LOUVER.
- 22) LADE & RAIN FIBER OPTIC CABLE TO ANTENNA RING AND FOLLOW ROUTING THROUGH BUILDING PENETRATION TO ROOM 04.
- 23) ATTACH A #6 SOLID COPPER GROUND WIRE TO THE EXISTING ANTENNA GROUND AND FOLLOW CONDUIT CONTAINING FIBER OPTIC CABLE TO THE ESD. ATTACH GROUND WIRE TO CONDUIT BLACK CABLE TES.

GENERAL NOTES

- A. ALL NEW AND EXISTING CMU TO BE PAINTED
- B. ALL NEW AND EXISTING PRECAST CONCRETE PARAPET AND PRECAST CONCRETE SILLS TO BE PAINTED.

LEGEND

ESD - ELECTROSTATIC DISCHARGE PROTECTION DEVICE  
 S - SPANDEL GLASS  
 I - INSULATING GLASS  
 --- NUMBER OF SECTION OR LETTER OF DETAIL  
 DRAWING ON WHICH SECTION OR DETAIL IS TAKEN  
 DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION & DETAIL KEY

3	REVISED AS PER WORK COMPLETED ON DCN 4003-001 SELECT. STORM ID DEVICE INSTALLED	0-0-00	MWD	AMF
2	ADDED STORM ID DEVICE PER DCN 4003-001	0-0-00	LRO	DMF
1	AS BUILT	0-10-9		
0	CERTIFIED FOR CONSTRUCTION			

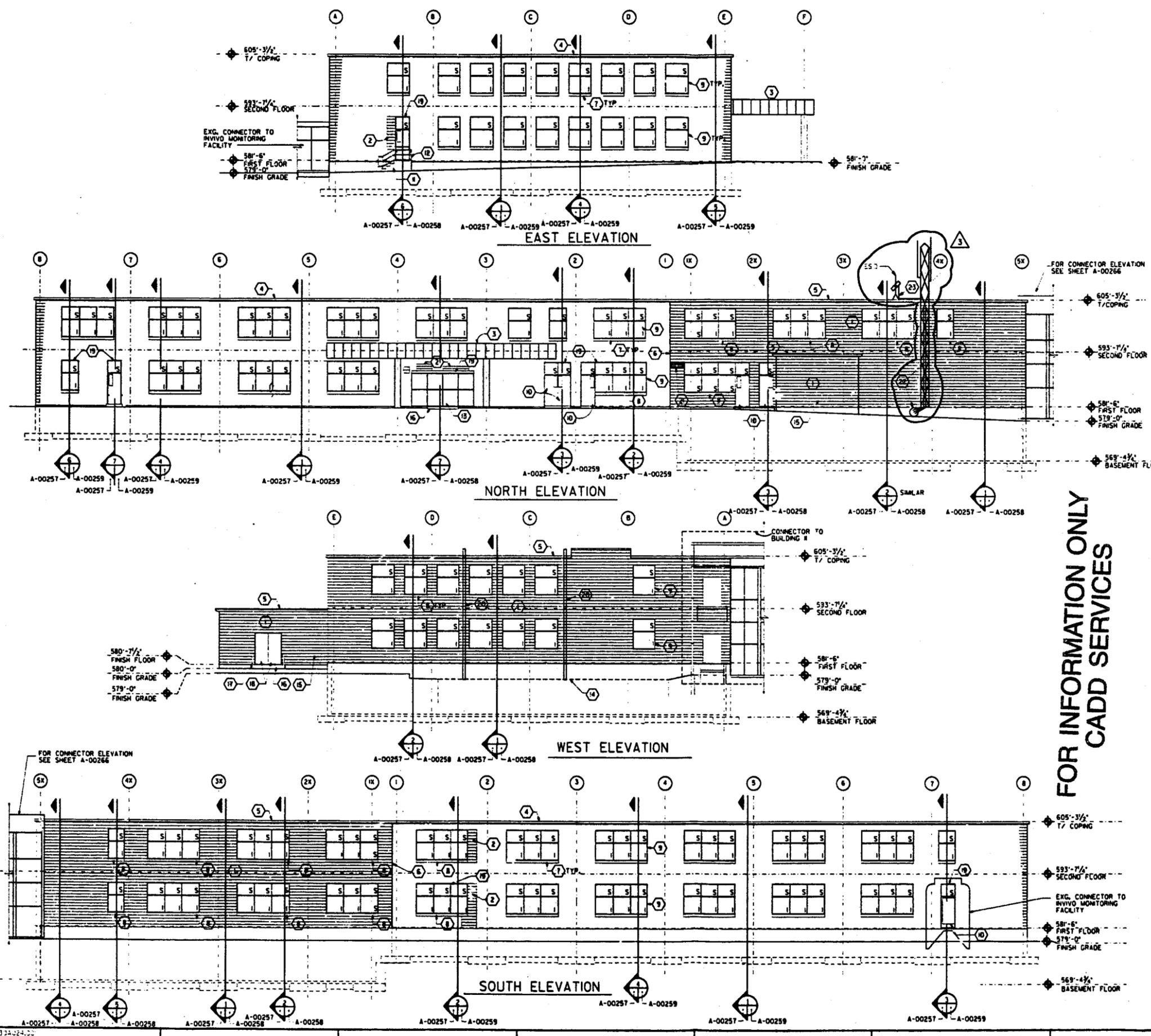
UNITED STATES DEPARTMENT OF ENERGY  
 FERTILIZER MATERIALS PRODUCTION CENTER

ESH BUILDING - EXPANSION & UPGRADE

EXTERIOR ELEVATIONS

DESIGNER	C. AMMONS	DATE	1/22/91	DESIGNED BY	R. JACOB	DATE	1/24/91
BUILDING NO.	53	SCALE	N.A.	PROJECT NO.	178-01-0	U	
DATE	02/07/92	BY	AMS	PROJECT NO.	53B-9600-A-00257	NO.	3

FOR INFORMATION ONLY  
 CADD SERVICES



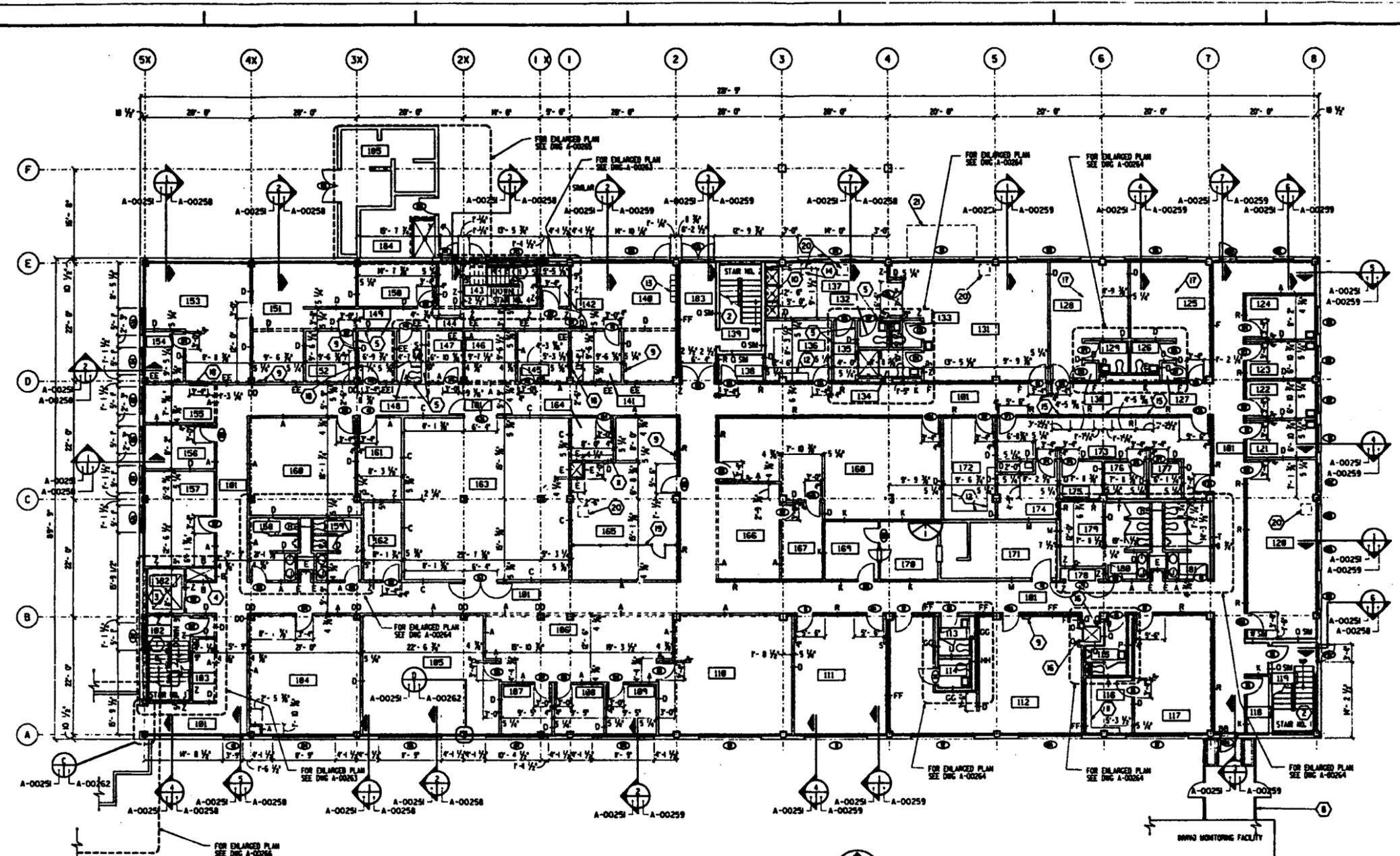
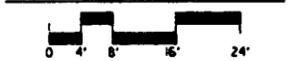
DRAWING NOTES

- 1 STAIR AND LANDING, METAL PANS FILLED WITH CONCRETE.
- 2 EXISTING STAIR AND LANDING.
- 3 PASSENGER ELEVATOR.
- 4 DUCT SHAFT.
- 5 WALL AS INDICATED TO BE FULL HEIGHT TO STRUCTURE TO PROVIDE SEPARATION BETWEEN CLEAN AND DIRTY SEES.
- 6 SEE SHEET A-00265 FOR ENLARGED PLANS OF GAS CYLINDER STORAGE BUILDING.
- 7 SEE SHEET A-00266 FOR ENLARGED PLANS OF CONNECTOR TO BUILDING 1.
- 8 EXISTING CONNECTOR TO INVIVO MONITORING FACILITY.
- 9 FIRE EXTINGUISHER CABINET.
- 10 DELUGE SHOWERS, TOTAL OF THREE (3), SEE PIPING DRAWING P-7.
- 11 ADJUSTABLE WOOD SHELVING, 12" DEEP, 6 SHELVES HIGH.
- 12 ADJUSTABLE WOOD SHELVING, 18" DEEP, 6 SHELVES HIGH.
- 13 15" X 12" X 6'-0" HIGH LOCKERS, 5 UNITS WIDE.
- 14 MONORAIL WITH ELECTRICALLY OPERATED HOIST, SEE SECTION 3 ON SHEET A-00262.
- 15 VISION PANEL, SEE DETAIL B AND SECTION 2 ON SHEET A-00262.
- 16 NEW DRYWALL TO BE RETURNED TO EXISTING DAMP-WATER DOOR FRAME.
- 17 SURFACE MOUNTED TRACK FOR CURTAINS, REFER TO SHEET 1-00278.
- 18 VERTICAL SLIDING PASS WINDOW, SEE DETAIL A AND SECTION 1 ON SHEET A-00262.
- 19 CHAIN LINK FENCE AND GATE, FULL HEIGHT TO CEILING.
- 20 EXISTING CONDENSATE RETURN PIT IN FLOOR TO BE FILLED WITH NEW CONCRETE FLUSH TO MATCH EXG. ADJACENT CONCRETE FLOOR.
- 21 FRESH AIR INTAKE WELL TO BE FILLED WITH COMPACTED BACKFILL.

GENERAL NOTES

- A. WALL TYPES INDICATED BY "-A", LETTER DESIGNATES TYPE. SEE WALL TYPES DETAILS ON SHEET A-00270.
- B. FOR ENLARGED PLANS OF ELEVATOR AND STAIRS, SEE SHEET A-00264.
- C. FOR ENLARGED PLANS OF TOILET ROOMS, SEE SHEET A-00263.
- D. FOR DOOR SCHEDULES AND DETAILS, SEE SHEET A-00271.
- E. FOR WINDOW SCHEDULES AND DETAILS, SEE SHEET A-00272.
- F. ALL FIRE RATED WALLS TO BE FULL HEIGHT TO STRUCTURE ABOVE.
- G. PATCH AND REPAIR ALL DAMAGED FLOORS RESULTING FROM REMOVAL OF ELECTRICAL DEVICES FROM FLOOR. PATCH CONCRETE FINISH TO MATCH EXISTING FINISH ADJACENT TO AFFECTED AREA.
- H. FILL ALL INTERIOR CMU WALLS, WHERE EXISTING DOORS ARE TO BE REMOVED, PRIOR TO INSTALLING FURRING AND DRYWALL.
- I. BOTTOM OF ALL BULKHEADS, DESIGNATED BY ----, TO BE AT 6'-0" AFF.
- J. VINYL WALL BUMP RAIL TO BE INSTALLED IN CORRIDORS AS DESIGNATED ON ROOM FINISH SCHEDULE. FOR DETAIL, SEE SECTION 8 ON SHEET A-00262.
- K. PRIOR TO CUTTING ANY FLOOR OPENING, PROVIDE THE CONSTRUCTION MANAGER WITH A DETAILED PLAN SHOWING SIZE AND LOCATION OF OPENING IN NEW AND EXISTING FLOORS. DO NOT PROCEED WITH ACTUAL CUTTING OF OPENINGS UNTIL SO DIRECTED BY THE CONSTRUCTION MANAGER.

SECTION & DETAIL KEY



FIRST FLOOR PLAN  
SCALE 1/4" = 1'-0"  
FINISH FLOOR ELEVATION = 58'-6"

FOR INFORMATION ONLY  
CADD SERVICES

ROOM FINISH SCHEDULE						ROOM FINISH SCHEDULE						ROOM FINISH SCHEDULE						
NO.	NAME	FLOOR	WALL	CEILING	REMARKS	NO.	NAME	FLOOR	WALL	CEILING	REMARKS	NO.	NAME	FLOOR	WALL	CEILING	REMARKS	
		MAT'L/FINISH	BASE	MAT'L/FINISH	HGT.			MAT'L/FINISH	BASE	MAT'L/FINISH	HGT.			MAT'L/FINISH	BASE	MAT'L/FINISH	HGT.	
100	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	VINYL WALL BUMP RAIL	100	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	100	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
101	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		101	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	101	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
102	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		102	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	102	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
103	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		103	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	103	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
104	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		104	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	104	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
105	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		105	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	105	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
106	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		106	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	106	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
107	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		107	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	107	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
108	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		108	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	108	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
109	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		109	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	109	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
110	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		110	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	110	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
111	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		111	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	111	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
112	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		112	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	112	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
113	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		113	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	113	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
114	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		114	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	114	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
115	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		115	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	115	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
116	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		116	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	116	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
117	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		117	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	117	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
118	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		118	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	118	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
119	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		119	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	119	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
120	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		120	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	120	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
121	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		121	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	121	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
122	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		122	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	122	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
123	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		123	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	123	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
124	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		124	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	124	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
125	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		125	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	125	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
126	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		126	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	126	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
127	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		127	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	127	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
128	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		128	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	128	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
129	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		129	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	129	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
130	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		130	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	130	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
131	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		131	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	131	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
132	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		132	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	132	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
133	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		133	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	133	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
134	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		134	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	134	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
135	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		135	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	135	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
136	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		136	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	136	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
137	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		137	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	137	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
138	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		138	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	138	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
139	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		139	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	139	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
140	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		140	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	140	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
141	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		141	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	141	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
142	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		142	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	142	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
143	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		143	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	143	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
144	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		144	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	144	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
145	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		145	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	145	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
146	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		146	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	146	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
147	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		147	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	147	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
148	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		148	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	148	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
149	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		149	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	149	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
150	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		150	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	150	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
151	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		151	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	151	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
152	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		152	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	152	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
153	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		153	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	153	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
154	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		154	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	154	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
155	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		155	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	155	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
156	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		156	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	156	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
157	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		157	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	157	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
158	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		158	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	158	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
159	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		159	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	159	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"
160	STAIR	CONC/VCFL	VBR	DR/PNT	8'-0"		160	CORRIDOR	CONC/VCFL	VBR	DR/VBR	8'-0"	160	CORRIDOR	CONC/VCFL	VBR	DR/VBR	

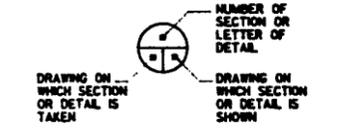
4037

DRAWING NOTES

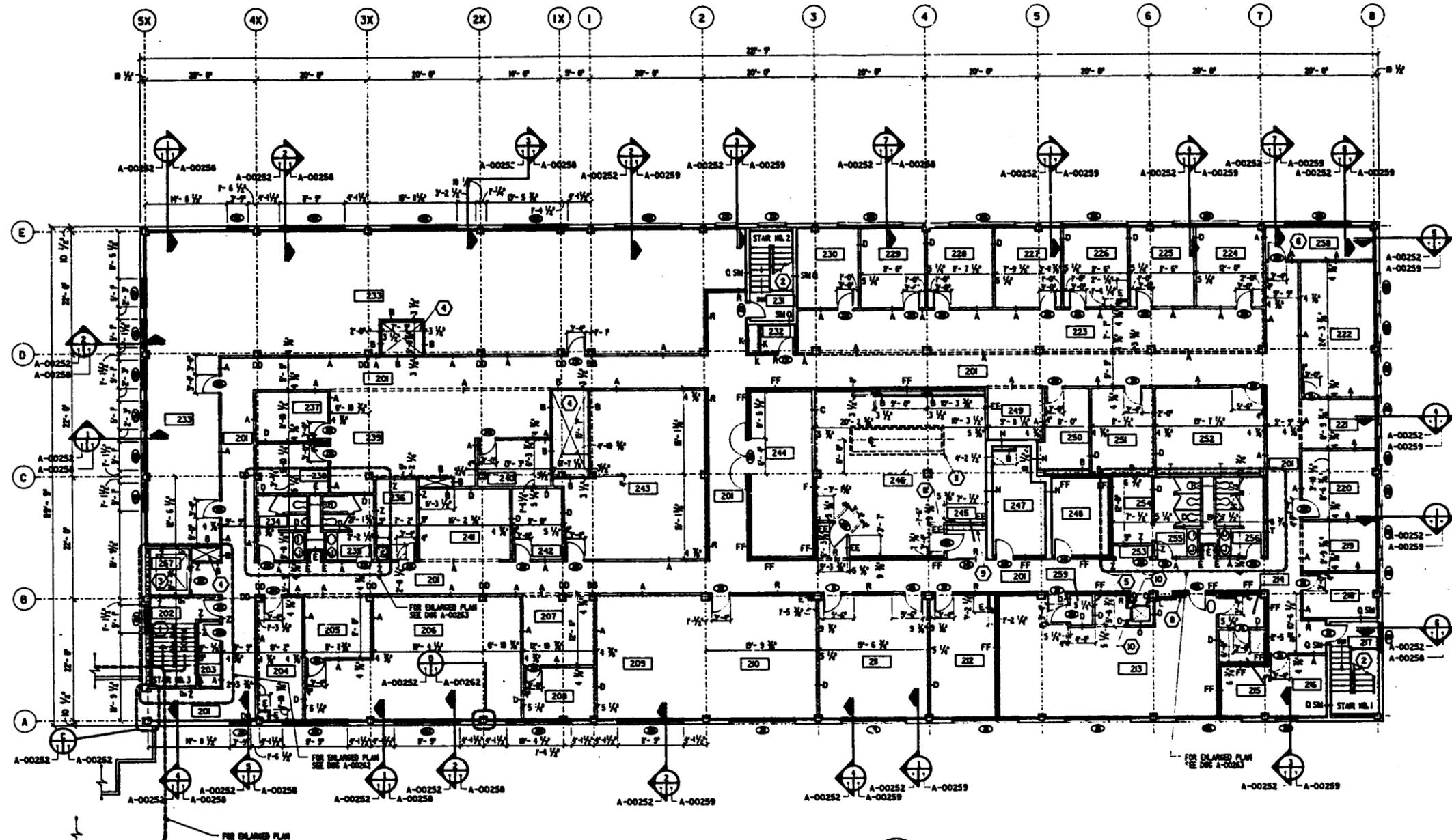
- 1 STAIR AND LANDING, METAL PANS FILLED WITH CONCRETE.
- 2 EXISTING STAIR AND LANDING.
- 3 PASSENGER ELEVATOR.
- 4 DUCT SHAFT.
- 5 WALL AS INDICATED TO BE FULL HEIGHT TO STRUCTURE ABOVE.
- 6 WALL TO BE CONSTRUCTED AS FUTURE KNOCK OUT PANEL TO PROVIDE ACCESS TO FUTURE TRASSING CENTER.
- 7 SEE SHEET A-00266 FOR ENLARGED PLANS OF CONDUCTOR TO BUILDING 3.
- 8 FIRE EXTINGUISHER CABINET.
- 9 12" X 12" X 6" HIGH LOCKERS, 7 UNITS WIDE.
- 10 NEW DRYWALL TO BE RETURNED TO EXISTING DUMBWATER DOOR FRAME.
- 11 BULKHEAD OVER LAB BENCH FOR DETAILS, SEE SECTIONS 4 & 5 ON SHEET A-00262.

GENERAL NOTES

- A. WALL TYPES INDICATED BY "A" LETTER DESIGNATES TYPE. SEE WALL TYPES DETAILS ON SHEET A-00270.
- B. FOR ENLARGED PLANS OF ELEVATOR AND STAIRS, SEE SHEET A-00263.
- C. FOR ENLARGED PLANS OF TOILET ROOMS, SEE SHEET A-00264.
- D. FOR DOOR SCHEDULES AND DETAILS, SEE SHEET A-00271.
- E. FOR WINDOW SCHEDULES AND DETAILS, SEE SHEET A-00272.
- F. ALL FIRE RATED WALLS TO BE FULL HEIGHT TO STRUCTURE.
- G. PATCH AND REPAIR ALL DAMAGED FLOORS RESULTING FROM REMOVAL OF ELECTRICAL DEVICES FROM FLOOR. PATCH CONCRETE FINISH TO MATCH EXISTING FINISH ADJACENT TO AFFECTED AREA.
- H. INFILL ALL INTERIOR CMU WALLS WHERE EXISTING DOORS ARE TO BE REMOVED PRIOR TO INSTALLING FURNING AND DRYWALL.
- I. BOTTOM OF ALL BULKHEADS, DESIGNATED BY -----, TO BE AT 6'-0" AFF.
- J. VINYL WALL BUMP RAIL TO BE INSTALLED IN CORRIDORS AS DESIGNATED ON ROOM FINISH SCHEDULE. FOR DETAIL, SEE SECTION 8, SHEET A00252.
- K. PRIOR TO CUTTING ANY FLOOR OPENING PROVIDE THE CONSTRUCTION MANAGER WITH A DETAILED PLAN SHOWING SIZE AND LOCATION OF OPENINGS. NEW AND EXISTING FLOORS. DO NOT PROCEED WITH ACTUAL CUTTING OF OPENINGS UNTIL SO DIRECTED BY THE CONSTRUCTION MANAGER.
- L. 1 1/2" RIGID INSULATION (R=4.5) TO BE INSTALLED TO UNDERSIDE OF EXISTING CONCRETE ROOF SLAB IN ALL AREAS OF EXISTING BUILDING EXCEPT STAIRS NO. 1 & 2.



SECTION & DETAIL KEY



SECOND FLOOR PLAN

SCALE 1/8" = 1'-0"  
FINISH FLOOR ELEVATION = 593'-7 1/2"



FOR INFORMATION ONLY  
CADD SERVICES

DO NOT SCALE REDUCED DRAWINGS

ROOM FINISH SCHEDULE					ROOM FINISH SCHEDULE					ROOM FINISH SCHEDULE				
ROOM NO.	FLOOR	WALL	CEILING	REMARKS	ROOM NO.	FLOOR	WALL	CEILING	REMARKS	ROOM NO.	FLOOR	WALL	CEILING	REMARKS
NAME	MATL/FINISH	BASE MATL/FINISH	MATL/FINISH		NAME	MATL/FINISH	BASE MATL/FINISH	MATL/FINISH		NAME	MATL/FINISH	BASE MATL/FINISH	MATL/FINISH	
201	CONC/CT	VER	DR/PH	VINYL WALL BUMP RAIL	202	CONC/CT	VER	DR/PH	ACT	203	CONC/CT	VER	DR/PH	ACT
204	CONC/CT	VER	DR/PH		205	CONC/CT	VER	DR/PH	ACT	206	CONC/CT	VER	DR/PH	ACT
207	CONC/CT	VER	DR/PH		208	CONC/CT	VER	DR/PH	ACT	209	CONC/CT	VER	DR/PH	ACT
210	CONC/CT	VER	DR/PH		211	CONC/CT	VER	DR/PH	ACT	212	CONC/CT	VER	DR/PH	ACT
213	CONC/CT	VER	DR/PH		214	CONC/CT	VER	DR/PH	ACT	215	CONC/CT	VER	DR/PH	ACT
216	CONC/CT	VER	DR/PH		217	CONC/CT	VER	DR/PH	ACT	218	CONC/CT	VER	DR/PH	ACT
219	CONC/CT	VER	DR/PH		220	CONC/CT	VER	DR/PH	ACT	221	CONC/CT	VER	DR/PH	ACT
222	CONC/CT	VER	DR/PH		223	CONC/CT	VER	DR/PH	ACT	224	CONC/CT	VER	DR/PH	ACT
225	CONC/CT	VER	DR/PH		226	CONC/CT	VER	DR/PH	ACT	227	CONC/CT	VER	DR/PH	ACT
228	CONC/CT	VER	DR/PH		229	CONC/CT	VER	DR/PH	ACT	230	CONC/CT	VER	DR/PH	ACT
231	CONC/CT	VER	DR/PH		232	CONC/CT	VER	DR/PH	ACT	233	CONC/CT	VER	DR/PH	ACT
234	CONC/CT	VER	DR/PH		235	CONC/CT	VER	DR/PH	ACT	236	CONC/CT	VER	DR/PH	ACT
237	CONC/CT	VER	DR/PH		238	CONC/CT	VER	DR/PH	ACT	239	CONC/CT	VER	DR/PH	ACT
240	CONC/CT	VER	DR/PH		241	CONC/CT	VER	DR/PH	ACT	242	CONC/CT	VER	DR/PH	ACT
243	CONC/CT	VER	DR/PH		244	CONC/CT	VER	DR/PH	ACT	245	CONC/CT	VER	DR/PH	ACT
246	CONC/CT	VER	DR/PH		247	CONC/CT	VER	DR/PH	ACT	248	CONC/CT	VER	DR/PH	ACT
249	CONC/CT	VER	DR/PH		250	CONC/CT	VER	DR/PH	ACT	251	CONC/CT	VER	DR/PH	ACT
252	CONC/CT	VER	DR/PH		253	CONC/CT	VER	DR/PH	ACT	254	CONC/CT	VER	DR/PH	ACT
257	CONC/CT	VER	DR/PH		258	CONC/CT	VER	DR/PH	ACT	259	CONC/CT	VER	DR/PH	ACT
260	CONC/CT	VER	DR/PH		261	CONC/CT	VER	DR/PH	ACT	262	CONC/CT	VER	DR/PH	ACT
263	CONC/CT	VER	DR/PH		264	CONC/CT	VER	DR/PH	ACT	265	CONC/CT	VER	DR/PH	ACT
268	CONC/CT	VER	DR/PH		269	CONC/CT	VER	DR/PH	ACT	270	CONC/CT	VER	DR/PH	ACT
271	CONC/CT	VER	DR/PH		272	CONC/CT	VER	DR/PH	ACT	273	CONC/CT	VER	DR/PH	ACT
274	CONC/CT	VER	DR/PH		275	CONC/CT	VER	DR/PH	ACT	276	CONC/CT	VER	DR/PH	ACT
279	CONC/CT	VER	DR/PH		280	CONC/CT	VER	DR/PH	ACT	281	CONC/CT	VER	DR/PH	ACT
282	CONC/CT	VER	DR/PH		283	CONC/CT	VER	DR/PH	ACT	284	CONC/CT	VER	DR/PH	ACT
287	CONC/CT	VER	DR/PH		288	CONC/CT	VER	DR/PH	ACT	289	CONC/CT	VER	DR/PH	ACT
290	CONC/CT	VER	DR/PH		291	CONC/CT	VER	DR/PH	ACT	292	CONC/CT	VER	DR/PH	ACT
295	CONC/CT	VER	DR/PH		296	CONC/CT	VER	DR/PH	ACT	297	CONC/CT	VER	DR/PH	ACT
298	CONC/CT	VER	DR/PH		299	CONC/CT	VER	DR/PH	ACT	300	CONC/CT	VER	DR/PH	ACT
303	CONC/CT	VER	DR/PH		304	CONC/CT	VER	DR/PH	ACT	305	CONC/CT	VER	DR/PH	ACT
308	CONC/CT	VER	DR/PH		309	CONC/CT	VER	DR/PH	ACT	310	CONC/CT	VER	DR/PH	ACT
313	CONC/CT	VER	DR/PH		314	CONC/CT	VER	DR/PH	ACT	315	CONC/CT	VER	DR/PH	ACT
318	CONC/CT	VER	DR/PH		319	CONC/CT	VER	DR/PH	ACT	320	CONC/CT	VER	DR/PH	ACT
323	CONC/CT	VER	DR/PH		324	CONC/CT	VER	DR/PH	ACT	325	CONC/CT	VER	DR/PH	ACT
328	CONC/CT	VER	DR/PH		329	CONC/CT	VER	DR/PH	ACT	330	CONC/CT	VER	DR/PH	ACT
333	CONC/CT	VER	DR/PH		334	CONC/CT	VER	DR/PH	ACT	335	CONC/CT	VER	DR/PH	ACT
338	CONC/CT	VER	DR/PH		339	CONC/CT	VER	DR/PH	ACT	340	CONC/CT	VER	DR/PH	ACT
343	CONC/CT	VER	DR/PH		344	CONC/CT	VER	DR/PH	ACT	345	CONC/CT	VER	DR/PH	ACT
348	CONC/CT	VER	DR/PH		349	CONC/CT	VER	DR/PH	ACT	350	CONC/CT	VER	DR/PH	ACT
353	CONC/CT	VER	DR/PH		354	CONC/CT	VER	DR/PH	ACT	355	CONC/CT	VER	DR/PH	ACT
358	CONC/CT	VER	DR/PH		359	CONC/CT	VER	DR/PH	ACT	360	CONC/CT	VER	DR/PH	ACT
363	CONC/CT	VER	DR/PH		364	CONC/CT	VER	DR/PH	ACT	365	CONC/CT	VER	DR/PH	ACT
368	CONC/CT	VER	DR/PH		369	CONC/CT	VER	DR/PH	ACT	370	CONC/CT	VER	DR/PH	ACT
373	CONC/CT	VER	DR/PH		374	CONC/CT	VER	DR/PH	ACT	375	CONC/CT	VER	DR/PH	ACT
378	CONC/CT	VER	DR/PH		379	CONC/CT	VER	DR/PH	ACT	380	CONC/CT	VER	DR/PH	ACT
383	CONC/CT	VER	DR/PH		384	CONC/CT	VER	DR/PH	ACT	385	CONC/CT	VER	DR/PH	ACT
388	CONC/CT	VER	DR/PH		389	CONC/CT	VER	DR/PH	ACT	390	CONC/CT	VER	DR/PH	ACT
393	CONC/CT	VER	DR/PH		394	CONC/CT	VER	DR/PH	ACT	395	CONC/CT	VER	DR/PH	ACT
398	CONC/CT	VER	DR/PH		399	CONC/CT	VER	DR/PH	ACT	400	CONC/CT	VER	DR/PH	ACT
403	CONC/CT	VER	DR/PH		404	CONC/CT	VER	DR/PH	ACT	405	CONC/CT	VER	DR/PH	ACT
408	CONC/CT	VER	DR/PH		409	CONC/CT	VER	DR/PH	ACT	410	CONC/CT	VER	DR/PH	ACT
413	CONC/CT	VER	DR/PH		414	CONC/CT	VER	DR/PH	ACT	415	CONC/CT	VER	DR/PH	ACT
418	CONC/CT	VER	DR/PH		419	CONC/CT	VER	DR/PH	ACT	420	CONC/CT	VER	DR/PH	ACT
423	CONC/CT	VER	DR/PH		424	CONC/CT	VER	DR/PH	ACT	425	CONC/CT	VER	DR/PH	ACT
428	CONC/CT	VER	DR/PH		429	CONC/CT	VER	DR/PH	ACT	430	CONC/CT	VER	DR/PH	ACT
433	CONC/CT	VER	DR/PH		434	CONC/CT	VER	DR/PH	ACT	435	CONC/CT	VER	DR/PH	ACT
438	CONC/CT	VER	DR/PH		439	CONC/CT	VER	DR/PH	ACT	440	CONC/CT	VER	DR/PH	ACT
443	CONC/CT	VER	DR/PH		444	CONC/CT	VER	DR/PH	ACT	445	CONC/CT	VER	DR/PH	ACT
448	CONC/CT	VER	DR/PH		449	CONC/CT	VER	DR/PH	ACT	450	CONC/CT	VER	DR/PH	ACT
453	CONC/CT	VER	DR/PH		454	CONC/CT	VER	DR/PH	ACT	455	CONC/CT	VER	DR/PH	ACT
458	CONC/CT	VER	DR/PH		459	CONC/CT	VER	DR/PH	ACT	460	CONC/CT	VER	DR/PH	ACT
463	CONC/CT	VER	DR/PH		464	CONC/CT	VER	DR/PH	ACT	465	CONC/CT	VER	DR/PH	ACT
468	CONC/CT	VER	DR/PH		469	CONC/CT	VER	DR/PH	ACT	470	CONC/CT	VER	DR/PH	ACT
473	CONC/CT	VER	DR/PH		474	CONC/CT	VER	DR/PH	ACT	475	CONC/CT	VER	DR/PH	ACT
478	CONC/CT	VER	DR/PH		479	CONC/CT	VER	DR/PH	ACT	480	CONC/CT	VER	DR/PH	ACT
483	CONC/CT	VER	DR/PH		484	CONC/CT	VER	DR/PH	ACT	485	CONC/CT	VER	DR/PH	ACT
488	CONC/CT	VER	DR/PH		489	CONC/CT	VER	DR/PH	ACT	490	CONC/CT	VER	DR/PH	ACT
493	CONC/CT	VER	DR/PH		494	CONC/CT	VER	DR/PH	ACT	495	CONC/CT	VER	DR/PH	ACT
498	CONC/CT	VER	DR/PH		499	CONC/CT	VER	DR/PH	ACT	500	CONC/CT	VER	DR/PH	ACT

UNITED STATES DEPARTMENT OF ENERGY  
FEDERAL MATERIALS PRODUCTION CENTER

ESH BUILDING - EXPANSION & UPGRADE

SECOND FLOOR PLAN & ROOM FINISH SCHEDULE

T. AKTMANN  
BUILDING 53  
SECOND FLOOR

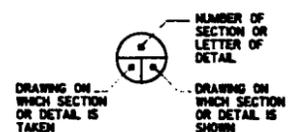
000174

DRAWING NOTES

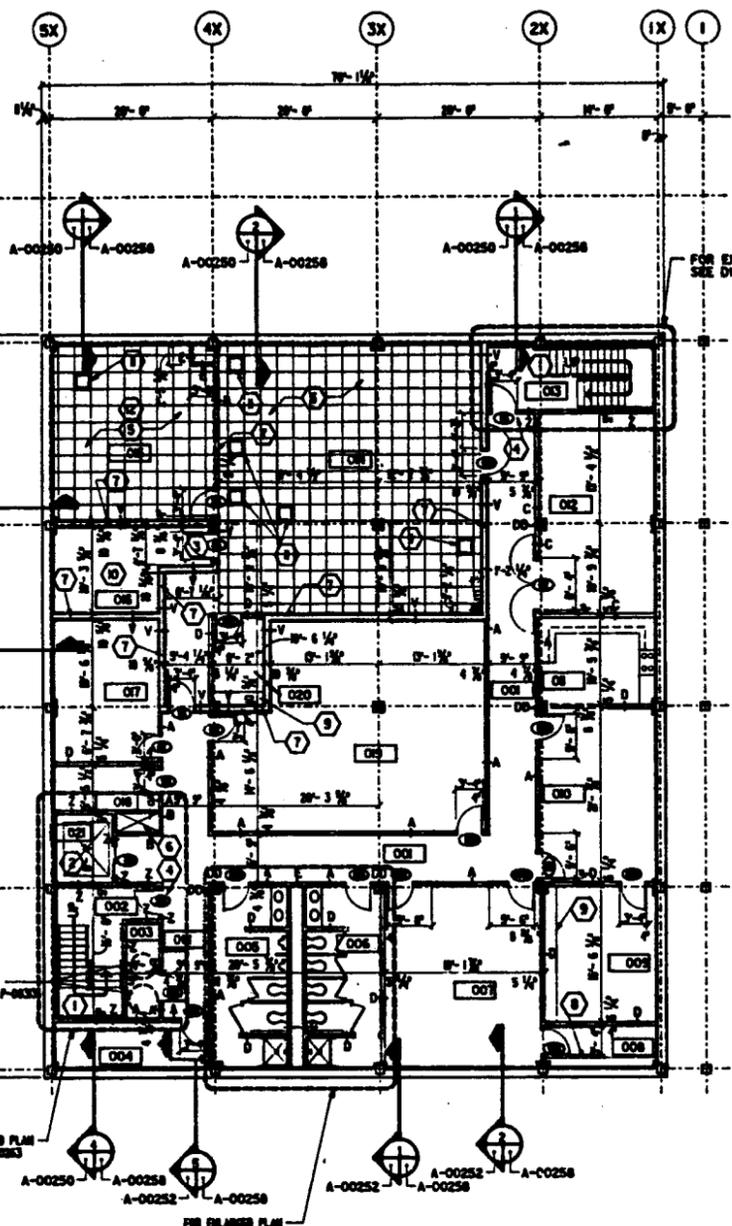
- 1 STAIR AND LANDING, METAL PANS FILLED WITH CONCRETE.
- 2 PASSENGER ELEVATOR KEY CONTROLLED ACCESS TO BASEMENT, SEE ELECTRICAL DRAWINGS.
- 3 DOOR TO HAVE COMBINATION LOCK FOR CONTROLLED ACCESS TO ROOM 005.
- 4 DOOR TO HAVE KEYPAD ACCESS SYSTEM FOR CONTROLLED ACCESS TO BASEMENT, SEE ELECTRICAL DRAWINGS.
- 5 RAISED ACCESS FLOOR OVER DEPRESSED SLAB, ACCESS FLOOR TO BE FLUSH WITH ADJACENT CONCRETE FLOOR SLAB.
- 6 DUCT SHAFT.
- 7 WALL AS INDICATED TO BE FULL HEIGHT TO STRUCTURE ABOVE.
- 8 ADJUSTABLE WOOD SHELVING, 12" DEEP, 6 SHELVES HIGH.
- 9 ADJUSTABLE WOOD SHELVING, 18" DEEP, 6 SHELVES HIGH.
- 10 ELECTRONIC FOIL SHIELDING PER NRC & DOE STANDARDS TO BE PROVIDED IN ROOM DESIGNATED, SHIELDING TO BE PROVIDED IN WALLS OF ROOM BEHIND DRYWALL SURFACE AND ABOVE SUSPENDED ACOUSTICAL CEILING.
- 11 24" X 24" FLOOR MOUNTED RETURN AIR GRILLE.
- 12 COORDINATE INSTALLATION OF ACCESS FLOORING IN ROOM 005 WITH CONCRETE ENCASUREMENT OF SANITARY PIPE, SEE SHEET S-00296 FOR LOCATION OF PIPE ENCASUREMENT.

GENERAL NOTES

- A. WALL TYPES INDICATED BY "A", LETTER DESIGNATES TYPE. SEE WALL TYPES DETAILS ON SHEET A-00270.
- B. FOR ENLARGED PLANS OF ELEVATOR AND STAIRS, SEE SHEET A-00263.
- C. FOR ENLARGED PLANS OF TOILET ROOMS, SEE SHEET A-00264.
- D. FOR DOOR SCHEDULES AND DETAILS, SEE SHEET A-00271.
- E. ALL FIRE RATED WALLS TO BE FULL HEIGHT TO STRUCTURE.
- F. VINYL WALL BUMP RAIL TO BE INSTALLED IN CORRIDORS AS DESIGNATED ON ROOM FINISH SCHEDULE. FOR DETAIL, SEE SECTION 8, SHEET A00262.
- G. PRIOR TO CUTTING ANY FLOOR OPENING, PROVIDE THE CONSTRUCTION MANAGER WITH A DETAILED PLAN SHOWING SIZE AND LOCATION OF OPENINGS IN NEW AND EXISTING FLOORS. DO NOT PROCEED WITH ACTUAL CUTTING OF OPENINGS UNTIL SO DIRECTED BY THE CONSTRUCTION MANAGER.



SECTION & DETAIL KEY



BASEMENT FLOOR PLAN  
SCALE 1/4" = 1'-0"  
FINISH FLOOR ELEVATION = 569'-4 1/2"

ROOM FINISH SCHEDULE						
ROOM NO. (NAM)	FLOOR		WALL		CEILING	REMARKS
	MAT./FINISH	BASE	MAT./FINISH	MAT./FINISH	HEI.	
001	CONC./GYP	CONC.	CONC.	CONC.	CONC.	VINYL WALL BUMP RAIL
002	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
003	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
004	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
005	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
006	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
007	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
008	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
009	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
010	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
011	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
012	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
013	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
014	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
015	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
016	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
017	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
018	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
019	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
020	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
021	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
022	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
023	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
024	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
025	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
026	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
027	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
028	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
029	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
030	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
031	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
032	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
033	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
034	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
035	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
036	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
037	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
038	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
039	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
040	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
041	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
042	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
043	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
044	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
045	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
046	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
047	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
048	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
049	CONC./GYP	CONC.	CONC.	CONC.	CONC.	
050	CONC./GYP	CONC.	CONC.	CONC.	CONC.	

FOR INFORMATION ONLY  
CADD SERVICES

DO NOT SCALE REDUCED DRAWING

AS BUILT	NO
CERTIFIED FOR CONSTRUCTION	NO
<p align="center"><b>UNITED STATES DEPARTMENT OF ENERGY</b>  <b>FUEL MATERIALS PRODUCTION CENTER</b></p> <p align="center">THE ENGINEERING FIRM OF  <b>Stanton &amp; Associates, Inc.</b></p> <p align="center">PROJECT TITLE  <b>ESH BUILDING - EXPANSION &amp; UPGRADE</b></p> <p align="center">DRAWING TITLE  <b>BASEMENT FLOOR PLAN &amp; ROOM FINISH SCHEDULE</b></p> <p>DATE: 11/18/88                  DRAWN BY: J. J. JENSEN                  CHECKED BY: J. J. JENSEN                  PROJECT NO.: 538-0600-A-00250                  DRAWING NO.: A-3</p>	



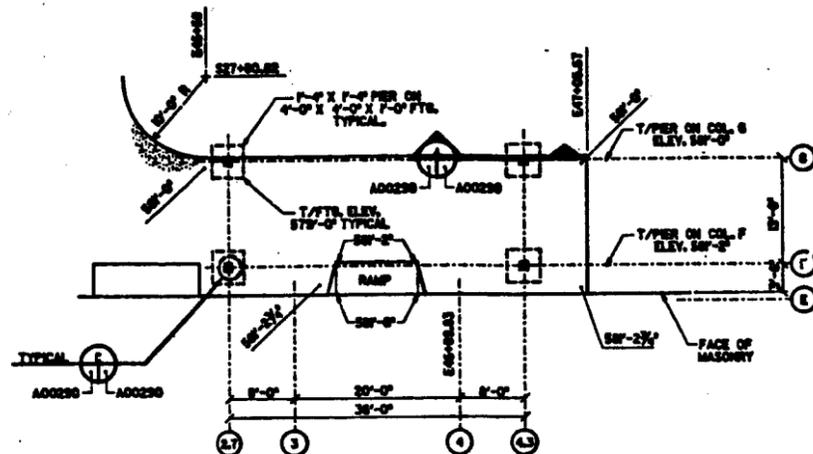


GENERAL NOTES

A- FOR GENERAL NOTES - STRUCTURAL SEE DRAWING S-0029L

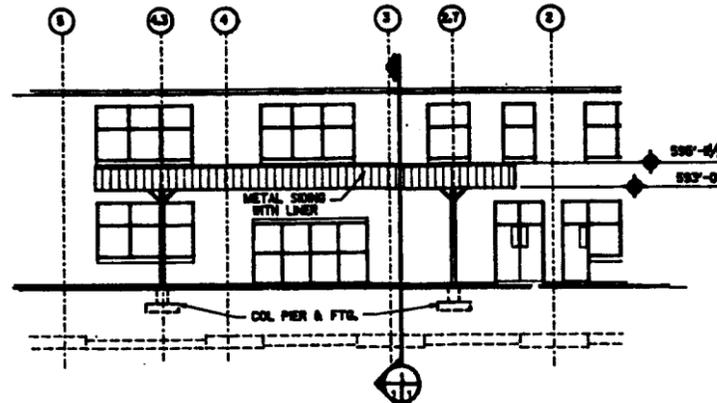
4037

FOR INFORMATION ONLY  
CADD SERVICES



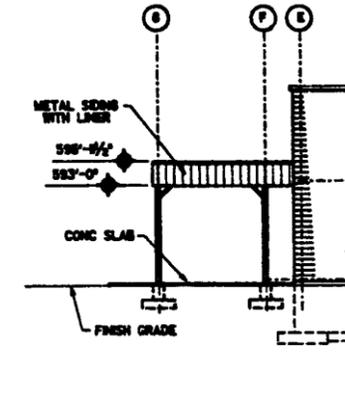
SITE AND FOUNDATION PLAN

SCALE: 1/4" = 1'-0"



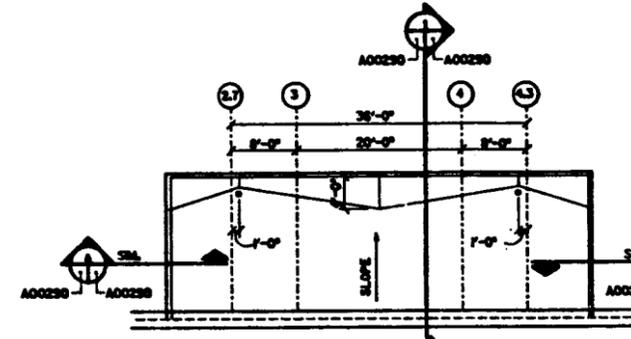
PARTIAL NORTH ELEVATION

SCALE: 1/2" = 1'-0"



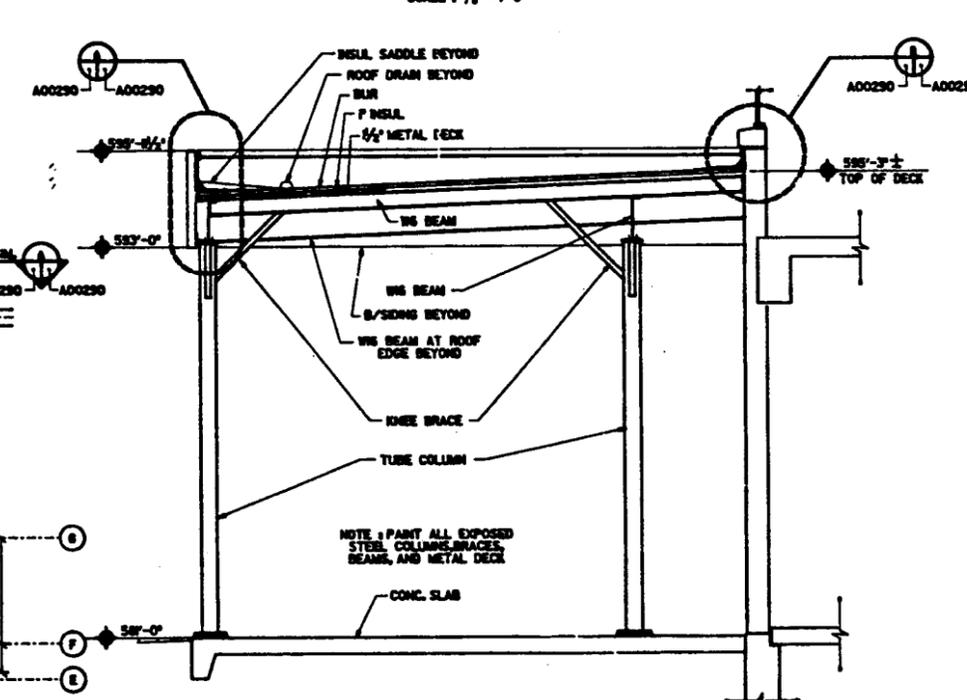
PARTIAL WEST ELEVATION

SCALE: 1/2" = 1'-0" EAST OPPOSITE HAND



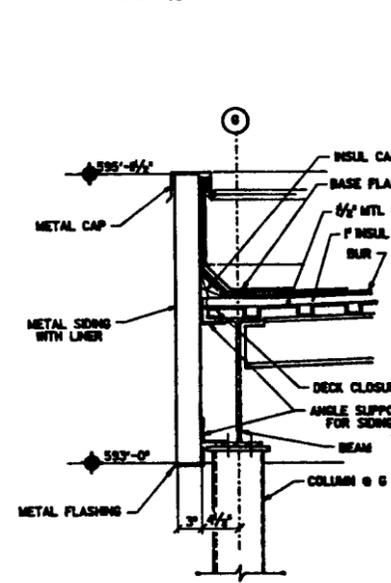
ROOF PLAN

SCALE: 1/4" = 1'-0"



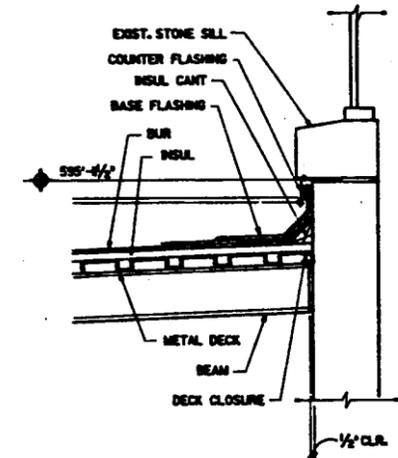
SECTION

SCALE: 1/2" = 1'-0"



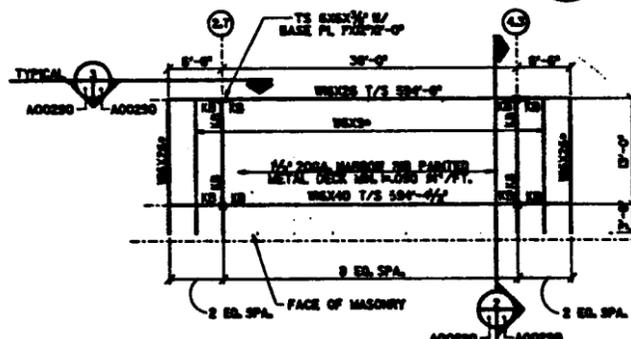
DETAIL

SCALE: 1 1/2" = 1'-0"



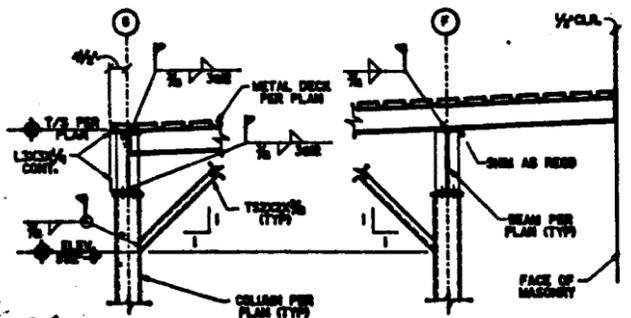
DETAIL

SCALE: 1 1/2" = 1'-0"



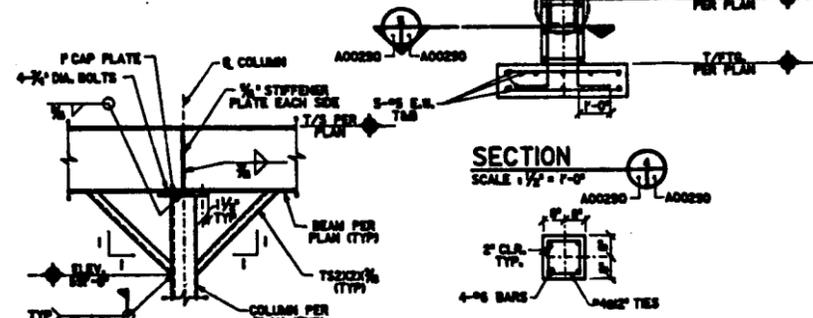
ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"



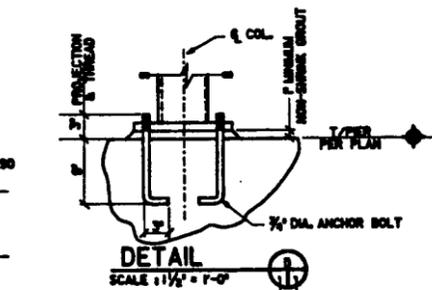
SECTION

SCALE: 1/2" = 1'-0"



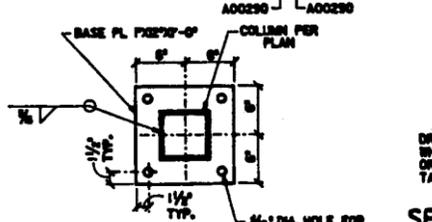
SECTION

SCALE: 1/2" = 1'-0"



DETAIL

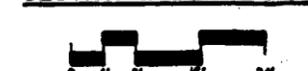
SCALE: 1 1/2" = 1'-0"



SECTION

SCALE: 1 1/2" = 1'-0"

SECTION & DETAIL KEY



DO NOT SCALE DIMENSIONS

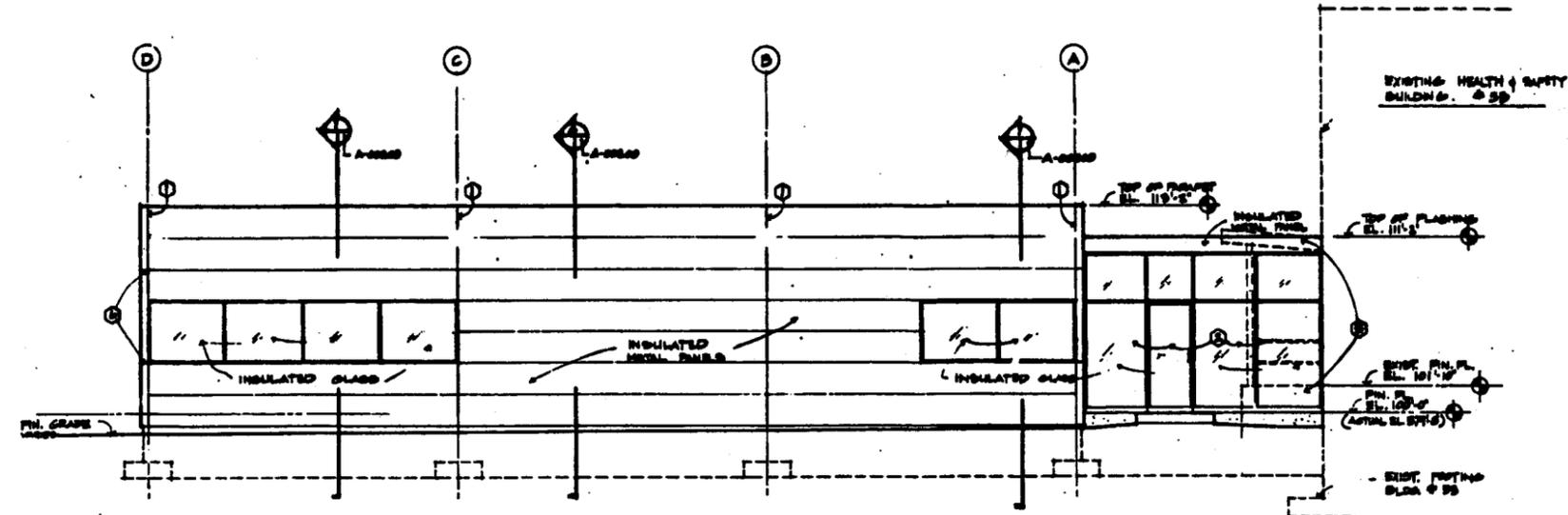
1	AS BUILT	
0	CERTIFIED FOR CONSTRUCTION	
2	AS NOTED	
<b>UNITED STATES DEPARTMENT OF ENERGY</b> <b>FUEL MATERIALS PRODUCTION CENTER</b>		
<b>ESH BUILDING - EXPANSION &amp; UPGRADE</b>		
<b>CANOPY PLANS, SECTIONS AND DETAILS</b>		
DATE	BY	APP'D
10/1/88	J. L. ...	J. L. ...
10/1/88	J. L. ...	J. L. ...
10/1/88	J. L. ...	J. L. ...
10/1/88	J. L. ...	J. L. ...

53B  
8600 A  
00290

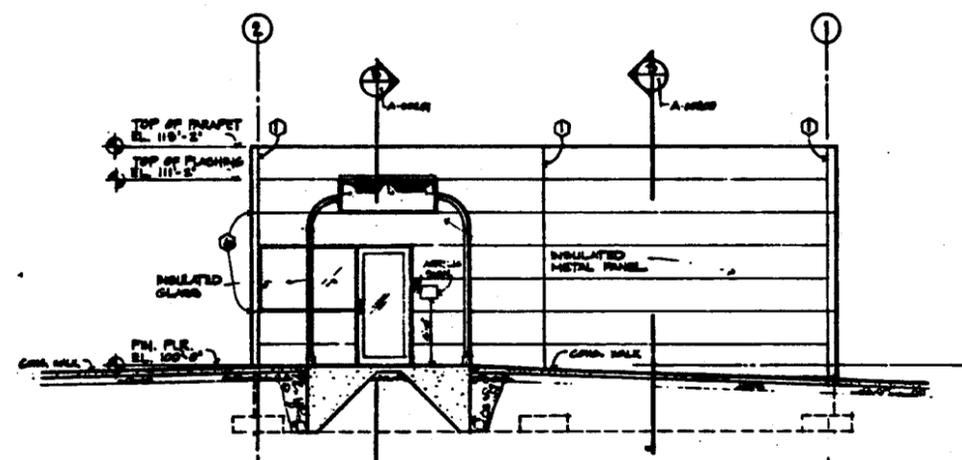
000178

4037

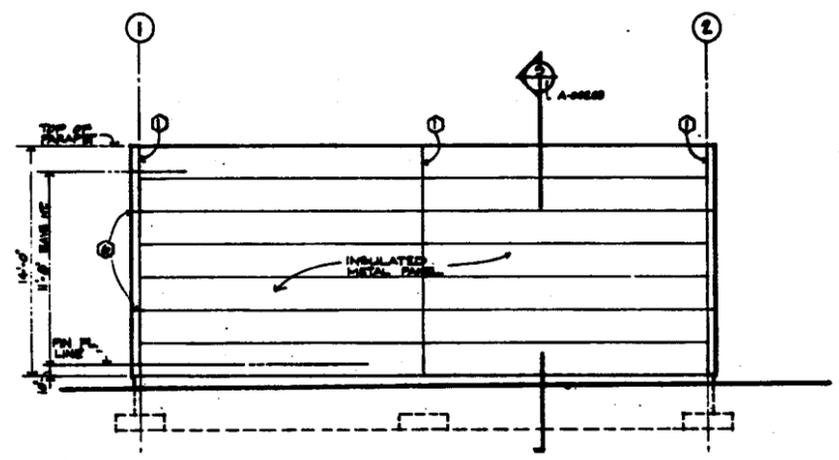
FOR INFORMATION ONLY  
CADD SERVICES



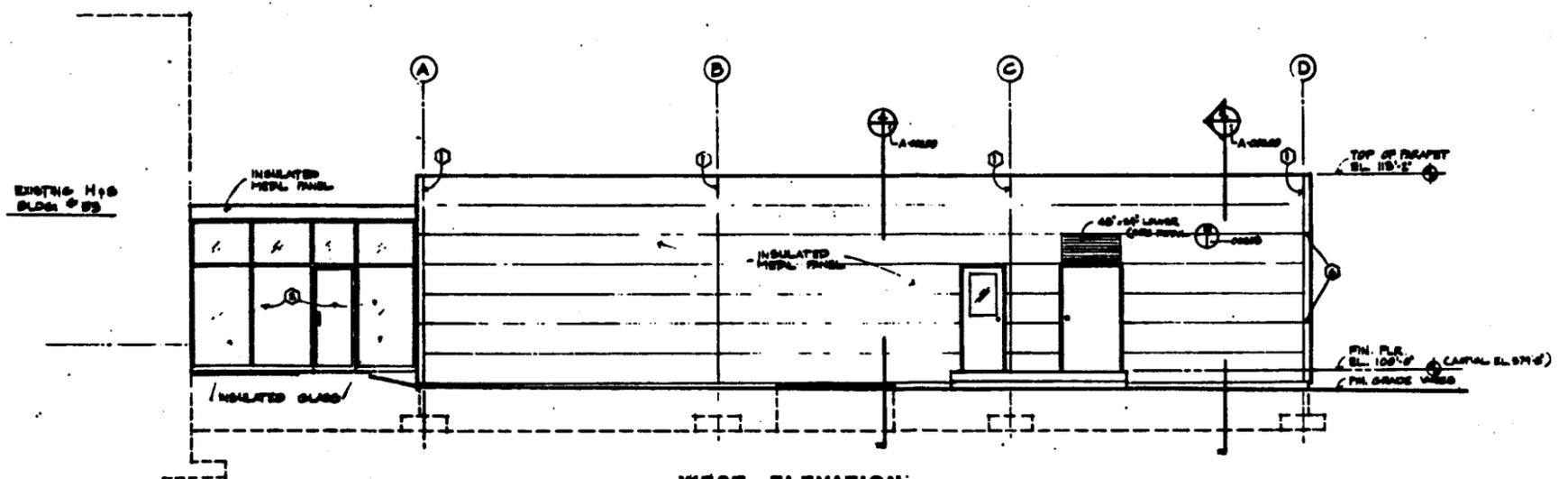
**EAST ELEVATION**  
1/8" = 1'-0"



**NORTH ELEVATION**  
1/8" = 1'-0"



**SOUTH ELEVATION**  
1/8" = 1'-0"



**WEST ELEVATION**  
1/8" = 1'-0"

- DRAWING NOTES**
1. BUTT JOINT AT INSULATED METAL PANEL ENDS, 20' ON CENTER TYPICAL. SEE DETAIL (A-10000)
  2. FULLY TEMPERED GLASS
  3. SEE SECTION 6, HVAC FOR METAL LOUVER SPECIFICATIONS.
  4. EXISTING CONCRETE STEPS AND CURB TO BE REMOVED.
  5. BUTT JOINT SIMILAR TO DETAIL (B) AT CORNER CORNER PANEL.

- GENERAL NOTES:**
1. REFER ELEVATION 100'-0" EQUALS (ACTUAL ELEVATION 97'-6").



1028 6 25 87

AS BUILT PER RES. # 1195			
<b>UNITED STATES DEPARTMENT OF ENERGY</b> <b>FINF MATERIALS PRODUCTION CENTER</b> <b>IN VIVO MONITORING FACILITY</b> <b>ELEVATIONS</b>			
DATE	BY	APP'D	NOTED
11/1	11/1	11/1	AS NOTED
PROJECT NO. 53-87101 DRAWING NO. 100-000-A-0000		000179	

53C-8600-A-00199

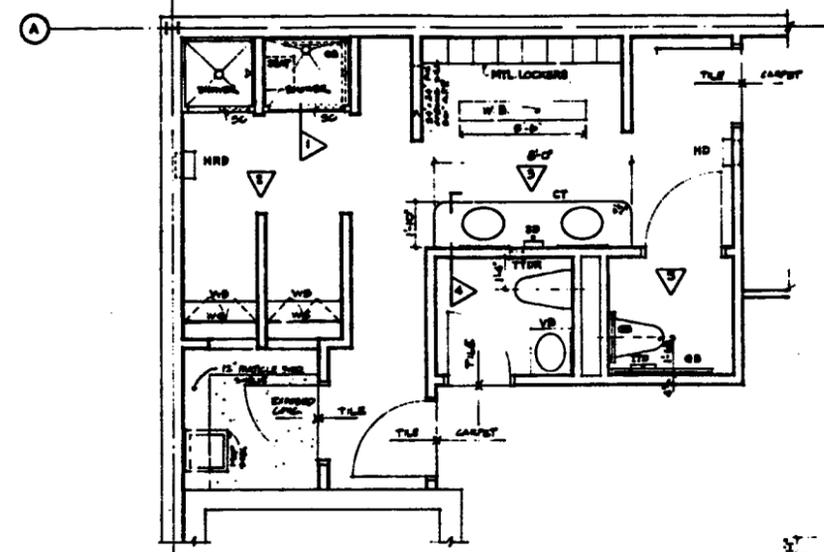
CERTIFIED FOR CONSTRUCTION

DO NOT SCALE REDUCED DRAWINGS

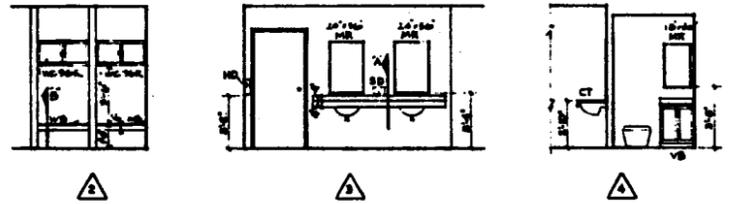
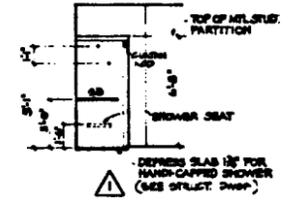
000179

4037

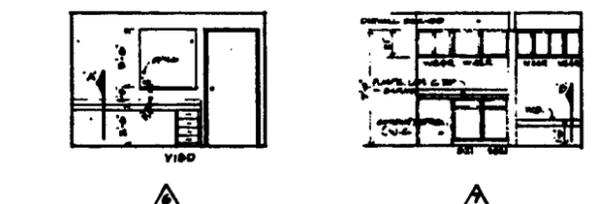
FOR INFORMATION ONLY  
CADD SERVICES



ENLARGED FLOOR PLAN  
SCALE: 3/8" = 1'-0"



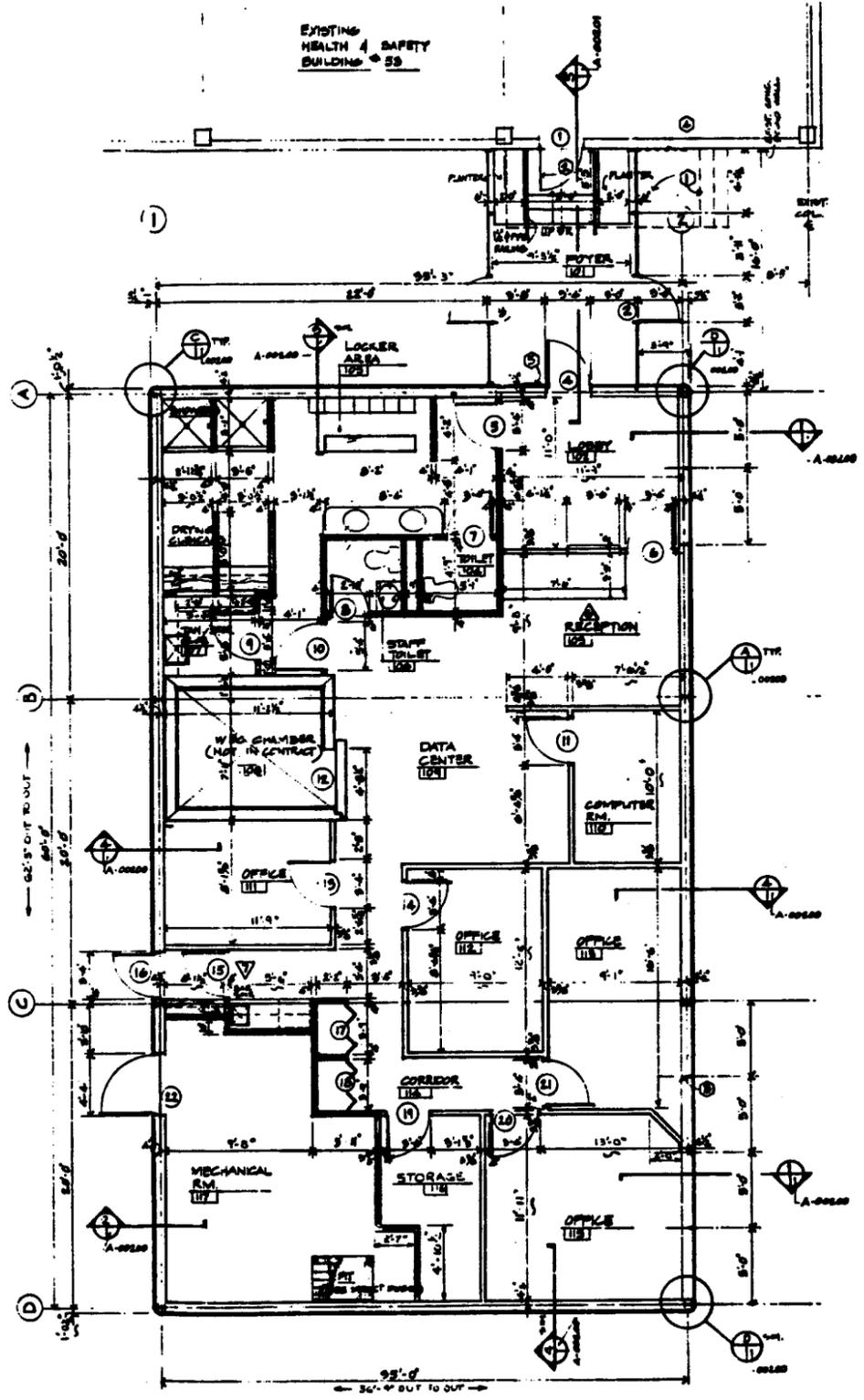
INTERIOR ELEVATIONS  
SCALE: 1/4" = 1'-0"



COUNTER TOP  
DETAIL A  
SCALE: 1/4" = 1'-0"

WOOD SEAT  
DETAIL B  
SCALE: 1/4" = 1'-0"

- LEGEND**
- ND (RECESSED) HAND DRYER
  - NDH HAND DRYER (RECESSED)
  - TYD TOILET TISSUE DISPENSER (RECESSED)
  - TYB TOILET TISSUE DISPENSER
  - SD SOAP DISPENSER D-112 (SURFACE)
  - GB GRAB BAR D-306 (RECESSED)
  - VB VARIETY BASE
  - MC WALL-PASS-THRU-CABINET
  - WB WOOD BENCH
  - CT COUNTERTOP
  - SC SHOWER CURTAIN



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

- DRAWING NOTES**
- EXISTING CONCRETE STEPS AND GRADY TO BE REMOVED.
  - EXISTING ENTRANCE DOOR TO REMAIN.
  - ALUMINUM CLOSEUP STRIP PAINTED TO MATCH WALL.
  - REMOVE 2" CONCRETE LEDGE AT FOUNDATION WALL TO BELOW FINISH GRADE, FLUSH WITH CONCRETE FOUNDATION WALL.
  - ACRYLIC SIGN 1 1/2" WIDE X 8" HIGH WITH 1-1/2" HIGH VINYL SELF-STICKING LETTERING. COLORED BACKING WITH WHITE LETTERS. WORKING FOR BUILDING DESCRIPTION TO BE BY ARCHITECT.

- GENERAL NOTES:**
- REFERENCE ELEVATION 100'-0" EQUALS (ACTUAL ELEVATION 579'-0")



SECTION & DETAIL KEY

**KEY**

- DEMOUNTABLE PARTITION WALL 5/8" O.C. OVER 1/2" MEDIAL STUD PARTITION 1/2" O.C. TO ABOVE FINISHED CEILING WITH 1/2" WET SPOTUM BRID CHAMBERS ARE FACE OF MEDIAL STUDS.

1028 6 25 87

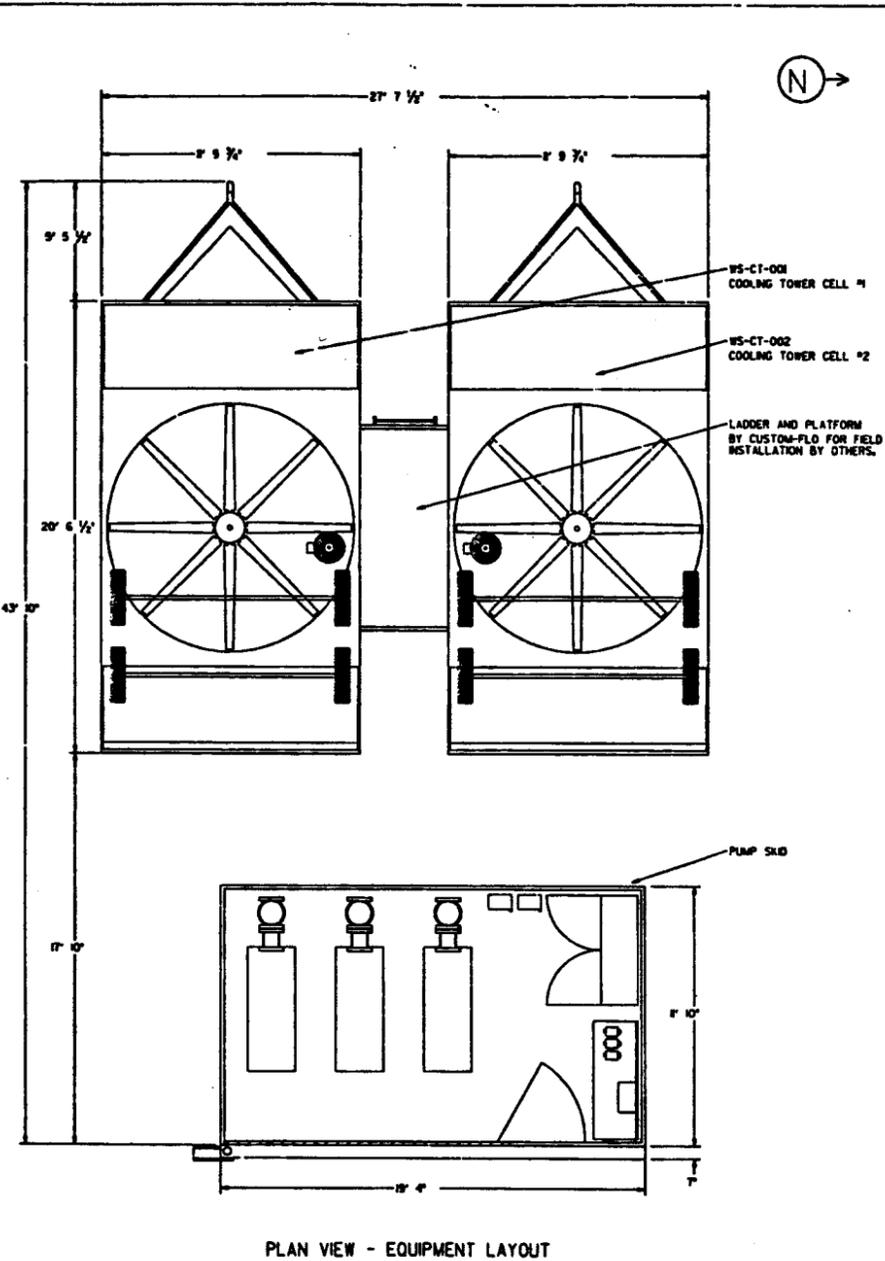
AS BUILT PER R.E.S. #118		DATE: 6/25/87
<b>UNITED STATES DEPARTMENT OF ENERGY FIBER MATERIALS PRODUCTION CENTER</b>		
<b>IN VIVO MONITORING FACILITY.</b>		
<b>ARCHITECTURAL FLOOR PLAN ENLARGED FLOOR PLANS &amp; INTERIOR ELEVATIONS</b>		
DATE: 6/25/87	SCALE: 1/8" = 1'-0"	AS NOTED
SIGNATURE: [Signature]		DATE: 6/25/87
PROJECT NO: 53C-8600-A-00198		DATE: 6/25/87

CERTIFIED FOR CONSTRUCTION

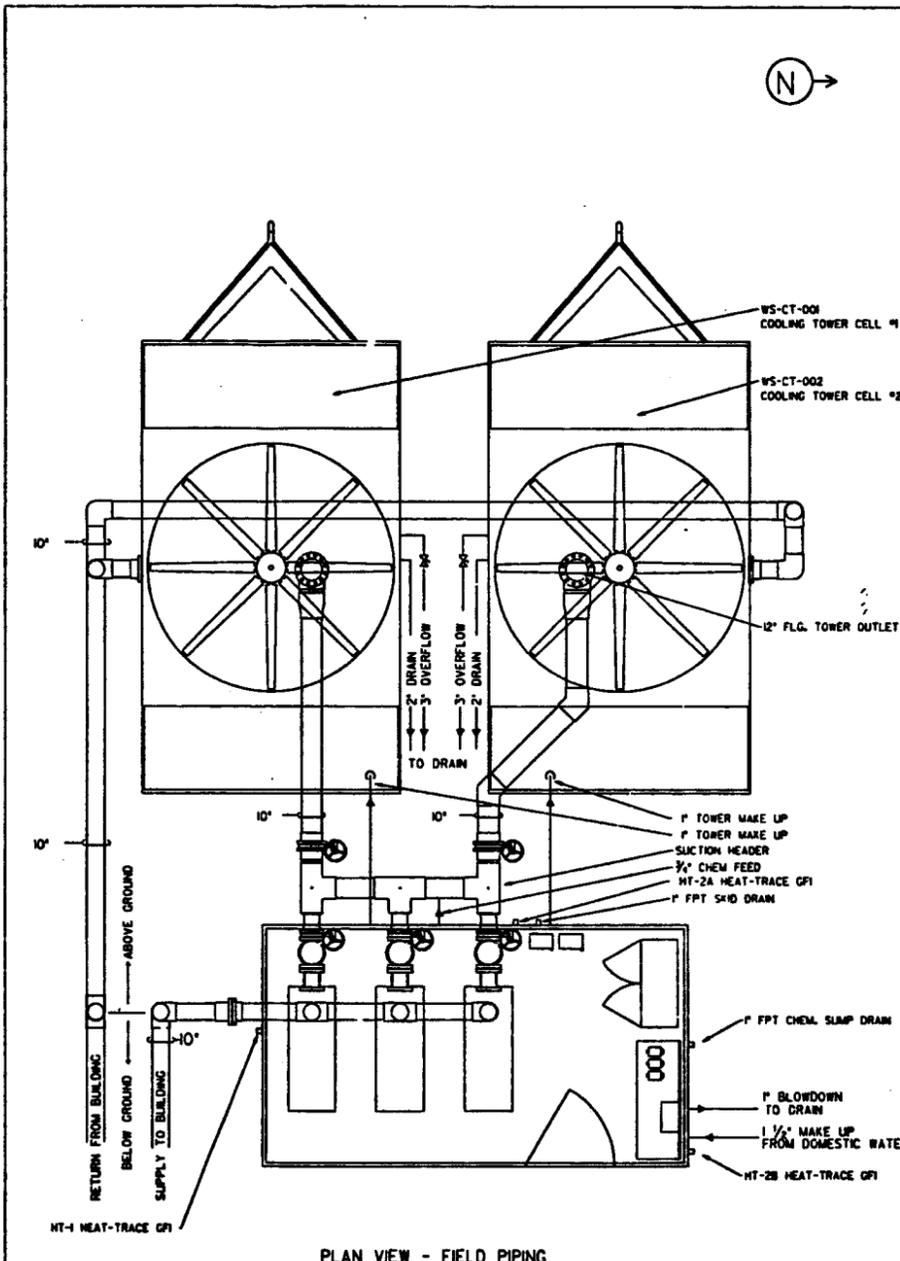
53C-8600-A-00198

000180

4037



PLAN VIEW - EQUIPMENT LAYOUT



PLAN VIEW - FIELD PIPING

- PIPING REQUIRING HEAT-TRACE AND INSULATION (BY OTHERS)**
- SUCTION PIPING FROM TOWERS AND SUCTION HEADER
  - SUPPLY FROM PUMP SKID TO BUILDING
  - RETURN FROM BUILDING TO TOWERS
  - CHEM. FEED FROM PUMP SKID TO SUCTION HEADER
  - MAKE UP FROM CITY TO PUMP SKID
- FIELD PIPING SUPPLIED BY CUSTOM-FLO (INSTALLED BY FDF)**
- SUCTION PIPING FROM TOWERS AND SUCTION HEADER
  - CHEM. FEED FROM PUMP SKID TO SUCTION HEADER
- PIPING SUPPLIED AND INSTALLED BY FDF**
- SUPPLY FROM PUMP SKID TO BUILDING
  - RETURN FROM BUILDING TO TOWERS
  - MAKE UP FROM CITY TO PUMP SKID
  - MAKE UP FROM PUMP SKID TO EACH TOWER
  - EACH TOWER DRAIN
  - EACH TOWER OVERFLOW
  - EACH TOWER BYPASS INCLUDING VALVES
  - BLOWDOWN FROM PUMP SKID TO DRAIN
- NOTES**
1. ALL HEAT-TRACE AND INSULATION IS PROVIDED, INSTALLED AND WIRED BY FDF.
  2. ALL PIPE SUPPORTS EXTERNAL TO THE PUMP SKID ARE SUPPLIED AND INSTALLED BY FDF.
  3. ALL PIPE EXTERNAL TO THE PUMP SKID WILL HAVE 2" FIBERGLASS INSULATION AND ALUMINUM JACKET SUPPLIED AND INSTALLED BY FDF.
  4. TRAILER AXELS WILL BE REMOVABLE, TRAILOR TONGUES WILL NOT BE REMOVABLE.
  5. CHLORINE WILL NOT BE USED OR STORED IN THE PUMP SKID FOR CHEMICAL TREATMENT OR ANY OTHER PURPOSE.

FERMCO	PUMP SKID AND COOLING TOWERS - SITE LAYOUT	SCALE	1/4" = 1'
Custom Flo, Inc.	SUBMITTAL DRAWINGS	DATE	5/23/97
	AS BUILT DRAWINGS	DATE	12/5/97
		NO.	4
		REV.	9
		REV.	C256SITX

PROJECT	FERNALD	EQUIPMENT	PUMP SKID AND COOLING TOWERS - SITE LAYOUT
CLIENT	FERMCO	OPERATOR	RCME
DATE	5/23/97	DESCRIPTION	SUBMITTAL DRAWINGS
NO.	2	DATE	12/5/97
		DESCRIPTION	AS BUILT DRAWINGS
		NO.	4
		REV.	9
		REV.	C256SITX

PROJECT	FERNALD	EQUIPMENT	PUMP SKID AND COOLING TOWERS - SITE LAYOUT
CLIENT	FERMCO	OPERATOR	RCME
DATE	5/23/97	DESCRIPTION	SUBMITTAL DRAWINGS
NO.	2	DATE	12/5/97
		DESCRIPTION	AS BUILT DRAWINGS
		NO.	4
		REV.	9
		REV.	C256SITX

- REF. DNG. S:
- 20H-5500-P-0044
  - 20H-5500-P-0042
  - 20H-5500-P-0043
  - 20H-5500-P-0044
  - 20H-5500-P-0045
  - 20H-5500-P-0046
  - 20H-5500-P-0048

NO.	REVISIONS	DATE	DWG. BY	APPD. NO.	NO.	REVISIONS	DATE	DWG. BY	APPD. NO.	REF. DNG. NO.
0	AS-BUILT				1/98	S/S				20H-5500-P-0040
										20H-5500-P-0043
										20H-5500-P-0043
										20H-5500-P-0043
										20H-5500-P-0043
										20H-5500-P-0043
										20H-5500-P-0043
										20H-5500-P-0043

NOTE: PLANS SHALL BE REVISIONS TO THE ORIGINAL DRAWING. DO NOT REVISE MANUALLY.

CONTRACTOR: FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

DATE: 5/23/97

SCALE: 1/4" = 1'

NO. OF SHEETS: 4

SHEET NO.: 9

REV.: C256SITX

Fernald Environmental Management Project

U.S. DEPARTMENT OF ENERGY

COOLING TOWER SYSTEM VENDOR DRAWING

SCALE: NONE

20H-5500-P-00435 0

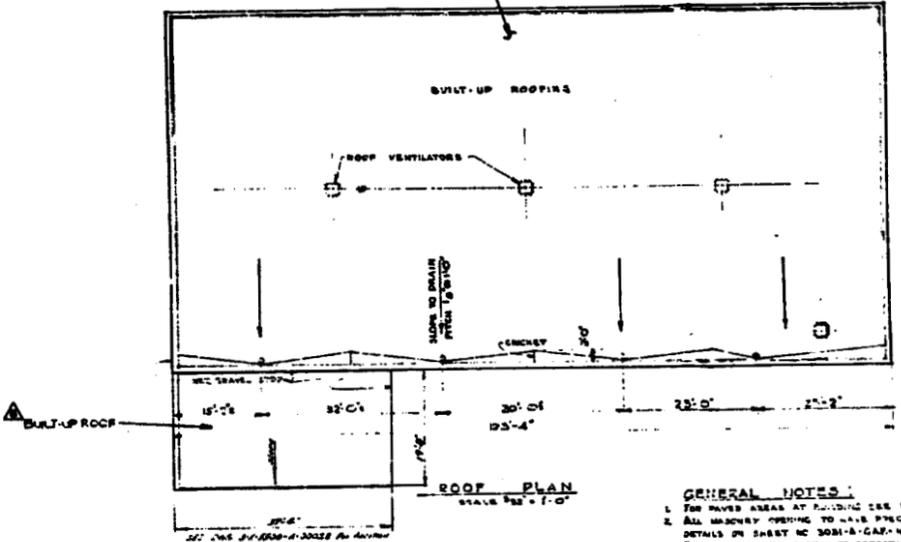
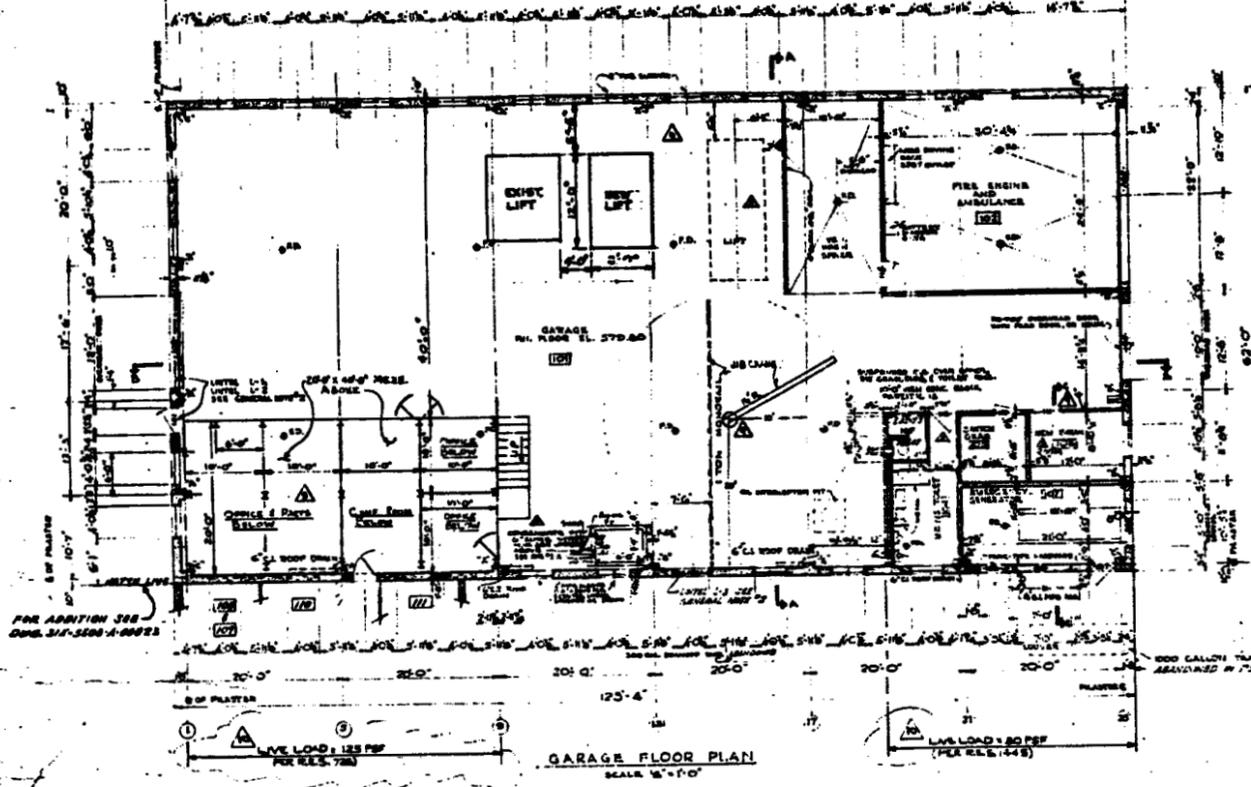
FILE NAME: /RES/554/20H0435.DGN



4037

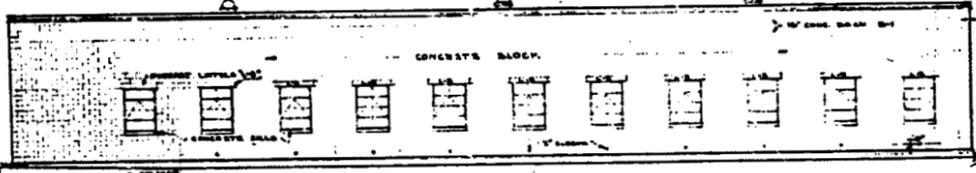


NOTE  
FOAM INSULATION HAS BEEN INSTALLED  
ON MAIN ROOF ONLY

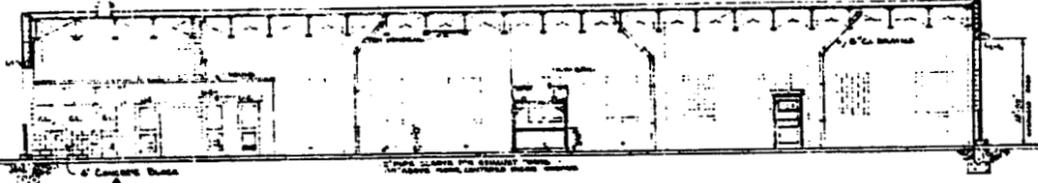


GENERAL NOTES:  
1. FOR PAVED AREAS AT BUILDING SEE PLOT PLAN SHEET 4030-001-A  
2. ALL WORKMANSHIP TO BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS  
3. PLAYERS AREA TO CONFORM TO SPECIFICATIONS AS DETAILED - CHECK TO BE SURE  
4. ALL WORKMANSHIP TO BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS

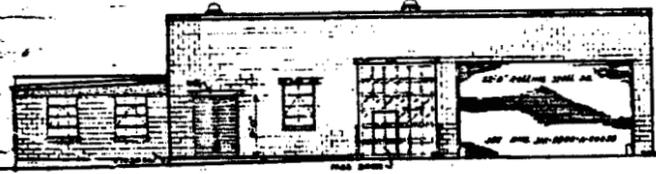
FOR INFORMATION ONLY  
CADD SERVICES



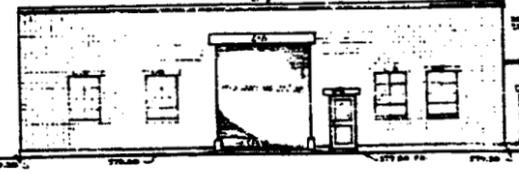
WEST ELEVATION  
SCALE 1/4\"/>



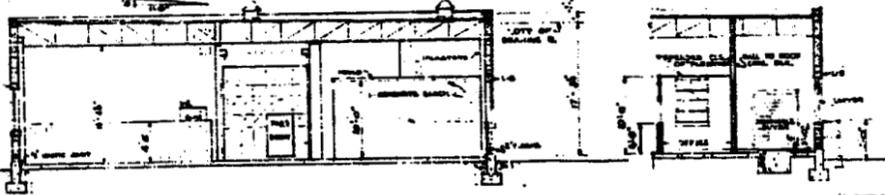
SECTION AB  
SCALE 1/4\"/>



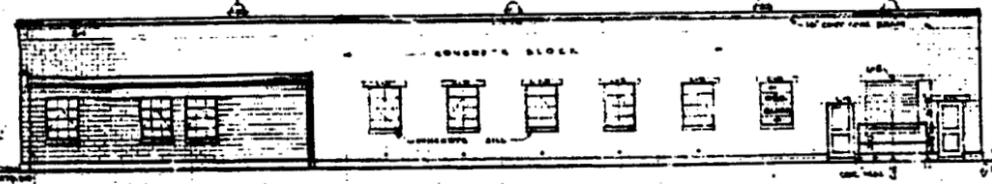
NORTH ELEVATION  
SCALE 1/4\"/>



SOUTH ELEVATION  
SCALE 1/4\"/>

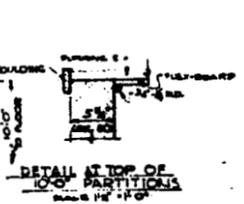


SECTION AA  
SCALE 1/4\"/>



EAST ELEVATION  
SCALE 1/4\"/>

INDEX TO ABBREVIATIONS  
F.D. FLOOR DRAIN  
E.W.C. ELECTRIC WATER CUPPLER  
F.G. FINISHED GROUND  
O.S.G. OBTAINABLE GLASS  
D.S.S. DOUBLE STRENGTH S QUALITY  
MET. METAL  
CON. CONCRETE



DETAIL AT TOP OF  
PARTITION  
SCALE 1/2\"/>

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDED LIVE LOADS		
2	ADDED LIFT JOBS		
3	ADDED NOTES		
4	ADDED NOTES		
5	ADDED NOTES		
6	ADDED NOTES		
7	ADDED NOTES		
8	ADDED NOTES		
9	ADDED NOTES		
10	ADDED NOTES		

REFERENCE DRAWINGS

TITLE	DWG. NO.	DATE
PLANS		
ELEVATIONS		
SECTIONS		
DETAILS		

UNITED STATES ATOMIC ENERGY COMMISSION  
NEW YORK OPERATIONS OFFICE  
CONTRACT NO. AT (20-1)1145  
FEDERAL MATERIAL PRODUCTION CENTER  
FERNALD AREA  
GARAGE C-1  
ARCHITECTURAL LAYOUT

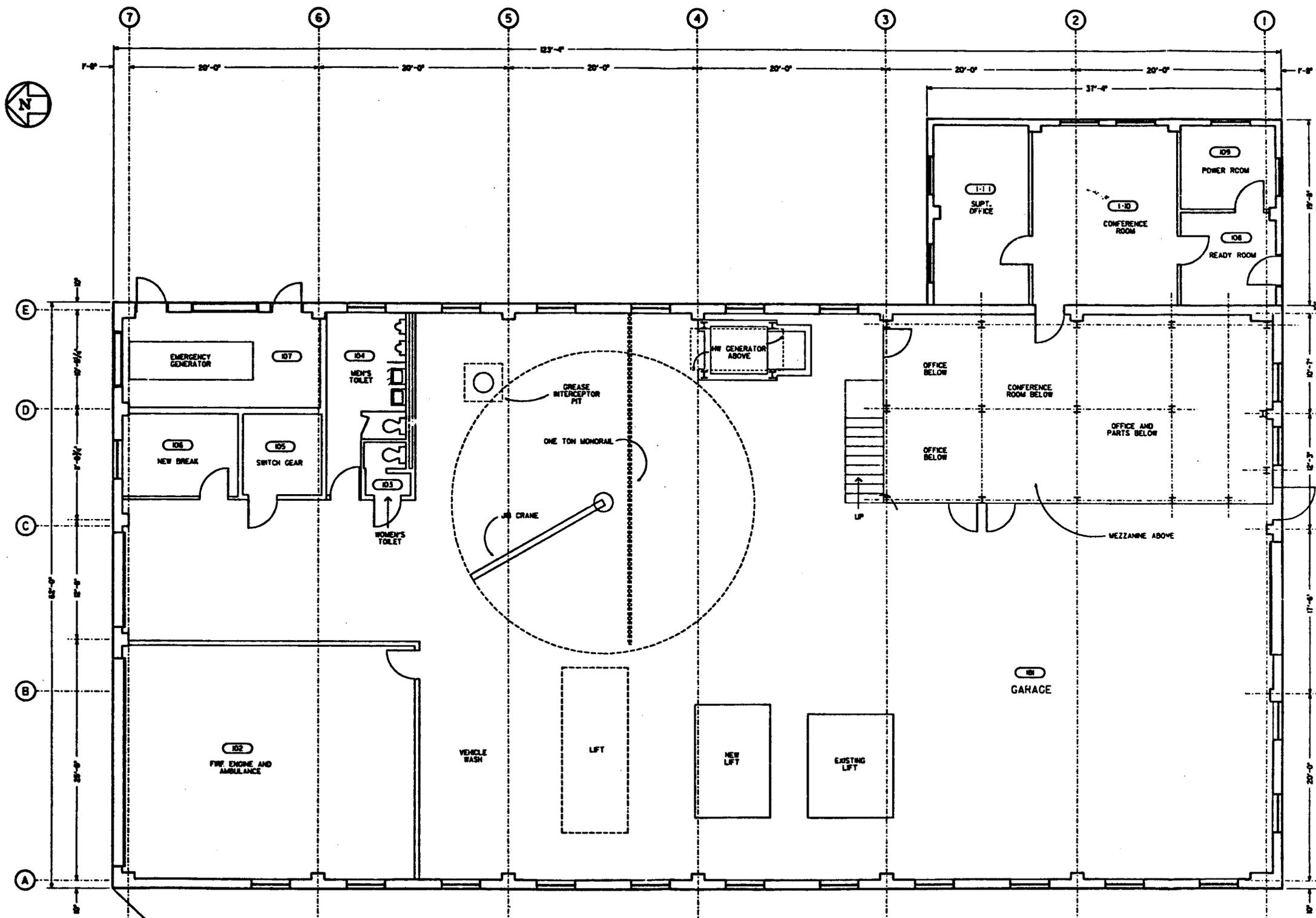
APPROVED BY  
U.S. Atomic Energy Commission  
New York Operations Office  
DEPT. OF ENERGY  
APR 11 1951

INDEX CODE  
SIX 5115 100013

GEORGE A. FULLER CO.  
ARCHITECTS  
100 N. 4TH ST.  
PHILADELPHIA 5, PA.

1000 4 2001

000183



FOR INFORMATION ONLY  
CADD SERVICES

FLOOR PLAN  
FM FL. EL. 579'-9.5"

000184

NO.	REVISIONS	DATE	DRAWN BY	APPROD. NO.	NO.	REVISIONS	DATE	DRAWN BY	APPROD. NO.	REF. DWG. NO.
2	UPDATE FLOOR PLAN		WPE	WET	GEP					
1	REDRAWN ON CAD		WPE	S.L.S.	G.E.P.					
0	DRAWN BY PBT-CO ARCHITECTS/PLANNERS									

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

APPROVALS	
DESIGNED BY	WPE
CHECKED BY	WPE
APPROVED BY	WPE

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

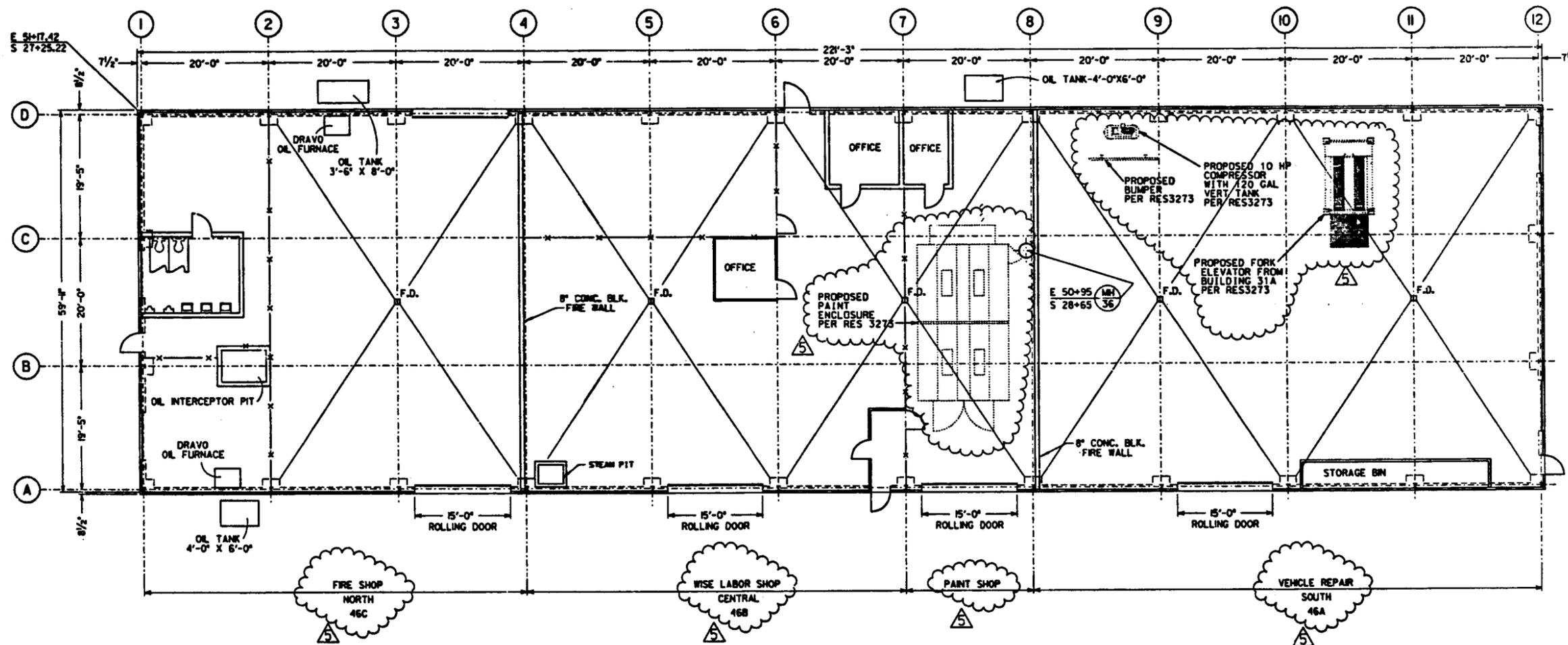
BUILDING 3  
ENGINE HOUSE AND GARAGE  
FLOOR PLAN  
1/4" = 1'-0"  
31X-5500-A-00051 2





FOR INFORMATION ONLY  
CADD SERVICES

4037



NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REF. DWG. NO.
5	UPDATED & ADDED RES3273 ITEMS		JW/B	MRF	GEP					
4	UPDATED		VS/S	SJS	GEP					
3	UPDATED		VS/S	SJS	GEP					
2	UPDATE FLOOR PLAN		ME/R	MET	GEP					
1	REDRAWN ON CAD		JW/B	SJS	GEP					
0	DRAWN BY POT+CO ARCHITECTS/PLANNERS									

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

CONFIGURATION	MANAGEMENT	DATE

APPROVALS	
CIVIL & STR.	SAFETY ENG.
ELECTRICAL	MAINTENANCE
ENGINEER	O.A.
ENVIRONMENT	FIRE PROTECT.
MECHANICAL	RISK MANAGE.
	SECURITY
	CM
CHECKED	BY
APPROVED	DATE

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

BUILDING 46 EL. 580'-0"  
HEAVY EQUIPMENT BUILDING  
FLOOR PLAN  
1/8" = 1'-0"  
46X-5500-A-00039 5  
DATE: 0-22-90  
DRAWN: LJS  
FILE NAME: /FLOOR/46.DGN

4037

**APPENDIX E**

**PHOTOGRAPHS**

Photographs were compiled for the Administration Complex D&D project along with reference descriptions that relate the subject and camera angle. The Building/Component/Location for each photograph is identified below:

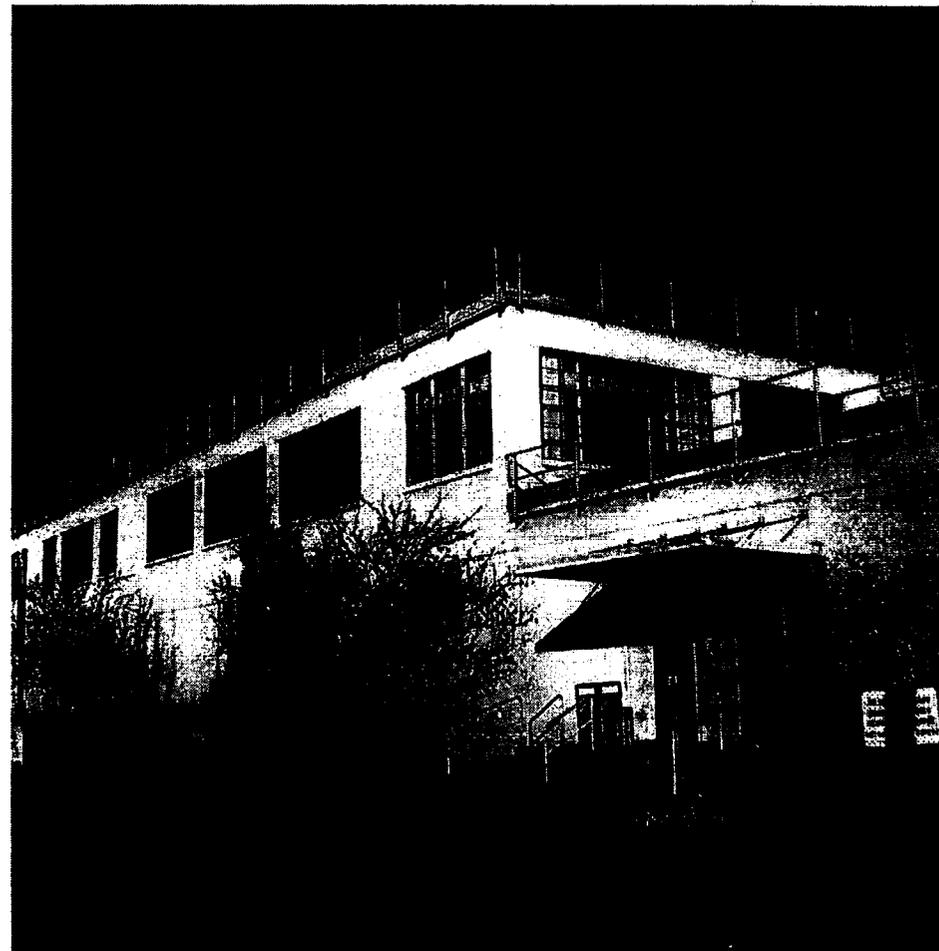
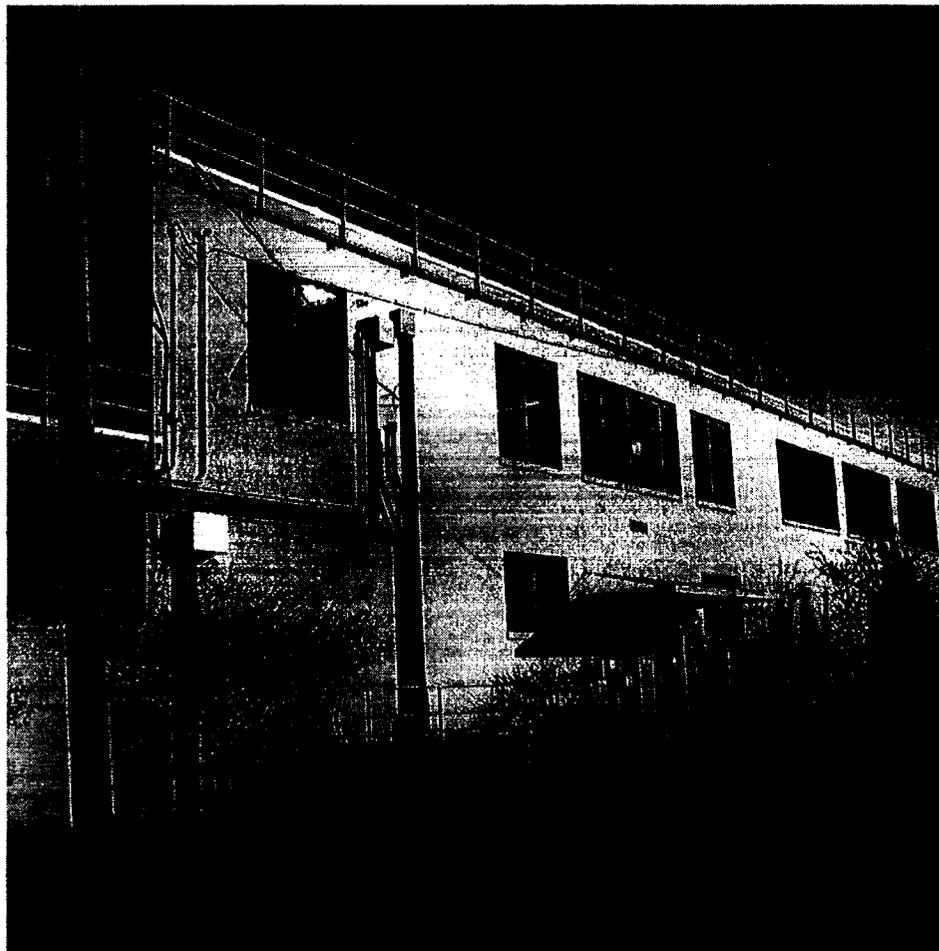
**TABLE E-1 Photographs**

<b>FEMP NEGATIVE NUMBER</b>	<b>BUILDING/COMPONENT</b>	<b>LOCATION</b>
7702-D06	11 - Services Building	Exterior - Southwest
7702-D07	11 - Services Building	Exterior - Southeast
7702-D01	14A - Administration Building	Exterior - Southwest
7702-D10	14A - Administration Building	Exterior - Southeast
7565-D10	53A - Health & Safety Building	Exterior - South
7565-D07	53A- Health & Safety Building	Exterior - North
7565-D09	53A - Health & Safety Building Atrium	Exterior - South
7565-D11	53B - In-Vivo Building	Exterior - Southeast
7702-D22	14B - EOC Generator Set	Exterior
7702-D21	20K - Administration Area Cooling Towers	Exterior - Southeast
7702-D14	31A - Engine House Garage	Exterior - Northwest
7702-D15	31A - Engine House Garage	Exterior - Southwest
7702-D13	46 - Heavy Equipment Building	Exterior - Northwest
7702-D18	46 - Heavy Equipment Building	Exterior - Southwest

000187

**This page left intentionally blank.**

# 11 - SERVICES BUILDING



FEMP Neg. No. 7702-D06

FEMP Neg. No. 7702-D07

000189

7305.1

11/01



**FERNALD**

Environmental Management Project

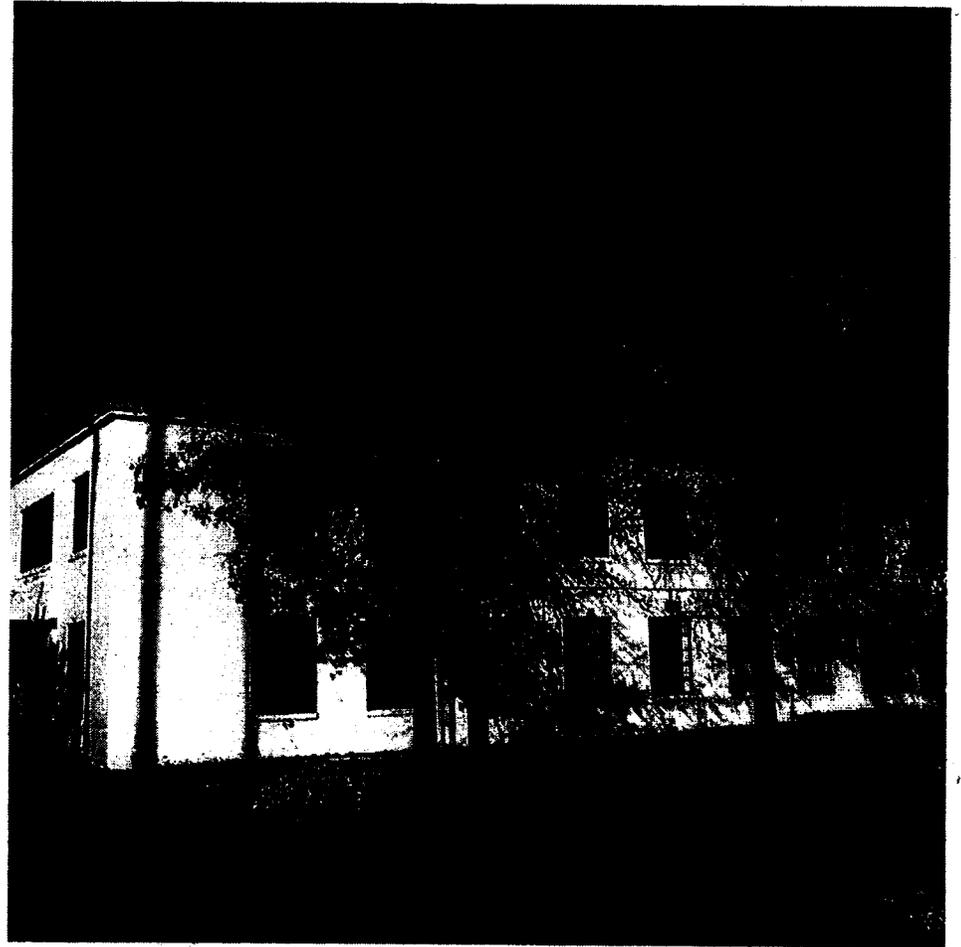
4037

000190

# 14A - ADMINISTRATION BUILDING



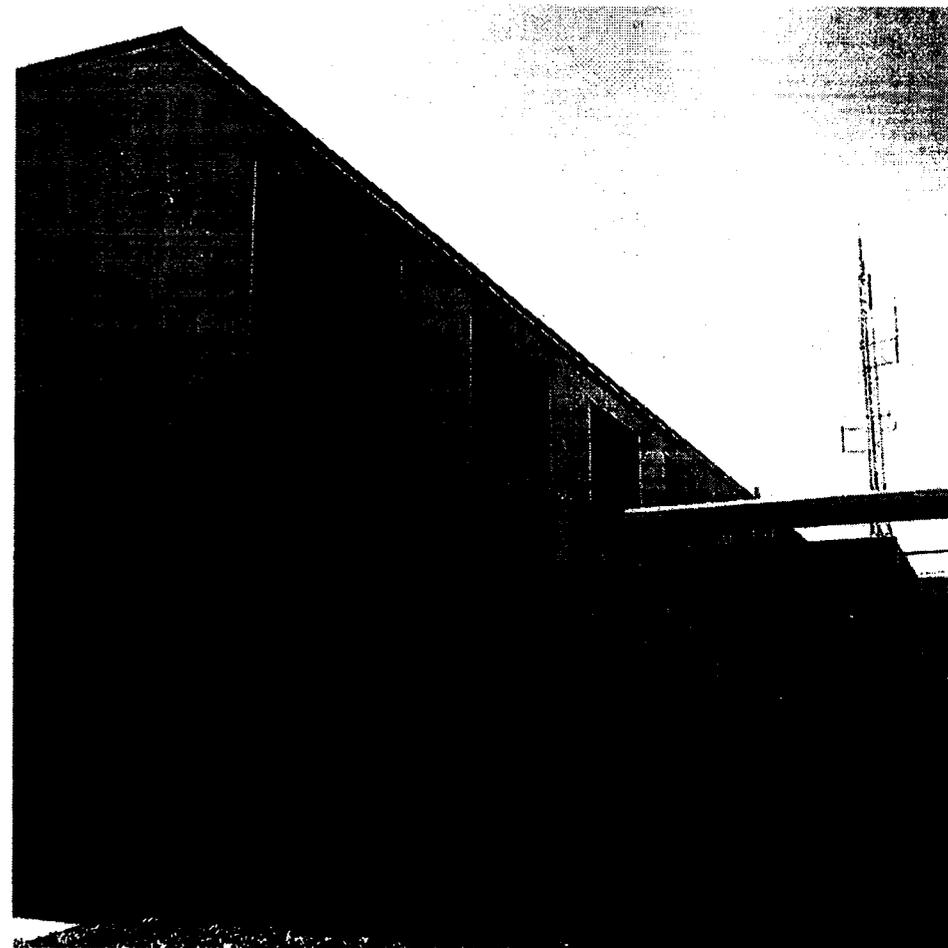
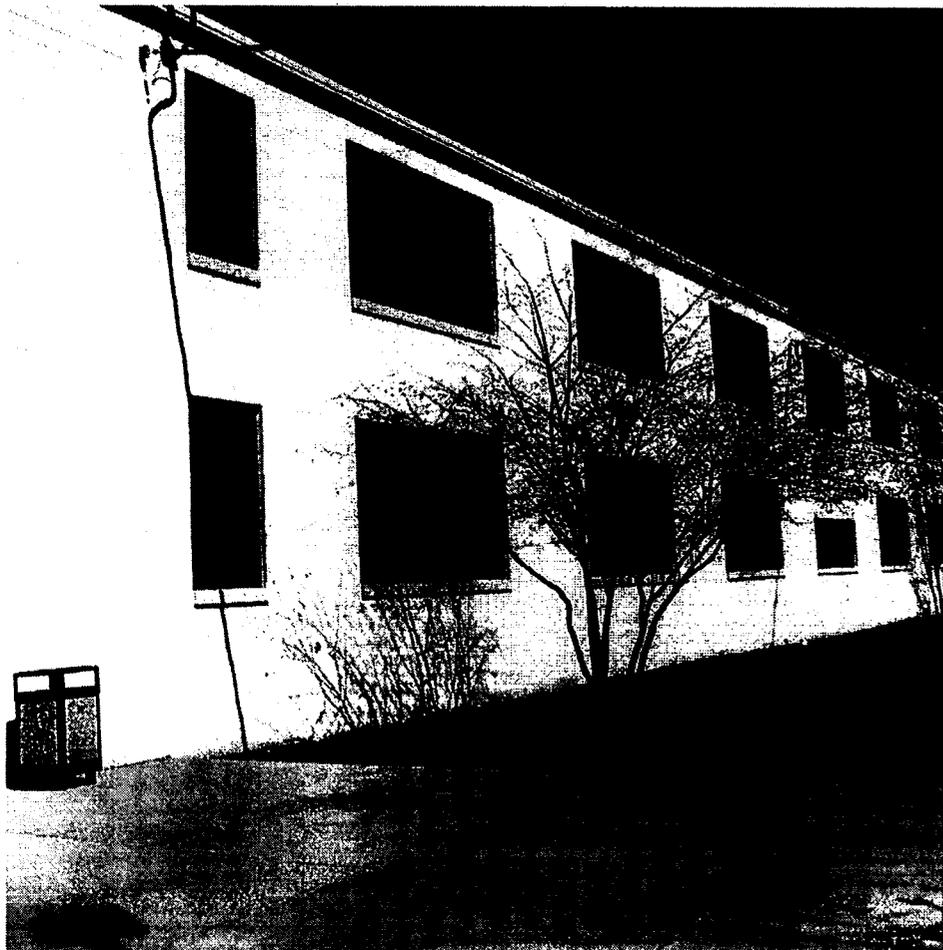
FEMP Neg. No. 7702-D01



FEMP Neg. No. 7702-D10



# 53A - HEALTH & SAFETY BUILDING



FEMP Neg. No. 7565-D10

FEMP Neg. No. 7565-D07

000191

7305.3

11/01



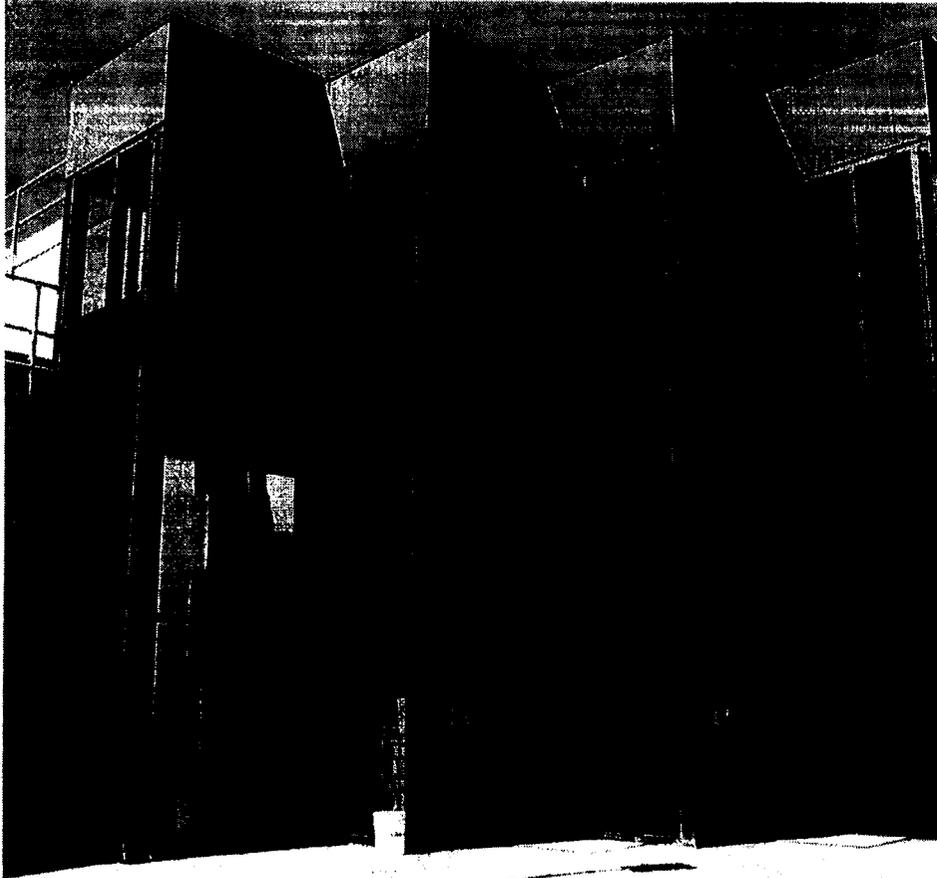
**FERNALD**

Environmental Management Project

4037

000192

# 53A - HEALTH & SAFETY ATRIUM



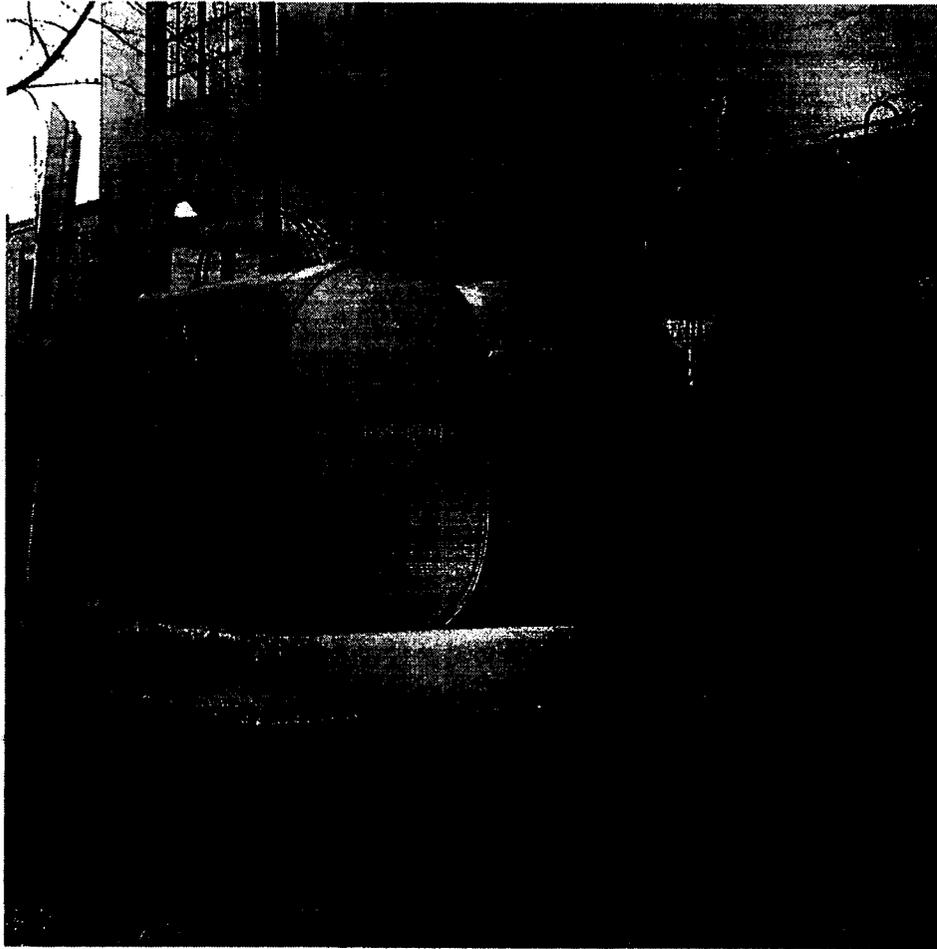
FEMP Neg. No. 7565-D09

# 53B - IN-VIVO BUILDING



FEMP Neg. No. 7565-D11

# 14B - EOC GENERATOR SET



# 20K - ADMINISTRATION AREA COOLING TOWERS



FEMP Neg. No. 7702-D22

FEMP Neg. No. 7702-D21

000193

7305.5

11/01



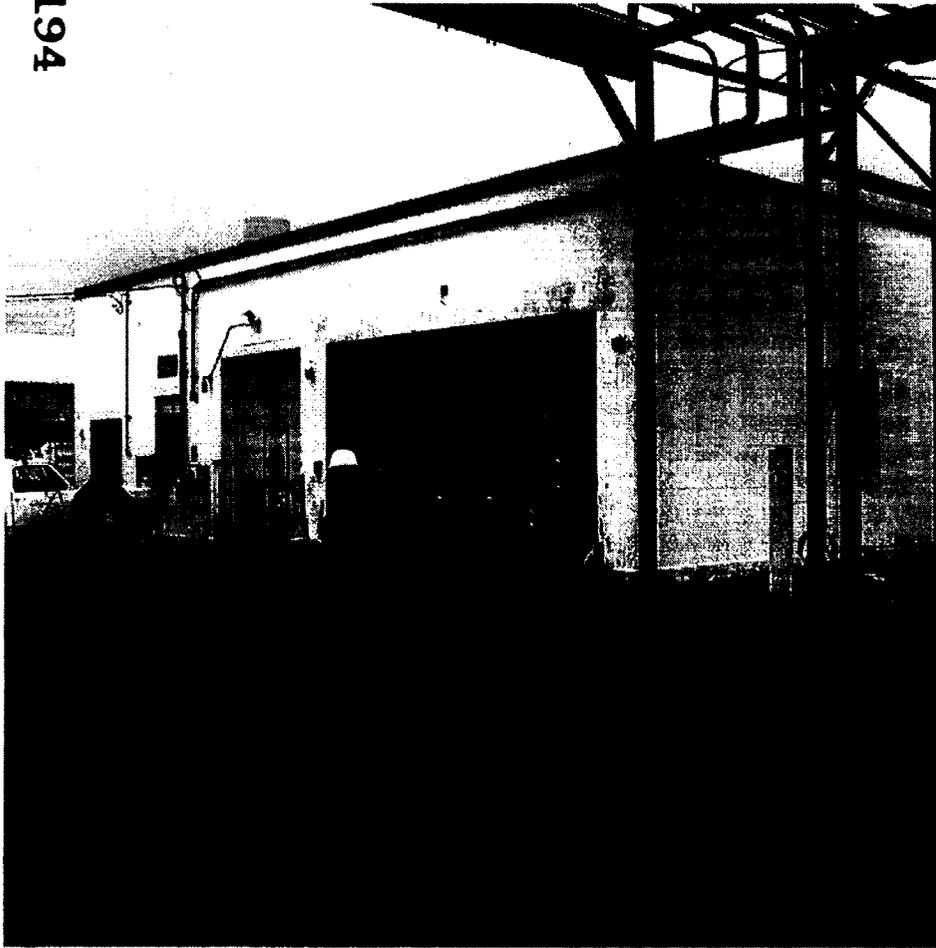
## FERNALD

Environmental Management Project

4037

000194

# 31A - ENGINE HOUSE GARAGE



FEMP Neg. No. 7702-D14



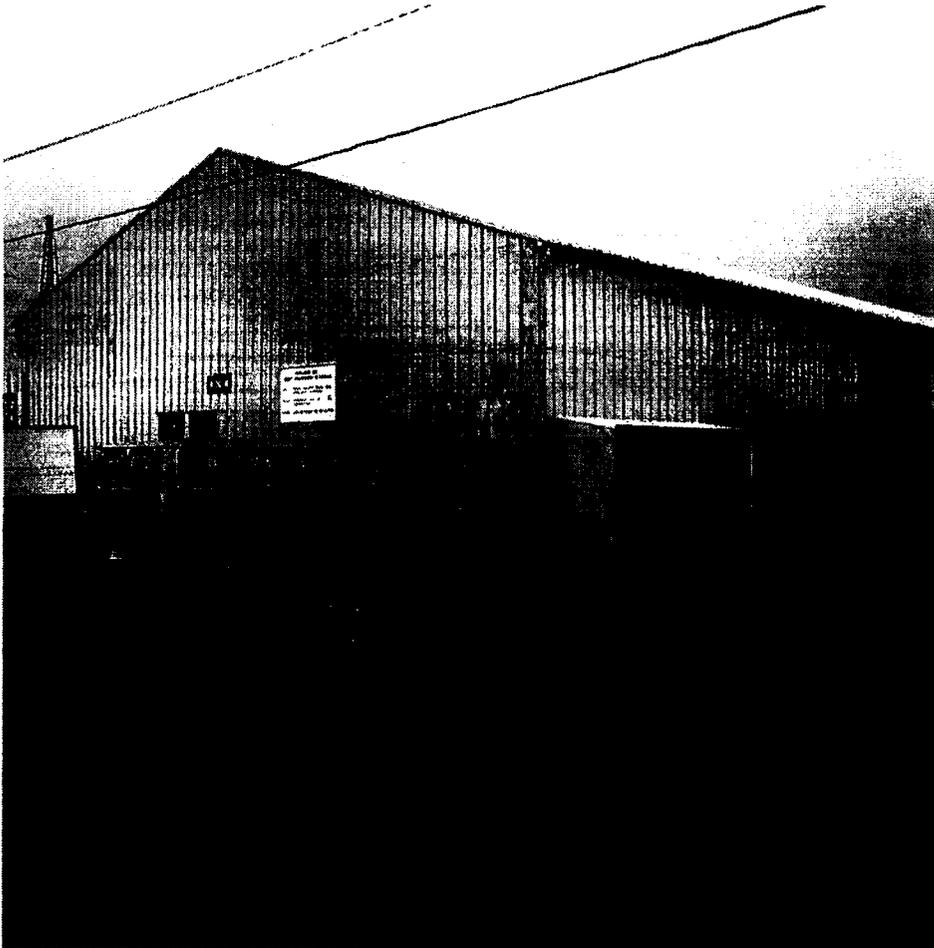
FEMP Neg. No. 7702-D15



**FERNALD**

Environmental Management Project

# 46 - HEAVY EQUIPMENT BUILDING



FEMP Neg. No. 7702-D13

FEMP Neg. No. 7702-D18

000195

7305.7

11/01



4037

Page 7

**This page left intentionally blank.**

**000196**