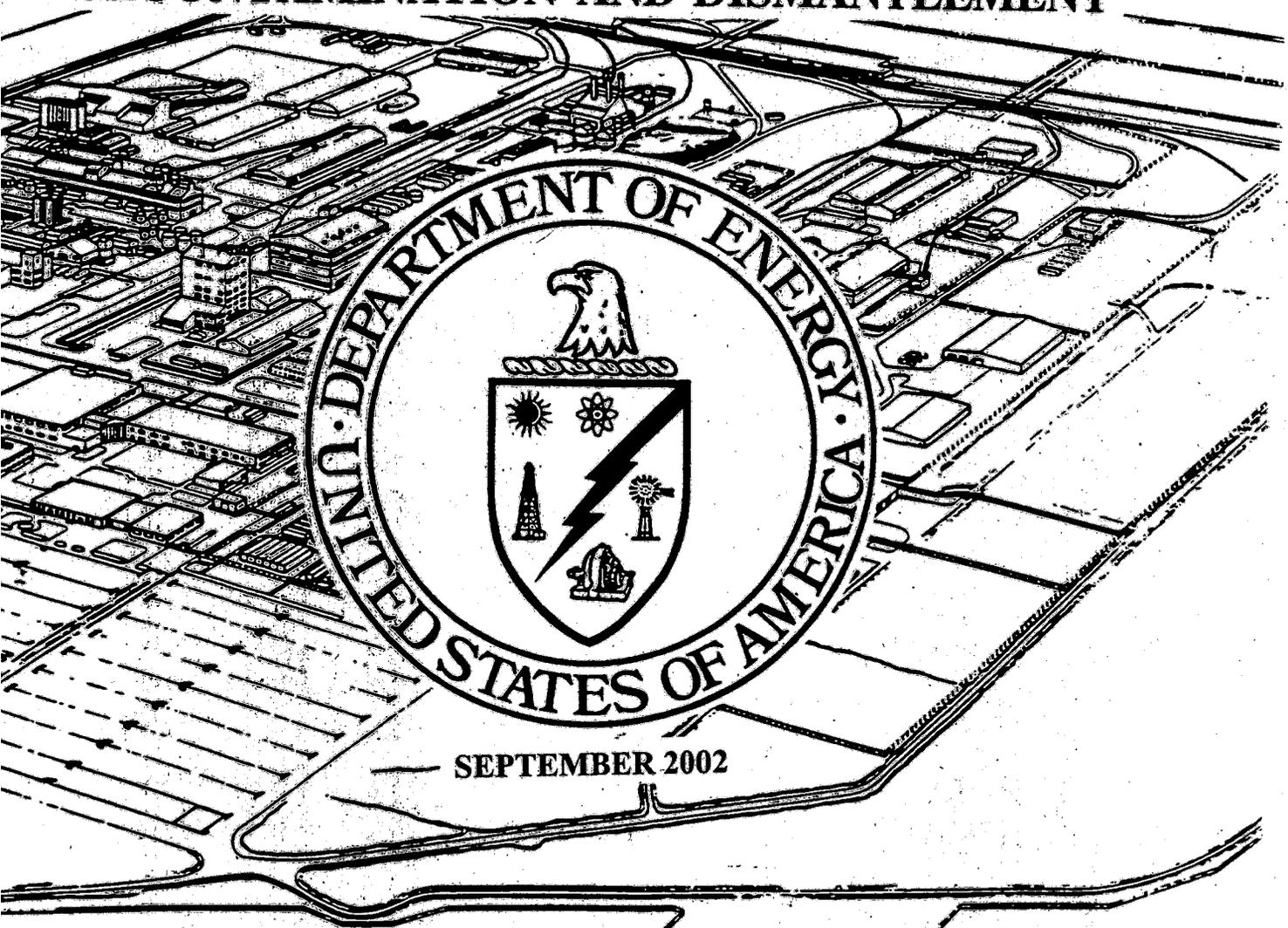


OPERABLE UNIT 3

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



SEPTEMBER 2002

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

0C0001

FINAL

OPERABLE UNIT 3

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



FEBRUARY 2003

FERNALD CLOSURE PROJECT
FERNALD, OHIO

U. S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

FINAL

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RECORD OF ISSUE REVISION

<u>DATE</u>	<u>REVISION NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
9/26/02	Rev. 0	Issued Implementation Plan.
2/03	Rev. 0, PCN1	Issued revised Figure 4-1, MSS Phase II D&D Project Remediation Schedule. The revised schedule has been modified to support Fernald site closure (as defined in the Fernald Closure Contract) by December 31, 2006.

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NOTATION

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Abbreviations, Acronyms, and Initials

ACM	asbestos-containing material(s)
AMS	air monitoring station
ARP	Aquifer Restoration Project
AWWT	Advanced Waste Water Treatment System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CFR	Code of Federal Regulations
CMU	concrete masonry unit
DOE	United States Department of Energy
D&D	decontamination and dismantlement
FEMP	Fernald Environmental Management Project
HEPA	high-efficiency particulate air [filter]
HVAC	heating, ventilating, and air conditioning
HWMU	Hazardous Waste Management Unit
IEMP	Integrated Environmental Monitoring Plan
ISO	End Loading Container Sea Land Boxes
IIMS	Integrated Information Management System
MDCR	Minimum Detectable Count Rate
MEF	Material Evaluation Form
MSCC	Material Segregation and Containerization Criteria
MSS	Miscellaneous Small Structures
N/A	not applicable
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
NTS	Nevada Test Site
Ohio EPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU3	Operable Unit 3
PCB(s)	polychlorinated biphenyl(s)
PCDF	permitted commercial disposal facility
PCR	Project Completion Report
PPE	personal protective equipment
PWID	Project Waste Identification and Disposition [form]
RCRA	Resource Conservation and Recovery Act, as amended
RD/RA	remedial design/remedial action

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

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RI/FS	remedial investigation/feasibility study
ROB	roll-off box
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SDFP	Soils Disposal Facility Project
STP	Sewage Treatment Plant
SWIFTS	Site-Wide Waste Information, Forecasting and Tracking System
SWMB	Small White Metal Box
TSI	thermal system insulation
U.S. EPA	United States Environmental Protection Agency
WAC	Waste Acceptance Criteria
WPRAP	Waste Pits Remedial Action Project
WWTS	waste water treatment system

Units of Measure

cm.	centimeter(s)
cm ²	square centimeter(s)
dpm	disintegration(s) per minute
ft.	foot (feet)
ft ²	square foot (feet)
ft ³	cubic foot (feet)
mrem	millirem(s)
pCi/m ³	picocurie(s) per cubic meter

Chemical Symbols

U	uranium
U-235	uranium-235

1.0 INTRODUCTION

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1.1 Project Statement

This implementation plan represents the remedial design documentation for the above-grade decontamination and dismantlement (D&D) of thirty-nine (39) additional miscellaneous small structures along with the site-support trailers (Component G-007, various locations) and railroad tracks (Component G-001, various locations) which are located at the U.S. Department of Energy (DOE) Fernald Environmental Management Project (FEMP) in Fernald, Ohio. The use of implementation plans for remedial design documentation was originally defined in the Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (DOE 1997a). These structures are being included in Phase II of the Miscellaneous Small Structures Decontamination & Dismantling (MSS D&D) Project because they are small in scope, are relatively easy to D&D and can use available funding to expedite the clean-up of the site.

The purpose of this document is to summarize the remedial design of the MSS Phase II D&D Project in the manner (i.e., format and content) approved by the U.S. Environmental Protection Agency (U.S.EPA) and the Ohio Environmental Protection Agency (Ohio EPA) through the approval of the OU3 Integrated RD/RA Work Plan and previously approved above-grade D&D implementation plans.

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

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

1.2 Scope of Work

The MSS Phase II D&D Project includes the following major activities:

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

The following two components remaining from the MSS Implementation Plan 1751-PL-0001, Rev. 0 (DOE 1998) are included in this implementation plan for the MSS Phase II D&D Project:

- Component 60 – Quonset Hut 1
- Component 61 – Quonset Hut 2

Because these components were fully described in the MSS D&D Implementation Plan, 1751-PL-0001, other than in Section 2.1 they will not be discussed any further in this implementation plan.

The following thirty-nine (39) components are included in the MSS Phase II D&D Project:

- Component 12E – Maintenance Laborer Storage Building
- Component 12F – Maintenance Laborer Storage Building
- Component 12G – Restored Area Maintenance Building
- Component 16A – Main Electrical Station
- Building 16B – Electrical Substation
- Component 16C – Electrical Panels And Transformer
- Building 16D – Main Electrical Switch House
- Component 16E – Main Electrical Transformer
- Component 16F – Trailer Substation #1
- Component 16G – Trailer Substation #2
- Component 16H – 10 Plexes North Substation
- Component 16J – 10 Plexes South Substation
- Component 16M – N78-1 Substation
- Component 16N – N93-1 Substation
- Component 16P – N93-2 Substation
- Component 21A – Haul Road Wheel Wash Facility
- Component 21C – Equipment Wash Facility
- Component 22C – Truck Scale
- Component 22G – Main Gate Truck Scale
- Component 23A – Meteorological Tower
- Component 24C – Locomotive Maintenance Building
- Component 24D – Railroad Inspection Pit
- Component 25C – Sewage Lift Station Building
- Component 25J – 10 Plexes Sanitary Lift Station
- Component 25K – New Sewage Treatment Plant Complex
- Component 26C – Main Electrical Substation Riser House
- Component 28E – Guard Post Relocated to the New Rail Yard Area
- Component 28G – Guard Post Relocated and Renamed to T-327
- Component 28H – Guard Post East Of Detention Basin
- Component 28J – Security Checkpoint
- Component 28K – Security Checkpoint
- Component 28L – Guard Post On North Construction Access Road
- Component 28M – Guard Post Relocated to South Waste Units Area
- Component 31B – Old Truck Scale Foundation and Out Building
- Component 50 – Maintenance Storage Building
- Component 52A – RTRAK Building
- Component 52B – ASTD SDFP Building
- Component 82B – Fuel Loading/Unloading Facility
- Component TS-8 – Tension Support Structure #8

Eight components identified as part of the Electrical Substation Complex in the OU3 Integrated RD/RA Work Plan will be dismantled under the MSS Phase II D&D Project. This change is a result of the overall D&D strategic site review that was conducted to integrate Waste Generator Services activities, Soil Excavation activities and D&D activities to maximize utilization of facilities and resources. These components include Component 16A (Main Electrical Station), Building 16B (Electrical Substation), Component 16C (Electrical Panels And Transformer), Building 16D (Main Electrical Switch House), Component 16E

(Main Electrical Transformer), Component 16F (Trailer Substation #1), Component 16G (Trailer Substation #2) and Component 26C (Main Electrical Substation Riser House). The other components identified as part of the Electrical Substation Complex in the OU3 Integrated RD/RA Work Plan will be dismantled under the Administration Complex D&D project. These components include Building 31A (Engine House Garage) and Building 46 (Heavy Equipment Building). As a result, the Electrical Station Complex Implementation Plan scheduled for regulatory agencies submittal in July 2003 (per the Integrated RD/RA Work Plan) is no longer necessary.

Four components identified as part of the Administration Complex in the OU3 Integrated RD/RA Work Plan will be dismantled under the MSS Phase II D&D Project. This change is a result of the overall D&D strategic site review that was conducted to integrate Waste Generator Services activities, Soil Excavation activities and D&D activities to maximize utilization of facilities and resources. These components include 16H, (10-plexes North Substation), 16J, (10-plexes South Substation), 25J (10-plexes Sanitary Lift Station), and 28G (Guard Post relocated and renamed to T-327)

Component 21B, OSDF Wheel Wash Facility (also known as the Equipment Wash Facility) was slated for demolition under the MSS Phase II D&D Project. However, Component 21B demolition was completed in September 2001 by the On-Site Disposal Facility (OSDF) Project in preparation for the construction of Cell 4. The Component 21B debris was placed in Cell 2 as it was generated.

Site-support trailers (Component G-007) located throughout the FEMP will be dispositioned under the MSS Phase II D&D Project. Due to constantly changing site conditions and the installation of new trailers, the final number of trailers to be dispositioned under the MSS Phase II D&D Project is currently unavailable. Trailers currently scheduled for disposition under the MSS Phase II D&D Project are identified in Appendix F. All trailers dispositioned under the MSS Phase II D&D Project will be identified in the cumulative MSS D&D Final Project Completion Report.

Railroad tracks (Component G-001) located throughout the FEMP will be dismantled under the MSS Phase II D&D Project. All railroad track dismantled under the MSS Phase II D&D Project will be identified in the cumulative MSS D&D Final Project Completion Report.

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

The contractor will be authorized to commence work through the issuance of a Task Order. Based upon the actual sequencing of work as discussed in Section 2.1, a Task Order may

include the D&D of more than one component (however, there are no plans for any given component to be covered by more than one Task Order).

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

1.3 Plan Organization

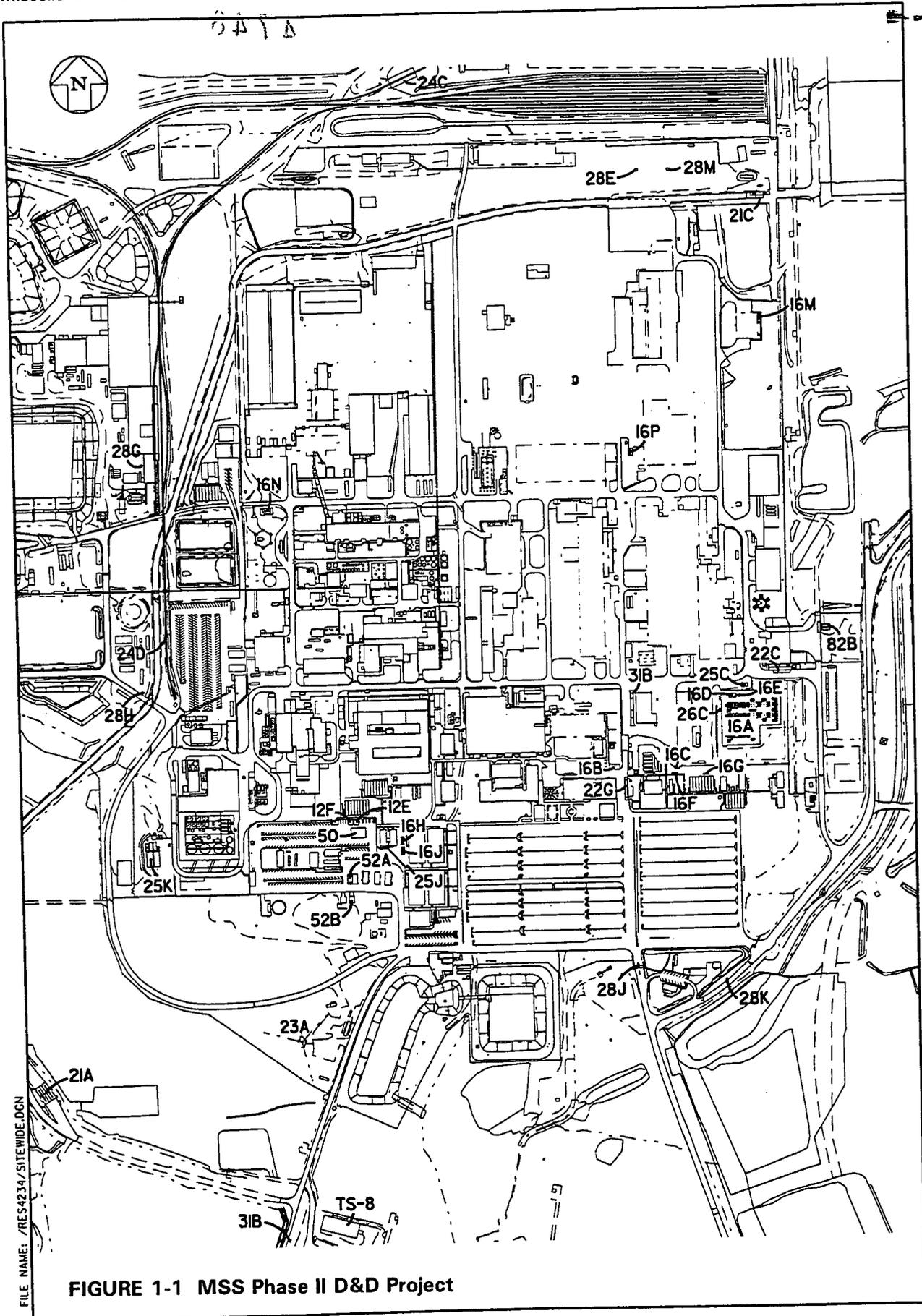
This implementation plan is comprised of five sections and six appendices. Section 1 contains the remedial action project statement, scope of work, an overview of this implementation plan, and a brief description of the MSS Phase II D&D Project. Section 2 describes the overall approach to implementing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

Appendix A contains a discussion of potential environmental and occupational sampling for this project, based on the assumptions in the Sampling and Analysis Plan (SAP) contained in Appendix D of the OU3 Integrated RD/RA Work Plan, and on the remediation requirements presented in this implementation plan. Appendix B provides a summary of the evaluation of material disposition alternatives for accessible metals and a tabulation of the cost comparison between the disposition alternatives. Appendix C provides the project work scope conditions/specifications used for developing the contractor work scope document. Appendix D provides copies of available architectural drawings, which show floor plans and elevation views of some of the MSS Phase II D&D Project components. Appendix E contains selected photographs of notable features of, within, or around all the components. Appendix F identifies the site-support trailers currently scheduled for dismantlement under the MSS Phase II D&D Project.

1.4 Location of the MSS Phase II D&D Project Area

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

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FILE NAME: /RES4234/SITELINE.DGN

FIGURE 1-1 MSS Phase II D&D Project

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2.0 GENERAL PROJECT REMEDIATION APPROACH

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

2.1 Sequencing of Remediation

Based on the most recent D&D Projects schedule, the proposed sequencing of the MSS Phase II D&D Project is as follows:

- Component 16M – N78-1 Substation
- Component 16P – N-93-2 Substation
- Component 16N – N-93-1 Substation
- Component 25C – Sewage Lift Station Building
- Component 16C – Electrical Panels and Transformer
- Component 16F – Trailer Substation #1
- Component 16G – Trailer Substation #2
- Component 28E – Guard Post Relocated to New Rail Yard Area
- Building 16B – Electrical Substation
- Component 28G – Guard Post Relocated and Renamed to T-327
- Component 24C – Locomotive Maintenance Building
- Component 24D – Railroad Inspection Pit
- Component 60 – Quonset Hut 1
- Component 61 – Quonset Hut 2
- Component 28J – Security Checkpoint
- Component 16A – Main Electrical Substation
- Building 16D – Main Electrical Switch House
- Component 16E – Main Electrical Transformer
- Component 26C – Main Electrical Substation Riser House
- Component 28K – Security Checkpoint
- Component 82B – Fuel Loading/Unloading Facility
- Component 22C – Truck Scale
- Component 31B – Old Truck Scale Foundation and Out Building
- Component 22G – Main Gate Truck Scale
- Component 28M – Guard Post Relocated to New Rail Yard Area
- Component 12G – Restored Area Maintenance Building
- Component 52A – RTRAK Building
- Component 52B – ASTD SDFP Building
- Component 28H – Guard Post East of Detention Basin
- Component 23A – Meteorological Tower
- Component 12E – Maintenance Laborer Storage Building
- Component 12F – Maintenance Laborer Storage Building
- Component 28L – Guard Post on North Construction Road Access
- Component TS-8 – Tension Support Structure #8
- Component 50 – Maintenance Storage Building
- Component 16H – 10 Plexes North Substation

- Component 16J – 10 Plexes South Substation
- Component 25J – 10 Plexes Sanitary Lift Station
- Component 25K – New Sewage Treatment Plant Complex
- Component 21A – Haul Road Wheel Wash Facility
- Component 21C – Equipment Wash Facility

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The above is for general planning purposes only and does not include sequencing demolition for the site support trailers or railroad tracks (G-001). There are many reasons why this sequencing could change, such as the level of funding available; the ability to clean and clear various components; etc.

2.2 Characterization of the MSS Phase II D&D Project

Most of the components that make up the MSS Phase II D&D Project housed support operations or served as office space. Historical and recent radiological surveys were obtained to substantiate this information and have been summarized in Table 2-1.

TABLE 2-1 Summary of Radiological Data

Component Number	Alpha Removable (dpm/100 sq. cm.)			Beta-Gamma Removable (dpm/100 sq. cm.)			Beta-Gamma Total (dpm/100 sq. cm.)		
	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size	Avg Value	Max Value	Sample Size
12E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12G (1)									
16A (2)									
16B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16C	<MDCR	<MDCR	10	<MDCR	<MDCR	10	<MDCR	<MDCR	10
16D	<MDCR	<MDCR	15	<MDCR	<MDCR	15	1,000	3,000	15
16E	<MDCR	<MDCR	30	<MDCR	<MDCR	30	4,000	9,000	30
16F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16H	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16M	N/A	N/A	N/A	<MDCR	<MDCR	5	<MDCR	<MDCR	5
16N (1)									
16P	N/A	N/A	N/A	<MDCR	<MDCR	5	<MDCR	<MDCR	5
21A	N/A	N/A	N/A	<MDCR	<MDCR	3	<MDCR	<MDCR	3
21C	N/A	N/A	N/A	<MDCR	<MDCR	5	<MDCR	<MDCR	5
22C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
23A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24C (2)									
24D (2)									
25C	<MDCR	<MDCR	25	<MDCR	<MDCR	25	2,000	22,500	25
25J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
25K (2)									
26C	<MDCR	<MDCR	15	<MDCR	<MDCR	15	1,000	3,000	15
28E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28H	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	Alpha Removable (dpm/100 sq. cm.)			Beta-Gamma Removable (dpm/100 sq. cm.)			Beta-Gamma Total (dpm/100 sq. cm.)		
28K	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
28L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
28M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
31B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
52A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
52B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
82B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
TS-8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N
Trailers (2)									
Railroad Tracks (2)									

Footnotes and General Notes:

(1) Information not available for 12G and 16N at this time.

(2) 16A was not surveyed, as it is comprised of energized 132kV switchgear. 24C, 24D, 25K, trailer facilities and railroad tracks are still in use, so data not provided.

MDCR - Minimum Detectable Count Rate

N/A - Not Applicable

A review of the relevant analytical data generated from the OU3 Remedial Investigation/Feasibility Study (RI/FS), as summarized in Section 3.3.1 of the OU3 Integrated RD/RA Work Plan, revealed that 99 percent of the generated debris from the MSS Phase II D&D Project components contain materials that are acceptable for disposal in the On-Site Disposal Facility (OSDF). Materials to be generated from MSS Phase II D&D Project components are considered low-level radiological waste, which may be disposed in the OSDF provided that other physical OSDF Waste Acceptance Criteria (WAC) are met.

The most significant concerns arising from the review of component characterization data are the health and safety of the workers and containment of radiological contamination from the D&D of the components. In all cases, decontamination of the MSS Phase II components will comply with Specification Section 01517 found in Appendix C.

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

- develop the safety assessment documentation to support the proposed activities;
- enhance the project-specific health and safety requirements and determine potential concerns for worker protection based on the suggested decontamination and dismantlement techniques;
- documentation of expected contamination levels for the Contractor
- determine personnel monitoring requirements;
- air modeling and assessment of potential radiological air emissions; and,
- identify potential gross radiological contamination that will require isolation (enclosure) from the environment during D&D activities.

2.3 Materials Management

Project-specific material management strategies for the MSS Phase II D&D Project are based on the overall material management strategies that were presented in Section 3.3 of the OU3 Integrated RD/RA Work Plan. Management of primary and secondary waste

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materials estimated to be generated during the MSS Phase II D&D Project is discussed in this section.

Waste minimization will be accomplished, in part, by ensuring that equipment and material are unpacked prior to entering the MSS Phase II D&D Project radiologically controlled areas whenever possible. Also, whenever possible, previously contaminated tools will be reused.

2.3.1 Primary Materials Management

"Primary materials" refers to the debris that will be generated by the dismantlement of the components and structures in the MSS Phase II D&D Project areas. During the remedial design, a Project Waste Identification and Disposition form (PWID, see Section 3.3.1 of the OU3 Integrated RD/RA Work Plan for description) was prepared. The PWID identifies all project-generated debris in terms of quantities, characterization, container requirements, and disposition location. Since all debris types have been characterized and documented in a Material Evaluation Form (MEF), supplemental characterization sampling will not be necessary. A Material Segregation and Containerization Criteria form (MSCC: see Section 3.3.1 and Appendix A of the work plan for description and example, respectively) was developed to provide the Contractor with the sizing, segregation and containerization requirements for debris generated on this project.

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

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

2.3.2 Secondary Waste Management

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

It is anticipated that decontamination washwaters will be generated from decontamination of limited areas of component surfaces that exceed facility release limits (discussed in Section 2.5.2) and equipment used by the Contractor during the D&D process. Using high pressure, low volume water spray, it is anticipated up to 10,000 gallons of washwater will be generated if all of the interior surfaces of those components shown in Table 2-1, which appear to exceed facility release limits, are washed. Wastewater will be managed in accordance with the strategies laid out in the OU3 Integrated RD/RA Work Plan. The wastewater collection system will include collection of washwater, filtering using two stage filters (20 micron pre-filter and 5 micron filter to remove entrained particulate during transfer into a holding tank), sampling and analysis of water and sludges for constituents of concern (see Section 2.4 for wastewater monitoring), discharge of approved effluent into the FEMP wastewater treatment system (Advanced Wastewater Treatment Facility), and

sludge removal and containerization in 55-gallon drums. The need for washwater sampling is determined by the Wastewater Treatment System (WWTS) Manager if significant levels of constituents of concern are present, based on an assessment of relevant OU3 RI/FS analytical data. Section 2.4 further discusses wastewater monitoring strategies. The ultimate disposition of wastewater into the WWTS is managed in accordance with existing site procedure EP-005 "Controlling Aqueous Wastewater Discharges into Wastewater Treatment Systems".

2.3.3 Estimates of Material Volumes

Materials to be generated during this project have been categorized according to the same classification system that was developed for and described in the OU3 Remedial Investigation and Feasibility Study RI/FS Report (1996a), and OU3 Integrated RD/RA Work Plan, and are estimated in Tables 2-2, 2-3, and 2-4. Tables 2-2, and 2-3 list quantities of materials in units of bulked and unbulked cubic feet, respectively. Table 2-4 lists the estimated weight of material in tons. Material quantities for the remaining railroad tracks (Component G-001) are currently unknown and therefore not included in Tables 2-2, 2-3 and 2-4. However, Component G-001 material quantities generated under the MSS Phase II D&D Project will be included in the Final MSS D&D Project Completion Report.

2.3.4 Material Handling, Storage, Treatment, and Disposition

Materials generated from the D&D of the MSS Phase II D&D Project will be reduced in size, segregated, and containerized in accordance with the requirements identified in the MSCC form supplied to the Contractor (example provided in Appendix A of the OU3 Integrated RD/RA Work Plan). Table 2-2 summarizes the MSCC and PWID by identifying the containerization, staging/interim storage, and disposal requirements for each category of material. Debris size requirements are described in Sections 3.3.2.1 and 3.3.6.2 of the OU3 Integrated RD/RA Work Plan.

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

TABLE 2-2 MSS 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	TOTALS
12E	4.0	0.0	4.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
12F	4.0	0.0	4.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
12G	4.0	0.0	4.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
16A	240.0	0.0	348.0	0.0	0.0	0.0	0.0	102.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	690
16B	8.0	0.0	1208.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.0	0.0	0.0	1341
16C	0.0	0.0	16.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
16D	8.0	0.0	64.0	0.0	0.0	0.0	0.0	44.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	117
16E	0.0	0.0	1076.0	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	1076
16F	8.0	0.0	8.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
16G	8.0	0.0	8.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
16H	0.0	0.0	60.0	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	60
16J	0.0	0.0	60.0	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	60
16M	0.0	0.0	28.0	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	28
16N	0.0	0.0	28.0	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	28
16P	0.0	0.0	28.0	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	28
21A	0.0	0.0	60.0	0.0	0.0	8.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	143
21C	0.0	0.0	40.0	0.0	0.0	8.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	108
22C	0.0	0.0	60.0	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	60
22G	0.0	0.0	60.0	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	60
23A	20.0	0.0	20.0	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	40
24C	60.0	0.0	120.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.0	0.0	0.0	269
24D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
25C	0.0	0.0	32.0	0.0	0.0	8.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	83
25J	0.0	0.0	4.0	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
25K	0.0	0.0	224.0	0.0	0.0	8.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	258
26C	4.0	0.0	24.0	0.0	0.0	0.0	0.0	15.0	0.0	0.0	0.0	1.0	0.0	3.0	0.0	56.0	0.0	0.0	103
28E	4.0	0.0	0.0	0.0	0.0	4.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	24
28G	4.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	15
28H	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8

TABLE 2-2 IS CONTINUED ON THE NEXT PAGE

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TABLE 2-2 MSS D&D PROJECT BULKED MATERIAL VOLUME ESTIMATES (CUBIC YARDS) (Continued)

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
28J	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
28K	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
28L	0.0	0.0	0.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
28M	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
31B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
50	0.0	0.0	96.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	14.0	0.0	178
52A	0.0	0.0	8.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
52B	0.0	0.0	8.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
82B	0.0	0.0	28.0	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	28
TS-8	208.0	0.0	8.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.0	0.0	0.0	277
Trailers	4,020.0	0.0	0.0	0.0	0.0	800.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	63.0	1,253.0	0.0	6,154
TOTALS	4604.0	0.0	3736.0	0.0	0.0	1024.0	0.0	445.0	0.0	0.0	0.0	2.0	0.0	21.0	0.0	375.0	1274.0	0.0	11,482
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:

OU3 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 (971 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.

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TABLE 2-3 MSS PHASE II D&D PROJECT UNBULKED MATERIAL VOLUME ESTIMATES (CUBIC YARDS)

Component Number	Th-C - 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
12E	1.0	0.0	1.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
12F	1.0	0.0	1.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
12G	1.0	0.0	1.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
16A	60.0	0.0	87.0	0.0	0.0	0.0	0.0	68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	215.0
16B	2.0	0.0	302.0	0.0	0.0	0.0	0.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	1.0	359.0
16C	0.0	0.0	4.0	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	0.0	0.0	5.0
16D	2.0	0.0	16.0	0.0	0.0	0.0	0.0	29.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0
16E	0.0	0.0	269.0	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	269.0
16F	2.0	0.0	2.0	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	0.0	0.0	5.0
16G	2.0	0.0	2.0	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	0.0	0.0	5.0
16H	0.0	0.0	15.0	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	15.0
16J	0.0	0.0	15.0	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	15.0
16M	0.0	0.0	7.0	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	7.0
16N	0.0	0.0	7.0	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	7.0
16P	0.0	0.0	7.0	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	7.0
21A	0.0	0.0	15.0	0.0	0.0	2.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.0
21C	0.0	0.0	10.0	0.0	0.0	2.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.0
22C	0.0	0.0	15.0	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	15.0
22G	0.0	0.0	15.0	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	15.0
23A	5.0	0.0	5.0	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	10.0
24C	15.0	0.0	30.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	70.0
24D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
25C	0.0	0.0	8.0	0.0	0.0	2.0	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	36.0
25J	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	0.0	0.0	0.0	0.0	0.0	1.0
25K	0.0	0.0	56.0	0.0	0.0	2.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	70.0
26C	1.0	0.0	6.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	16.0	0.0	0.0	35.0
28E	1.0	0.0	0.0	0.0	0.0	1.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	10.0
28G	1.0	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	2.0	0.0	0.0	4.0
28H	0.0	0.0	0.0	0.0	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	2.0
28J	0.0	0.0	0.0	0.0	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	2.0
28K	0.0	0.0	0.0	0.0	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	2.0
28L	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
28M	0.0	0.0	0.0	0.0	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	2.0
31B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0
50	0.0	0.0	24.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	4.0	0.0	46.0
52A	0.0	0.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
52B	0.0	0.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
82B	0.0	0.0	7.0	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	7.0
TS-8	52.0	0.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	71.0
Trailers	1,005.0	0.0	0.0	0.0	0.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	18.0	358.0	0.0	1,587.0
TOTALS	1151.0	0.0	934.0	0.0	0.0	256.0	0.0	296.0	0.0	0.0	0.0	2.0	0.0	7.0	0.0	107.0	364.0	1.0	3118.0

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

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TABLE 2-4 MSS PHASE II D&D PROJECT MATERIAL WEIGHT ESTIMATES (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
12E	1.4	0.0	1.4	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
12F	1.4	0.0	1.4	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
12G	1.4	0.0	1.4	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
16A	81.0	0.0	117.0	0.0	0.0	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	267.0
16B	3.0	0.0	407.0	0.0	0.0	0.0	0.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0	0.2	458.2
16C	0.0	0.0	4.0	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	0.0	0.0	5.0
16D	2.0	0.0	20.0	0.0	0.0	0.0	0.0	29.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	51.2
16E	0.0	0.0	363.0	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	363.0
16F	1.0	0.0	1.0	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	0.0	0.0	3.0
16G	1.0	0.0	1.0	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	0.0	0.0	3.0
16H	0.0	0.0	20.0	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	20.0
16J	0.0	0.0	20.0	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	20.0
16M	0.0	0.0	9.5	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	9.5
16N	0.0	0.0	9.5	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	9.5
16P	0.0	0.0	9.5	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	9.5
21A	0.0	0.0	20.0	0.0	0.0	3.0	0.0	50.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.5
21C	0.0	0.0	13.5	0.0	0.0	3.0	0.0	40.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.0
22C	0.0	0.0	20.0	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	20.0
22G	0.0	0.0	20.0	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	20.0
23A	7.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	0.0	14.0
24C	20.0	0.0	41.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.0
24D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
25C	0.0	0.0	11.0	0.0	0.0	3.0	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	39.5
25J	0.0	0.0	1.5	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	1.5
25K	0.0	0.0	76.0	0.0	0.0	3.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	90.0
26C	0.0	0.0	76.0	0.0	0.0	3.0	0.0	8.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	11.5	0.0	0.0	32.0
26E	1.5	0.0	8.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	10.5
28E	1.5	0.0	0.0	0.0	0.0	1.5	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	4.5
28G	1.5	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
28H	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
28J	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
28K	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
28L	0.0	0.0	0.0	0.0	0.0	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	6.0
28M	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
31B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0
50	0.0	0.0	32.5	0.0	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	3.0	0.0	55.0
52A	0.0	0.0	2.5	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5
52B	0.0	0.0	2.5	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5
82B	0.0	0.0	9.5	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	9.5
TS-8	70.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	87.0
Trailers	1357.0	0.0	0.0	0.0	0.0	270.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	13.0	254.0	0.0	1900.0
TOTALS	1550.7	0.0	1254.7	0.0	0.0	346.5	0.0	298.0	0.0	0.0	0.0	0.7	0.0	6.5	0.0	77.5	258.5	0.2	3793.3

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

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2.3.5 Material Recycling/Reuse

Accessible metals (Category A, Table 2-4) from the components have been evaluated for potential recycling options and a detailed summary of that evaluation is available in Appendix B. Using the Decision Methodology for Fernald Material Disposition Alternatives (the "Decision Methodology"), 1551 tons of potentially recyclable accessible metals from all MSS components were evaluated by comparing the four leading alternatives to on-site disposal. Of the three phases of the Decision Methodology (Threshold Phase, Life Cycle Analysis Phase, and Decision Phase), only the first phase was applied since the comparative evaluation of project costs for each alternative showed that the total costs for each of the recycling options greatly exceed the 25 percent total cost criteria compared to OSDF disposal.

2.3.6 Material Management Reporting

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

Materials that do not meet facility release criteria (discussed in Section 2.5.2) will be containerized inside the structure or in a loadout vestibule that is part of an enclosure attached to that structure. Should any materials be encountered that do not meet the OSDF waste acceptance criteria (e.g., materials with "visible process residues" – such as yellow cake, green salt, ect.), they will be containerized separately from other OSDF-bound material, follow the same load-out and transportation procedures and will be transported to the Plant 1 Storage Pad for Nevada Test Site disposal. Stockpiling of debris is not currently planned due to the expected availability for placement in the OSDF

Material tracking and reporting will be accomplished through use of SWIFTS Section 3.3.2.2 (Segregation, Containerization, Tracking) of the OU3 Integrated RD/RA Work Plan describes material tracking and reporting using SWIFTS. Project-specific material tracking and reporting strategies for the MSS Phase II D&D Project do not differ from the strategies laid out in the OU3 Integrated RD/RA Work Plan and therefore no additional details were developed during the remedial design process.

The disposition strategy for materials generated during this project is consistent with the requirements stated in the OU3 Final ROD and strategies presented in the OU3 Integrated RD/RA Work Plan. Table 2-2 identifies the debris that will be generated from this project, which will be placed in their projected disposition locations. No treatment will be necessary for disposal since all chemical-based waste acceptance criteria are met based on OU3 RI/FS data. Accessible metals (Category A, Table 2-4) from the MSS Phase II D&D Project have been evaluated for potential recycling options and a summary of that evaluation is available in Appendix B.

2.4 Environmental Monitoring

Project-specific environmental monitoring for the MSS Phase II D&D Project includes only wastewater monitoring. Radiological air monitoring will be performed using the FEMP site-wide air monitoring system, due to negligible potential for contaminant releases from the incremental implementation of the project, over potentially several years. Groundwater monitoring is not applicable to this project but would be employed if necessary, as described in Section 3.6.2.3 of the OU3 Integrated RD/RA Work Plan.

Project-specific stormwater management is governed by the FEMP Stormwater Pollution Prevention Plan (DOE 1996b) and any monitoring associated with that program is managed by the Aquifer Restoration Project. It is not anticipated that any stormwater control measures will be necessary during above-grade D&D.

Surface Water (Wastewater) Monitoring

As noted, it is anticipated that only a small volume of equipment decontamination washwater will be generated. Section 2.3.2 describes the wastewater management strategies. The OU3 Integrated RD/RA Work Plan describes the overall strategies to be implemented for project monitoring of wastewater. Listed below are the specific references in the work plan:

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

The Wastewater Treatment System (WWTS) manager has been provided with a spreadsheet containing OU3 RI/FS data on the MSS Phase II D&D Project components to determine whether potential elevated levels of contaminants of concern may be present. Based on an estimated 12,500 gallons of equipment decontamination washwater total for the MSS Phase II D&D Project, it is projected that two samples may be taken from washwater generated from each Task Order. Any washwater that is generated will be placed in a holding tank, from which two samples will be taken to determine isotopic radiological and heavy metals concentrations prior to discharge into the Advanced Wastewater Treatment Facility. Of those two samples, one will be a duplicate for quality assurance/quality control purposes. The purpose of the sampling is to ensure the adequacy of treatment capacity so that National Pollutant Discharge Elimination System (NPDES) permit requirements are met.

Project-specific reporting for wastewater (i.e., equipment decontamination washwater) will be provided in the MSS D&D Final Project Completion Report, which will include a summary of the results generated during the project. For wastewater, the report will include a summary of the results from any sampling and analysis prior to its discharge into the FEMP WWTS. For site-wide air monitoring, the report will identify site air monitoring stations but refer to reporting under the Integrated Environmental Monitoring Plan (IEMP)(DOE1997b)

Radiological Air Monitoring

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

Environmental radiological air monitoring during the MSS Phase II D&D Project will consist of the Fernald Site Environmental Monitoring Program described in the site-wide IEMP, and discussed in Sections 3.5.1 and 3.6.2.1 of the OU3 Integrated RD/RA Work Plan. As discussed later in this section, the need for a supplemental environmental radiological air monitoring program for this D&D project was evaluated by modeling the potential release of radiological (uranium) contaminants from each of the components during D&D (i.e., considered individually). Due to the low concentrations of contaminants in each of the components, it was determined that supplemental radiological monitoring is not warranted. Radiological survey data summarized in Table 2-1 were used for the air emissions modeling input. Further explanation of the modeling effort is provided below.

Computer modeling of potential uranium emissions from the MSS Phase II D&D Project components used the CAP88PC method to measure potential dose impacts from the project. CAP88PC is the personal computer version of the U.S.EPA model CAP88 that is the approved method for predicting emissions of radionuclides under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) regulations. It should be emphasized that the CAP88PC model is being used as a tool for assessing potential emissions from this project for the purpose of identifying potential mitigative controls and possibly the use of supplemental monitoring measures; it is not being used as a means to demonstrate compliance with NESHAPs Subpart H. The method to be used for demonstrating NESHAPs subpart H compliance is presented in the IEMP as a collective sitewide strategy.

The CAP88PC modeling methodology is prescribed by the U.S.EPA reference manual: U.S.EPA User's Guide for CAP88, Version 1.0, 402-B-92-001. Computer modeling of potential radiological emissions from the MSS Phase II D&D Project used radiological smear data to provide a more realistic measure of removable alpha, beta and gamma contamination than fixed contamination (identified through intrusive sampling results from the OU3 RI/FS database) for estimating contaminant release. The removable contamination data obtained through smear sampling represents a model input that depicts worst case emissions, since it represents removable contamination present prior to the decontamination activities that will precede dismantlement.

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

computer modeling indicated potential exposures ranging from 2.1E-5 millirems per year (mrem/yr) to 3.1E-4 mrem/yr at the site boundary critical receptors (NESHAP subpart H: maximally exposed individual.)

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

Further justification for not providing project specific air monitors comes from analysis of data from Plant 7 (summarized in the "Plant 7 Dismantling - Removal Action No. 19, Final Report" May 1995), Plant 4 (summarized in the "Project Completion Report, Building 4A Complex, Final, Rev1", August 1997c), Plant 1 Complex - Phase I (summarized in the "Project Completion Report, Plant 1 Complex Phase I, Rev.1, December 1997d) and the Thorium/Plant9 Complex Project Completion Report, Revision 0 (DOE 1999) which have shown that dismantlement activities resulted in negligible airborne radiological contaminant emissions. Results for airborne uranium contamination during those projects have been approximately 5 percent of the DOE maximum off-site guidelines of 0.1 picocuries per cubic meter (pCi/m³). The relationship between pCi/year and mrem/year may be understood by the conversion factor used to equate the two terms at the FEMP; if inhaled continuously (24 hours/day, 365 days/year), 0.1 pCi/m³ of uranium in air will result in a dose of 100 mrem/year. It should be noted that various assumptions have been incorporated into this conversion factor. Mitigative measures that might be employed in the event of exceedence of the set criterion would include an increase in engineering and administrative controls during a particular task that has been identified as the cause or possible cause of the elevated radiological levels. Such controls could include negative pressure within an enclosed work area using additional HEPA filtration units or additional surface cleaning (wash) steps before removing material from the containment area.

2.5 Remedial Tasks

A general approach to the remediation activities of the MSS Phase II D&D Project is described in the following subsections. Section 3 elaborates on this discussion by identifying component-specific interests concerning the five remedial tasks, as applicable.

The remedial tasks that apply to the MSS Phase II D&D Project are as follows:

- Preparatory Action: Inventory Removal;
- Preparatory Action: Facility Shutdown;
- Asbestos Abatement;
- Surface Decontamination; and
- Above-Grade Dismantlement.

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

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

TABLE 2-5 Above Grade Dismantlement Activities for Components

Component Designation	Inventory Removal	Facilities Shutdown	Asbestos Abatement	Surface Decon	Equip./Sys. Dismantlement	Transite Removal	Structural Steel or Steel Frame Dismantlement	Concrete or Masonry Removal
12E	X	X	-	-	-	-	X	-
12F	X	X	-	-	-	-	X	-
12G	X	X	-	-	-	-	X	-
16A	-	X	-	X	X	-	-	-
16B	-	X	-	-	X	-	-	X
16C	-	X	-	-	X	-	-	-
16D	-	X	X	X	X	-	-	X
16E	-	X	-	X	X	-	-	-
16F	-	X	-	-	X	-	-	-
16G	-	X	-	-	X	-	-	-
16H	-	X	-	-	X	-	-	-
16J	-	X	-	-	X	-	-	-
16M	-	X	-	-	X	-	-	-
16N	-	X	-	-	X	-	-	-
16P	-	X	-	-	X	-	-	-
21A	-	X	-	-	-	-	-	X
21C	-	X	-	-	-	-	-	X
22C	-	-	-	-	X	-	-	-
22G	-	-	-	-	X	-	-	-
23A	-	X	-	-	-	-	X	-
24C	-	X	-	X	-	-	X	-
24D	-	-	-	X	-	-	-	X
25C	-	X	-	X	X	-	-	X
25J	-	X	-	-	X	-	-	-
25K	-	X	-	-	X	-	X	-
26C	-	X	X	X	X	-	-	X
28G	X	X	-	-	-	-	X	-
28E	X	X	-	-	-	-	X	-
28H	X	X	-	-	-	-	X	-
28J	X	X	-	-	-	-	X	-
28K	X	X	-	-	-	-	X	-
28L	X	X	-	-	-	-	X	-
28M	X	-	-	-	-	-	X	-
31B	-	-	-	-	-	-	X	X
50	X	X	-	-	-	-	X	-
52A	X	X	-	-	-	-	X	-
52B	X	X	-	-	-	-	X	-
82B	-	X	-	-	X	-	-	-
TS-8	X	X	-	-	-	-	X	-
Trailers	X	X	X	-	-	-	X	-
G-001	-	-	-	-	-	-	X	-

Prior to actual field D&D activities, it is planned that MSS Phase II D&D Project Management will establish support facilities as appropriate. The Contractor will mobilize in preparation for the D&D activities by establishing access and egress corridors, a material handling and containerization area, and the Construction Zone Boundary around each of the structures to be dismantled. All equipment will be inspected by MSS Phase II D&D Project Management, to ensure that no contamination or items prohibited by the FEMP are brought on-site. A sign-in station will be established at the entrance to the job site for posting of permits and health and safety plans.

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

2.5.1 Preparatory Action: Inventory Removal

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

2.5.2 Preparatory Action: Facility Shutdown

Facility Shutdown encompasses the scope of activities under Removal Action No. 12 (e.g., hold-up removal) and utility isolation of structures. Section 3.2.2 of the OU3 Integrated RD/RA Work Plan discusses the overall scope of this preparatory action. The specific Facility Shutdown activities needed for the MSS Phase II D&D Project components consist of the following:

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

Not all of the components will require every preparatory activity; however, all will require utility isolations. Utility isolation involves the disconnection of all steam, potable water, electrical power, fire protection alarms and systems, compressed air and communication systems where applicable. The fire alarm systems will be terminated in the components to be dismantled (where this would interrupt the alarm systems in neighboring facilities, the alarm systems for those facilities will be re-routed and re-activated).

2.5.3 Asbestos Removal

The removal of ACM from components will be conducted by qualified Contractor personnel. This activity will involve removing all friable types of asbestos, typically consisting of thermal system insulation (TSI) on pipes and equipment. ACM removal strategies to be applied to this project were discussed in depth in Section 3.2.4 of the OU3 Integrated RD/RA Work Plan. The specific requirements for ACM removal are specified in Appendix C Specification Section O1516 "Asbestos Abatement".

2.5.4 Surface Decontamination

Surface decontamination will be performed primarily for equipment surfaces that exhibit radiological contamination which could be released by dismantling activities. Pre-D&D radiological survey data (summarized in Table 2-1) shows that the MSS Phase II D&D Project components have very few areas with removable contamination levels in excess of the facility release criteria (i.e., the levels which project Radiological Engineers determined that exposure of those surfaces to the environment will not present a significant risk for release).

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

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

- All non-porous surfaces (such as steel decking or columns) within the structure shall be below 5,000 dpm/100 cm² beta-gamma removable radiological contamination and all porous surfaces (such as concrete decking or wood) shall be below 1,000 dpm/100 cm² beta-gamma removable; 5,000 dpm/100 cm² average beta-gamma fixed plus removable; and 15,000 dpm/100 cm² maximum beta-gamma fixed radiological contamination.

Radiological contamination survey data for the MSS Phase II D&D Project components show that facility release criteria has currently been met for many of the areas encompassed in these components. For those structures, or portions thereof which do not meet facility release criteria, the Contractor will employ one or more of the measures prescribed by Appendix C Specification Section O1517 "Removing/Fixing Radiological Contamination" to remove material from the structure. The Contractor will use good radiological and housekeeping practices as well as ongoing contamination surveys as the D&D of the components progresses. If warranted through survey measurements, washing of components or use of some other means of securing contaminants (such as encapsulation) will be implemented as needed.

The Contractor and MSS Phase II D&D Project Management will inspect all debris for visible process residues (defined in the Project Work Scope Conditions/Specifications provided in

Appendix C) and conduct surveys to meet facility radiological release cleaning requirements.

2.5.5 Above-Grade Dismantlement

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

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

The above activities will follow the general approach described below:

Equipment/System Dismantlement

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

Equipment within the MSS Phase II D&D Project Components has been identified and classified based on size and disposition requirements. As equipment is removed, the internal building surfaces and floor area previously covered by the equipment will be visually inspected to ensure the absence of free liquids, solids or residues. If these materials are found, an evaluation will be performed by FEMP Project Management to determine the appropriate removal and handling requirements for the material.

All piping, pipe supports, valves, electrical components, conduit, wire, cable trays, construction debris and Heating, Ventilating and Air Conditioning (HVAC) systems will be removed and reduced in size to allow placement in the On-Site Disposal Facility (OSDF) assuming that these materials meet the OSDF acceptance criteria). During removal of HVAC ductwork, internal surfaces will be visually inspected to ensure the absence of free-liquids, solid materials and process residues. If free liquids or solid materials are found, an evaluation will be initiated by the FEMP Project Management to determine the requirements for material handling and removal. Systems containing visible process residues will require that they be handled as OSDF-prohibited debris unless decontamination is chosen to remove the residues. The visual evaluation will identify the contents and requirements for containerization, storage, and disposal. Materials will be handled according to the MSCC and the Debris/Waste Handling Section of "Project Work Scope Conditions/Specifications", Appendix C.

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

Structural Steel/Steel Frame Dismantlement

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

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

Concrete Masonry Removal

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

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

Debris/Waste Removal

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

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3.0 COMPONENT-SPECIFIC REMEDIATION

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

3.1 Component 12E – Maintenance Laborer Storage Building

Background

Component 12E (Maintenance Laborer Storage Building) is a single-story structure that is approximately 20 ft. x 20 ft. and 12 ft. high. It consists of steel siding on a steel frame. The building is located in the southwest contractor parking lot. .

Process Area Description

Component 12E houses equipment and tools for the Maintenance group.

3.2 Component 12F – Maintenance Laborer Storage Building

Background

Component 12F (Maintenance Laborer Storage Building) is a single-story structure that is approximately 20 ft. x 20 ft. and 12 ft. high. It consists of steel siding on a steel frame. The building is located in the southwest contractor parking lot.

Process Area Description

Component 12F houses equipment and tools for the Maintenance group.

3.3 Component 12G – Restored Area Maintenance Building

Background

Component 12G (Restored Area Maintenance Building) is a single-story structure that is approximately 20 ft. x 28 ft. and 12 ft. high. It consists of steel siding on a steel frame. The building is located in the far north/central portion of the former production area.

Process Area Description

Component 12G houses equipment and tools for the Maintenance group working in the restoration area.

3.4 Component 16A – Main Electrical Station

Background

Component 16A (Main Electrical Station) covers an area approximately 200 x 200 ft. that is primarily covered with gravel. Some of the electrical equipment, transformers and oil circuit breakers are mounted on concrete pads. Component 16A is located east of the Heavy Equipment Building.

Process Area Description

Component 16A provides the main electrical feed for the FEMP site. The station receives 132 kV feeds from off-site, transforms the electricity to 13.2 kV and feeds the power to

local substations around the facility. The only anticipated contaminants for the component are PCB's.

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3.5 Building 16B – Electrical Substation

Background

Building 16B (Electrical Substation) is a cinder block building with a concrete floor and metal sheet roof measuring approximately 20 x 42 ft. The building contains electrical meters, panels and main circuit breakers. The building is located north of the former Security Building (Building 28B).

Process Area Description

Building 16B is a secondary unit substation that receives 13.2 kV and transforms it down to 480 V power. The only anticipated contaminants for the building are PCB's.

3.6 Component 16C – Electrical Panels and Transformer

Background

Component 16C (Electrical Panels and Transformer) is a wooden, two-sided structure on a concrete pad that is approximately 4 x 20 ft. It shelters a transformer and electrical meter. Component 16C is located south of the Heavy Equipment Building.

Process Area Description

Component 16C was used as a secondary unit substation that received 480 V and transformed it down to 208 V to provide electrical power to the east trailers. The only anticipated contaminants for this component are PCB's.

3.7 Building 16D – Main Electrical Switch House

Background

Building 16D (Main Electrical Switch House) is a cinder block building with a concrete floor and a transite roof measuring approximately 15 x 30 ft. The building is divided into two rooms; the west room contains the electrical switching equipment and the east room contains a group of lead-acid batteries used as a back-up power supply. Building 16D is located east of the Heavy Equipment Building and north of the Main Electrical Station.

Process Area Description

Building 16D is the main electrical switch house for the site. The equipment in this building monitors and directs the electricity to the various substations around the site.

3.8 Component 16E – Main Electrical Transformers

Background

Component 16E (Main Electrical Transformers) is the main site electrical transformers located on a concrete pad that measures approximately 10 x 25 ft. The component is located within the fence that surrounds the Main Electrical Station.

Process Area Description

Component 16E receives the 132-kV main electrical feed and transforms it to 13.2-kV feeds to local substations around the facility. The only anticipated contaminants for this component are PCB's.

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3.9 Component 16F – Trailer Substation 1

Background

Component 16F (Trailer Substation 2) is an electrical substation located on a concrete pad that measures approximately 4 x 20 ft. A small fiberglass enclosure houses the transformer, main circuit breaker, fuse disconnect and electrical meters. It is located north of Trailer 11.

Process Area Description

Component 16F is a power distribution point that receives 480V from the Electrical Substation (Component 16B) and transforms it down to 208 V to power the local office trailers. The only anticipated contaminants for this component are PCB's.

3.10 Component 16G – Trailer Substation 2

Background

Component 16G (Trailer Substation 1) is an electrical substation located on a concrete pad that measures 4 x 20 ft. A small fiberglass enclosure houses the transformer, main circuit breaker, fuse disconnect and electrical meters. It is located north of Trailer 14.

Process Area Description

Component 16G is a power distribution point that receives 480V from the Electrical Substation (Component 16B) and transforms it down to 208 V to power the local office trailers. The only anticipated contaminants for this component are PCB's.

3.11 Component 16H – 10 Plexes North Substation

Background

Component 16H (10 Plexes North Substation) is an electrical substation located on a concrete pad that measures approximately 15 x 31 ft. It is located west of Trailers 76 and 77.

Process Area Description

Component 16H is a power distribution point for Trailers 76 and 77.

3.12 Component 16J – 10 Plexes South Substation

Background

Component 16J (10 Plexes South Substation) is an electrical substation located on a concrete pad that measures 15 x 31 ft. It is located west of Trailers 76 and 77.

Process Area Description

Component 16J is a power distribution point for Trailers 80 and 81.

3.13 Component 16M – N78-1 Substation

Background

Component 16M (N78-1 Substation) is an electrical substation located in the north east quadrant of the former production area just south of the OMTA soil staging area.

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Process Area Description

Component 16M was used as a power source for Building 78 and is currently used as a power source for construction in the OMTA staging area.

3.14 Component 16N – N93-1 Substation

Background

Component 16N (N93-1 Substation) is an electrical substation located in the Plant 1 area at the southwest corner of 2nd and "A" Streets.

Process Area Description

Component 16N is the current power source for the remaining Plant 1 components, the haul road trailers and west side water tower.

3.15 Component 16P – N93-2 Substation

Background

Component 16P (N93-2 Substation) is an electrical substation located in the former Plant 9 area.

Process Area Description

Component 16P was the power source for the former Plant 9 area and the Thorium Warehouses, Building 64 and 65.

3.16 Component 21A – Haul Road Wheel Wash Facility

Background

Component 21A (Haul Road Wheel Wash Facility) is a roadway vehicle rinsing area measuring approximately 40 x 50 ft. and consists of several tanks, pumps, water spray piping, boundary fencing and drainage grating. Component 21A is located at the southwest end of the Haul Road.

Process Area Description

Component 21A is the rinsing location for vehicles exiting the Haul Road. Water spray piping is arranged so that each vehicle's undercarriage, sides and top is completely rinsed prior to exit.

3.17 Component 21C – Equipment Wash Facility

Background

Component 21C (Equipment Wash Facility) is an equipment rinsing area measuring approximately 40 x 50 ft. and consists of several tanks, pumps, water spray piping, boundary fencing and drainage grating. Component 21C is located at the northeast end of the Haul Road.

Process Area Description

Component 21C is the rinsing location for equipment associated with the OSDF.

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3.18 Component 22C – Truck Scale

Background

Component 22C (Truck Scale) is located south of the Receiving/Incoming Materials Inspection Building (82). The Truck Scale is a reinforced concrete structure with the dimensions of 12 x 72 feet. The functional surface of the scale is approximately two feet below grade.

Process Area Description

The truck scale was installed to weigh incoming and outbound, multi-axle vehicles as required by existing transport regulations. The scale was originally installed near the Engine House/Garage (31A) but was later relocated to the Receiving/Incoming Materials Inspection Building.

3.19 Component 22G – Main Gate Truck Scale

Background

Component 22G (Main Gate Truck Scale) is an elevated scale that measures 142 x 22 ft. and is located just north of the main gate access to the former production area ("D" Street and just west of the Engine House Garage (Building 31).

Process Area Description

Component 22G was used to weigh delivery vehicles prior to entry into the former production area.

3.20 Component 23A - Meteorological Tower

Background

Component 23A (Meteorological Tower) is a steel structure measuring approximately 60 ft. tall and is located west of the Storm Water Retention Basin (18E).

Process Area Description

Component 23A is utilized for the placement of climate monitoring instruments to measure the meteorological conditions of the area surrounding the site. The primary use of the monitoring include day to day weather conditions, severe weather conditions and to develop air dispersion models for the Emergency Operations Center in the event of an off-site airborne radiological release.

3.21 Component 24C – Locomotive Maintenance Building

Background

Component 24C (Locomotive Maintenance Building) is a single story metal frame building that measures 110 x 40 feet and 20 feet tall. It is located at the far north portion the FEMP property beyond the former production area and just east of the Southwest WPRAP Road.

Process Area Description

Component 24C is the railcar maintenance facility.

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3.22 Component 24D – Railroad Inspection Pit

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Background

Component 24D (Railroad Inspection Pit) is a pit located within the Locomotive Maintenance Building (Component 24C), measures 55 x 3.5 feet with access ladders at each of the 3.5 feet ends and is sloped at 1/16 feet.

Process Area Description

Component 24D is the pit that provides access for inspection of the railcar undercarriages.

3.23 Component 25C – Sewage Lift Station Building

Background

Building 25C (Sewage Lift Station Building) is a single story structure located immediately north of the Main Electrical Station (16A). The Sewage Lift Station Building consists of cement block walls on a reinforced concrete floor with approximate dimensions of 15 x 20 x 9 feet in height. Building 25C houses two electrical effluent pumps and associated equipment.

Process Area Description

Building 25C pumps accumulated sanitary wastes from the site to the new Sewage Treatment Plant Complex.

3.24 Component 25J – 10 Plexes Sanitary Lift Station

Background

Component 25J (10 Plexes Sanitary Lift Station) is a fiberglass enclosure with dimensions of approximately 4 x 8 and 5 feet tall, located on a concrete pad that measures approximately 8 x 8 feet. Component 25J is located between the west side of Trailers 76 and 80.

Process Area Description

Component 25J pumps sanitary wastes from Trailers 76, 77, 80 and 81 to the new Sewage Treatment Plant Complex.

3.25 Component 25K – New Sewage Treatment Plant Complex

Background

Component 25K (New Sewage Treatment Plant Complex) includes a 16 x 20 and 9 feet tall UV Building, aeration tanks (2), mechanical clarifiers (2) and sludge thickeners (2) with combined dimensions of approximately 50 x 110 feet. Component 25K is located at the far southwest corner of the former production area, just west of the Advanced Wastewater Treatment Facility (AWWT).

Process Area Description

Component 25K is the site waste treatment facility.

3.26 Component 26C – Main Electrical Substation Riser House

Background

Building 26C (Main Electrical Substation Riser House) is a cinder block building with a partial concrete floor and a transite roof, measuring approximately 10 x 12 x 10 feet high. The component contains the fire protection main electrical deluge sprinkler valves for the dry sprinkler system around the transformers in the Main Electrical Station.

Process Area Description

Building 26C contains the control valves for the main electrical deluge fire protection system, which provides fire sprinkler protection for the Main Electrical Station. The building has a belowground water storage open surface tank. The tank is visible from the inside of the building through a partial metal floor grating.

3.27 Component 28E – Guard Post Relocated to New Rail Yard

Background

Component 28E (Guard Post Relocated to New Rail Yard) is a metal frame structure with approximate dimensions of 8 x 10 and 8 feet high. Component 28E is located south of the New Rail Yard and north of the Haul Road.

Process Area Description

Component 28E serves as a cool area for construction activities in the New Rail Yard area.

3.28 Component 28G – Guard Post Relocated and Renamed to T-327

Background

Component 28G (Guard Post Relocated and Renamed to T-327) is a metal frame structure with approximate dimensions of 8 x 8 and 8 feet high. Component 28G is located west of 91D (Railcar loadout) and east of 18A (Bio Surge Lagoon).

Process Area Description

Component 28G serves as a trailer for the Surge Lagoon area.

3.29 Component 28H – Guard Post East of Detention Basin

Background

Component 28H (Guard Post East of Detention Basin) is a metal frame structure with approximate dimensions of 8 x 8 and 8 feet high. Component 28H is located on the northwest corner where the Haul Road intersects with Silo Road.

Process Area Description

Component 28H served as a security checkpoint for vehicular traffic into the Detention Basin. At this time, Component 28H is not an active security checkpoint.

3.30 Component 28J – Security Checkpoint

Background

Component 28J (Security Checkpoint) is a metal frame structure with approximate dimensions of 6 x 10 and 8 feet high. A metal frame weather shelter is located just south of Component 28J and has approximate dimensions of 4 x 12 and 8 feet high. Component 28J is located on the South Access Road just south of the site's main parking lots.

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Process Area Description

Component 28J serves as an active security checkpoint for vehicular traffic entering the site from the South Access Road.

3.31 Component 28K – Security Checkpoint

Background

Component 28K (Security Checkpoint) is a metal frame structure with approximate dimensions of 4 x 6 and 8 feet high. Component 28 K is located along the North Access Road at the entrance to the East Side Parking Lot.

Process Area Description

Component 28K serves as an active security checkpoint for vehicular traffic entering the site from the South Access Road.

3.32 Component 28L – Guard Post on North Construction Access Road

Background

Component 28L (Guard Post on North Construction Access Road) is a metal frame structure with approximate dimensions of 8 x 14 and 8 feet high. Component 28L is located at the north end of the North Access Road. Component 28L is also known as T-330 and Post 4.

Process Area Description

Component 28L serves as an active security checkpoint for vehicular traffic into the North Construction Access Road.

3.33 Component 28M – Guard Post Relocated to New Rail Yard

Background

Component 28M (Guard Post Relocated to New Rail Yard) is a metal frame structure with approximate dimensions of 8 x 10 and 8 feet high. Component 28M is located south of the New Rail Yard and north of the Haul Road.

Process Area Description

Component 28M serves as a cool area for construction activities in the New Rail Yard area.

3.34 Component 31B – Old Truck Scale Foundation and Out Building

Background

Component 31B (Old Truck Scale) was located directly adjacent to the west side of the Engine House/Garage (31A). The Old Truck Scale is a concrete platform with the approximate dimensions of 16 x 60 feet. Component 31B also includes a small out building (metal frame structure with approximate dimensions of 8 x 10 and 8 feet high) that is currently located along the roadway just south of TS-008.

Process Area Description

Component 31B was originally used to weigh incoming and outbound multi-axle vehicles. The scale was moved to the new weigh station near the New Receiving Building (82). A

concrete base remains where the scale of Component 31B was located. The 31B out building stands empty.

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3.35 Component 50 – Maintenance Storage Building

Background

Component 50 (Maintenance Storage Building) is a single-story structure that is approximately 60 ft. x 40 ft. and 20 ft. high. It consists of steel siding on a steel frame. The building is located in the southwest contractor parking lot.

Process Area Description

Component 50 houses equipment and tools for the Maintenance group.

3.36 Component 52A – RTRAK Building

Background

Component 52A (RTRAK Building) is a single-story structure that is approximately 20 ft. x 27 ft. and 15 ft. high. It consists of steel siding on a steel frame. The building is located in the southwest contractor parking lot.

Process Area Description

Component 52A is a storage facility for large equipment and tools.

3.37 Component 52B – ASTD SDFP Building

Background

Component 52B (ASTD SDFP Building) is a single-story structure that is approximately 20 ft. x 27 ft. and 15 ft. high. It consists of steel siding on a steel frame. The building is located in the southwest contractor parking lot.

Process Area Description

Component 52B is a storage facility for large equipment and tools.

3.38 Component 82B – Fuel Loading/Unloading Facility

Background

Component 82B (Fuel Loading/Unloading Facility) is a fueling station set in a 38 x 25 feet concrete diked area. There are two square metal tanks (20 x 8 and 8 feet tall), two pumps, a scale and ancillary piping. Component 82B is located just east of the parking lot/dock area of 82A (Receiving).

Process Area Description

Component 82B is used as a filling location for site vehicles.

3.39 Component TS-8 – Tension Support Structure #8

Background

Component TS-8 is a tension support structure that measures 150 x 60 and 24 feet high. Component TS-8 is located south of the Storm Water Retention Basin on the east side of the Southern Waste Units access road.

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Process Area Description

Component TS-8 was originally used for salt storage. Component TS-8 is the future location of the Receiving facility.

3.40 Component G-007 - Trailers

Background

The trailers are metal frame structures of various sizes located throughout the site. Trailers currently scheduled for dismantlement are identified in Appendix F.

Process Area Description

Trailers are most commonly used for office space, meeting locations or storage areas.

3.41 Component G-001- Railroad Tracks

Background

The railroad tracks are located throughout the site.

Process Area Description

The railroad tracks provide rail access throughout the site.

4.0 PROJECT SCHEDULE AND REPORTING

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This section presents the planning and implementation schedule for the MSS Phase II D&D Project. Figure 4-1 presents the schedule for implementation of field activities beginning with issuing the initial Task Order & Notice to Proceed (NTP) and ending with the submittal of the Final Project Completion Report. The primary milestones of the project include the following: 1) NTP; 2) Completion of Field Activities and the submittal of the MSS Final Project Completion Report to the U.S. EPA and Ohio EPA. The content for the MSS Final Project Completion Report is outlined in Section 4.5 of the OU3 Integrated RD/RA Work Plan.

3.1.1.1

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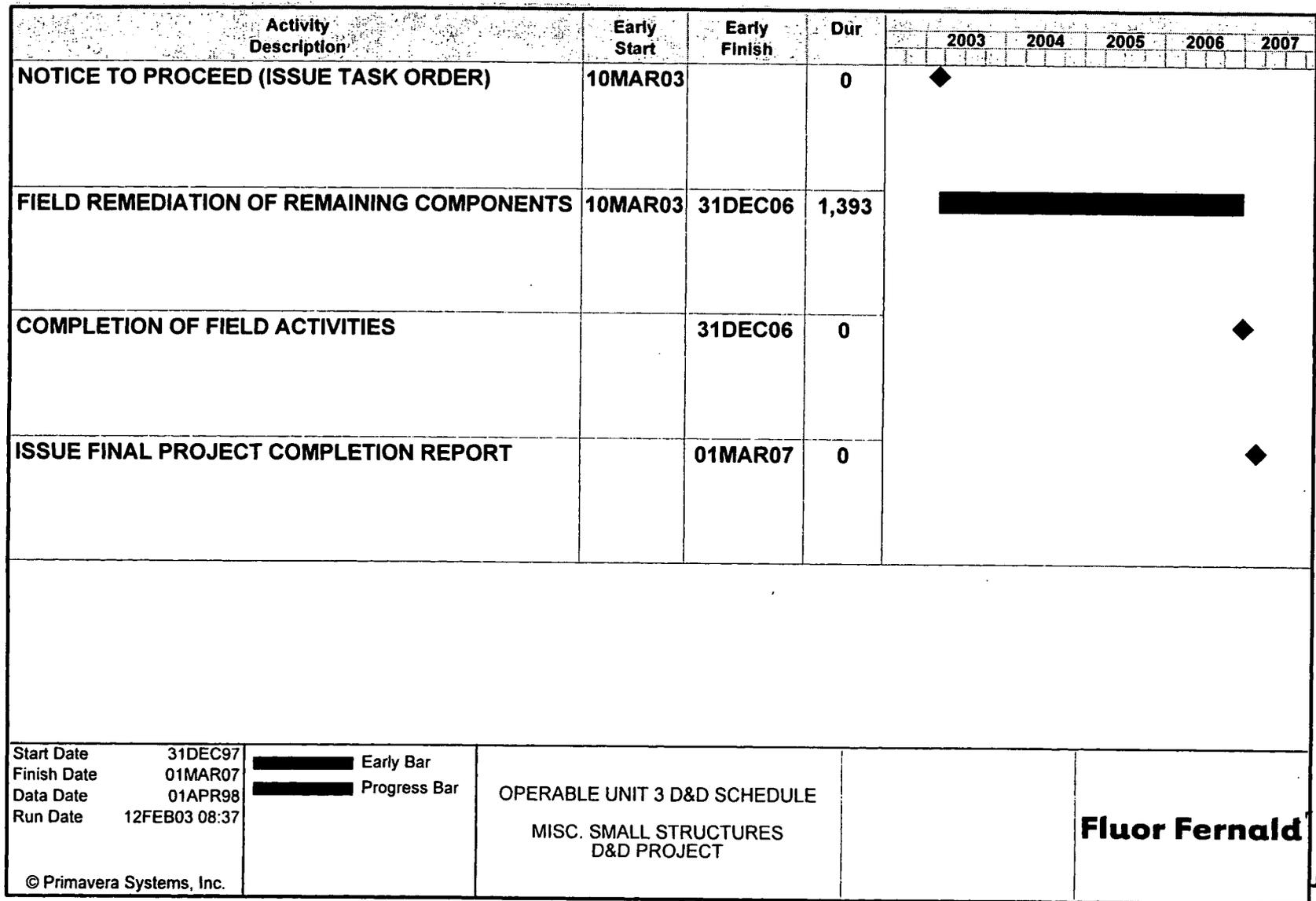


FIGURE 4-1 MSS Phase II D&D Project Remediation Schedule

5.0 MANAGEMENT

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

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

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

- ensuring that the Contractor is provided with the proper direction and support necessary to meet the remedial action objectives for this project;
- detailing all work conditions and scope requirements;
- performing quality assurance and quality audits of all remediation tasks to determine adherence to project specifications;
- verifying work is performed in compliance with approved health and safety plans; and
- performing pre-final and final inspections.

The subcontracting strategy is to utilize the current Contractor for D&D activities. Work scope conditions will be included in a document referred to as a task order, which provides all of the essential remediation requirements that are required under the OU3 Integrated RD/RA Work Plan. The Contractor will perform D&D of the components, material sizing, segregation and loading into containers. FEMP Waste Management personnel will provide oversight responsibility for visually inspecting all debris/waste to ensure the Waste Acceptance Criteria identified in the PWID/MSCC is met prior to loading into containers and/or stockpiling. Containers will be transported to and from the queuing area located adjacent to the MSS Phase II D&D Projects.

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APPENDIX A

PROPOSED SAMPLING

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

Characterization Screening

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

Radiological surveying has been conducted for fixed and removable radioactive contamination using Geiger-Mueller radiological contamination meters and will continue to be used throughout D&D activities to verify that radiological facility release criteria (i.e., release from containment) are met.

Asbestos

This category represents samples that have been collected to verify whether a certain material is considered ACM and whether the ACM is regulated or non-regulated. Asbestos surveys were conducted prior to the design of this D&D project and the results were incorporated. ACM is found in the components listed in Table 2-5.

Secondary Waste (Decontamination Water)

It is expected that up to 12,500 gallons of decontamination wash water will be generated during equipment cleaning. Samples will be used to determine the need for treatment prior to discharge into the AWWT. It is estimated that 6 samples will be required to characterize wash water for isotopic radionuclides & heavy metals. No sampling will be required to evaluate enrichment (i.e., levels of U-235 to total Uranium) since nuclear processing did not occur in the MSS Phase II D&D Project components.

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

Nevada Test Site (NTS) Confirmatory

No sampling is anticipated for qualifying materials for NTS disposal since all MSS Phase II D&D Project debris is expected to be dispositioned in the OSDF. Should there be a need to prepare any debris for NTS shipment, one percent of each material/waste stream going to NTS would be sampled. For each container that makes up the one percent, three samples will be taken and analyzed in accordance with the NTS Waste Acceptance Criteria (WAC).

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Permitted Off-site Commercial Disposal Facility

No mixed waste is expected to be present in the remaining MSS Phase II D&D Project Components. Sampling and analysis required for shipment certification will be as specified by the permitted facility's WAC. Section 3.2.3 of the SAP contained in Appendix D of the OU3 Integrated RD/RA Work Plan addresses analytical requirements for off-site disposal.

Asbestos Air Monitoring

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

Radiological Air Monitoring

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

Occupational air samplers will be worn by at least twenty-five percent (25%) of the workers in each work group/crew (minimum of 1 worker) when entering a radiological area controlled for contamination or airborne radioactivity where the radiological contaminant of concern is uranium and respiratory protection is not required to be worn. When respiratory protection is worn in radiological areas controlled for uranium, occupational air samplers usually will not be worn. Typically, 100% of the workers entering a radiological area controlled for thorium will wear occupational air samplers.

No supplemental environmental radiological air monitoring will be performed.

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APPENDIX B

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

Per the OU3 Record of Decision for Final Remedial Action, the selected disposition route for the majority of OU3 radiologically contaminated material, including 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 Miscellaneous Small Structures Phase II. 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, 1551 tons of potentially recyclable accessible metals (OU3 Debris Category A) from all Miscellaneous Small Structures Phase II 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 1551 tons of structural steel from the Miscellaneous Small Structures Phase II. 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 Miscellaneous Small Structures Phase II 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 Pound	Total Cost	Percent Above Lowest Cost
On-Site Disposal Facility	\$ 0.04	\$124,080	--
Vendor Material Release Facility	\$ 0.41	\$1,271,820	1,025%
FEMP Material Release Facility	\$ 0.97	\$3,008,940	2,425%
"Recycle 2000"	\$ 1.20	\$3,722,400	3,000%
Privatized FEMP Material Release Facility	\$ 0.56	\$1,737,120	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, 1551 tons of accessible metals is disposal in the OSDF. Should vendor or market conditions change significantly prior to OSDF disposal of the structural steel, whereby the total costs of any of the recycling alternatives approach the cost threshold for further evaluation, then an re-evaluation of the disposition alternatives would be considered.

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APPENDIX C

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PERFORMANCE SPECIFICATIONS

The project work scope conditions/specifications included in this appendix have been modified from the original set of performance specifications contained in the May 1997 final version of the OU3 Integrated RD/RA Work Plan to incorporate the alternative site support subcontracting strategy chosen for the Miscellaneous Small Structures Phase II D&D Project. For the overall design/planning of the Miscellaneous Small Structures Phase II D&D Project, these conditions/specifications represent a "Master set" from which applicable portions or sections will be selected for the particular work scope included in a task order/traveler package.

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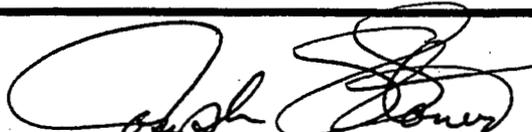
Fluor Fernald, Inc.

MISCELLANEOUS SMALL STRUCTURES DECONTAMINATION AND DISMANTLEMENT PROJECT

SPECIFICATIONS

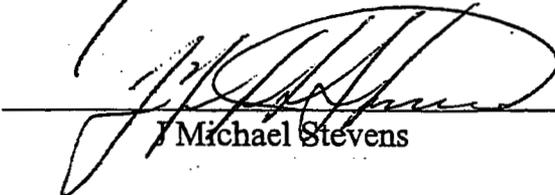
PROJECT NUMBER: 1751
SPEC 1751-TS-0001
FLUOR FERNALD ENGINEERING SUPPORT
REVISION 6

PREPARED BY:


Joseph S. Stoner

3/7/02
Date

APPROVED BY:


Michael Stevens

3/7/02
Date

U. S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fluor Fernald, Inc.
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ISSUE AND REVISION SUMMARY

<u>Revision</u>	<u>Date</u>	<u>Description of Issue or Revision</u>
0	10/08/98	Issued CFC
2	06/22/99	Implemented numerous changes though all sections of specification as a result of lessons learned on previous D&D projects per DCN 1751-003.
3	07/29/99	Removed erroneous references to "Contractor" though all sections of specification due to Wise involvement in work being preformed per DCN 1751-004.
	06/08/00	Modified asbestos containment enclosure sheeting per DCN 1781-005.
	11/06/00	Modified fencing detail in Section 1515 in accordance with DCN 1751-006.
4	10/10/01	Engineering Services assumed this D&D document after verifying that all DCN's were incorporated. Revised Title Page, Revisions & Issues Page, TOC, and added current Configuration Control Measures to all sections of this document. Modified all sections due to an organizational name change.
5	02/19/02	Corrected Verbiage, formats, and conflicts with IFB; Added New General Requirements, HEPA Vacuum, and Air Filtration Device Sections; Update of Technical References, Codes and Standards per DCN 1751-007. Initiated by Joyce Leslie and Joe Stoner.
6	03/05/02	Replaced the information in Sections 3.1.A.1 and 3.1.B.3.a with information from the contract per DCN 1751-008. Initiated by Joe Stoner.

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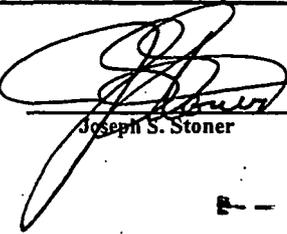
<u>Revision</u>	<u>Section</u>	<u>Description of Issue or Revision</u>
0	01010	General Requirements
5	01120	Debris/Waste Handling Criteria
6	01515	Mobilization, Demobilization and General Site Requirements
6	01516	Asbestos Abatement
6	01517	Removing/Fixing Radiological Contamination
5	01519	Decontamination of Contractor Provided Tools, Equipment and Material
5	03315	Concrete/Masonry Removal
5	05126	Structural Steel Dismantlement
5	07415	Transite Removal
0	11010	HEPA Vacuum Cleaner Requirements
5	15065	Equipment/System Dismantlement
5	15067	Ventilation and Containment
0	15860	HEPA Air Filtration Device Requirements

END OF SECTION

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Approved:  2/19/02
 Joseph S. Stoner Date

SECTION 01010

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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 subtier 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. "Traveler Package" A controlled package of instructions for performing special work processes of hazard identification and mitigation, of instructions for performing the verification of the construction work through inspections and examinations, and of forms for documenting the performance and/or verification of the construction work. The scope of the instructions and documentation is a function of the Quality Level of the work.

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2.	"Indicated":	As shown on the drawings and/or specified.	
3.	"Directed," "Authorized," "Permitted":	Shall be as directed, authorized, or permitted by Fluor Fernald.	
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 Labor Hour Contract for Construction Labor or the Traveler Package, 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. Building Officials Code Administrators (BOCA)

1. Ohio Basic Building Code (OBBC) 1998

B. National Fire Protection Association

1. NFPA 101 Life Safety Code 2000 Edition
2. Other applicable National Fire Protection Association (NFPA) Codes in the National Fire Code Library.

C. Code of Federal Regulations (CFR)

1. 10 CFR 835 - Energy - Occupational Radiation Protection.
2. 29 CFR 1910 - Department of Labor, Occupational Safety and Health Standards.
3. 29 CFR 1926 - Department of Labor, Safety and Health Regulations for Construction.

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4. 10 CFR 830.120 Quality Assurance Program (as applicable).

D. The United States Department of Energy (DOE)

1. DOE G 440.1 - 1 - Worker Protection Management for DOE Federal and Contractor Employees Guide.
2. DOE N 441.1 - Radiological Protection for DOE Activities.
3. DOE Order 5400.5 CHG2- Radiation Protection of the Public and the Environment.

1.3 QUALITY REQUIREMENTS

- A. Fluor Fernald shall provide written procedures for 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.
- B. The Contractor shall not deviate from construction acceptance tests.
- 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.

1.4 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
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

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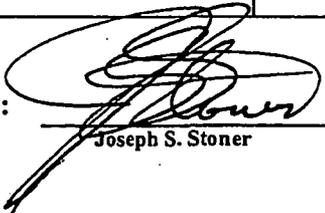
<u>Abbreviation</u>	<u>Authority or Title</u>
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
RFP	Request for Proposal
UL	Underwriters Laboratories, Inc.

END OF SECTION

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	Date: 02/19/02	Section 01120	Rev 5

Approved:



Joseph S. Stoner
Date: 2/19/02

SECTION 01120

DEBRIS/WASTE HANDLING CRITERIA

PART 1 GENERAL

1.1 SUMMARY

This section provides the requirements for handling, containerization and stockpiling of debris/waste generated during the dismantlement of processing and support facilities. Debris/waste shall be segregated into established categories and containerized as directed in this Specification 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; and
- F. Debris stockpiling.

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 11010 - HEPA Vacuum Cleaner Requirements
- I. Section 15065 - Equipment/System Dismantlement
- J. Section 15067 - Ventilation and Containment.
- K. Section 15860 - HEPA Air Filtration Device Requirements

1.3 REFERENCE MATERIALS

See the Traveler Package for the following:

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- A. Drawings, if available.
- B. 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, materials, etc.

1.4 REFERENCES, CODES AND STANDARDS

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

- A. United States Department of Energy
 - 1. DOE Order 460.1A Packaging and Transportation Safety.
- B. Code of Federal Regulations (CFR)
 - 1. 10 CFR 835 Energy - Occupational Radiation Protection.

1.5 PROJECT CONDITIONS

- A. Categories of debris/waste are identified in the MSCC.
- B. Generation of additional debris/waste shall be minimized. Waste minimization shall include, but not be limited to, unpacking equipment and material prior to entering the Controlled Area. Hazardous materials shall not be brought to the construction zone unless prior approval is received from Fluor Fernald. Alternatives to hazardous materials shall be used whenever possible.
- C. 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.

PART 2 PRODUCTS

2.1 MATERIALS - OWNER (Fluor Fernald, Inc.) FURNISHED

- A. Fluor Fernald will provide appropriate containers for debris/waste categories as identified on the MSCC.
- B. Fluor Fernald will deliver empty ("prepped", if required) containers, pallets (possibly radiologically contaminated), dunnage, and miscellaneous materials, as required, to the container staging area.

PART 3 EXECUTION

3.1 PREPARATION

- A. Container Staging Area:
Fluor Fernald will identify the location of the container staging area. The Site Support Contractor shall be responsible for stabilizing and maintaining the areas

3.2.A

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and routes of access to accommodate container handling requirements.

B. Material Inspection Area:

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

3.2 APPLICATION

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, concrete, transite, and most miscellaneous materials.

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.

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.

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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" 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. 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. **Loading of Containers:**

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. 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 will stop. Fluor Fernald shall be contacted for further direction.

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3. Commingle Accessible Metals, Inaccessible Metals, Light Gauge Metal (except for lead), and incidentally generated Concrete in the designated container or stockpile, as directed by the MSCC. Segregate and containerize according to two subcategories: Miscellaneous Non-Cellulosic Materials and/or Miscellaneous Cellulosic Materials.
4. 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. If required, remove any free liquids (ice is considered a freestanding liquid) upon delivery or removal of the containers from the work area.
5. Fill containers, boxes, and drums such that the interior volume is as efficiently and compactly loaded as practical up to the maximum gross weight limit of the container. Fill void space in large piping, equipment, containers, etc., with smaller debris. Any container exceeding maximum allowable gross weight shall have contents removed, as required, to lower the weight to an acceptable range. Contents shall be prepared for containerization so as to minimize load shifting or damage to container during movement.
6. Except during loading activities, empty white metal boxes and drums must remain in the established empty container staging area.
7. 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)

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- 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
8. Weatherproof removable tags shall be attached to 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 the Special Materials Category an exact description of the contents is required.
9. Thorium contaminated debris/waste shall be containerized separately from non-thorium contaminated debris/waste.

B. Security and Movement of Containers:

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

- 1. Move 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 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.
- 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:
 - i. Place lid on drum, ensuring that gasket is seated to maintain a tight seal.
 - ii. Install bolt-type lock ring on lid and torque to 45 ± 5 foot-pounds.

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- iii. 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:
 - i. Inspect gasket for damage and repair, if required.
 - ii. Place gasket and lid on the box and secure with clamping device or pins.
- d. Roll-Off Boxes (ROBs) shall be secured as follows:
 - i. Cover ROB with tarp or steel lid.
 - ii. Secure tarp (with straps) or steel lid (with clamping device or pins).
 - iii. Secure all gate chains.
 - iv. 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 white 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 Specification Section 01519.

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 Specification Section 01515, and fencing. The Contractor shall ensure that run-off controls are constructed and used in accordance with Specification Section 01515. Stockpiled materials shall be sized and segregated in accordance with the MSCC. Structural steel shall be stacked in a unidirectional manner and all materials shall be placed in a stable configuration. A five foot buffer area shall be maintained between the footprint (and vertical plane) of the stockpile(s) and the perimeter of the

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pad(s) and the stockpile area fencing. The Contractor shall inspect the stockpile area(s) as follows:

- 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. 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.
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. Fluor Fernald will perform the analysis to verify the loading capacity of said floor.

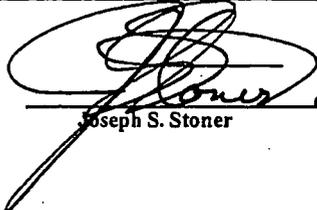
3.4 FIELD QUALITY ASSURANCE

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 and that materials/debris are segregated and sized according to the MSCC.

END OF SECTION

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 Joseph S. Stoner Date

SECTION 01515

MOBILIZATION, DEMOBILIZATION AND GENERAL SITE REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

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

- A. Site access
- B. Patching building slab
- C. Construction utilities
- D. Signs and barriers
- E. Gravel pads for access and queuing areas
- F. Protecting adjacent facilities and components
- G. Stormwater control
- H. Remediation equipment
- I. 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 11010 - HEPA Vacuum Cleaner Requirements.
- G. Section 15065 - Equipment/System Dismantlement.
- H. Section 15067 - Ventilation and Containment.
- I. Section 15860 - HEPA Air Filtration Device Requirements.

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1.3 REFERENCE MATERIALS

See the Traveler Package for the project layout drawing, if available.

1.4 REFERENCES, CODES AND STANDARDS

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

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

- 1. ASTM A36/A36M Rev A Standard Specification for Carbon Structural Steel.
- 2. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars ((Using 2 - in. or (50 - mm) Cube Specimens)).
- 3. ASTM C136 2000 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- 4. ASTM A475 1998 Standard Specification for Zinc-Coated Steel Wire Strand.
- 5. ASTM D698 Rev A Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort ((12,400 ft-lbs./ft. (600kN-m/m³)).
- 6. ASTM C827 2001 Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
- 7. ASTM C1042 Standard Test Method for Bond Strength of Latex Systems Used with Concrete by Slant Shear.

B. National Fire Protection Association (NFPA):

- 1. NFPA 70 National Electrical Code, 1996 Edition.
- 2. NFPA 101 ® Life Safety Code ® 2000 Edition, NFPA 101A Guide on Alternative Approaches to Life Safety 2001 Edition, and NFPA 101B Code for Means of Egress for Buildings and Structures 1999 Edition.

C. American National Standards Institute (ANSI):

- 1. ANSI/IEEE C2 2000 National Electrical Safety Code.
- 2. ANSI C135.1 1979 Galvanized Steel Bolts and Nuts for Overhead Line Construction.

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3. ANSI 05.1 1992 Wood Poles Specifications and Dimensions.

D. American Wood-Preservers Association (AWPA):

1. AWPA C4 1999 Poles - Preservative Treatment by Pressure Processes.

E. National Electrical Manufacturers Association (NEMA):

- 1. NEMA LA 1 1992 (R1999) Surge Arresters
- 2. NEMA WC 70 1999/ICEA S-95-658-1999 Nonshielded Power Cables Rated 2000 Volts or less for the Distribution of Electrical Energy.
- 3. NEMA WC 71 1999/ICEA S 96-659-1999 Standard for Nonshielded Cables Rated 2001-5000 Volts for use in the Distribution of Electrical Energy.
- 4. NEMA WC 72 1999 Continuity of Coating Testing for Electrical Conductors.

F. Underwriters Laboratories (UL):

- 1. UL 96 2000 Lightning Protection Components 4th Edition.
- 2. UL Electrical Directories Construction Materials, Latest Edition.

G. United States Department of Agriculture:

1. 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, Safety and Health Regulations for Construction.
- 2. 29 CFR 1910 Occupational Safety and Health Administration, Dept. of Labor, Occupational Safety and Health Standards.

I. American Water Works Association (AWWA):

1. C510 1997 Double Check Valve Backflow Prevention Assembly.

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2. C511 1997

Reduced-Pressure Principle Backflow Prevention Assembly.

J. BOCA:

1. 4104:26:105 Backflow Ohio State Plumbing Code.

1.5 SITE CONDITIONS

Utilities: all electric, gas, water, steam, sewer, and/or other service lines to the building have been disconnected and/or capped.

PART 2 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.

Acceptable products and suppliers:

1. Masterflow 713, by Masters Builders.
2. SikaGrout 212, by Sika Corp.
3. Sealtight 588, by W. R. Meadows.
4. Approved equal.

B. Construction Zone fencing shall be orange plastic construction fencing. 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 Specification Section, clean granular fill is used to fill large openings in the base slab, including pits, large sumps, etc. Use of fine aggregate shall be natural river sand, bank sand or sand manufactured from stone or air-cooled blast furnace slag; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; within the following limits:

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

E. Gravel Pads for Access and Container Staging Areas

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

F. Wood Utility Poles:

1. ANSI 05.1; treated southern pine poles.
2. Select poles for straightness, minimum sweeps and short crooks.
3. Preservative: ANSI 05.1 and AWPA C4, Pentachlorophenol.
4. Apply preservative to AWPA C4 with minimum net retention of 12 lbs/ft³ (285 kg/m³). 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 C510 and C511) for Backflow Prevention Devices.

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2. Acceptable products and suppliers:

- a. WATTS 909 Backflow Preventor (a Fluor Fernald recommended product).
- b. Approved equal.

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:

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

PART 3 EXECUTION

3.1 EXAMINATION

Fluor Fernald shall perform an Engineering Survey in accordance with the requirements of OSHA 29 CFR 1926.850, prior to the Contractor proceeding with any work activities beyond mobilization.

3.2 PREPARATION

A. Site Access:

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

B. Slab Openings:

1. Fill large openings (e.g., pits, sumps, etc.) with granular fill material to within 2 inches of grade unless engineered covers that are capable of supporting anticipated loads during D&D are approved by Fluor Fernald.
2. Areas designated for interim storage stockpiling of contaminated debris or for staging of contaminated equipment shall have slab openings (conduit, piping, drain openings, etc.) 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 of this specification package.

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- 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 performing any D&D work, the Contractor shall conduct a physical survey to verify that all utilities are capped and/or controlled to the Contractor's satisfaction.
- 2. All electrical appurtenances required for temporary power shall be in accordance with the National Electric Code.
- 3. Temporary heating or cooling: 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.
- 4. The Contractor shall extend the water from the point source location to support operations or provide portable facilities as may be required. Consistent with the Ohio State Plumbing Code, as referenced in Article 1.4, the individual performing the installation, maintenance, and inspection of the backflow preventor shall be a licensed plumber and certified in the State of Ohio as a Backflow Preventor Tester. 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 install and maintain all backflow prevention devices (in accordance with Article 2.1 of this specification section), fittings, and valves for point source connections.
 - b. 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.
 - d. Backflow devices shall have freeze protection and be accessible for inspection.

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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.
2. The Contractor shall install construction zone fencing outlining construction boundary. Construction safety signs shall be posted at 50 feet intervals around the defined construction area. The Contractor shall regularly inspect all fences and barriers for integrity and shall perform maintenance to restore integrity in a prompt manner throughout the D&D project.
3. The Contractor shall install radiological control fencing as follows:
 - a. Yellow snow fence shall be installed around radiological areas in outdoor areas to designate the following boundaries:
 - i. Contamination Area/Controlled Area;
 - ii. High Contamination Area; and
 - iii. Adjacent Contamination Areas controlled to different isotopes.
 - b. When yellow fence requirements coincide with an existing barrier such as a permanent fence or a building wall, the existing physical barrier may serve as the boundary.
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: If directed by Fluor Fernald, the Contractor shall install permanent fencing around specific areas as identified by Fluor Fernald, Inc. 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 of the area to allow subsequent access by Fluor Fernald. The gate shall have a latch that can be locked.

E. 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.

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F. Protecting Adjacent Facilities and Components:

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

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. Remediation Equipment:

1. Identify any special requirements for storing material or equipment.
2. To minimize the generation of waste products, all equipment requiring periodic oil and filter changes shall have this maintenance performed just prior to arrival on site.

I. Ventilation and Containment:

1. If release cleaning for structures is required, a vestibule on the entry/exit of the building access prior to the beginning of work shall be installed. The vestibule shall be constructed so as to prevent the escape of airborne contamination. Material used for the construction of vestibules shall be in compliance with Section 15067 of this specification package.
2. Enclose structure and ensure that all holes, gaps, openings in exterior building structure walls and roofs are sealed with duct tape, fiber-reinforced sheeting, plywood or foam material (including where doors or windows are missing) in accordance with Specification Section 15067. Enclosed structures shall allow for emergency exits.

3.3 DEMOBILIZATION AND FINAL PROJECT SITE ACCEPTANCE

- A. Demobilization includes the removal of all Contractor tools, equipment, materials, and construction zone perimeter fencing.
- B. Final project site acceptance will consist of verification of completion of all work activities relating to the work scope.

END OF SECTION

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Approved:

Joseph S. Stoner

Date

SECTION 01516

ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SUMMARY

This section specifies the requirements for an asbestos hygiene program, and 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 Requirements
- E. Section 15067 - Ventilation and Containment
- F. Section 15860 HEPA Air Filtration Device Requirements

1.3 REFERENCE MATERIALS

See the Traveler Package for the following, if available:

- A. Photographs
- B. Drawings
- C. ACM summary information

1.4 REFERENCES, CODE AND STANDARDS

- A. Code of Federal Regulations (CFR):
 - 1. 29 CFR 1926 Occupational Safety and Health Administration, Dept. of Labor, Safety and Health Regulations for Construction.
 - 2. 29 CFR 1910 Occupational Safety and Health Administration, Dept. of Labor, Occupational Safety and Health Standards.

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3. 40 CFR 61 Protection of Environment, National Emissions Standards for Hazardous Air Pollutants (NESHAPS).

B. Ohio Department of Health:

1. Asbestos Hazards Abatement Rules, Ohio Administrative Code, Chapter 3701 - 34.

C. Ohio Environmental Protection Agency:

1. Air Pollution Regulations, Ohio Administrative Code, Chapter 3745-20 Asbestos Waste

D. United States Environmental Protection Agency (U.S. EPA)

1. 40 CFR 61, Subpart M, (NESHAPS)

1.5 SUBMITTALS

A. Prior to initiation of ACM work, the Contractor shall submit or have the following on record with 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.

1.6 DELIVERY, STORAGE, AND HANDLING

Materials shall be in original, new, and unopened containers bearing 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. Thinning instructions.
- E. Application instructions.

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1.7 SITE CONDITIONS

- A. Transite that has deteriorated to a friable condition shall be considered friable ACM and therefore be removed in accordance with this Specification Section.
- B. 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 Specification Section.

PART 2 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.
- 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 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; and,
- 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; and,
- f. Approved equal.

3. Bridging Encapsulates:

- a. Asbestos Binding Compound – Fiberlock Technologies;
- b. Leadlock – Global Encasement Systems;
- c. Foster 32-80, Foster Products Corp.; and,
- d. Approved equal.

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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.
- 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. Portable Asbestos Hygiene Facility (See Figure 1 on the following page): The size of this facility shall be large enough to handle the asbestos workers during peak manpower periods. The facility shall meet the requirements for a hygiene facility specified by OSHA 29 CFR 1926.1101, DOE and site radiological control requirements. It shall be constructed using fire retardant material. When exiting a radiological contaminated area, whole body monitoring is required prior to showering.

The requirements 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.
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. An electrical outlet shall be provided for the PCM. The minimum power requirements for the PCM

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

PART 3 EXECUTION

3.1 PREPARATION

A. Regulatory:

1. Fluor Fernald shall notify the Ohio Department of Health (ODOH) ten (10) days prior to start of ACM removal. Fluor Fernald will also be responsible for notifying the EPAs and all other applicable governmental agencies before start of work.
2. The Contractor shall:
 - a. Comply with work practices and procedures set forth in all applicable Federal, State, and local codes, regulations, and standards.
 - b. Obtain certifications and licenses.
 - c. 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.
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.

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4. Cover the floor with one layer of 6 mil polyethylene sheeting.
5. 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.
 5. Asbestos-containing material with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) which will tear the polyethylene bags and sheeting shall be placed into properly labeled containers and subsequently bagged for disposal.
 6. After completion of all stripping work, surfaces from which ACM has been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible ACM residue.
- C. Cleanup procedures:
 1. Remove and containerize all visible accumulations of ACM and asbestos-contaminated material.
 2. Wet clean all surfaces in the work area.
 3. For containment work, after cleaning the work area, wait at least 24 hours to allow fibers to settle, and HEPA vacuum and wet clean objects and surfaces in the work area again.
 4. Inspect the work area for visible residue.
 5. The work area shall be cleaned until visual inspection reveals no evidence of any ACM as determined by Fluor Fernald.
 6. Apply lockdown to all surfaces in the work area.

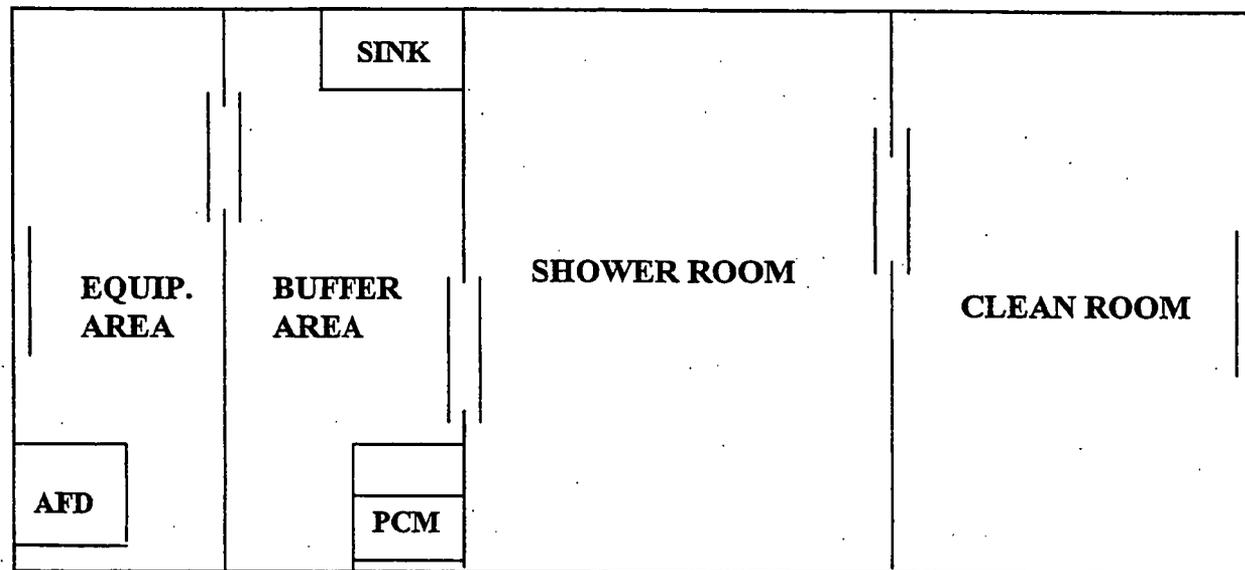
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7. For containment work, aggressive clearance testing shall be performed by Fluor Fernald and the acceptable limit <0.01 f/cc by Phase Contrast Microscopy.
8. Upon successful completion of aggressive clearance testing by Fluor Fernald, the Contractor shall remove containment and dispose of it as ACM waste per the MSCC.
9. Wastewater associated with asbestos abatement shall be handled in accordance with Specification Section 01517.

D. Floor tile, mastic, woven cloth-covered electric wire, 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.

FIGURE 1 ASBESTOS HYGIENE FACILITY (EXAMPLE)



**DIRTY CHANGE AREA
(DOFFING ROOM)**

END OF SECTION

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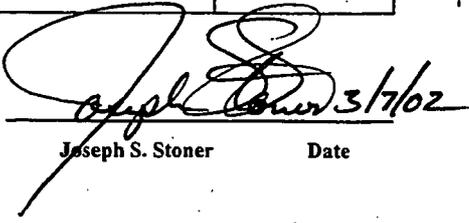
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Approved:  3/7/02
 Joseph S. Stoner Date

SECTION 01517

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

PART 1 GENERAL

1.1 SUMMARY

- A. Decontamination of dismantled equipment or the structure to a level that permits removal of the debris from a local containment or 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.
 - 5. Fixing contamination.

- B. Project Conditions
 - 1. 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 is found during D&D activities, Fluor Fernald shall be notified prior to disturbing the condition.
 - 2. See Specification 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 Specification Section; handling of transite panels is addressed in Specification Section 07415.
 - 4. Hazardous Waste Management Units (HWMUs) shall be decontaminated pursuant to the specific conditions included in the Traveler Package.

1.2 RELATED SECTIONS

- A. Section 01120 - Debris/Waste Handling Criteria
- B. Section 03315 - Concrete/Masonry Removal
- C. Section 05126 - Structural Steel Dismantlement

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- D. Section 07415 - Transite Removal
- E. Section 11010 HEPA Vacuum Cleaner Requirement
- F. Section 15065 - Equipment/System Dismantlement
- G. Section 15067 - Ventilation and Containment
- H. Section 15860 HEPA Air Filtration Device Requirements

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1.3 REFERENCE MATERIALS

See Traveler Package for the following, if available:

- A. Photographs
- B. Drawings

1.4 REFERENCES, CODES, AND STANDARDS

A. United States Department of Energy (DOE):

- 1. DOE Order 5400.5 CHG2 Radiation Protection of the Public and the Environment.
- 2. DOE N 441.1 Radiological Protection for DOE Activities.
- 3. DOE G 430.1-4 DOE Decommissioning Implementation Guide.

B. Code of Federal Regulations (CFR):

- 1. 10 CFR 835 Department of Energy, Occupation Radiation Protection

PART 2 PRODUCTS

2.1 EQUIPMENT

Equipment required to control, filter, and move effluent produced during removal and/c encapsulation of contaminants include the following:

- A. The filter system shall consist of a 20 micron pre-filter and a 0.5 micron hepa-filter to remove entrained particulate prior to effluent discharge to tank.
- B. The Contractor shall construct all holding tank systems and secondary containment systems as specified in Article 3.1.D and 3.1.E of this specification.

2.2 MATERIALS

- A. Encapsulating coatings: If encapsulating coatings are employed, they shall be Carbolin 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.

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- 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 polyethylene sheeting.

PART 3 EXECUTION

3.1 APPLICATION

- A. Requirements for managing non-process debris, process debris, and suspect process debris are described in Specification Section 01120, Articles 3.2.A.1, 3.2.A.2, and 3.2.A.3, respectively.

1. Prior to removing the exterior siding of a uranium contaminated structure and prior to structural dismantlement where the exterior siding is not removed, all non-porous surfaces (such as steel decking or columns) within the structure shall be below 5,000 dpm/100cm² beta-gamma removable radiological contamination and all above-grade porous surfaces (such as concrete decking or wood) shall be below 1,000 dpm/100 cm² beta-gamma removable, 5,000 dpm/100cm² average beta-gamma fixed plus removable, and 15,000 dpm/100cm² maximum beta-gamma fixed radiological contamination. The average beta-gamma fixed plus removable radiological contamination limit is the average of the radiological contamination levels that exist within an individual 20 ft. x 20 ft. area (generally defined by plant column locations) and the maximum beta-gamma fixed radiological contamination limit is the highest permissible contamination levels within the 20 ft. x 20 ft. area.
2. The fixed plus removable limit for above-grade porous surfaces is not applicable where the Contractor's safe work plans implement requirements ensuring contamination and airborne radioactivity are adequately contained during facility takedown. An acceptable option is encapsulation of the slab and wrapping the slab with geotextile fabric that is wetted down with amended water prior to felling activities. All at grade slabs shall meet the same limits prescribed for above-grade porous surfaces. However, the Contractor may encapsulate the slab in lieu of meeting the fixed-plus removal limit.

- 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 external surfaces shall be free of gross removable surface contamination and all openings of equipment and debris that are potentially contaminated internally with removable contamination shall be sealed. For large items such as ductwork, encapsulation of all internal surfaces may be done in lieu of sealing. Acceptable methods for removing surface contamination include, but are not limited to: hydro-blasting with a minimum of 1,000 psi, steam-cleaning, sponge blasting, CO₂ blasting, or other methods required by Fluor Fernald.
2. Debris and equipment/systems shall be managed in accordance with Specification Section 01120.

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3. Thorium-contaminated items cannot be released from the building enclosure or local containment areas unless they meet thorium-specific release limits. Items taken from these areas shall be either decontaminated, wrapped or brought directly to containers labeled as containing thorium-contaminated items (not for re-packaging), or containerized prior to removal from the enclosure.

a. Thorium-232 Facilities

Prior to removing the exterior siding of a thorium-232 contaminated structure and prior to structural dismantlement where the exterior siding is not removed, all surfaces within the structure shall be below 200 dpm/100cm² alpha removable radiological contamination and 5,000 dpm/100cm² alpha fixed plus removable radiological contamination. All at-grade slabs shall meet the same limits. The Contractor may encapsulate the building interior surfaces in lieu of meeting the fixed-plus removable limit. These limits shall be achieved by following the requirements of specification Section 01517. A combination of decontamination and application of fixative may be used.

a. Thorium-230 Facilities

Prior to removing the exterior siding of a thorium-230 contaminated structure and prior to structural dismantlement where the exterior siding is not removed, all surfaces within the structure shall be below 20 dpm/100cm² alpha removable radiological contamination and 5,000 dpm/100cm² alpha fixed plus removable radiological contamination. All at-grade slabs shall meet the same limits. The Contractor may encapsulate the building interior surfaces in lieu of meeting the fixed-plus removable limit. These limits shall be achieved by following the requirements of specification Section 01517. A combination of decontamination and application of fixative may be used.

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 Contractor for disposition as contaminated material without decontamination. 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 the structures that require decontamination to meet facility release cleaning requirements to the environment, the Contractor shall remove and/or fix radiological contamination on all surfaces within the facility until the detected radioactivity levels are below the criteria as defined in the Traveler Package. Fluor Fernald will perform a radiological release survey to ensure the radioactivity criteria are met.

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2. Transite Roof 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 panels have been vacuumed, the newly exposed surfaces shall be encapsulated to fix any contamination, which remains. Vacuumed residues shall be handled as in accordance with the MSCC Plan.

3. Outdoor Process Tanks and Pipe:

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

i. 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.

ii. Torch or other "hot cutting" methods:

Methods that minimize "hot cutting" (e.g., oxy/gas and oxy/acetylene torch cutting) shall be used. "Hot cutting" of surfaces that exceed 25,000 dpm/100cm² beta-gamma total contamination shall be performed within containment per Specification Section 15067. Hot cutting of tank surfaces may be considered for tanks and pipe located outside of containment provided HEPA filtered ventilation is maintained and/or point-of-cut ventilation can be provided such that fugitive emissions are captured and project boundary airborne radioactivity levels are maintained according to radiological release limits. The ventilation/containment requirements of Specification Section 15067 apply.

In all cases, the Contractor shall control airborne emissions at the project boundaries such that 2% of the (Derived Air Concentration (DAC) for the appropriate radiological isotope-of-concern is not exceeded (based on a weekly average).

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:

- a.) HEPA filtered ventilation is maintained, and/or
- b.) Point-of-cut ventilation is provided such that fugitive emissions are captured and the project boundary

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airborne radioactivity levels are maintained according to Table 1.

- iii. Hot cutting may be performed on contaminated surfaces less than 25,000 dpm/100cm² beta-gamma total contamination with local HEPA ventilation. (Note: this clause applies only to uranium-contaminated outdoor process tanks and pipe.)
 - b. Only exterior decontamination applies to *process pipe*, per Article 3.1.B.1; interior decontamination is not applicable. Internal surfaces of process piping are assumed to exceed both the removable and total contamination limits for uncontained demolition. However, demolition 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. Process piping must be sealed immediately after cutting.
- 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, CO₂ blasting, or other Fluor Fernald approved method.
- 5. Encapsulation of contaminants is required if radiological release cleaning levels 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 Specification 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.
- 10. The Contractor shall take precautions to prevent the spread of contamination from other more-contaminated areas of the facility to less contaminated areas.

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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 the Traveler Package for that particular component.

D. Resinate/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 of this Specification Section.
2. For resinate/effluent generated from decontamination of a structure containing uranium and/or thorium contamination or from decontamination wash water generated from contact with outdoor pads with process tanks and pipes, Fluor Fernald will supply all effluent collection equipment (e.g., pumps, secondary containment, tanks). 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 applicable): 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 resinates or sludges with a U-235 enrichment less than 1 percent.
 - a. For enrichments greater than 1 percent and less than or equal to 1.25 percent, effluent storage tanks of no greater than 175 gallon capacity shall be used.
 - b. For enrichments greater than 1.25 percent and less than or equal to 2 percent (no equipment/material over 2 percent enrichment is to be decontaminated, see Article 3.1.B.3), effluent storage tanks of no greater than 30 gallon capacity shall be used.
 - 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.
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.

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5. Approval to commingle the effluents and sludges is required from Fluor Fernald, Inc. Approval to transfer effluents to large effluent tanks is required from Fluor Fernald, Inc.
6. The Contractor shall notify Fluor Fernald when the effluent tanks are full. Fluor Fernald will sample the tank(s), test the effluent, and transport the effluent to the FEMP Advanced Wastewater Treatment Facility. Upon testing and approval of the tank(s), Fluor Fernald shall empty the contents of the storage tank(s) and transport the tank(s) back to the D&D area. 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.

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.)

TABLE 1 SURFACE CONTAMINATION LIMITS(a)

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

- a) Where surface contamination by both alpha and beta-gamma emitting nuclides exist, the limits established for alpha and beta-gamma-emitting nuclides should apply independently.
- b) As used in this table, dpm (disintegration's 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.

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- c) Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.
- d) The maximum contamination level applies to an area of not more than 100 cm².
- e) The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.
- f) The limits presented for transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, and Ac-227 may be adjusted on a case by case basis. Consult with Radiological Compliance when required to apply these limits for unrestricted release.

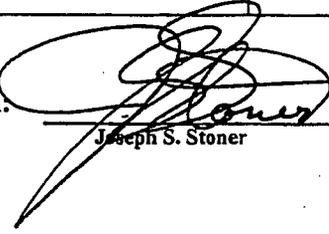
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Approved:  2/19/02
 Joseph S. Stoner Date

SECTION 01519

DECONTAMINATION OF TOOLS, EQUIPMENT, AND MATERIAL

PART 1 GENERAL

1.1 SUMMARY

- A. Preventative measures for and decontamination of tools, equipment (including vehicles), and material to a level that permits removal from an enclosure/work zone, restricted reuse, or unrestricted release. This Section includes, but is not limited to:
 - 1. Preventative measures/waste minimization
 - 2. Decontamination area requirements
 - 3. Methods of decontamination activities
 - 4. Control of effluent and waste management activities
 - 5. Relocation, reuse, and release activities for tools, equipment, and material

- B. Project Conditions and Requirements:
 - 1. All facilities, unless expressly noted in the Traveler Package, 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 radiological survey personnel.
 - b. Only those items, which meet the requirements (as described in this Specification Section) for leaving the work zone, should enter the inspection area.
 - 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.

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1.2 RELATED SECTIONS

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

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

1.3 REFERENCES, CODES, AND STANDARDS

- A. United States Department of Energy (DOE):
 - 1. DOE Order 5400.5 CHG2 Radiation Protection of the Public and the Environment.
 - 2. DOE N 441.1 Radiological Protection for DOE Activities.
 - 3. DOE G 430.1-4 DOE Decommissioning Implementation Guide.
- B. Code of Federal Regulations (CFR):
 - 1. 10 CFR 835 Department of Energy, Occupation Radiation Protection.

PART 2 PRODUCTS

2.1 TOOLS AND EQUIPMENT

- A. All possible shipping and packing materials will be removed upon receipt at the site prior to entering the controlled area to minimize contaminated waste generation.
- B. For the purposes of meeting the "As Low As Reasonably Achievable" (ALARA) goal for tools, equipment, and materials, it is expected that all reasonable efforts are to be used to control residual contamination. To the extent that there is no detectable contamination on items that were free of contamination prior to use, or there is no increase in the level of contamination on items that were previously contaminated. The ALARA efforts include, but are not limited to, the following:
 - 1. Protective measures prior to use of items.
 - 2. Preventative measures while items are being used.
 - 3. Decontamination upon completion of work activities.
- C. In support of the ALARA initiative, all 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 3 EXECUTION

3.1 APPLICATION

- A. Prevention of or Minimizing Contamination:

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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. Materials, tools and equipment shall be evaluated 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, SC-08, should incorporate appropriate precautions to prevent contamination, which should be implemented prior to and during use. Examples of precautionary measures may include the following.
 - 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. Electrical driven mobile equipment shall not be used (e.g., forklifts) 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 encapsulates, sealants and/or coatings are utilized during the project, the Contractor shall be responsible for protecting their tools and equipment from over spray and ensure that the encapsulate, sealant and/or coating can be readily removed during decontamination activities.

B. Decontamination Area Requirements:

1. Tools and equipment utilized inside an enclosure/building may be decontaminated at an existing indoor debris cleaning location.
2. The following are examples of options for establishing outdoor decontamination areas:
 - 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 following methods are to be used, as applicable:

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- a. Dry-cleaning.
 - b. Steam cleaning.
 - c. High pressure, hot water hydro blasting (may be used in conjunction with abrasive techniques and approved decontamination agents) with a minimum of 1,000 psi and HEPA vacuuming.
2. When selecting a decontamination technique other than those identified in C.1 above, consideration should be given to those technologies which minimize radiological airborne emissions, secondary wastes, and tool or equipment damage.
- D. Control of Effluent and Waste Management Activities:**
1. The Contractor shall control and collect all waste and effluent generated while removing and/or fixing contamination in accordance with the Traveler Package and Specification Sections 01517 and 01120.
 2. Management of wastes generated during decontamination activities shall be in accordance with Specification Section 01120 and the MSCC located in the Traveler Package.
- E. Relocation, Reuse, and Release of Tools, Equipment, and Material:**
1. The Contractor shall perform all decontamination activities required to meet the surface contamination limits identified in Table 1 of this section.
 2. Release of tools, equipment, and material from Contamination Areas to the Controlled Area:
 - a. If removable contamination in excess of the limits of Table 1 is present on the tools, equipment or material, then the items must remain in the contamination area for decontamination or the item must be contained such that no contaminated surfaces of the item are accessible without disassembling the equipment or breaching the containment.
 - b. Examples of acceptable containment include plastic wrapping, yellow Herculite wrapping, or a sealable hard container. However, the containment used must be adequate to maintain its integrity considering the weather, conditions of storage, and the methods or conditions of transport.
 - c. If the removable contamination limits are met but the total (fixed plus removable) limit is exceeded, the item may be labeled or identified as radioactive material by Fluor Fernald and released to the Controlled Area.
 3. **Unrestricted Release Criteria:**
Tools and equipment with detectable radioactivity may be released from the controlled area with the approval of a Fluor Fernald Material Release Evaluator 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 and that the item has been subjected to the ALARA process described in Article 2.1.B of this Specification Section.
 - b. All areas must be readily accessible for survey for residual radioactivity including proper surface counting geometry to allow for accurate

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quantification. Items with inaccessible areas, which are likely to be contaminated but are of such size, construction, or location as to make them inaccessible for survey, shall be assumed to exceed the limits for release. The item must either be disassembled to permit an adequate survey to certify that internal contamination is at or below the limits of Table 1, or well documented process knowledge can be applied to provide confidence that contamination in inaccessible areas is not probable. In evaluating the potential for contamination in inaccessible areas, consideration will be given to where the item was used on site and preventative measures taken prior to use, such as coverings, wrappings, air intake filters, etc.

3.2 UNSUCCESSFUL/IMPRACTICAL DECONTAMINATION

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

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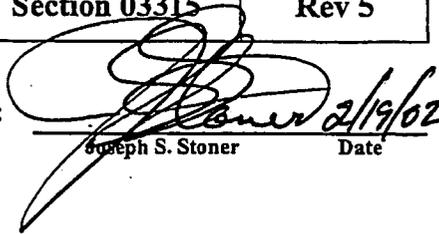
TABLE 1 SURFACE CONTAMINATION LIMITS(a)

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

- a) Where surface contamination by both alpha and beta-gamma emitting nuclides exist, the limits established for alpha and beta-gamma-emitting nuclides should apply independently.
- b) As used in this table, dpm (disintegration's per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.
- c) Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.
- d) The maximum contamination level applies to an area of not more than 100 cm².
- e) The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.
- f) The limits presented for transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, and Ac-227 may be adjusted on a case by case basis. Consult with Radiological Compliance when required to apply these limits for unrestricted release.

END OF SECTION**000101**

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Approved:  2/19/02
 Joseph S. Stoner Date

SECTION 03315

CONCRETE/MASONRY REMOVAL

PART 1 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. Precast concrete components
- D. Foundations, piers, and selected curbs
- E. Concrete encasement (e.g., fireproofing)
- F. Interior and exterior masonry
- G. Control of fugitive emissions
- 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 11010 HEPA Vacuum Cleaner Requirement.
- F. Section 15067 Ventilation and Containment.
- G. Section 15860 HEPA Air Filtration Device Requirements.

1.3 REFERENCE MATERIALS

See the Traveler Package for the following, if available:

- A. Photographs
- B. Drawings

1.4 REFERENCES, CODES, AND STANDARDS

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

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A. American National Standards Institute (ANSI):

- 1. ANSI A10.6-90 National Safety Council, Safety Requirements for Demolition Operations.
- 2. ANSI A10.8-01 National Safety Council, Safety Requirements for Scaffolding.
- 3. ANSI A10.9-97 National Safety Council, Safety Requirements Concrete Construction Masonry Work.

B. National Fire Protection Association (NFPA):

- 1. NFPA 101 @ Life Safety Code @ 2000 Edition, NFPA 101A Guide on Alternative Approaches to Life Safety 2001 Edition, and NFPA 101B Code for Means of Egress for Buildings and Structures 1999 Edition.
- 2. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations 2000 Edition.

C. Code of Federal Regulations (CFR):

- 1. 10 CFR 835 Energy-Occupational Radiation Protection.
- 2. 27 CFR 55, Subpart K Storage.

D. Ohio Administrative Code (OAC):

- 1. 3745-17 Particulate Matter Standards, Part 08 Restriction of Emission of Fugitive Dust.

PART 2 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. The alternate materials must be approved by Fluor Fernald prior to installation and use.

B. Encapsulates/Lockdowns:

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

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- 5. Serpiloc
- 6. Approved equal.
- C. Bridging Encapsulates:
 - 1. Asbestos Binding Compound – Fiberlock Technologies.
 - 2. Leadlock – Global Encasement Systems.
 - 3. Foster 32-80, Foster Products Corp.
 - 4. Approved equal.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ensure that adequate lay down space has been cleared and barriers have been established before removal of concrete/masonry.
- B. Use a wet dust suppression system to control fugitive emissions. This system will consist of the following:
 - 1. Amended water (with surfactant).
 - 2. Finely atomized water spray.
- C. Concrete and masonry shall have contamination fixed or removed prior to dismantlement and, if applicable, prior to removing local containment or building enclosure, in accordance with Section 01517 of this specification package.

3.2 APPLICATION

- A. 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 potential debris stockpiling. For all other areas, reinforcements and anchors

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need only be cut down to within one inch of the base slab. Fill in damaged areas of base slab with patching grout as described in Specification Section 01515.

D. Cutting:

1. All material shall be reduced in size as required for containerization in accordance with Section 01120 of this specification package and the MSCC.
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 of this specification package. Any currently known areas requiring local containment are identified in the Traveler Package.

3.3 SPECIAL INSTRUCTIONS

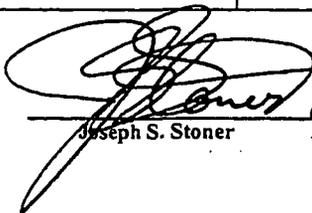
The following special instructions apply to concrete/masonry removal:

- A. Remove all windows/frames using one of the two methods listed below:**
 1. Remove window (glass and frame) in one piece and in a controlled manner, and place them in appropriate containers; or
 2. Remove the glass first in a safe and controlled manner, collect and place glass in appropriate containers, and dismantle the window frame with the structure siding.
- B. Remove all doors (wood and/or steel) and place them in appropriate containers.**
- C. Lead Materials**
 1. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the MSCC.
 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 (i.e., 4 inches on each side of cut).
 3. 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.
- D. Wall and Roof Louvers**
Remove louvers and roof vents during exterior concrete/masonry removal and placed in appropriate containers.

END OF SECTION

000105

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SECTION 05126

STRUCTURAL STEEL DISMANTLEMENT

PART 1 GENERAL

1.1 SCOPE

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
- 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.
- E. Section 11010 HEPA Vacuum Cleaner Requirement.
- F. Section 15860 HEPA Air Filtration Device Requirements.

1.3 REFERENCE MATERIALS

See the Traveler Package for the following, if available:

- A. Photographs
- B. Drawings

1.4 REFERENCES, CODES, AND STANDARDS

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

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- A. American National Standards Institute (ANSI):
1. ANSI A10.6 1990 National Safety Council, Safety Requirements for Demolition Operations.
 2. ANSI A10.8 2001 National Safety Council, Construction and Demolition Operations - Scaffolding - Safety Requirements.
 3. ANSI A10.13 1989 Construction and Demolition Operations - Steel Erection.
- B. National Fire Protection Association (NFPA):
1. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations 2000 Edition.
- C. Code of Federal Regulations:
1. 29 CFR 1926.858 Occupational Safety and Health Administration, Department of Labor, Safety and Health Regulations for Construction.

PART 2 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 3 EXECUTION

3.1 PREPARATION

- A. Ensure that adequate lay down space has been cleared and barriers have been established.
- B. Steel and siding shall have contamination removed or fixed prior to exposing steel and siding to the environment in accordance with Section 01517 of this specification package.

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3.2 APPLICATION

- A. All dismantlement activities shall be performed in accordance with the standards listed in Article 1.4 of this Section.
- B. 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.
- C. The roof deck and roofing material, panels and concrete floor decking shall also be demolished with the structure wherever possible. Roofing material containing asbestos containing material (ACM) shall not be demolished with structural steel.
- D. Dismantle, shear and segregate the structural steel to avoid damage to adjacent structures, component, equipment, and utilities. 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.
- G. Cut all reinforcing (e.g., rebar) and anchors flush with base slab for areas designated for potential debris stockpiling. For all other areas, reinforcements and anchors need only 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 of this specification package.
- H. Lead-based paint chips and debris, released during structural steel dismantlement, shall be collected and managed in accordance with Section 01120 of this specification package and the MSCC.

3.3 SPECIAL INSTRUCTIONS

- A. The following items are also included (where applicable) in the sequence of structural steel dismantlement:
 - 1. Remove all windows/frames using one of the two methods listed below:
 - a. Remove window (glass and frame) in one piece and in a controlled manner, and place them in appropriate containers; or
 - b. Remove the glass first in a safe and controlled manner, collect and place glass in appropriate containers, and dismantle the window frame with the structure siding.
 - 2. Remove all doors (wood and/or steel) and place them in appropriate containers.

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3. **Lead Materials:**

- a. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the MSCC.
- 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. 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.

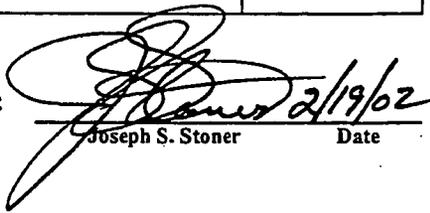
3.4 QUALITY ASSURANCE

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.

END OF SECTION

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Approved: 

Joseph S. Stoner

Date

SECTION 07415

TRANSITE REMOVAL

PART 1 GENERAL

1.1 SUMMARY

The work includes:

- A. Removal of all interior and exterior transite panels.
- B. Use of vacuuming, encapsulates, 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 the Traveler Package for the following, if available:

- A. Photographs
- B. Drawings

1.4 REFERENCES, CODES, AND STANDARDS

- A. Code of Federal Regulations:
 - 1. 29 CFR 1926.850 Demolition Preparatory Operations.
 - 2. 29 CFR 1926.1101 Asbestos (Construction Industry).
 - 3. 29 CFR 1910.134 Respiratory Protection.
 - 4. 29 CFR 1910.1001 Asbestos (General Industry).

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5. 40 CFR 61, Subpart M United States Environmental Protection Agency (U.S. EPA) (NESHAPS).

B. Ohio Department of Health:

1. Asbestos Hazards Abatement Rules, OAC, Chapter 3701-34

C. Ohio Environmental Protection Agency:

1. Air Pollution Regulations, OAC, Chapter 3745-20, Asbestos Waste

1.5 HANDLING AND STORAGE

A. Manage transite in accordance with Specification Section 01120 and the MSCC. Corrugated transite panels shall be stacked separately from flat transite panels.

B. Take precautions to prevent breakage of transite panels during handling.

1.6 PROJECT CONDITION

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.

Before performing any D&D activities within the footprint of the building, the contractor will take actions to abate any deterioration of overhead transite hazards that would place their workforce in unsafe surroundings.

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 2 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. Encapsulates/Lockdowns:

1. Control – Grayling Ind.
2. Foster 32-60 – Foster Products Corp.
3. Fiberset PM – Fiberlock Technologies

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4. ACC 22-P – American Coatings Corp.
5. Serpiloc
6. Approved equal

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

C. Surfactants:

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 3 EXECUTION

3.1 PREPARATION

A. Regulatory:

1. When applicable, Fluor Fernald will notify the Ohio Department of Health (ODOH) and the EPA and all other applicable governmental agencies before the start of work.
2. 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. Obtain certifications and licenses if transite becomes friable.

B. Consistent with Specification Section 01517, prior to opening a building to the environment by removing the exterior siding (e.g., transite, metal siding, roof panels), remove and/or fix radiological contamination on all structural surfaces within the facility until the detected radioactivity levels are below the facility release criteria in Section 01519, Table 1.

3.2 APPLICATION

A. Apply encapsulates, 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 Specification Section 01516.

C. Apply encapsulate and/or surfactant to areas around fasteners of transite panels before removal of fasteners.

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1. If cut, fasteners shall be cut in a manner which minimizes abrading the transite panel. A flat, sharp instrument shall be used to cut the fasteners.
 2. When encapsulate and/or surfactant is applied, it shall be applied to provide visible coverage. If original application becomes dried out before or during removal or handling, apply a second application.
- D. Prior to removal of transite panels, all surfaces of the panels shall be thoroughly wet or 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, apply encapsulate and/or surfactant to the edges of deteriorated areas.
 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 Specification Section 01517 for removing/fixing radiological contamination on single and multiple transite panels.

B. Gutters:

Collect all ACM from gutters using wet methods, and apply an encapsulate and/or surfactant to the gutters before their removal.

C. Insulation:

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

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D. Doors, Windows, and Frames:

1. Remove all windows/frames using one of the two methods listed below:
 - a. Remove window (glass and frame) in one piece and in a controlled manner, and place them in appropriate containers; or
 - b. Remove the glass first in a safe and controlled manner, collect and place glass in appropriate containers, and dismantle the window frame with the structure siding.
2. Remove all doors (wood and/or steel) and place them in appropriate containers.

E. Lead Materials:

1. Segregate all lead materials (i.e., flashing, vent stacks, etc.) and place them in appropriate containers in accordance with Section 01120 of this specification package and the MSCC.
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. 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.

F. All material shall be managed in accordance with the MSCC.

END OF SECTION

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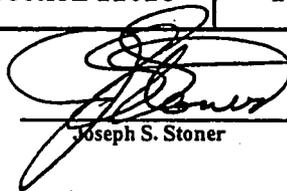
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Approved:

 2/19/02
 Date
 Joseph S. Stoner

SECTION 11010

HEPA VACUUM CLEANER REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. The contractor 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. Fluor Fernald 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 contaminates exists.)
- b. All consumables (Pre-filters, HEPA Filters, hoses, accessories, etc.)

2. SERVICES

- a. The contractor shall connect, maintain and operate each vacuum in accordance approved Operations and Maintenance Manual requirements and checklists.
- b. Upon completion of each task, the contractor shall empty the contents of the 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.

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

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	

*HAKO Minuteman Model

2.2 LABELING

- A. HEPA filters 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

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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.

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.

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- 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. 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.

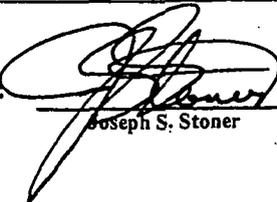
END OF SECTION

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SECTION 15065

EQUIPMENT/SYSTEM DISMANTLEMENT

PART 1 GENERAL

1.1 SUMMARY

- A. This section addresses 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 include, but not be limited to, the following:
 - 1. Conduit
 - 2. Wire
 - 3. Electrical boxes (junction, switch)
 - 4. Contacts
 - 5. Lighting fixtures
 - 6. Motor operated valves
 - 7. Lighting station
 - 8. Raceway and troughs
 - 9. Cable trays
 - 10. Piping
 - 11. Assorted valves, fittings, elbows, gauges, spool pieces, etc.
 - 12. Ductwork, plenums, branches, etc.
 - 13. Miscellaneous similar items

1.2 RELATED SECTIONS

- A. Section 01120 Debris/Waste Handling Criteria.
- B. Section 01515 Mobilization, Demobilization, and General Requirements.
- C. Section 01516 Asbestos Abatement.
- D. Section 01517 Removing/Fixing Radiological Contamination.
- E. Section 11010 HEPA Vacuum Cleaner Requirements.
- F. Section 15067 Ventilation and Containment.
- G. Section 15860 HEPA Air Filtration Device Requirements.

1.3 REFERENCE MATERIAL

See the Traveler Package for the following, if available:

- A. Photographs

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B. Drawings

1.4 REFERENCES, CODES, AND STANDARDS

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

A. Code of Federal Regulations:

- | | | |
|----|-----------------|----------------------------|
| 1. | 29 CFR 1926.301 | Hand Tools, and |
| 2. | 29 CFR 1926.302 | Power Operated Hand Tools. |

1.5 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 is found during D&D activities, Fluor Fernald shall be notified prior to disturbing the condition.

PART 2 PRODUCTS

2.1 MATERIALS

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 3 EXECUTION

3.1 APPLICATION

- A. Use mechanical means of cutting whenever possible.
- B. Prior to equipment/system dismantlement, 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, and
 - d. notify RCT and Industrial Hygiene (IH).
- C. Prior to cutting into tanks or piping where the potential for flammable lining exists, verify that no lining exists. Should lined pipes or tanks be found, the pipes or tanks shall be cut and removed by mechanical means and shall not be torch cut.

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- D. 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.
- E. Fluor Fernald Radiological Control shall be contacted prior to performing any torch cutting on contaminated surfaces.
- F. 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.
- G. Equipment, which can be removed in one piece during dismantlement of the building, will be identified in the Traveler Package; however, handling of such equipment must still follow all other applicable requirements in Specification Section 01120.
- H. Uncontrolled dropping of equipment and materials is not allowed.
- I. Piping insulated with asbestos may be removed in its entirety per the requirements of Specification Section 01516.
- J. Take the necessary actions to preclude spillage of residual material, if encountered.
- K. Debris segregation, sizing, and management shall be in accordance with Specification Section 01120 and the MSCC.
- L. 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 INTERIM MATERIAL STORAGE

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

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. 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

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unscrewing drain fittings, drilling, or hacksawing drains. Fluor Fernald personnel shall handle disposal of all recovered mercury.

- C. 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
- D. 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.

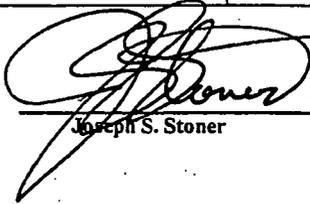
3.4 SPECIAL INSTRUCTIONS: REMOVAL OF LEAD MATERIALS

- A. Segregate all lead materials (e.g., flashing, vent stacks) and place them in appropriate containers in accordance with Section 01120 of this specification package and the MSCC.
- B. Lead impregnated cloth, used for noise dampening, shall be removed from equipment prior to equipment/system dismantling. Equipment/systems known to have lead impregnated cloth will be identified in the Traveler Package; however, this identification may not be totally inclusive of all such material.
- 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. Whenever possible, dismantle lead flashing in a manner that will facilitate recycling. This will include minimizing inaccessible surfaces and maximizing straight lengths. This will also include avoiding the use of fixatives on the lead flashing that would require an abrasive method of removal.

END OF SECTION

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SECTION 15067

VENTILATION AND CONTAINMENT

PART 1 GENERAL

1.1 SUMMARY

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

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

B. Definitions:

1. Local Containment - is an enclosure that is designed to maintain 0.1 inch water gauge negative pressure, or six air changes per hour, within its structure to prevent fugitive emissions from escaping to the outside environment.
2. Vestibule - is an enclosed entrance, a passage, or space that is between the outer door and the interior of the building. The space within the vestibule does not have to be under a negative pressure.
3. Enclosure - is the exterior wall of a 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 07415 | Transite Removal. |
| G. | Section 11010 | HEPA Vacuum Cleaner Requirements. |
| H. | Section 15065 | Equipment/System Dismantlement. |
| I. | Section 15860 | HEPA Air Filtration Device Requirements. |

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1.3 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 Order 5400.5 CHG2 Radiation Protection of the Public and the Environment.
 2. DOE N 441.1 Radiological Protection for DOE Activities
 3. DOE O 6430.1A Division 11
- B. Code of Federal Regulations:
1. 10 CFR 830.120 Quality Assurance Program.
 2. 29 CFR 1926.56 Illumination.
- C. Building Officials and Code Administration:
1. Ohio Basic Building Code (OBBC)

PART 2 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-mil thickness as manufactured by Blueridge Films, Inc. or Fluor Fernald approved equal.
1. Fire retardant polyethylene shall be used.
- C. All outside containments shall be constructed of reinforced polyethylene.

PART 3 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

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per hour. 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 29CFR 1926.56
 5. Connections for services lines, conduits, instrument leads, and ductwork
 6. 6 mil polyethylene sheeting
 7. Pressure differential readouts
 8. Attachments for interconnection of local containments
- C. Where practical, and without penetrating the local containment, all equipment components not functionally required to operate directly in the presence of radioactive materials shall be located outside the local containment.
- D. The local containment or vestibule structure external to the building shall be designed to withstand the effects of normal operating conditions and the following load capacities:
1. Interior: 5 psf lateral load
 2. Exterior: per OBBC

3.2 PREPARATION

- A. Enclose the structure and ensure that all building exterior holes, gaps, or openings are adequately sealed to prevent exhaust of airborne radioactive particulates.
- B. Ensure that all ductwork used is free of dust or dirt before installing it in the ventilation system to prevent premature impingement loading of the prefilters and HEPA filters.
- C. Ensure that all vestibules are large enough to support appropriate storage containers, material handling and dismantling equipment, and debris containerizing operations.

3.3 INSTALLATION/APPLICATION

- A. Block, tie-down, or wheel lock all portable HEPA units.
- B. The following guidelines for localized ventilation and in-place cutting control measures shall be met:
 1. Ensure that ventilation air is provided in the quantities required to maintain OSHA air quality limits, all Permissible Exposure Limits (PELs), and all ACGIH Threshold Limit Values (TLVs) and to maintain exposures 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:

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- a. Exhaust rate of the HEPA filters with a flexible ventilation duct shall maintain sufficient airflow capture velocity to prevent entry of fumes into the room. A minimum face velocity of 150 fpm is required.
 - b. Each HEPA filter with a flexible ventilation duct in the cutting area should be capable of being isolated by means of control dampers to prevent backflow through a hood when it is not in service.
- C. Ensure that all local containments can maintain negative pressures. The exhaust volume rate shall be 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 designed holes in the containment and the entrance/exit-way closes sufficiently to meet the air exchange/negative pressure requirements.

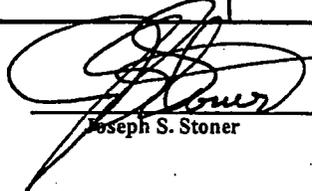
3.4 FIELD QUALITY ASSURANCE

Final acceptance of local containments, building enclosures, and vestibule structures shall be determined by Fluor Fernald.

END OF SECTION

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SECTION 15860

HEPA AIR FILTRATION DEVICE REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. The Fluor Fernald 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.

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):
 - 1. DOE O6430.1A-89 General Design Criteria.
- B. Code of Federal Regulations (CFR):
 - 1. 10CFR830.120 Quality Assurance Program.
- C. Air Movement and Control Association (AMCA):
 - 1. AMCA 210-99 Laboratory Method for Testing Fans for Aerodynamic Performance Rating.
- D. American Society of Mechanical Engineering:
 - 1. ASME AG-1a-00 Code on Nuclear Air and Gas Treatment.
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 70-99 National Electric Code.

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- F. Underwriters Laboratories (UL):
1. UL 586 Standard for Safety/HEPA Filter Units.
 2. 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).
1. 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 QUALITY ASSURANCE

- A. 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 smoke efficiency tested and certified by the filter manufacturer at one hundred percent (100%) and twenty percent (20%) of the rated flow.
- B. Fan Performance Ratings: All fans shall conform to AMCA 210 and bear the AMCA Certified Rating Seal with a certificate of compliance.
- C. All operation and testing of filter materials shall be in compliance with NFPA 70, UL 900, and UL 586, as referenced.
- D. 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.
- E. Each air filtration device shall be fully warranted for a period of one year.
- F. 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 Cincinnati, OH (513) 860-3444	Aerospace America, Inc. Bay City, Michigan (517) 884-2121
American Air Filter, Inc. Cincinnati, Ohio (513) 825-6565	Charcoal Services Inc. Cincinnati, Ohio (513) 771-2820
Control Resource Systems, Inc. Michigan City, IN (800) 272-3786	Flanders Filters, Inc. Washington, N.C. (919) 946-8081

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B. Other's

Elgin, IL
 Local: CSE 769-3400
 (708) 695-5822
 NFS/RFS
 Connecticut
 (203) 434-0660
 ADVEX Corp.
 Hampton, Virginia
 (804) 865-0920

IONEX Research Corp.
 Colorado
 (303) 666-4400
 Power Products and Services Co. Inc.
 Forest, VA
 (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:

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 ft²).
 - c. A six-inch to twelve-inch (6" to 12") pre-filter to protect the

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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.
- 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.

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

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accordance with ASME AG-1a.

g. The HEPA filter frame shall be labeled, certifying:

- i. The manufacturer's name,
- ii. Manufacturer's unique code Underwriter's Laboratory (UL) registration number indicating compliance with UL 586,
- iii. Filter efficiency based on PAO testing,
- iv. Resistance at the test airflow rate,
- v. Filter part number and serial number,
- vi. Test airflow direction, and
- vii. 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 μ) 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-inch (10") water gauge pressure drop.
- 4. The HEPA filter shall be capable of continuous twenty-four hour-per-day (24-hr/day) use 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

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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.

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

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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. Contractor's Responsibility

- 1. When there is no longer a need for the air filtration device at the Fluor Fernald site, the contractor 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 contractor 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.
- 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 ± 25 ft/min) shall be maintained at all times through all openings as identified in DOE O 6430.1A; Division 11.

Title: Miscellaneous Small Structures	Specification No: 01751-TS-0001		
	Date: 02/19/02	Section 15860	Rev 0

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

APPENDIX D

DESIGN DRAWINGS

Representative architectural and D&D design drawings were copied from the extensive set compiled for the design/procurement package and 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 areas illustrated in these drawings may be found in Section 3.0.

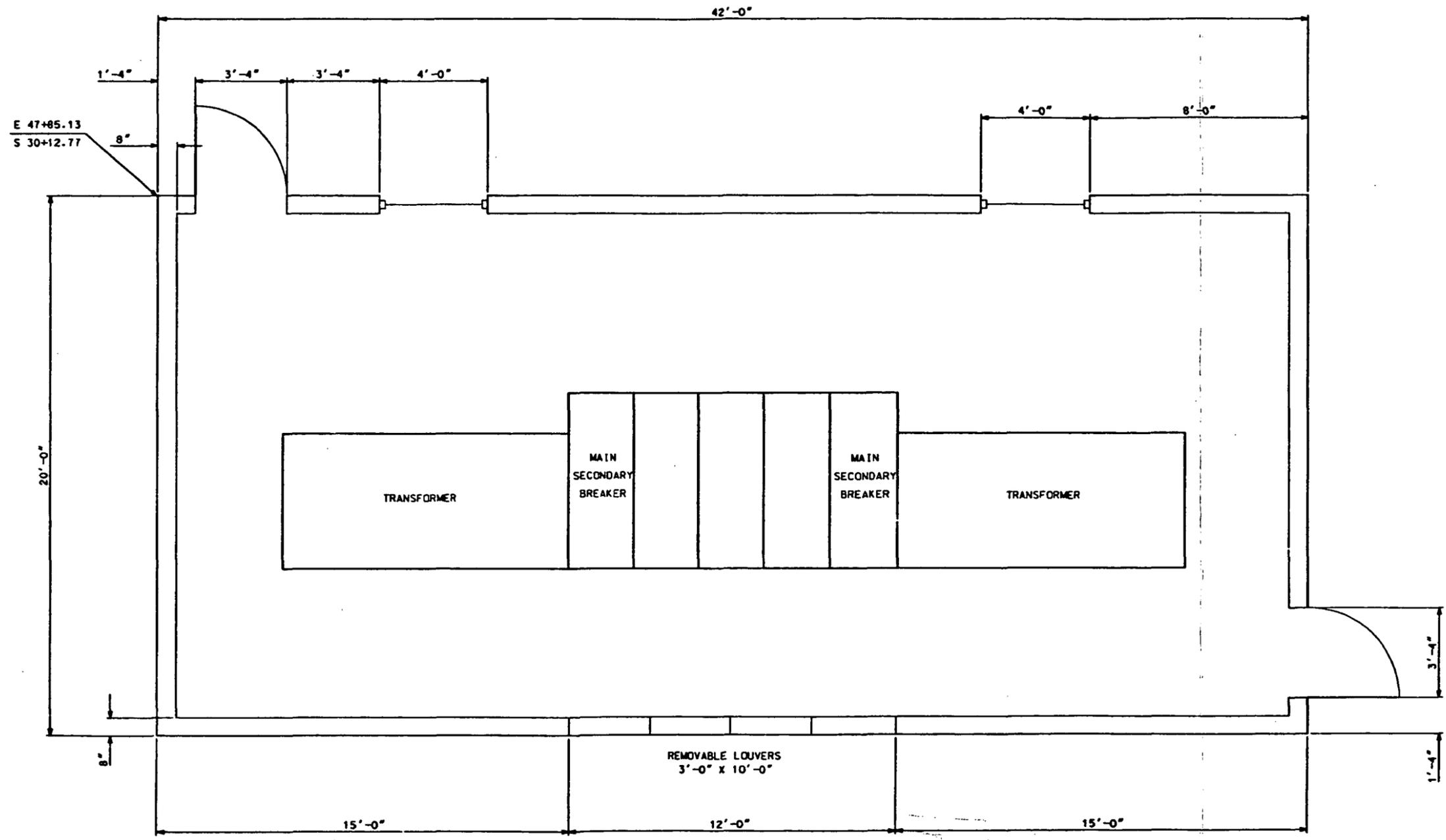
TABLE D-1 MISCELLANEOUS SMALL STRUCTURES PHASE II DRAWINGS

DRAWING NO.	REV.	DESCRIPTION
16X-1450-E-00006	0	ELECTRICAL POWER SYSTEM GENERAL ARRANGEMENT (Component 16A)
44H-1900-G-00023	1	SUBSTATION AND PARKING LAYOUT (Component 16B)
16H-5500-A-00089	0	ELECTRICAL SUBSTATION FLOOR PLAN (Component 16B)
16H-5500-A-00086	0	MAIN ELECTRICAL SWITCH HOUSE FLOOR PLAN (Component 16D)
16X-1450-A-00003	0	ELECTRICAL SUB-STATION SWITCH HOUSE (Component 16D)
16H-5500-E-00108	1	SUBSTATION AND MANHOLE GROUNDING PLANS (Components 16H and 16J)
93X-5900-S-00494	0	FOUNDATION AND SLAB PLAN WHEEL WASH FACILITY (Components 21A and 21C)
82X-4445-S-00005	2	TRUCK WEIGH SCALE FOUNDATION (Component 22C)
22H-5500-S-00527	1	TRUCK WEIGH SCALES (Component 22G)
16X-5500-S-00041	0	STATIC TOWERS AND INCOMMING LINE TOWER (Component 23A)
91X-5900-S-00314	1	SLAB AND FOUNDATION PLAN (Component 24C and 24D)
25H-5500-A-00174	1	SANITARY SEWER LIFT STATION (Component 25C)
25A-5500-A-00218	1	ULTRAVIOLET BUILDING PLANS & ELEVATIONS (Component 25K)
25A-5500-M-00210	1	SEWAGE PLANT EQUIPMENT PLAN (Component 25K)
26H-5500-A-00138	0	STAINER HOUSE FLOOR PLAN (Component 26C)
16X-5500-A-00033	0	MAIN ELECTRICAL SUBSTATION STRAINER HOUSE (Component 26C)
44X-5500-A-00295	1	T-327 OFFICE BUILDING DETAILS (Component 28G)

28A-5500-G-00335	2	Building 28J PLAN AND DETAILS (Component 28J)
28A-5500-G-00310	2	SITE ENTRANCE CHECKPOINT (Component 28K)
28A-5500-S-00341	0	BUILDING T-330 LAYOUT AND DETAILS (Component 28L)
52X-5500-E-00001	2	ELECTRICAL POWER FOR RTRAK BUILDING (Component 52A)
52X-5500-A-00003	1	ASTD SCEP BUILDING PLAN & ELEVATIONS (Component 52B)
82A-5500-S-00075	0	FUEL LOADING FOUNDATION PLAN (Component 82B)
17X-5500-A-00073	0	TS-8 GENERAL LAYOUT PLAN (Component TS-008)
50X-5500-G-00002	0	PHASE I SITE PLAN (Components 50, 12E and 12F)
75A-5500-G-00105	13	GRID 29 EXISTING SITE PLAN (Components 12E, 12F, 16H, 16J, 25J, 50, 52A and 52B)
75H-5500-G-00026	12	GRID 7 EXISTING SITE PLAN (Components 16A, 16C, 16D, 16E, 16F, 16G, 25C, 26C and 31B)



16B
-4748



JUN 19, 2007

DO NOT SCALE REDUCED DRAWINGS

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NO.	REVISIONS	DATE DWN.	BY APPD.	NO.	REVISIONS	DATE DWN.	BY APPD.	REF. DWG. NO.
								16H-1900-A-00047

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

SCALE	AS SHOWN
DATE	12-1-02
BY	WEMCO
CHECKED	WEMCO
APPROVED	WEMCO

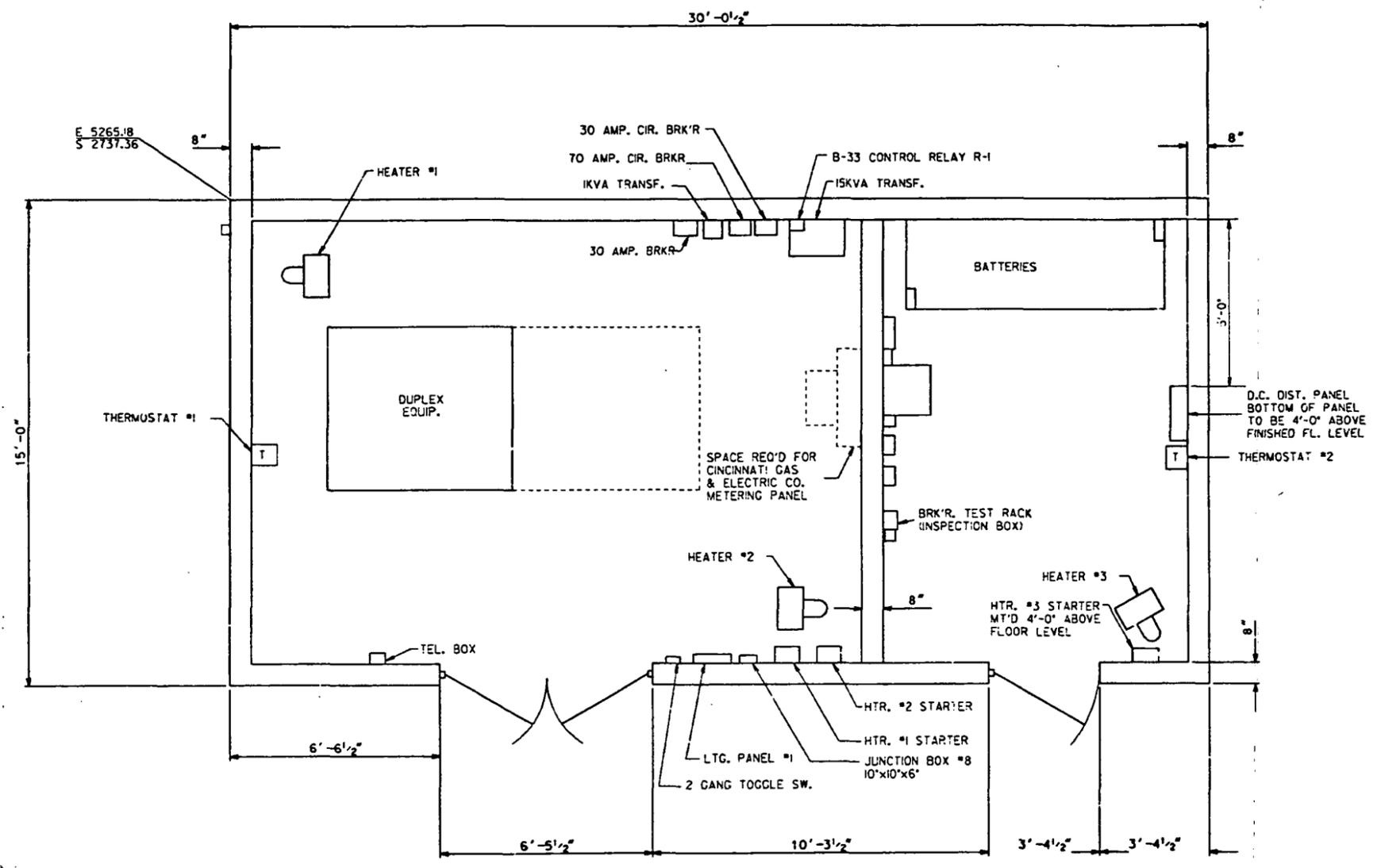
APPROVALS	
CIVIL & STR.	SAFETY ENG.
ELECTRICAL	MAINTENANCE
ENGINEER	O.A.
INSTRUMENT	FIRE PROTECT.
MECHANICAL	WASTE MANAGE.
CHECKED	O.S.E.
APPROVED	SECURITY

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

BLDG 168
ELECTRICAL SUBSTATION
FLOOR PLAN
SCALE 1/2"=1'-0"
16H-5500-A-00089 0

160

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JUN 19 2002

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NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
										16X-1450-E-00010
										16X-1450-A-00003

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

PERFORMANCE GRADE	1	2	3	4	5
DATE:					

APPROVALS	
CIVIL & STR. ENGINEER	SAFETY ENG. MAINTENANCE O.A.
INSTRUMENT MECHANICAL	FIRE PROTECT. WASTE MANAGE. SECURITY CRU
CHECKED	SEP
APPROVED	C.E. PRA 8/2/01

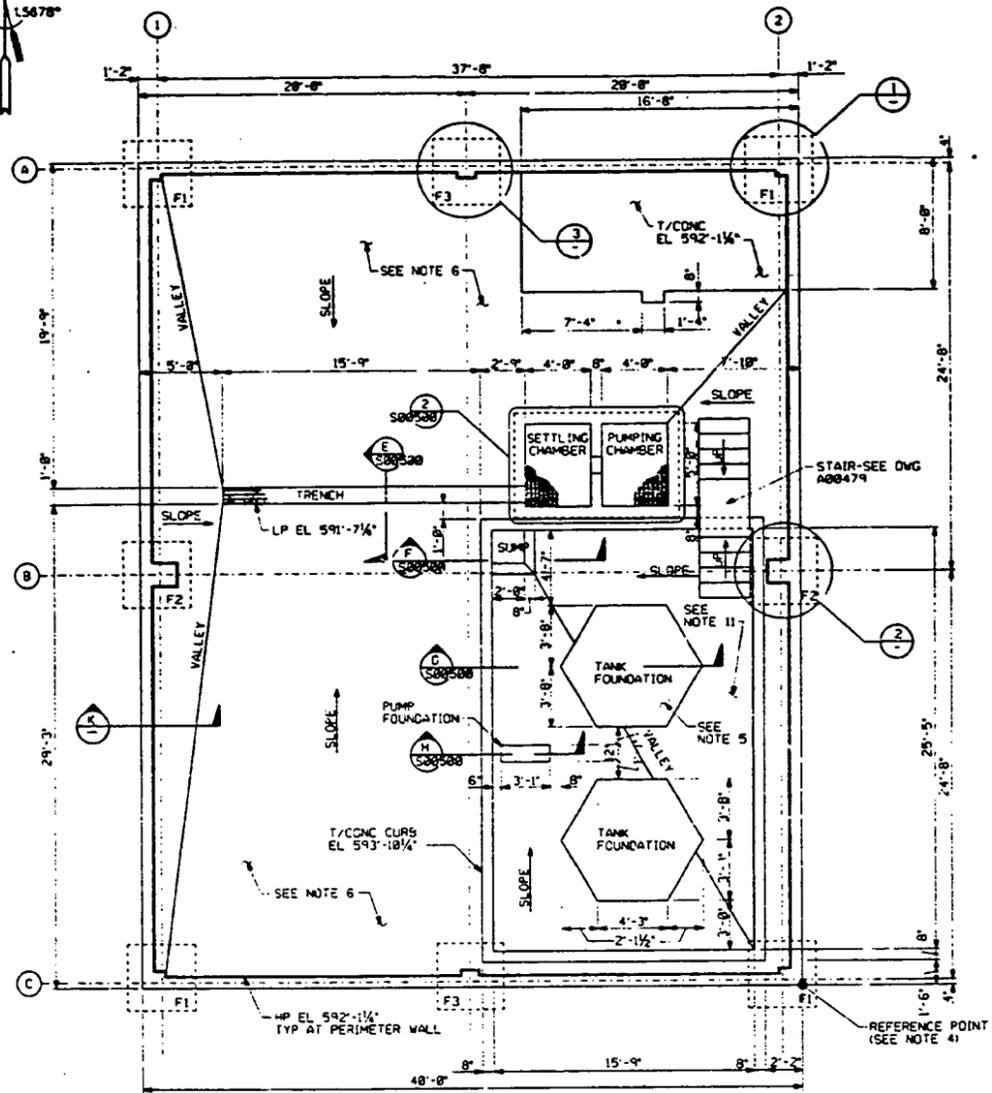
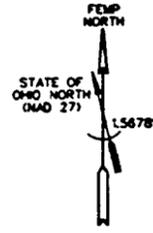
FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION

Environmental Management Project

U.S. DEPARTMENT OF ENERGY

BLDG 160
MAIN ELECTRICAL SWITCH HOUSE
FLOOR PLAN
SCALE: 1/2" = 1'-0"

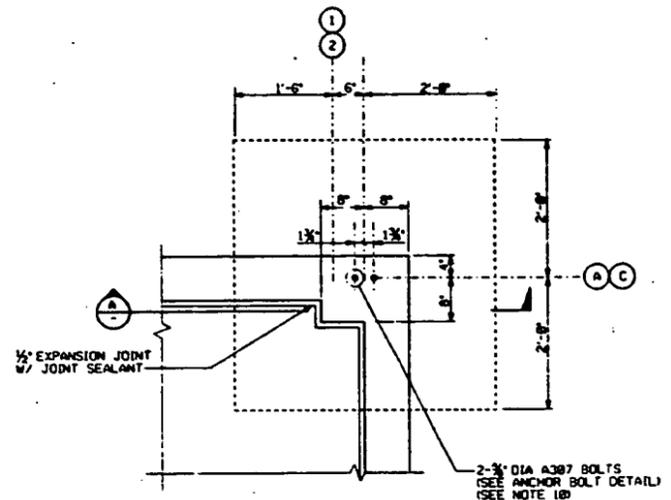
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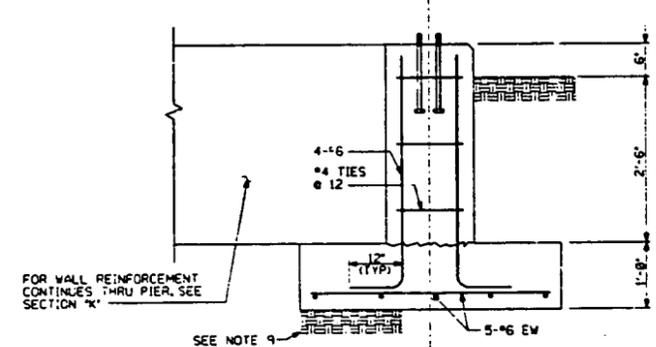
FOUNDATION AND FLOOR SLAB PLAN
1/4" = 1'-0"

FOOTING SCHEDULE				
MARK	SIZE	THICKNESS	REINFORCING EACH WAY	REMARKS
F1	4'-0" x 4'-0"	1'-0"	5-#6 BOTT	12X16 PIER W/4-#6 VERT & #4 @12 TIES
F2	6'-0" x 6'-0"	1'-0"	6-#6 BOTT	12X23 PIER W/4-#6 VERT & #4 @12 TIES
F3	4'-0" x 4'-0"	1'-0"	5-#6 BOTT	12X12 PIER W/4-#6 VERT & #4 @12 TIES

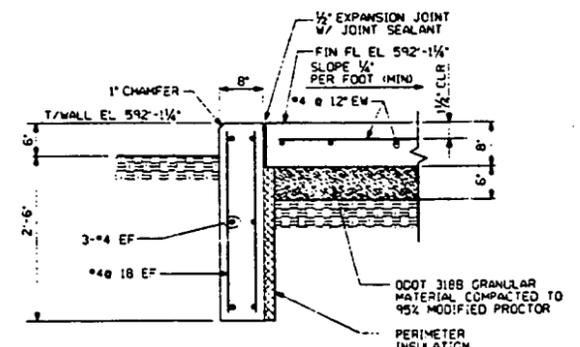
21A
2
21C



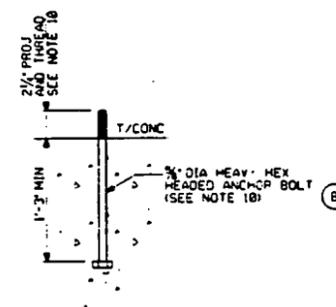
DETAIL 1
1/4" = 1'-0"



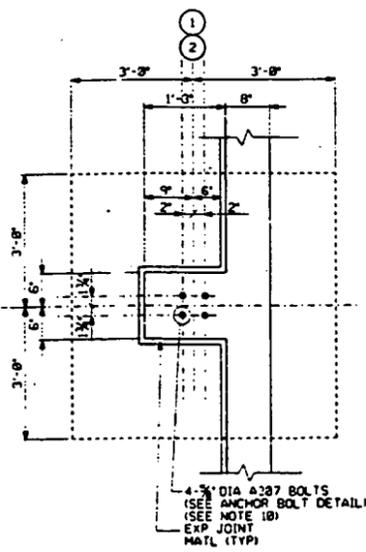
SECTION A-A
1/4" = 1'-0"



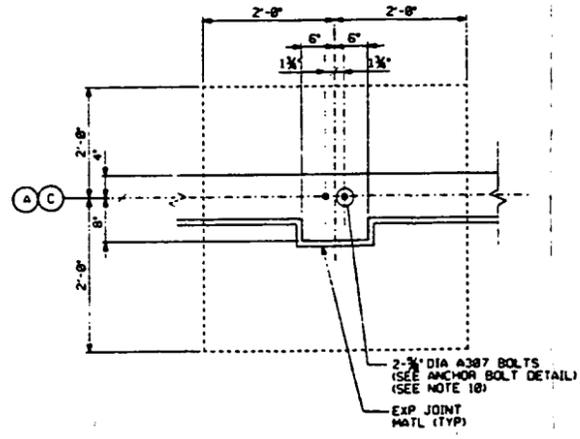
SECTION K-TYPICAL
1/4" = 1'-0"



TYPICAL ANCHOR BOLT DETAIL
NTS



DETAIL 2
1/4" = 1'-0"



DETAIL 3
1/4" = 1'-0"

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REFER DWG NO.	REFERENCE DWG TITLE
93X-5900-S-00500	SECTIONS AND DETAILS
93X-5900-X-00132	DRAWING INDEX - SHEET 1 OF 2
93X-5900-X-00133	LEGEND AND SYMBOLS
93X-5900-H-00475	EQUIPMENT ARRANGEMENT PLANS
93X-5900-G-00135	SITE PLAN
93X-5900-G-00148	CONCRETE PAVING, RAMP, AND CURB PLAN

JUN 20 2002

000144

<input type="checkbox"/> CERTIFIED FOR CONSTRUCTION <small>DATE OF REVIEW PURPOSE - DESCRIPTION</small> <small>DETAILS AND DATE</small>	<small>DATE</small> <small>BY</small> <small>DATE</small>
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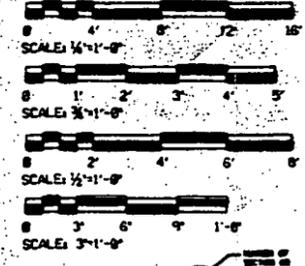
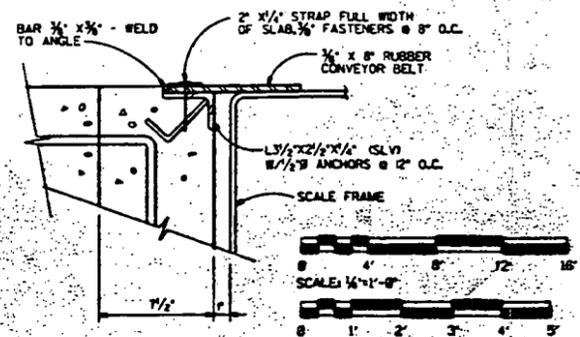
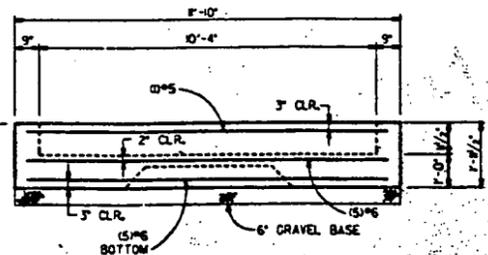
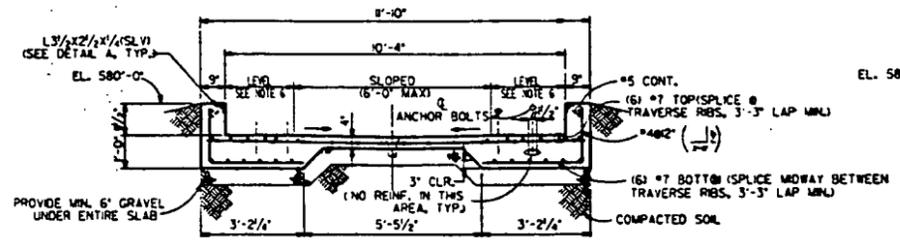
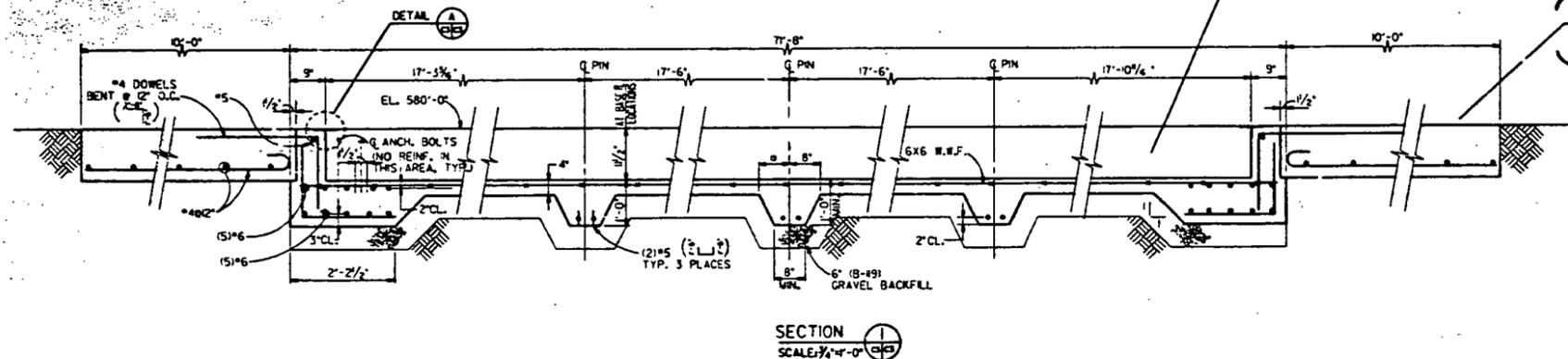
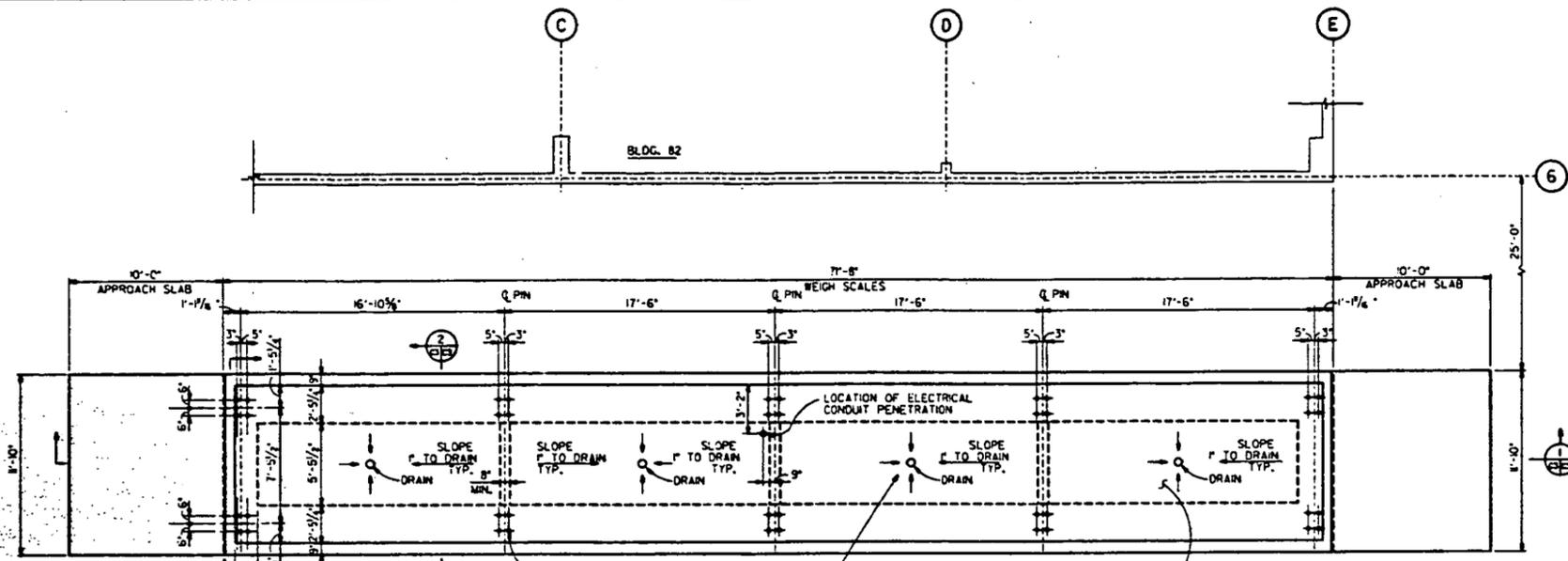
UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
 THE DRAWING PREPARED BY
PARSONS
 THE RALPH M. PARSONS CO. - CHAS. T. MAN, INC. - ENGINEERING-SCIENCE, INC.
 CINCINNATI, OHIO

PROJECT NAME
IMPROVED STORAGE OF SOIL AND DEBRIS
 PHASE I REMOVAL ACTION 17 CRU3/PO20

DRAWING TITLE
STRUCTURAL FOUNDATION AND SLAB PLAN
WHEEL WASH FACILITY

<small>DESIGNED BY</small> <small>D.F. FOR</small>	<small>DATE</small> <small>11-12-92</small>	<small>CHECKED BY</small> <small>R.B. JOHNS</small>	<small>DATE</small> <small>09-24-93</small>
<small>PROJECT NO.</small> <small>VBS 1111327</small>	<small>SCALE</small> <small>AS NOTED</small>	<small>DATE</small> <small>00-90701</small>	<small>REV. NO.</small> <small>0</small>

DO NOT SCALE REDUCED DRAWING



- NOTES
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SIZES OF EQUIPMENT FOUNDATIONS INCLUDING ANCHOR BOLT SIZE, NO., AND LOCATION WITH THE EXISTING SCALE, PRESENTLY LOCATED ADJACENT TO BLDG. 34 AT THE CORNER OF 1ST STREET AND 'D' STREET.
 - ALL CONCRETE IS TO BE NORMAL WEIGHT CONCRETE WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI AND IS TO BE AIR ENTRAINED.
 - ALL REINFORCING STEEL TO BE ASTM A65, GRADE 60.
 - WELDED WIRE FABRIC SHALL BE ASTM 185 COLD DRAWN STEEL.
 - ENTIRE SLAB AND FOUNDATION SHALL BE CAST MONOLITHIC.
 - TOP OF CONCRETE AT BASE PLATE LOCATIONS TO BE LEVEL AND IN ONE PLANE WITHIN ± 1/8".
 - EXISTING SCALE REPLACED WITH NEW ABOVE GRADE SCALE. SEE DWG. 82X-5500-S-00092 FOR NEW CONCRETE WORK.

4748

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000145

TO CORRELATE REFERENCED 'AMK SHEET No.'s TO FHPC DRAWING NUMBERS, SEE FHPC DRAWING No. 82X-4445-X-00001

2	EXISTING SCALE TO BE REMOVED AND FILLED WITH CONCRETE PER RES 4054	WPA	3-2-88	AMK	3-2-88
1	AS BUILT	WPA	3-2-88	AMK	3-2-88
2	DATE OF REVISION	DESCRIPTION	BY	DATE	APP'D

UNITED STATES DEPARTMENT OF ENERGY
FEED MATERIALS PRODUCTION CENTER

THE DRAWING PREPARED BY
A. M. KINNEY, INC.
CONSULTING ENGINEERS
CINCINNATI, OHIO

PROJECT NAME: ENVIRONMENTAL, HEALTH & SAFETY IMPROVEMENTS

DRAWING TITLE: RECEIVING & INCOMING MATERIALS INSPECTION AREA TRUCK WEIGH SCALE FOUNDATION

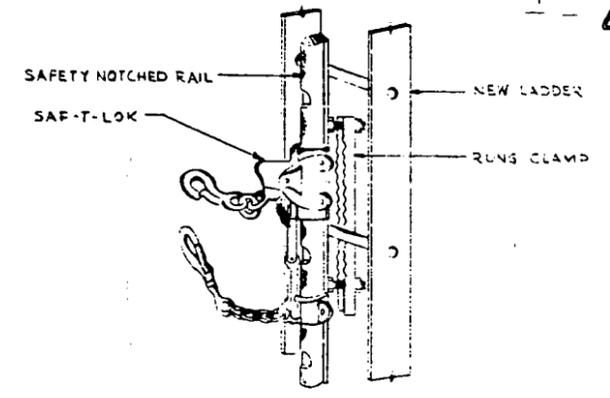
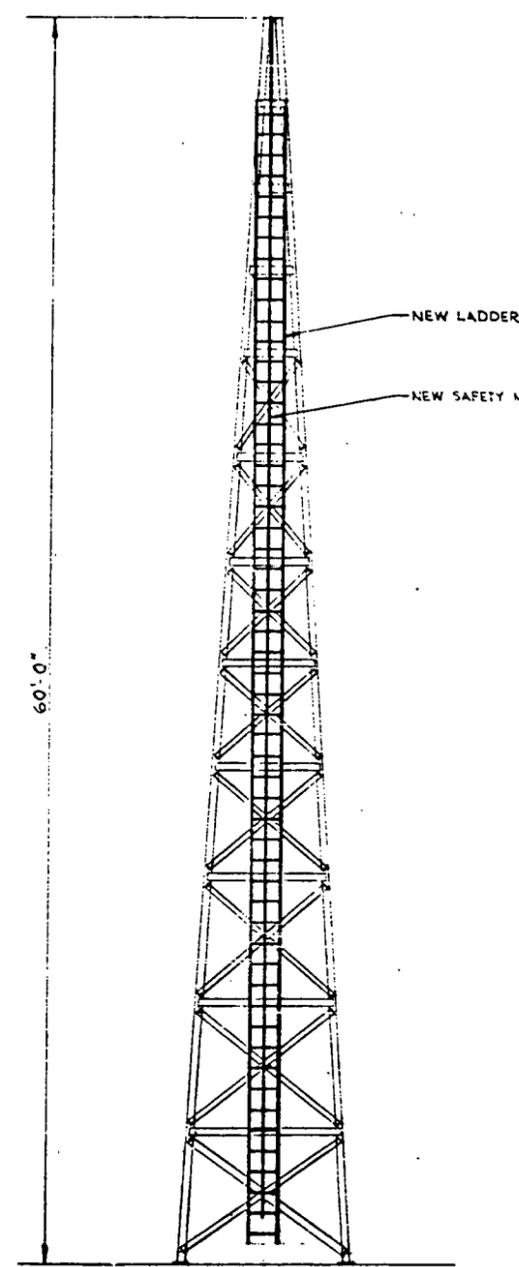
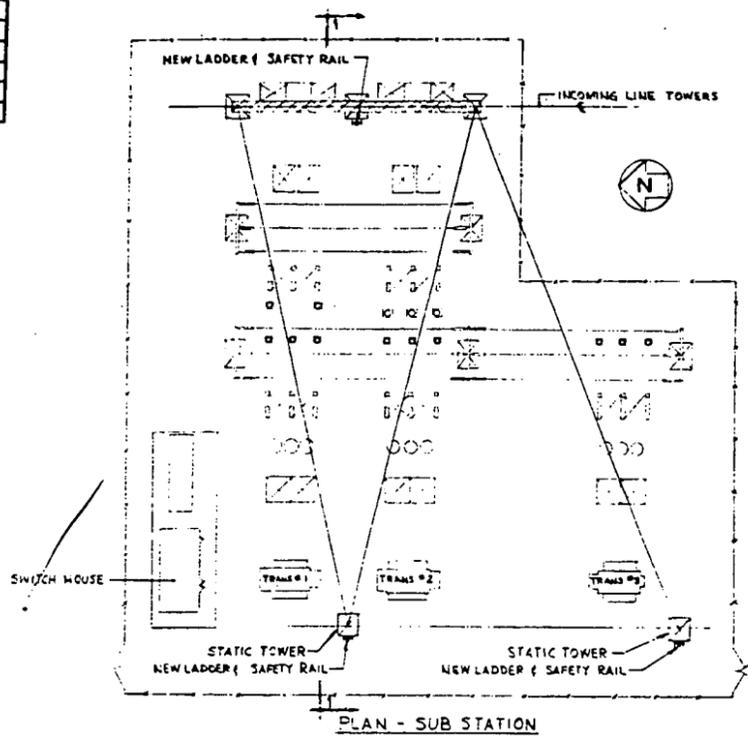
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JAM	3-2-88	JAM	3-2-88		
DATE	BY	CHECKED BY	DATE	DATE	DATE
3-2-88	JAM	JAM	3-2-88		
DATE	BY	CHECKED BY	DATE	DATE	DATE
3-2-88	JAM	JAM	3-2-88		

PROJECT NO. 82X-4445-S-00005
DRAWING NO. 0007502
WBS LL 4.1.05
C-3

NO.	PRINTED	REV.
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10		

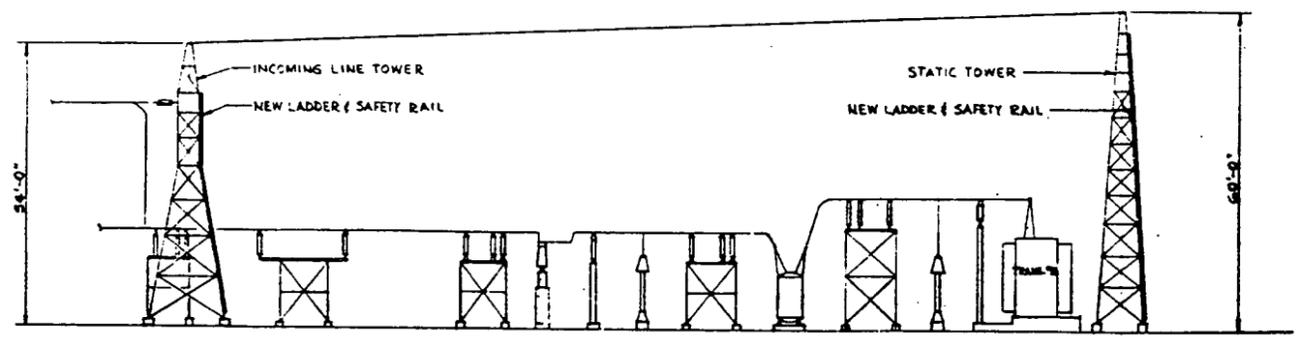
23A

4748



SAFETY DEVICE DETAIL

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SECTION 1-1

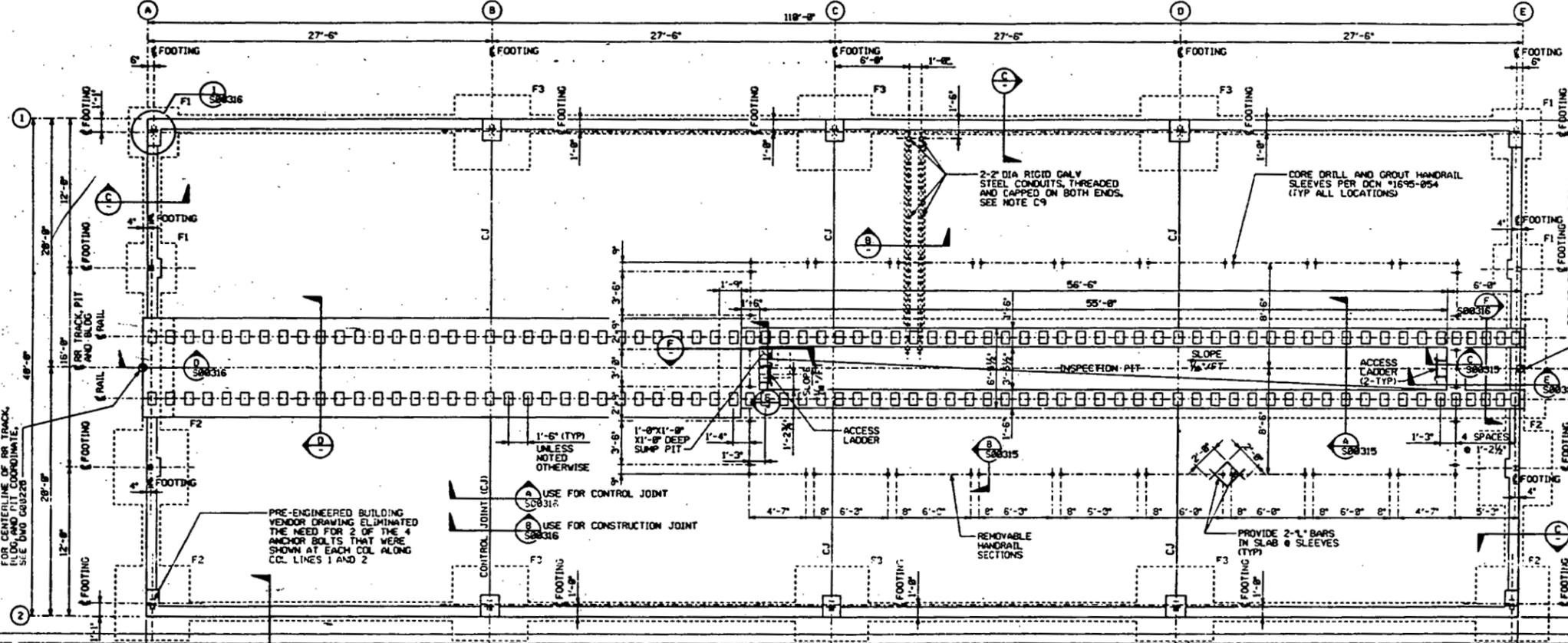
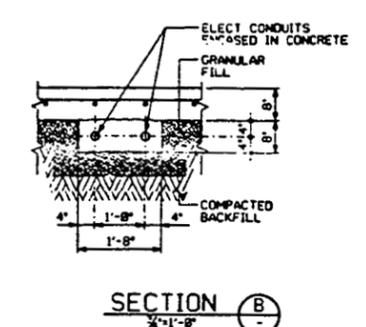
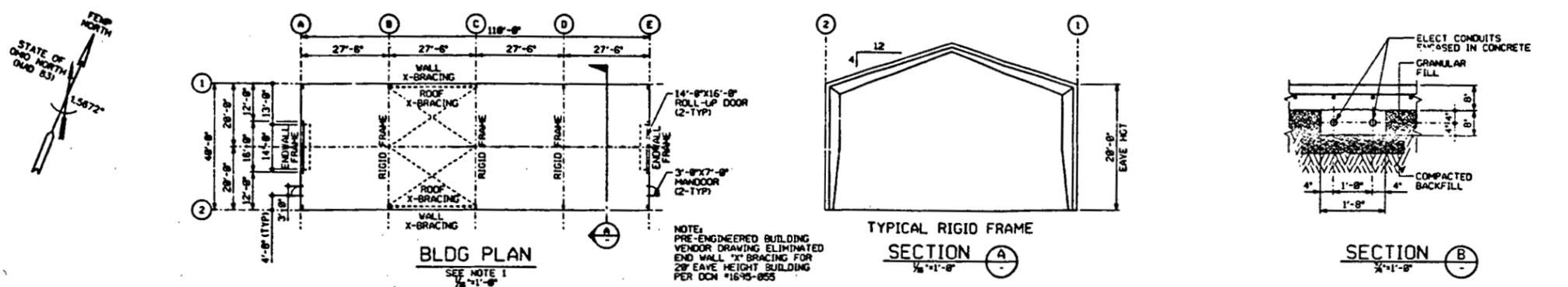
STATIC TOWER (TYPICAL)

JUN 25, 2002

000147

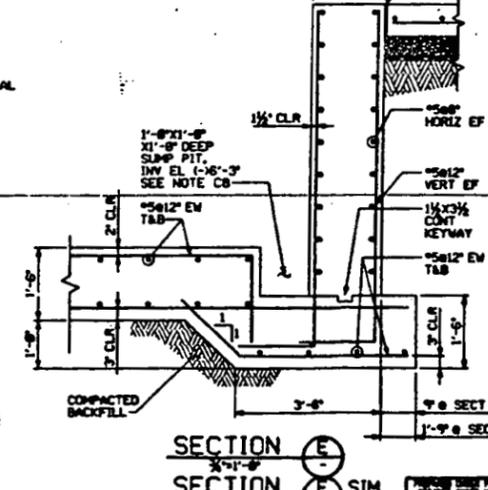
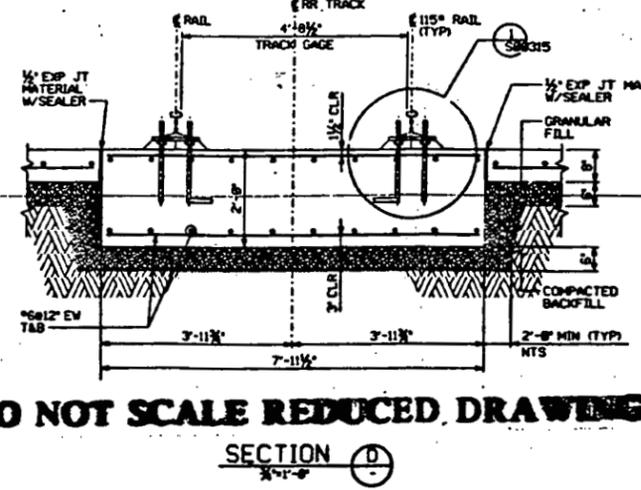
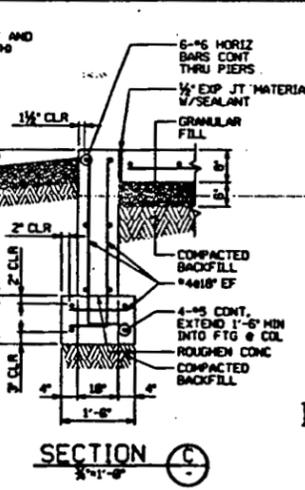
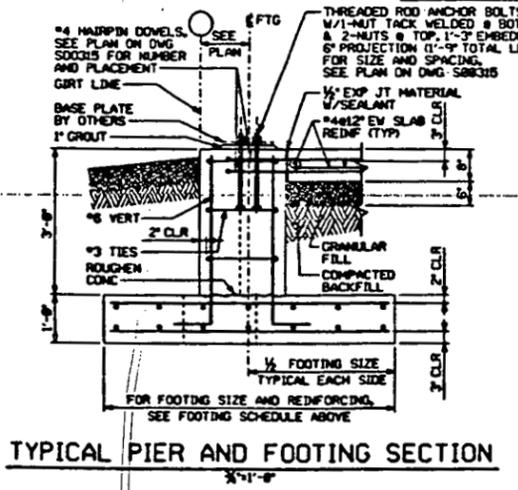
NATIONAL LEAD COMPANY OF OHIO FRED MATERIALS PRODUCTION CENTER FERNALD, OHIO			
U. S. ATOMIC ENERGY COMMISSION			
MODIFICATIONS FOR COMPLIANCE WITH O.S.H.A. NEW LADDERS & SAFETY DEVICES FOR STATIC TOWERS AND INCOMING LINE TOWER			
ENGINEERING DIVISION			
APPROVALS			
ARCH & STR.		M & E.	
MECHANICAL		PROD.	
ELECTRICAL		TECH.	
CHEMICAL		MAINT.	
ENGINEER			
PROJ. NO. G-575 CP.		DATE 7-27-73 SCALE NONE	
DRAWN BY W.H. SOM		SER. NO.	
CHECKED		16X 5500	S00041 0
APPROVED			

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



FOOTING SCHEDULE			
FOOTING MARK	SIZE	REINFORCING	PIER ANCHOR BOLT SIZE
F1	4'-0"X4'-0"X1'-0"	5-#5 EV TAB	3/4" DIA
F2	6'-0"X6'-0"X1'-0"	7-#5 EV TAB	3/4" DIA
F3	6'-0"X6'-0"X1'-0"	7-#5 EV TAB	1" DIA

SLAB AND FOUNDATION PLAN
FINISH FLOOR ELEVATION 8'-0" = 592.2'



DO NOT SCALE REDUCED DRAWING

NOTES

- SLAB AND FOUNDATION PLAN SHOWN ON THIS DRAWING WAS DESIGNED USING BUTLER PRE-ENGINEERED BUILDING INFORMATION AS SHOWN ON BLDG PLAN AND SECTION 'A' ON THIS DRAWING.
- THE SITE RAIL SYSTEM IMPROVEMENT - LOCOMOTIVE MAINTENANCE FACILITY PACKAGE CONSISTS OF THE FOLLOWING DRAWINGS:
DRAWING NUMBER DRAWING DESCRIPTION
91X-5900-S-00314 STRUCTURAL (DESIGN DRAWING) SLAB AND FOUNDATION PLAN LOCOMOTIVE MAINTENANCE FACILITY
91X-5900-S-00315 STRUCTURAL (DESIGN DRAWING) LOCOMOTIVE MAINTENANCE FACILITY FOUNDATION AND SLAB PLAN
91X-5900-S-00316 STRUCTURAL (DESIGN DRAWING) SECTIONS AND DETAILS LOCOMOTIVE MAINTENANCE FACILITY
7887-1-01 DELTA STEEL (SHOP DRAWING) FOUNDATION PLAN AND DETAILS
7887-1-02 DELTA STEEL (SHOP DRAWING) FOUNDATION AND SLAB PLAN
7887-1-03 DELTA STEEL (SHOP DRAWING) LOCOMOTIVE PIT PLAN, SECTIONS AND DETAILS

GENERAL CONCRETE NOTES

- DESIGN MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 83801.
- CONCRETE FOR SLAB ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE FOR FOUNDATIONS AND INSPECTION PIT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
- REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A-615, GRADE 60.
- FOUNDATION DESIGN IS BASED ON ASSUMED NET SOIL BEARING PRESSURE ALLOWABLE OF 2500 PSF. SITE SPECIFIC GEOLOGICAL INVESTIGATION WAS NOT PERFORMED. IF ANY SOFT, WET, ORGANIC OR LOOSE SOIL OR ANY OLD FILL IS ENCOUNTERED, FDF SHALL BE INFORMED AND THE CONDITIONS RESOLVED BEFORE CONTINUATION OF CONCRETE WORK.
FILL MATERIAL UNDER AREA OF CONSTRUCTION SHALL BE PER SPECIFICATION SECTION 82200 AND COMPACTED TO 98% MOO AS DETERMINED BY ASTM D698 WITH 23 OF OMC.
GRANULAR FILL MATERIAL SHALL CONFORM TO D007 384 COMPACTED TO 95% OF MOO AS DETERMINED BY ASTM D698 WITH 23 OF OMC.
- ANCHOR BOLTS FOR PRE-ENGINEERED BUILDING COLUMNS AS SHOWN WERE DETERMINED USING BUTLER BUILDING CATALOG INFORMATION. FOUNDATION SIZE AND ANCHOR BOLT LOCATIONS SHALL BE MATCHED BY SELECTED PRE-ENGINEERED BUILDING VENDOR.
- HOLD PLAN DIMENSION OF CONCRETE FOUNDATION +1/4" - 0" FOR ANCHOR BOLT EDGE DISTANCE REQUIREMENTS.
- ELEVATION 8'-0" EQUALS MEAN SEA ELEVATION 592.2'.
- SUMP TO BE MANUALLY DRAINED WITH A PORTABLE SUMP PUMP AS REQUIRED.
- INSTALL EMBEDDED CONDUITS SUCH THAT CONDUIT ENDS EXTEND NO LESS THAN 6 INCHES AND NO GREATER THAN 12 INCHES ABOVE FINISHED CONCRETE SURFACES.

REF DNG NO.	DRAWING TITLE
91X-5900-S-00315	PLAN, SECTIONS, AND DETAILS
91X-5900-S-00316	SECTIONS AND DETAILS
91X-5900-G-00225	RAIL SITE PLAN AND PROFILE - SHEET 3 OF 7

**FOR INFORMATION ONLY
CADD SERVICES**

000148	
1	ISSUED 'AS-BUILT', INCORPORATES FDF DCN #1675-054 AND 055
2	CERTIFIED FOR CONSTRUCTION
DATE	DATE OF REVIEW PURPOSE - DESCRIPTION
DATE	DETAILS AND DATE

**UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

THIS DRAWING PREPARED BY
PARSONS
THE RALPH M. PARSONS CO. - PARSONS MAINT, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
SITE RAIL SYSTEM IMPROVEMENTS
EGDC

DRAWING TITLE			
STRUCTURAL SLAB AND FOUNDATION PLAN LOCOMOTIVE MAINTENANCE FACILITY			
DESIGNED BY	DATE	CHECKED BY	DATE
E.L. SHIBERT	02/26/97	R.S. JANDY	02/26/97
SCALE	AS NOTED	SCALE	AS NOTED
DATE OF APPROVAL	DATE OF APPROVAL	DATE OF APPROVAL	DATE OF APPROVAL
M.J. BOWEN	05/12/97	N/A	10200
PROJECT NO.	PROJECT NO.	PROJECT NO.	PROJECT NO.
MBS 11111131	00-90701	91X-5900-S-00314	S0001 1

24C
24D
4748

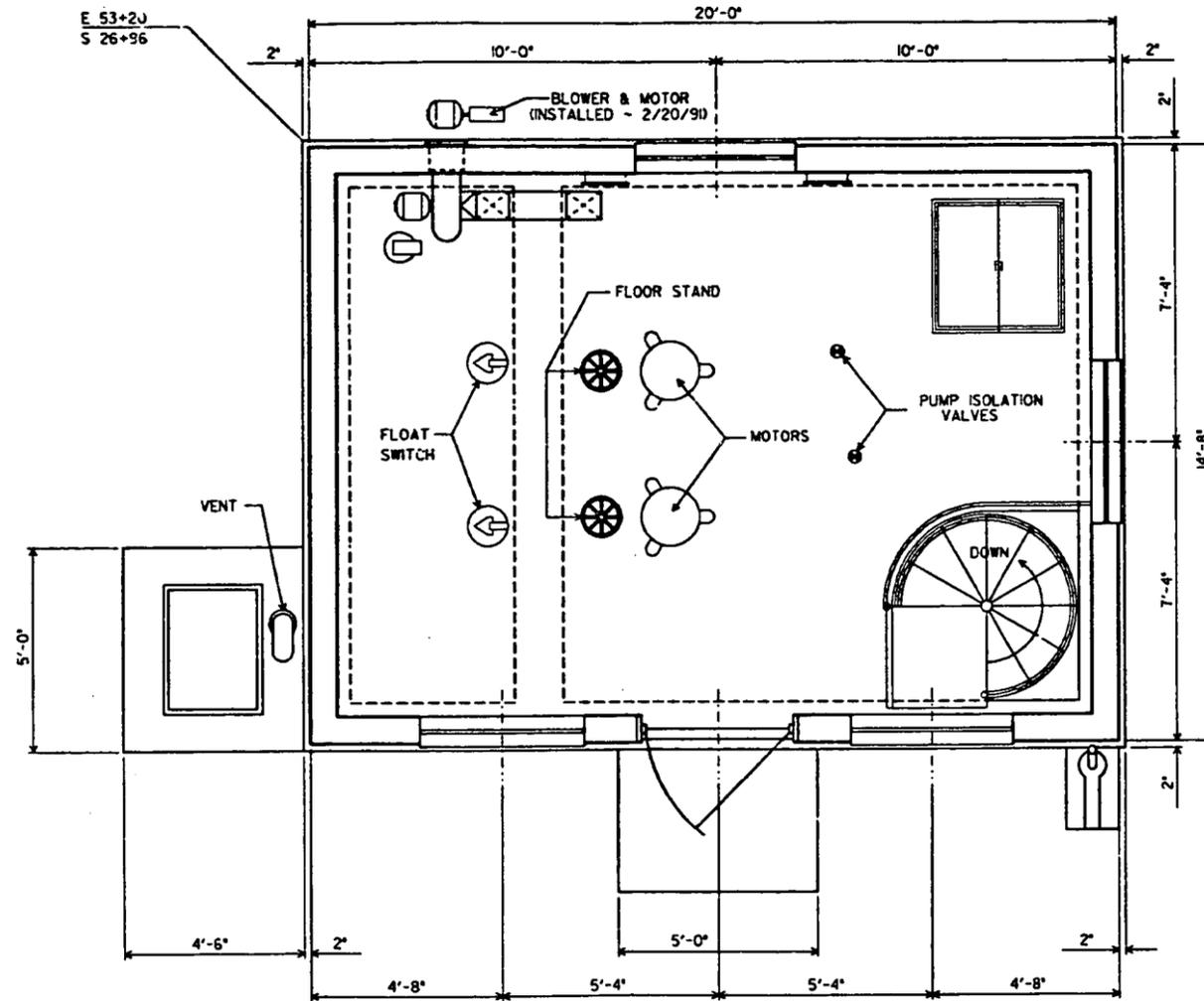
002 S 100

FOR INFORMATION ONLY
CADD SERVICES



25C

--4748



FLOOR PLAN - MOTOR ROOM
EL 579'-6"

JUN 19 2002

000149

NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REF. DWG. NO.
					1	UPDATED	2/2/99	JSW	GEP	25H-1450-S-00015

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

DESIGN CHECKS		APPROVALS	
CIVIL & STR.	SAFETY ENG.		
ELECTRICAL	MAINTENANCE		
ENGINEER	O.A.		
INSTRUMENT	FIRE PROTECT.		
MECHANICAL	WASTE MANAGE.		
CHECKED	D.O.C.		
APPROVED	SECURITY		

**WESTINGHOUSE ENVIRONMENTAL
MANAGEMENT CO. OF OHIO**
FERNALD, OHIO

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

BUILDING 25C FIRST FLOOR
SANITARY SEWER LIFT STATION
FLOOR PLAN
1/2" = 1'-0"

RES 149
DATE: 25H-5500-A-00174
DRAWN BY: 1

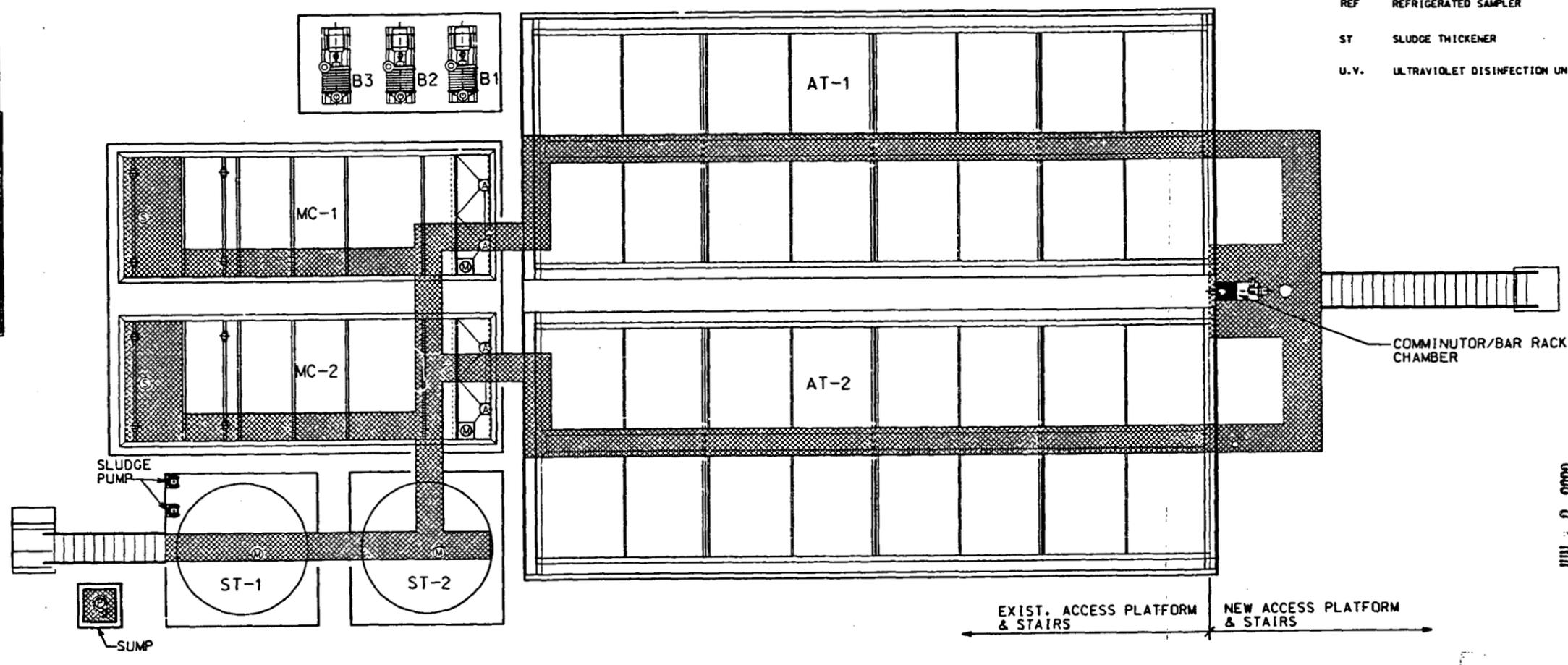
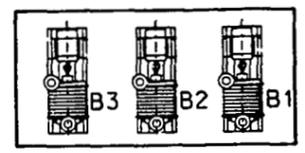
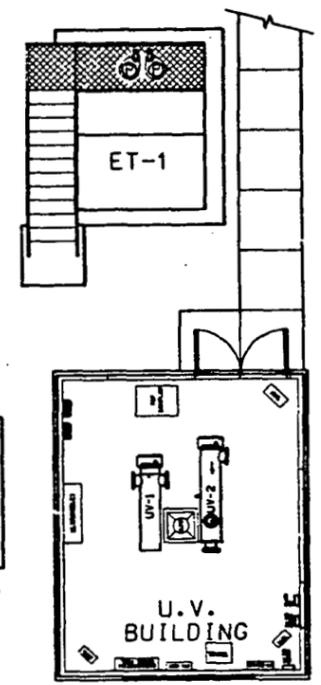
DO NOT SCALE REDUCED DRAWING

FILE NAME: /FLOOR/25CLDGN

25K

LEGEND

- ⊙ SUBMERSIBLE PUMP, MOTOR DRIVER
- ⊙ AIR LIFT SKIMMER
- ⊙ DRIVE MOTOR 4748
- ⊙ AIR LIFT PUMP
- AT AERATION TANK
- B HOFFMAN BLOWER
- ET EFFLUENT TANK
- MC MECHANICAL CLARIFIER
- REF REFRIGERATED SAMPLER
- ST SLUDGE THICKENER
- U.V. ULTRAVIOLET DISINFECTION UNIT



JUN 19, 2002

FOR INFORMATION ONLY
CADD SERVICES

000151

NO.	REVISIONS	DATE	BY	APPD.	NO.	REVISIONS	DATE	BY	APPD.	REF. DWG. NO.
	1 AS BUILT									
	0 ISSUE CFC									

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

COORDINATOR ENGINEER DATE

APPROVALS	
CIVIL & STR.	SAFETY ENG.
ELECTRICAL	MAINTENANCE
ENGINEER	FIRE PROTECT.
INSTRUMENT	WASTE MANAGE.
MECHANICAL	SECURITY
	PROJECTS
CHECKED	DATE
APPROVED	DATE

Fernald Environmental Management Project

U.S. DEPARTMENT OF ENERGY

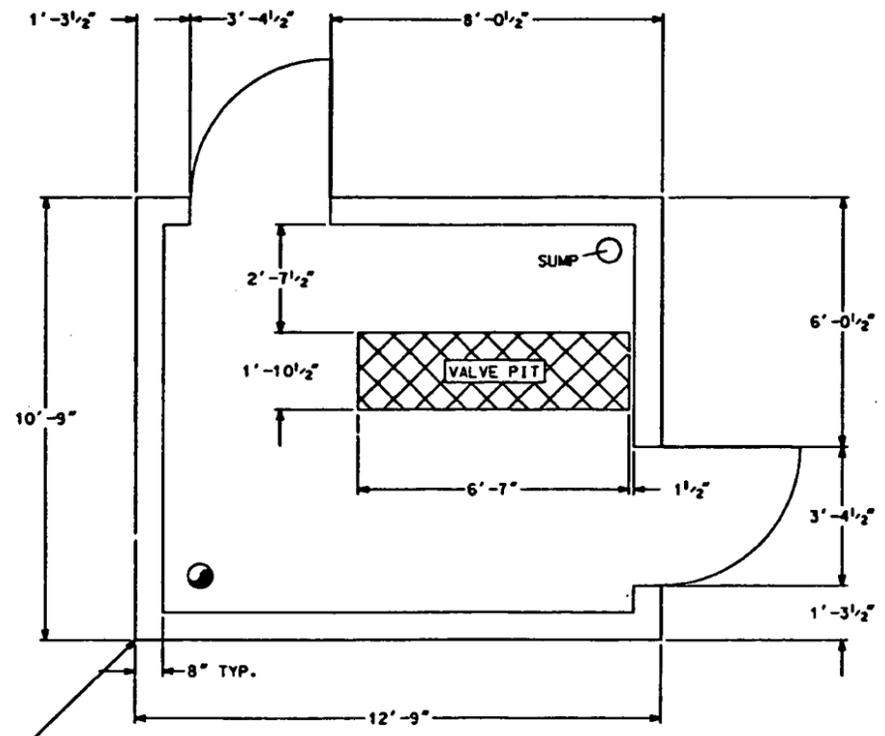
**SEWAGE TREATMENT PLANT RELOCATION
SEWAGE PLANT
EQUIPMENT PLAN**

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

RES 2887
DATE 6-14-97
DRAWN R.S. OHR

25A-5500-M-00210 | 1

FILE NAME: res/res2887/25am0210.dgn



FOR INFORMATION ONLY
CADD SERVICES

JUN 19 2007

000152

DO NOT SCALE REDUCED DRAWING

NO.	REVISIONS	DATE	DWN.	BY	APPD.	NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. Dwg. NO.

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

6X-5500-A-00033

DESIGNER		CHECKED		APPROVED	

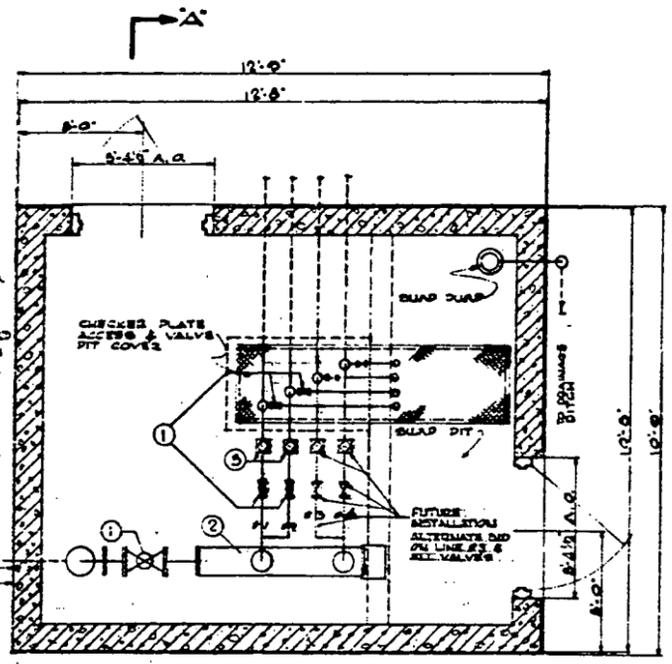
WESTINGHOUSE ENVIRONMENTAL
MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD
ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG 26C
MAIN ELECTRICAL SUB-STATION
STRAINER HOUSE
FLOOR PLAN
SCALE 1/2"=1'-0"
DATE 12-2-92
DRAWN MFL
26H-5500-A-00138 0

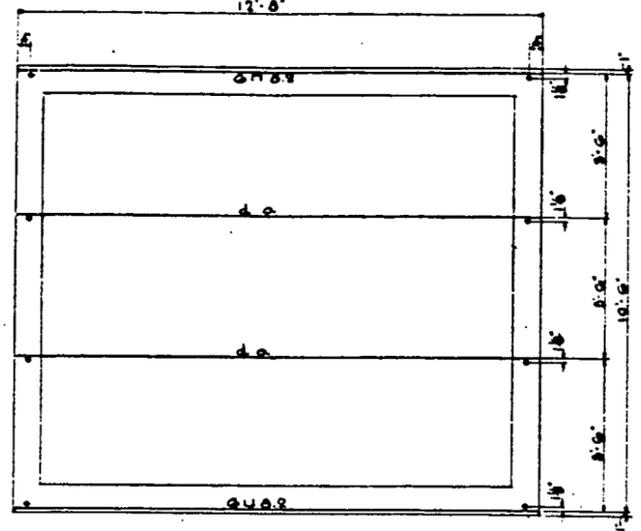
C:\p1\1013\1013.dwg Thu Dec 10 11:11:15 AM 1992

VALVE NOTES

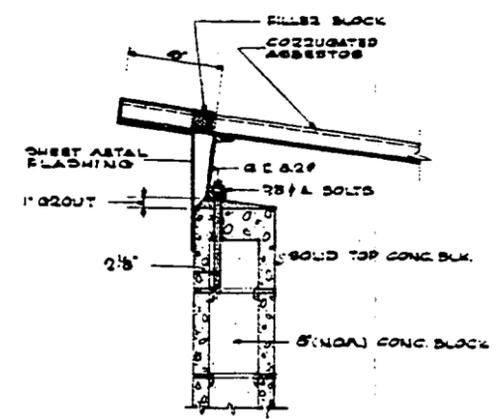
1. STRAINER A&K 1 SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE THIS SYSTEM AND A FUTURE SIMILAR SYSTEM. A CAPPED OUTLET SHALL BE MADE IN THE STRAINER FOR FUTURE CONNECTIONS.
2. PIPING AND STUD UPS SHALL BE INSTALLED FOR THE FUTURE SYSTEM AS INDICATED ON THIS DRAWING & DURING UG-10-4000.
3. A&K 1 INDICATE O.S. & V. VALVES.
4. A&K 2 INDICATE AUTOMATIC VALVES.
5. SEE SPECIFICATIONS FOR DETAIL SPECIFICATIONS.



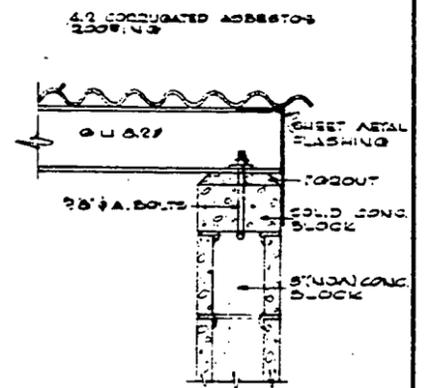
FLOOR PLAN SCALE: 1/2"=1'-0"



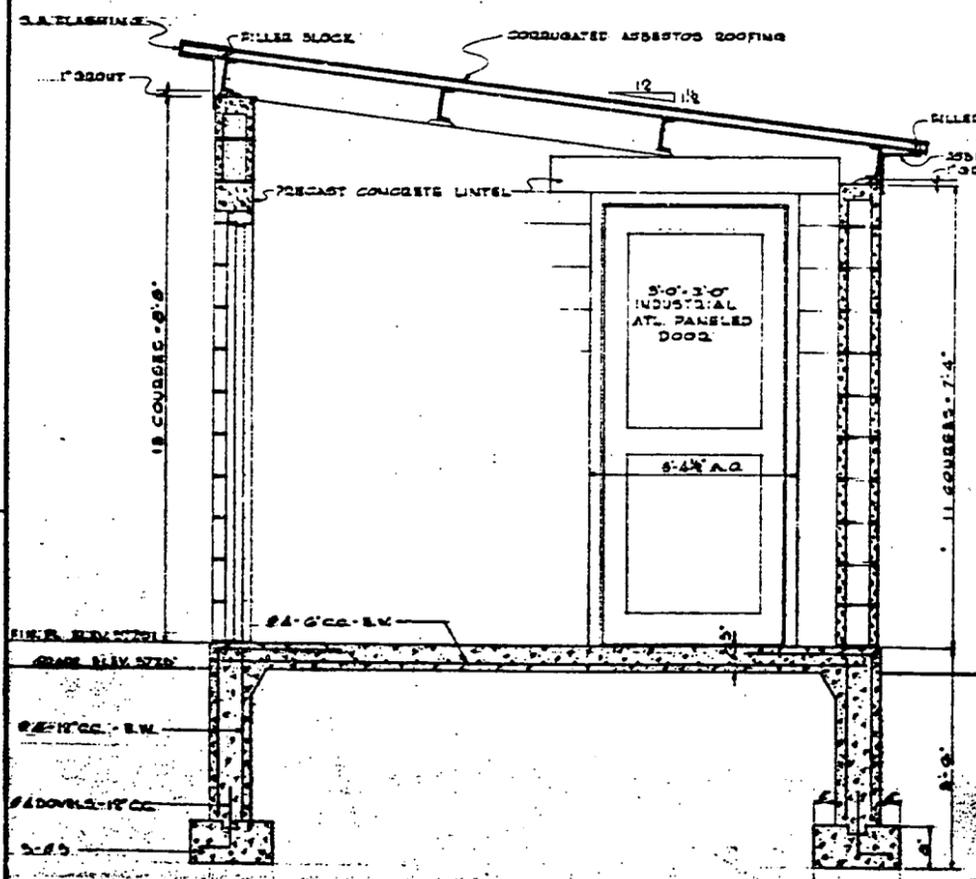
ROOF PLAN SCALE: 1/8"=1'-0"



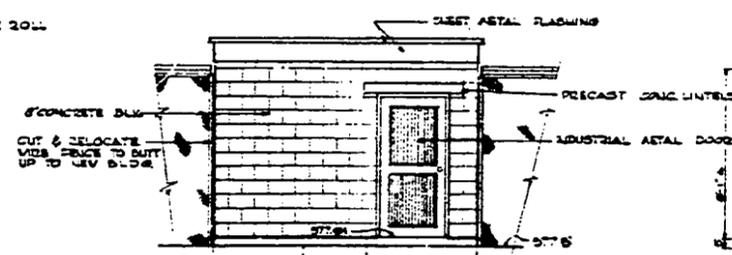
TYPICAL ANCHOR BOLT DETAIL SCALE: 1/2"=1'-0"



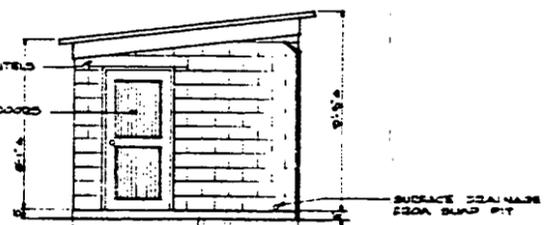
TYPICAL GABLE DETAIL SCALE: 1/2"=1'-0"



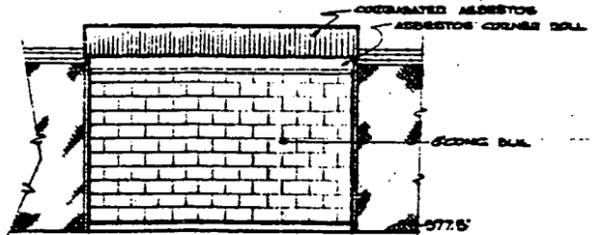
SECTION A-A SCALE: 3/8"=1'-0"



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



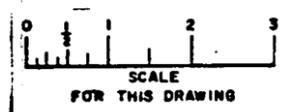
SOUTH ELEVATION SCALE: 1/4"=1'-0"



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

GENERAL NOTES

1. THESE DVSS ARE PRELIMINARY AND ARE TO BE USED AS REFERENCE TO THE GENERAL TYPE OF CONSTRUCTION TO BE USED IN DESIGN OF THE STEAMER HOUSE.
2. COMPLETE WORKING DVSS OF THE STEAMER HOUSE & P.P.S., INCLUDING ALL VALVES, STRAINERS, PIPES, THEIR SIZE AND LOCATION, SHALL BE MADE BY THE SPECIALIZED CONTRACTOR, WHO SHALL BE REQUIRED TO SUBMIT FOR APPROVAL BEFORE FABRICATION IS COMMENCED.
3. DEPTH AND SIZE OF SLUIC & VALVE PIT SHALL BE DETERMINED BY DEPTH OF JEANITY, DRAINAGE LINE FROM FUTURE SYSTEM ON FUTURE TRANSFORMER NO. 1.
4. AN ALTERNATE DESIGN & BID SHALL PROVIDE FOR A SLUIC SYSTEM IN TRANSFORMER #2 AT THE SAME TIME AS THE SYSTEM ON TRANSFORMERS #1 AND #3 IS INSTALLED.



INDEX CODE
 16X 5500A 00033

000153

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

U.S. ATOMIC ENERGY COMMISSION
 MAIN ELECTRICAL SUB-STATION
 STEAMER HOUSE FOR NEW
 LOG OPERATING SYSTEM TRANS. 1 & 2

DESIGN APPROVAL		
DIVISION	SIGNATURE	DATE
HEALTH & SAFETY	<i>[Signature]</i>	4/10/68
PRODUCTION		
TECHNICAL		
MAINTENANCE		

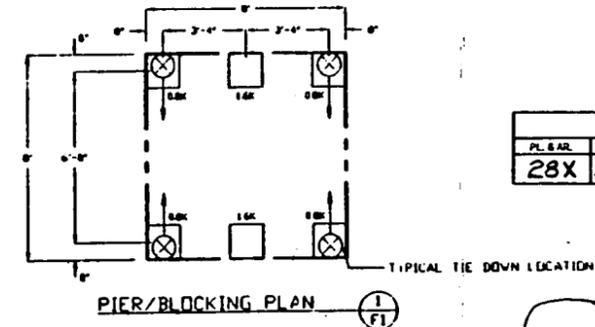
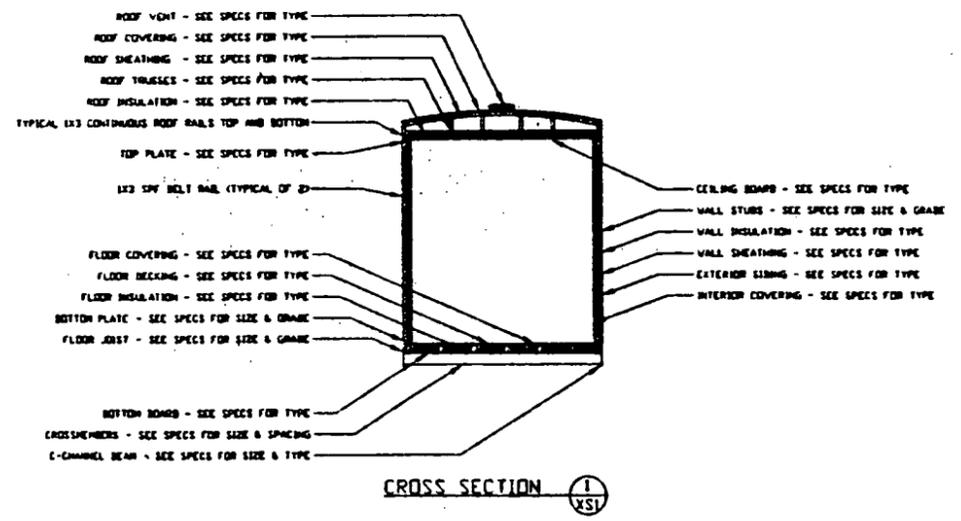
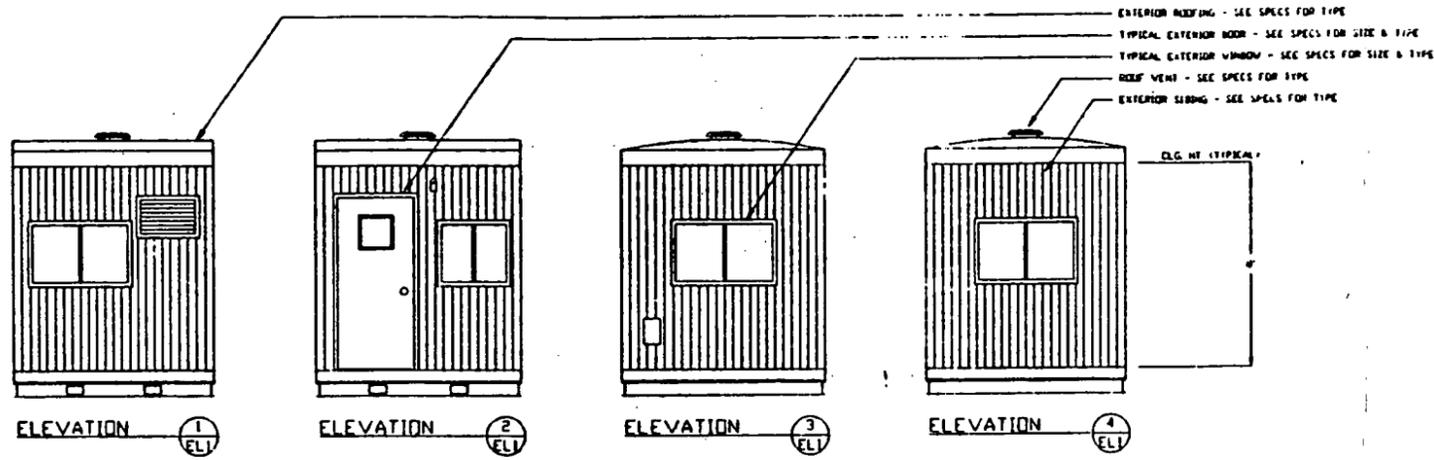
REF. DWG. NO.	REF. DWG. TITLE	NO.	REVISIONS	DATE	BY
16-4004	MAIN ELEC. SUB. STA. FOR SPRAY SYSTEM (SMA 01)				

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR CONSTRUCTION

286
T-327

4748

FOR INFORMATION ONLY
CADD SERVICES



INDEX CODE				
PL. & BR.	ORIG.	CL.	SER. NO.	REV.
28X	5500	A	00332	1

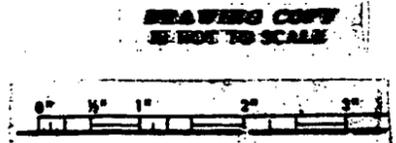
- FOUNDATION NOTES:**
1. TECHNICAL SPACE INC. ASSUMES NO RESPONSIBILITY FOR ACTUAL FOUNDATION DESIGN AND/OR CONSTRUCTION.
 2. CRANE SPACE AREA TO BE VENTILATED AT 1 S.F. PER EACH 100 S.F. OF CRANE SPACE AREA.
 3. THIS IS A "TIE-DOWN PLAN ONLY". FOUNDATION TO BE DESIGNED BY A PROFESSIONAL ENGINEER PER ILL. & I.S. AND CLIMATIC CONDITIONS.
 4. PROVIDE POSITIVE UNDER BRIDGING MIN. 4" PEA GRAVEL AND 6 MIL POLYETHYLENE.
 5. PROVIDE MINIMUM 22" x 24" ACCESS TO CRANE SPACE AREA.
 6. MINIMUM FOOTING DEPTH 3'-6" AND/OR PER LOCAL SITE REQUIREMENTS.

THIS STRUCTURE
WAS FORMERLY 286
GUARD SHACK. IT IS
NOW T-327

INDEX CODE				
PL. & BR.	ORIG.	CL.	SER. NO.	REV.
44X	15500	A	00295	1

RES# 2445

FIELD WORK		PAGE 2		A	
1. TIE-DOWN TO BE TIED DOWN TO FOUNDATION AT SITE BY OTHERS.		of 2		2	
2. ALL FOUNDATION WORK TO BE DONE AT SITE BY OTHERS.					
1. REVISED DWG. NO. TO 44XA MWD 5-21-94 & ADDED INDEX CODE MGS					
0. REVISED PER STATE OF OHIO JUN 20-24-94		SCALE: 1/4"=1'-0"		DATE: 9-22-94	
A. REVISED PER THIRD PARTY JUN 10-18-94		DWN: JW		DISK #	
NO. REVISION		BY		DATE	
				PROJECT # PROJ. # DWG. # M69102A	

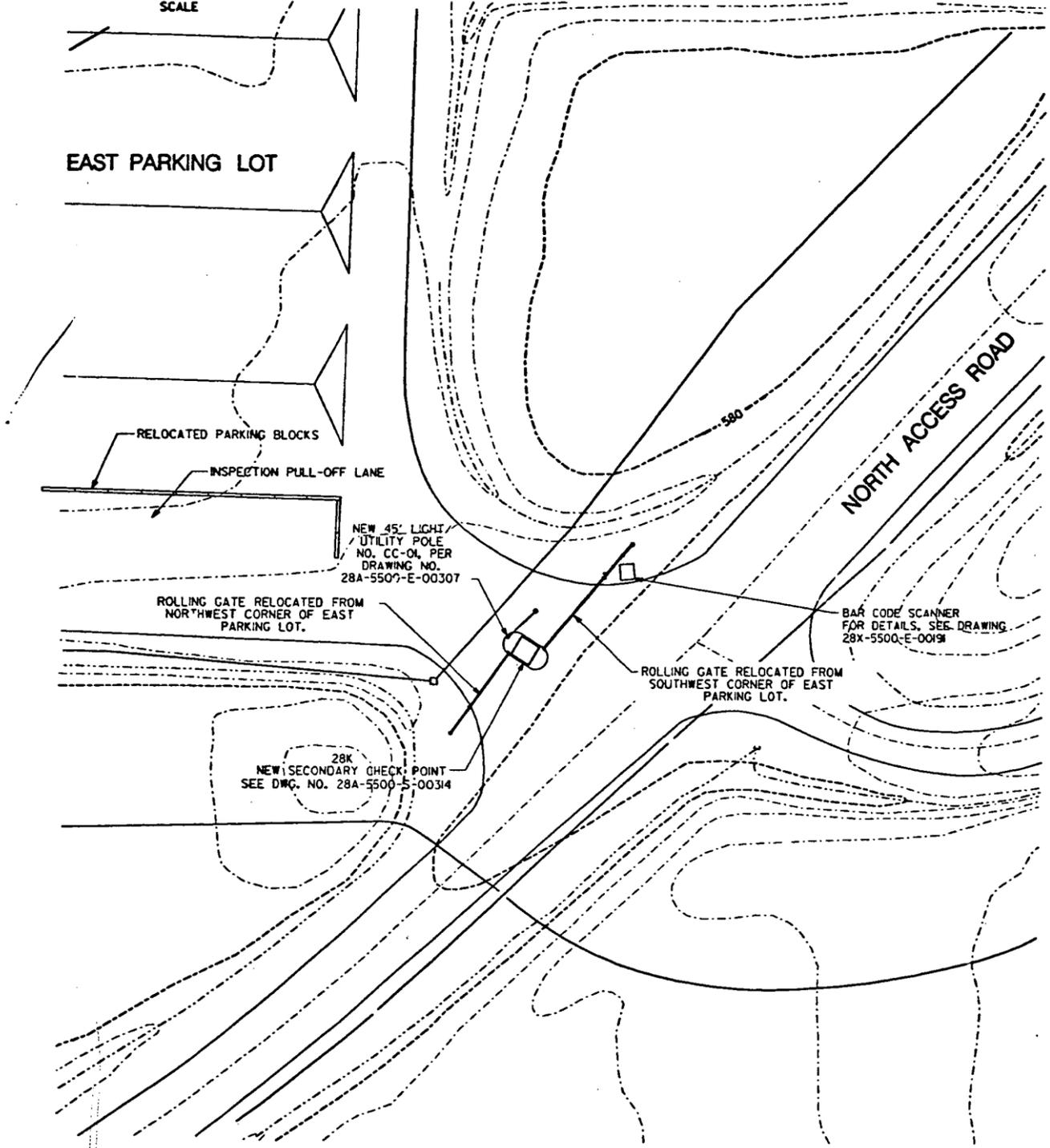
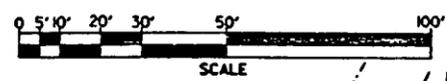


JUN 25, 2002

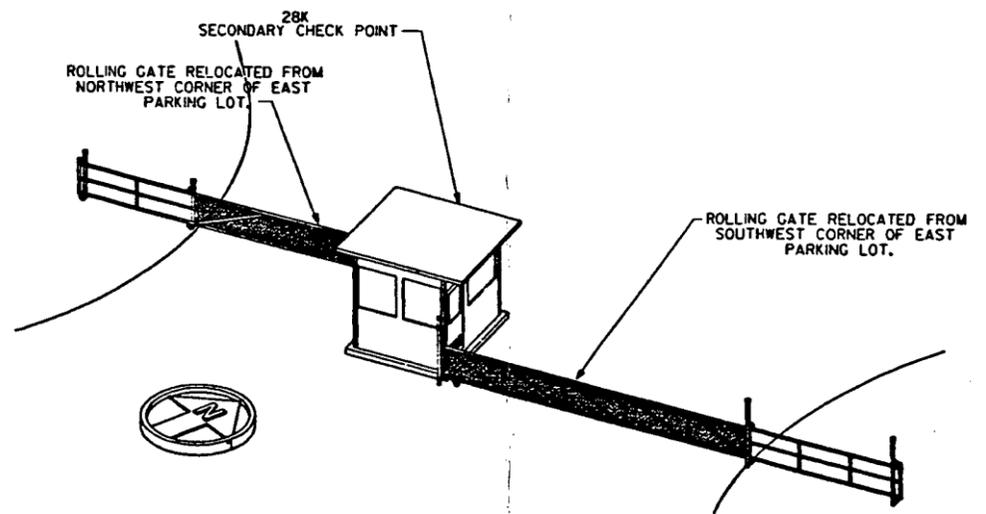
000154

28K

4748



FOR INFORMATION ONLY
CADD SERVICES



JUN 19 2002

000156

NO.	REVISIONS	DATE	BY	APPD.	NO.	REVISIONS	DATE	BY	APPD.	REF. DWG. NO.
2	DCN 296-08 IS VOID, INCORPORATED BAR CODE SCANNERS PER DCN 282-001	1-4-97	CS	REP						
1	AS-BUILT, INCORPORATED DCN 2916-018	2-24-97	CS	CP						
0	CFC	5/20/98	WEL	CP						28X-5500-E-0019

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

CONFIGURATION MANAGEMENT DRAWING	
DESIGNED BY	R.C. WORSLEY
CHECKED BY	G.E. PALA
DATE	5/20/98

APPROVALS			
P.E. & C.A.M.	J.F. JAMES	5/20/98	SAFETY ENG.
CIVIL & STR.			MAINTENANCE
ELECTRICAL			O.A.
ENGINEER	R.C. WORSLEY	5/20/98	FIRE PROTECT.
INSTRUMENT			WASTE MANAGE
MECHANICAL			SECURITY
CONSTRUCTION	B. MYERS	5/20/98	CRU
CHECKED	G.E. PALA	5/20/98	
APPROVED	G.E. PALA	5/20/98	

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

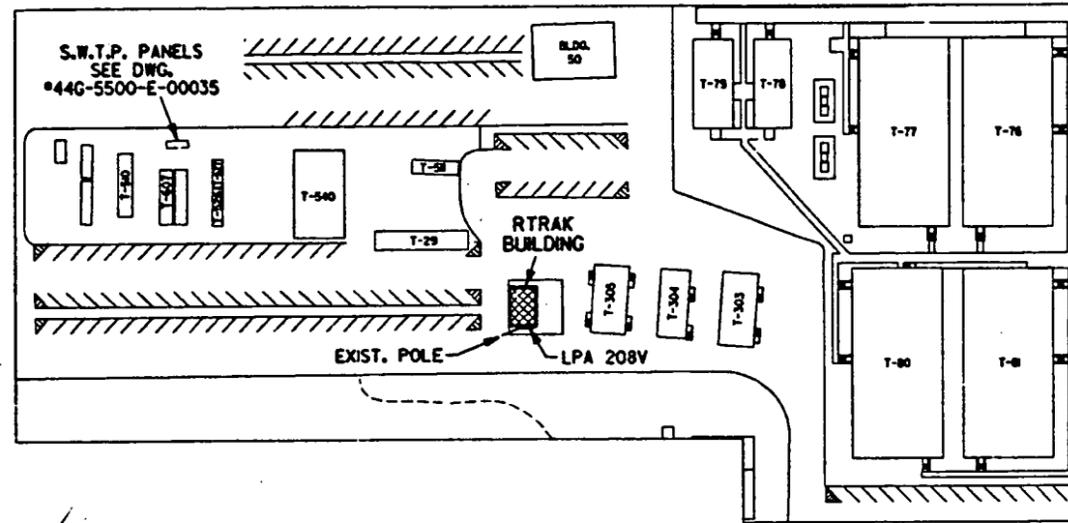
GRID #8	SOUTH ACCESS ROAD
SITE ENTRANCE CHECK POINT SECONDARY CHECKPOINT PLAN & DETAILS	
R.E.S. 4296	DATE 5/20/98
DRAWN WEE LOCKE	28A-5500-G-00310
	2



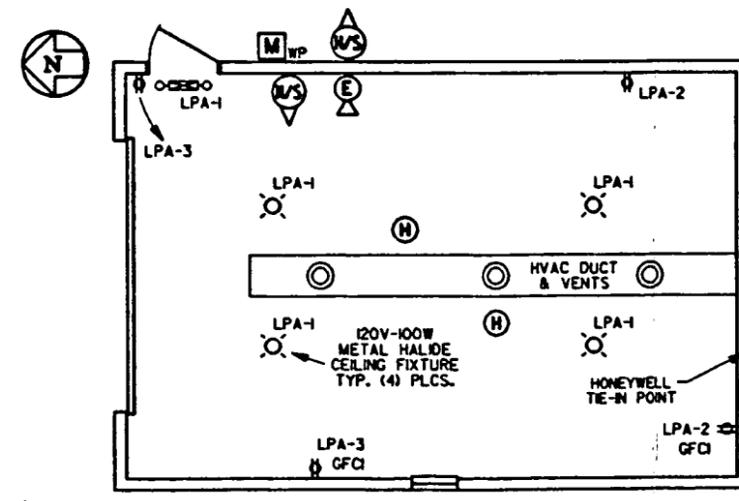
FOR INFORMATION ONLY
CADD SERVICES

52A

4748



LOCATION PLAN



PLAN VIEW

2 TON HEAT PUMP WITH 6 KW ELEC. HEAT 208V 3Ø LPA-4,6,8

4-#8 & 1-#10 G. 1/2" C.

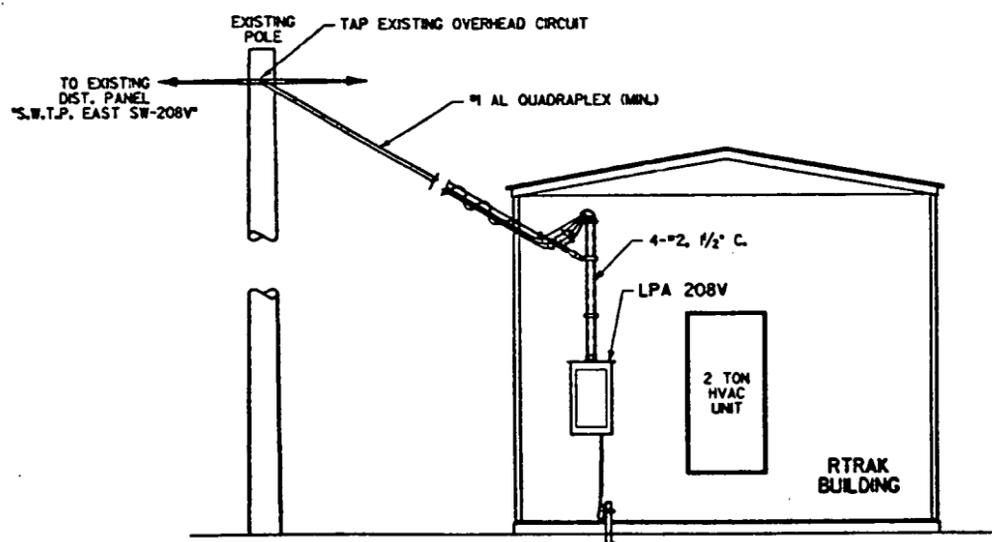
100 AMP 208/120V 4W 3Ø PANELBOARD
100 AMP MAIN CIRCUIT BRKR.
3-20/1 BRKR.
1-35/3 BRKR.
6-SPACES
NEMA 3R ENCL.
LABEL "LPA 208V"

NOTES:

- 1. ALL WIRING TO BE #12 PHASE, NEUTRAL AND GROUND COPPER WIRING WITH THWN INSULATION UNLESS OTHERWISE STATED IN MIN. 1/4" EMT CONDUIT.
- 2. LPA-1 = LIGHTING PANEL CIRCUIT %.

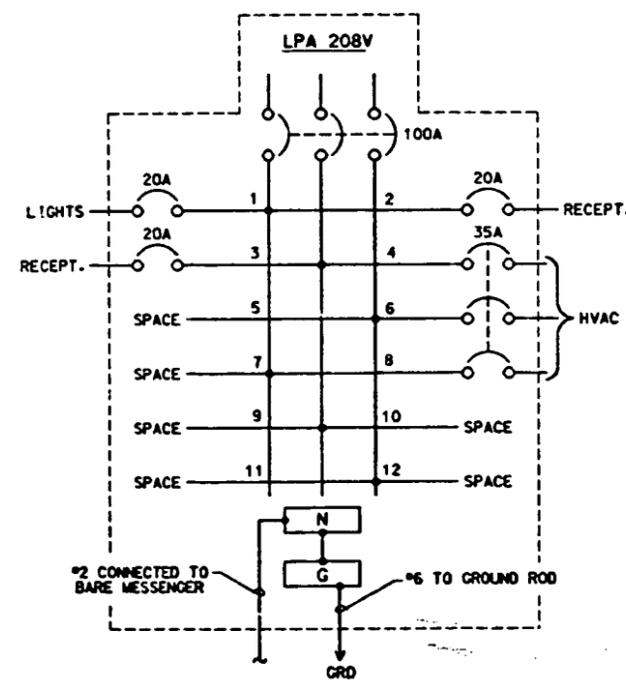
LEGEND

- HOLOPHANE #HMPX-DH-RB EXIT LIGHT WITH (2) BATTERY OPERATED EMERGENCY HEADS
- DUPLEX RECEPTACLE, BROWN STRAIGHT BLADE, 3-W, SPEC. GRADE, NEMA 6-20R
- HOLOPHANE BANTAM 2000 PRISMATIC 100WML #BA-100MM-12-P-G-LAMP
- DUPLEX RECEPTACLE, NEMA 6-20R, GROUND FAULT CIRCUIT INTERRUPTER
- HEAT DETECTOR
- HORN/STROBE UNIT
- EVAC SPEAKER
- MANUAL PULL STATION - WEATHERPROOF



ELEVATION

LOOKING NORTH



PANEL SCHEDULE

NOTE: S.W.T.P. = SOUTHWEST TRAILER PARK

3/4" x 8" LONG COPPER CLAD GROUND ROD CONNECTED WITH #6 COPPER WIRE

000158

INDEX CODE				
PL. & AL.	QTY.	CL.	SER. NO.	REV.
23X	5500	E	00202	2

NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REF. DWG. NO.
	2				ADDED INDEX CODE				
	1				AS-BUILT				

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

CONFIGURATION MANAGEMENT		APPROVALS	
CIVIL & STR.	DATE	SAFETY ENG.	DATE
ELECTRICAL	DATE	MAINTENANCE	DATE
ENGINEER	DATE	Q.A.	DATE
INSTRUMENT	DATE	FIRE PROTECT.	DATE
MECHANICAL	DATE	WASTE MANGE.	DATE
	DATE	SECURITY	DATE
	DATE	CRM	DATE
CHECKED	DATE	APPROVED	DATE

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

SOUTHWEST TRAILER PARK ELECTRICAL POWER & HONEYWELL UTILITY PLAN FOR RTRAK BUILDING
NO SCALE

RES #295
DATE 7/20/98
DRAWN S.J.S

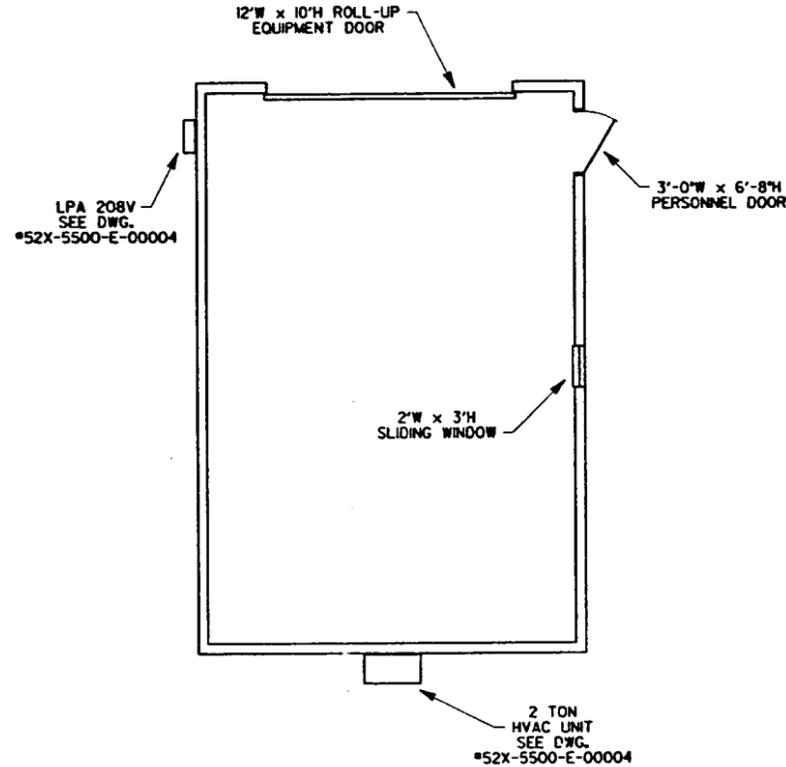
52X-5500-E-00001 2

JUN 19, 2002

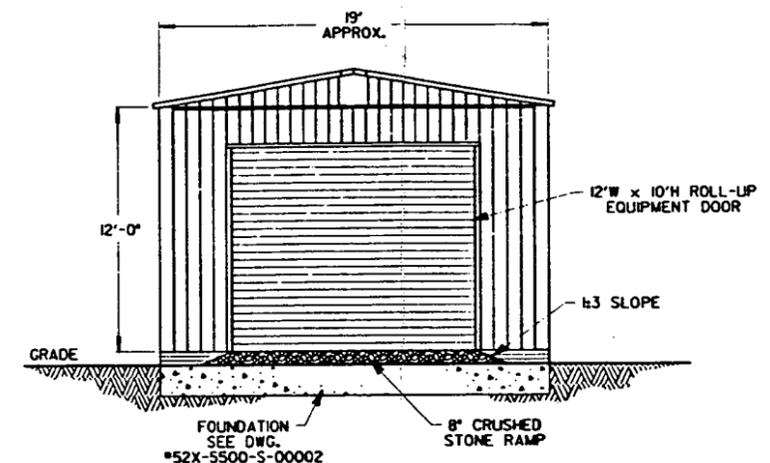
52B

FOR INFORMATION ONLY
CADD SERVICES

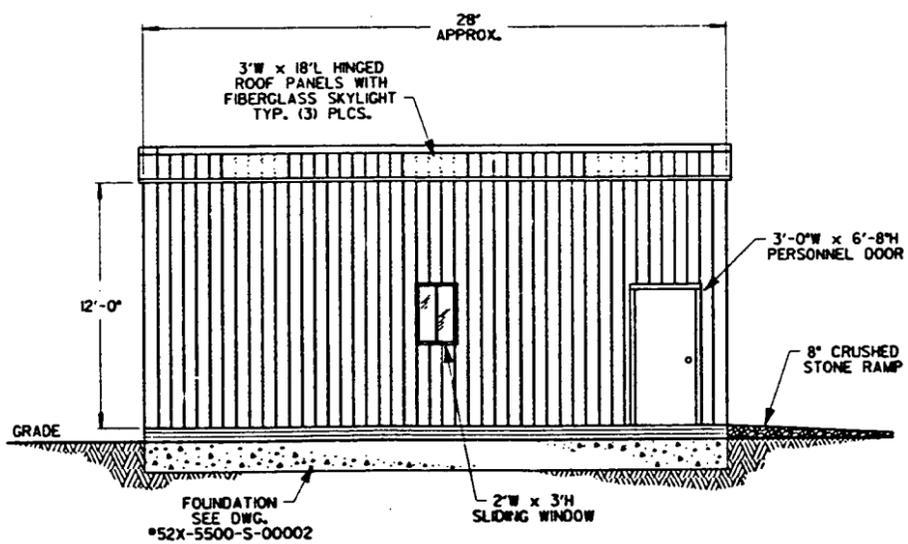
4748



PLAN VIEW
SCALE: NONE



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



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

JUN 19, 2002

000159

ACCELERATED SITE TECHNOLOGY DEPLOYMENT
SOILS CHARACTERIZATION & EXCAVATION PROJECT BUILDING

SOUTHWEST TRAILER PARK
ASTD SCEP BUILDING
ARCHITECTURAL PLAN
& ELEVATIONS
SCALE: AS NOTED

Fernald Environmental
Management Project



U.S. DEPARTMENT OF ENERGY

RES # 1643
DATE 8/27/98
DRAWN S.J.SMOCK
52X-5500-A-00003 1

FILE NAME: Z:\RES\3643\52XA0001.DGN

NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	REF. DWG. NO.
	1								
	0								

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

CONFIGURATION
MANAGEMENT
DRAWING

DATE
COORDINATING ENGINEER

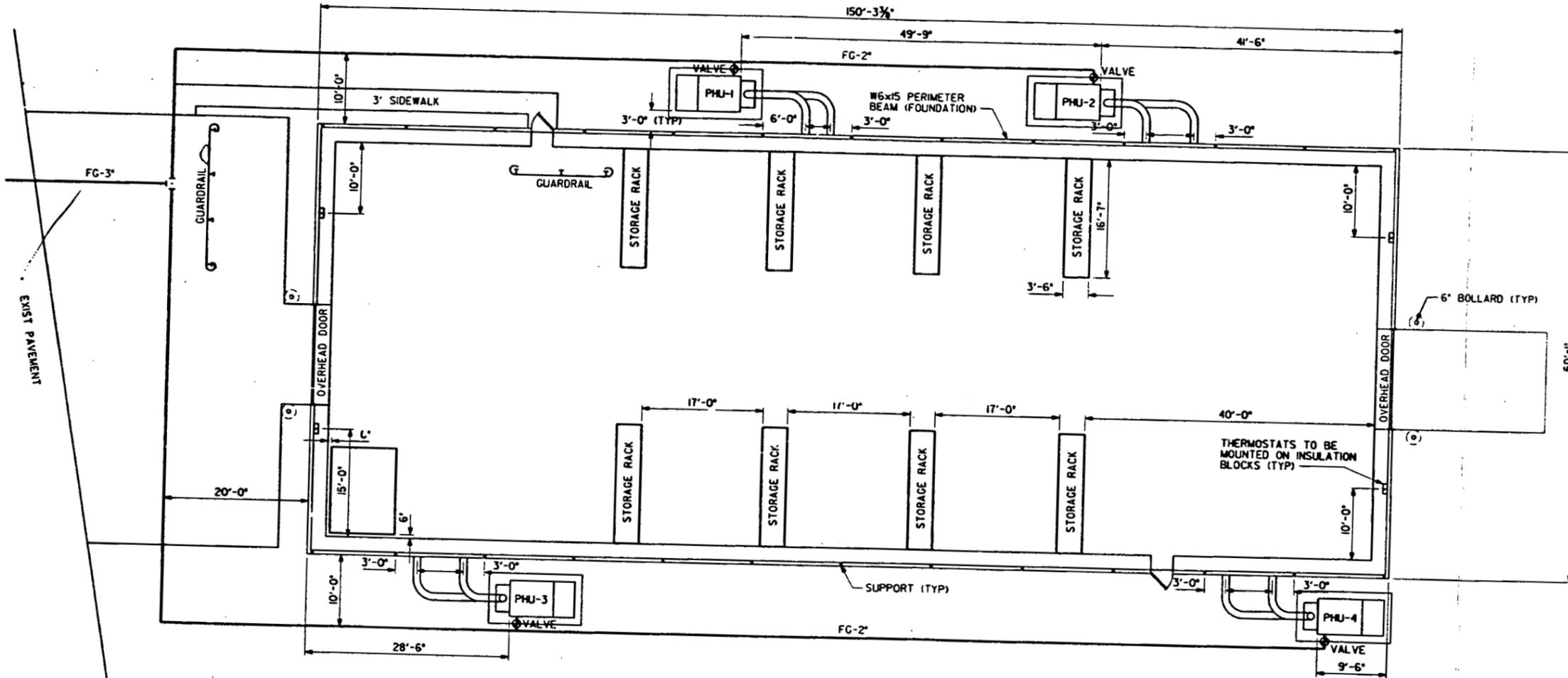
APPROVALS	
CIVIL & STR. & FOUND.	5/1/98
ELECTRICAL ENGINEER	
INSTRUMENT MECHANICAL	
SAFETY ENCL. MAINTENANCE	5/1/98
FIRE PROTECT.	
WASTE MANAGE.	
SECURITY PROJECTS	
FAC. OWNER	
CHECKED	5/1/98
APPROVED	5/1/98

U.S. DEPARTMENT OF ENERGY

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CADD SERVICES

TS-808

4748



JUN 19, 2002

000161

NO.	REVISIONS	DATE	DWN. BY	APPD. NO.	ISSUED CFC	REVISIONS	DATE	DWN. BY	APPD. NO.	REF. DWG. NO.

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

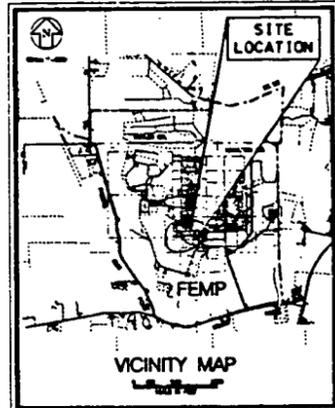
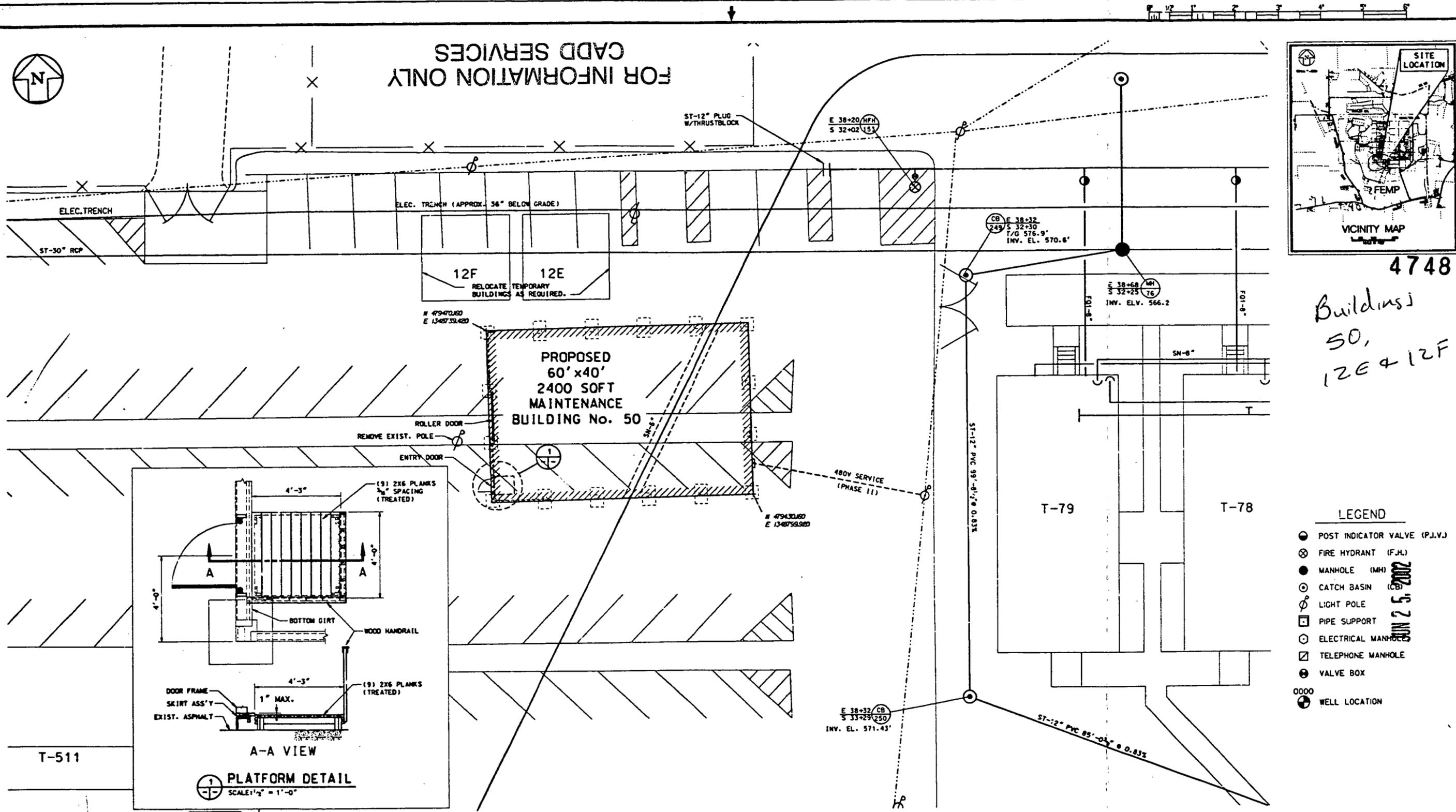
CONFIGURATION
MANAGEMENT
DRAWING

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

**Fernald Environmental
Management Project**
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

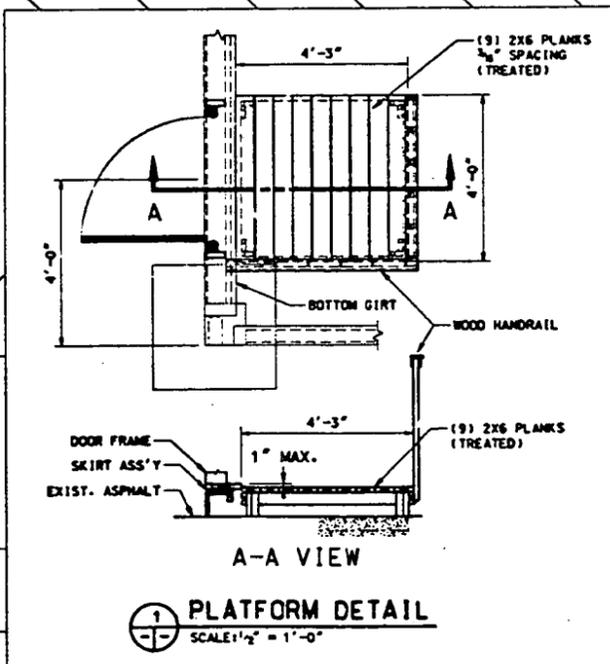
GRID NFEMP68 RIMA STORAGE AREA
TS-8 IMPROVEMENTS
GENERAL LAYOUT PLAN
SCALE: 1/8" = 1'-0"
RES #4374
DATE 4/05/02
DRAWN R.M.L. MOOREN
17X-5500-A-00073 0

FOR INFORMATION ONLY
CADD SERVICES



4748

Buildings
50,
12E & 12F



- LEGEND
- ⊙ POST INDICATOR VALVE (P.I.V.)
 - ⊗ FIRE HYDRANT (F.H.)
 - MANHOLE (MH)
 - ⊕ CATCH BASIN (CB)
 - ⊙ LIGHT POLE
 - PIPE SUPPORT
 - ⊙ ELECTRICAL MANHOLE
 - ⊗ TELEPHONE MANHOLE
 - ⊙ VALVE BOX
 - 0000 WELL LOCATION

SUN 25 JUN 2002

DRAWING ON WHICH SECTION OR DETAIL IS TAKEN

NUMBER OF SECTION OR DETAIL DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY



000162

NO.	REVISIONS	DATE	BY	APPD. NO.	REVISIONS	DATE	BY	APPD. NO.	REF. DWG. NO.

NOTE
PLJOR DANIEL
FERNALD CADD
DRAWING.
DO NOT REVISE
MANUALLY.

CONFIGURATION
DRAWING

COORDINATOR: *M.L.* DATE: *7/2/02*

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

CHECKED: *gpc* DATE: *7/2/02*
APPROVED: *gpc* DATE: *7/2/02*

Fernald Environmental Management Project

U.S. DEPARTMENT OF ENERGY

BLDG. No. 50	LOCATION
(PHASE I) 2400 SOFT MAINT. BLDG.	
SITE PLAN	
SCALE: 1" = 10'-0"	
RES 3345	50X-5500-G-00002 0
DATE: 0-SEP-1997	
DRAWN: M.E. TELLMAN	



MATCH LINE, SEE DWG. NO. 75H-5500-G-00022, GRID 6

MATCH LINE, SEE DWG. NO. 75H-5500-G-00003, GRID 4

4748
31B
16A
16C
16D 16E
16F
16G
25C
26C

FOR INFORMATION ONLY
CADD SERVICES

JUN 25 2002

TRUCK WEIGH SCALE (RELOCATED TO R.M.A. FACILITY) FOUNDATION REMAINS

GARAGE BLDG. 31

HEAVY EQUIPMENT BLDG. 46

MAIN ELECT. STRAINER HOUSE 26C

MAIN ELECT. SWITCH HOUSE 16D

SEWAGE LIFT STATION BLDG. 25C

SE02 MAIN ELECT. TRANSFORMERS 16E

MAIN ELECTRICAL STATION 16A

ELECT. PANELS & TRANSFORMER 16C

TRAILER SUBSTATION #1 16F

TRAILER SUBSTATION #2 16G

T-164 T-165 T-166 T-167

SMOKING SHELTER #9

COMMUNICATIONS HUT #1

- LEGEND
- ⊙ POST INDICATOR VALVE (PIV)
 - ⊙ FIRE HYDRANT (F.H.)
 - ⊙ MANHOLE (M.H.)
 - ⊙ CATCH BASIN (C.B.)
 - ⊙ LAMP POLE
 - ⊙ GENERAL UTILITY POLE
 - ⊙ POWER POLE (P.P.)
 - ⊙ ELECTRICAL POWER POLE
 - ⊙ PIPE SUPPORT
 - ⊙ ELECTRICAL MANHOLE
 - ⊙ TELEPHONE MANHOLE
 - ⊙ VALVE BOX
 - ⊙ MONITORING WELL
 - ⊙ ELECTRICAL PULLBOX

000164

NOTES

- THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME IN THE DIRECTORY BELOW.
- COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT WORKED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	BY	APPRO.	NO.	REVISIONS	DATE	BY	APPRO.	REF. DWG. NO.
8	ADDED NOTE	1-30-02	CEP	CEP	1-30-02	CEP	CEP			
7	UPDATED	1-16-02	CEP	CEP	1-16-02	CEP	CEP			
6	UPDATED	1-22-02	CEP	CEP	1-22-02	CEP	CEP			
5	UPDATED	1-22-02	CEP	CEP	1-22-02	CEP	CEP			
4	ADDED PIV NUMBERS	1-22-02	CEP	CEP	1-22-02	CEP	CEP			
3	UPDATED AND ADDED MONITORING WELLS	8-24-01	CEP	CEP	8-24-01	CEP	CEP			
2	UPDATED	1-24-01	CEP	CEP	1-24-01	CEP	CEP			75H-5500-G-00027.DGN
1										

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

APPROVALS	
CIVIL & STR. ENGINEER	SAFETY ENG.
ELECTRICAL ENGINEER	MAINTENANCE
INSTRUMENT MECHANICAL	
CHECKED	DATE
APPROVED	DATE

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

BLDG. 31 & 46, AREA 16 YARD AREA
 GRID 7
 EXISTING SITE PLAN
 SCALE: 1"=20'
 DATE: 4-14-02
 DRAWN: C.P. [initials]
 75H-5500-G-00026 12
 FILE NAME: 75H-5500-G-00026.DGN

APPENDIX E

4748

PHOTOGRAPHS

Photographs were compiled for the Miscellaneous Small Structures Phase II D&D project. The Building/Component/Location for each photograph is identified below:

TABLE E-1 Photographs

FEMP Negative #	Building/Component	Location
7846-D7	12F & 12E – Maintenance Storage Buildings	Exterior – Southeast
7846-D21	16A – Main Electrical Station	Exterior – Northeast
7846-D29	16B & 22G – Electrical Substation and Main Gate Truck Scale	Exterior – South
7846-D31	16B & 22G – Electrical Substation and Main Gate Truck Scale	Exterior – Southeast
7846-D16	16E & 16D – Main Electrical Transformer and Switch House	Exterior – Northwest
7846-D17	25C – Sewage Lift Station Building	Exterior – Southwest
7846-D1	16H – 10 Plex North Substation	Exterior – Southeast
7846-D2	16J – 10 Plex South Substation	Exterior – Southeast
7846-D26	16N – N-93-1 Substation	Exterior – Northwest
7846-D32	16P – N-93-2 Substation	Exterior – South
7846-D8	21A – Haul Road Wheel Wash Facility	Exterior – Southeast
7846-D14	24C – Locomotive Maintenance Building	Exterior – Southeast
7846-D27	25K – New Sewage Treatment Plant Complex	Exterior – East
7846-D24	26C – Main Electrical Substation Riser House	Exterior – Southwest
7846-D11	28J – Security Checkpoint	Exterior – Southeast
7846-D12	28K – Security Checkpoint	Exterior – Southeast
7846-D4	52A – RTRAK Building	Exterior – Northeast
7846-D5	52B – ASTD SCEP Building	Exterior – Southwest
7846-D6	50 – Maintenance Storage Building	Exterior – Southeast
7846-D9	TS-008 – Tension Support Structure	Exterior – Southwest

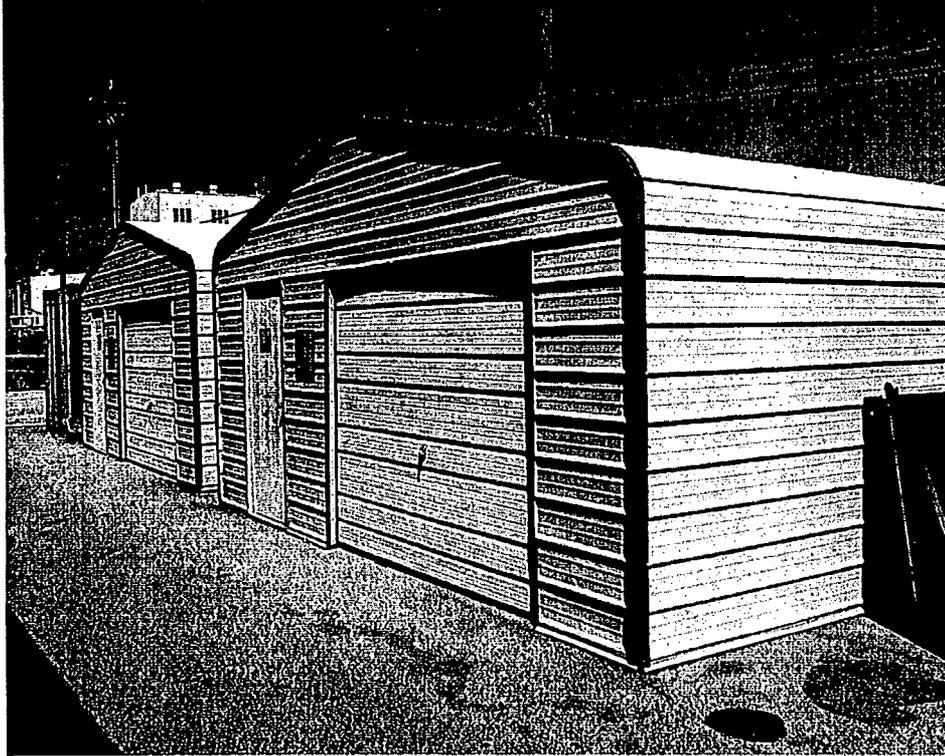
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MAINTENANCE LABOR STORAGE BUILDINGS - 12F & 12E



FEMP Neg. No. 7846-D7

000167

7700.1

08/02

MAIN ELECTRICAL STATION - 16A



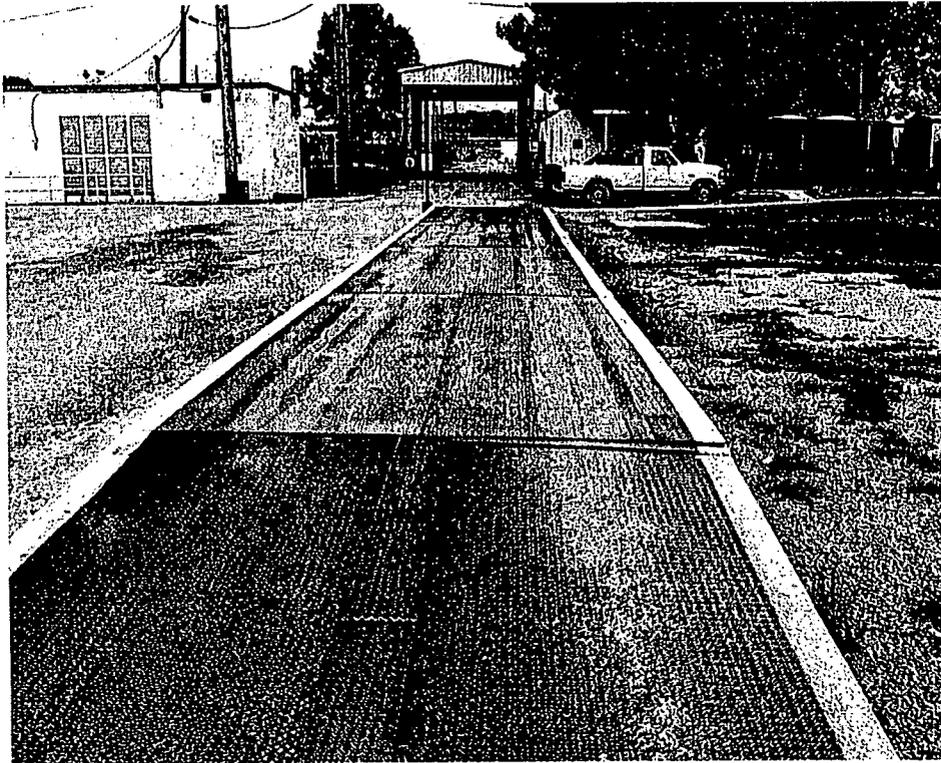
FEMP Neg. No. 7846-D21



4748

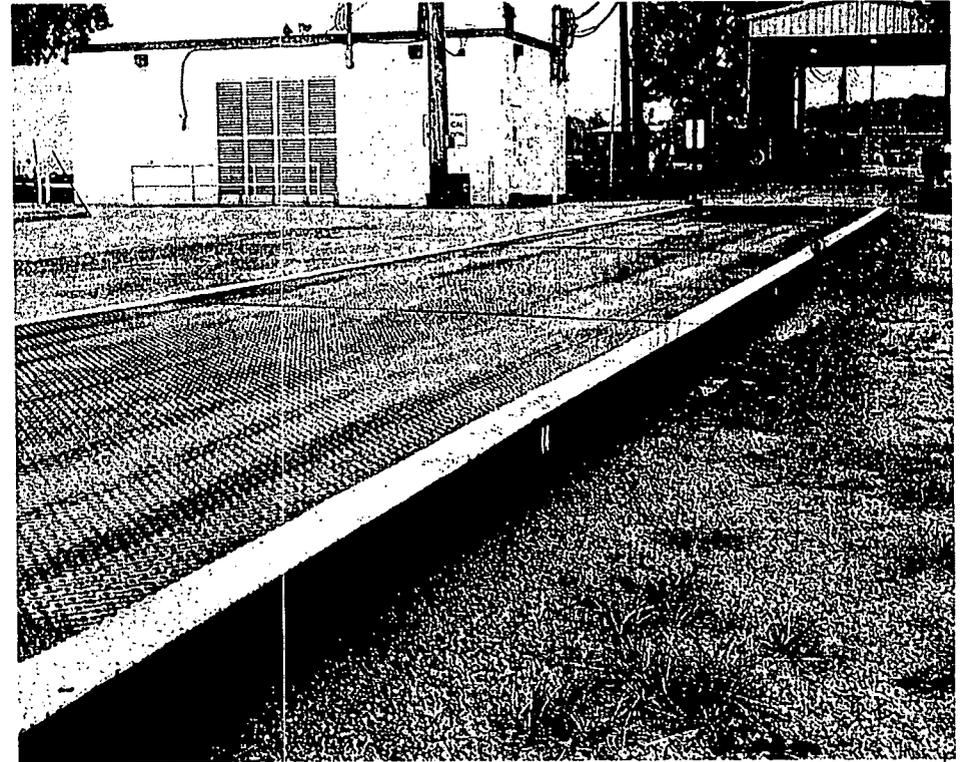
Page 1

ELECTRICAL SUBSTATION - 16B & MAIN GATE TRUCK SCALE - 22G



FEMP Neg. No. 7846-D29

ELECTRICAL SUBSTATION - 16B & MAIN GATE TRUCK SCALE - 22G



FEMP Neg. No. 7846-D31

000168

5-4748

MAIN ELECTRICAL TRANSFORMER AND SWITCH HOUSE - 16E & 16D



FEMP Neg. No. 7846-D16

000169

SEWAGE LIFT STATION BUILDING - 25C



FEMP Neg. No. 7846-D17

000169

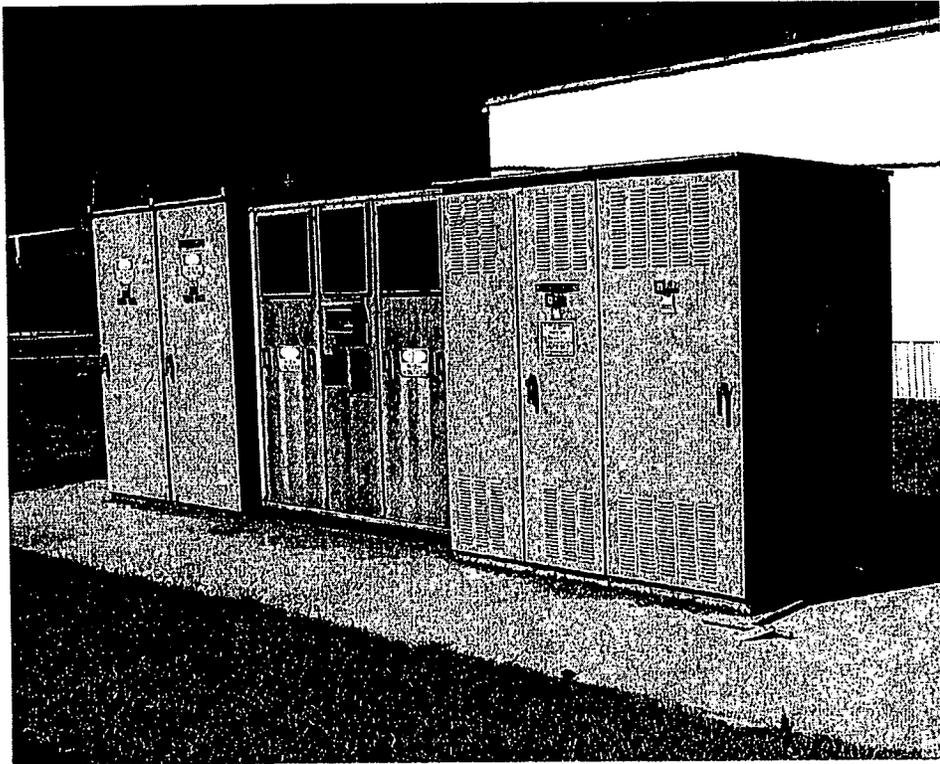
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FERNALD

Environmental Management Project

10 PLEX NORTH SUBSTATION - 16H



FEMP Neg. No. 7846-D1

000170

10 PLEX SOUTH SUBSTATION - 16J



FEMP Neg. No. 7846-D2

4748

N-93-1 SUBSTATION - 16N

N-93-2 SUBSTATION - 16P



FEMP Neg. No. 7846-D26

FEMP Neg. No. 7846-D32

000171



HAUL ROAD WHEEL WASH FACILITY - 21A



FEMP Neg. No. 7846-D8

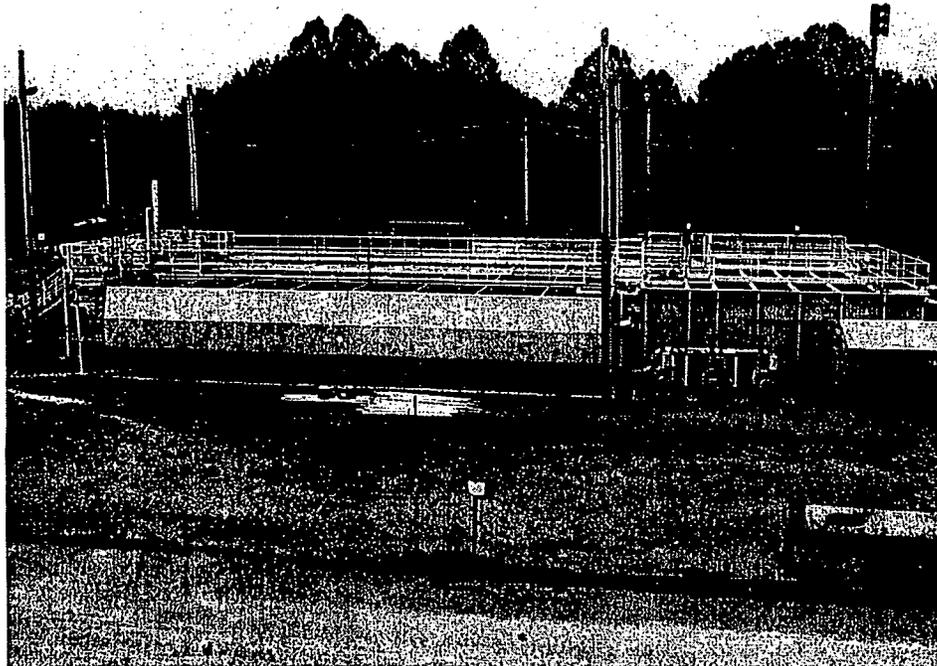
LOCOMOTIVE MAINTENANCE BUILDING - 24C



FEMP Neg. No. 7846-D14

000172

NEW SEWAGE TREATMENT PLANT COMPLEX - 25K



FEMP Neg. No. 7846-D27

000173

7700.7

08/02

MAIN ELECTRICAL SUBSTATION RISER HOUSE - 26C



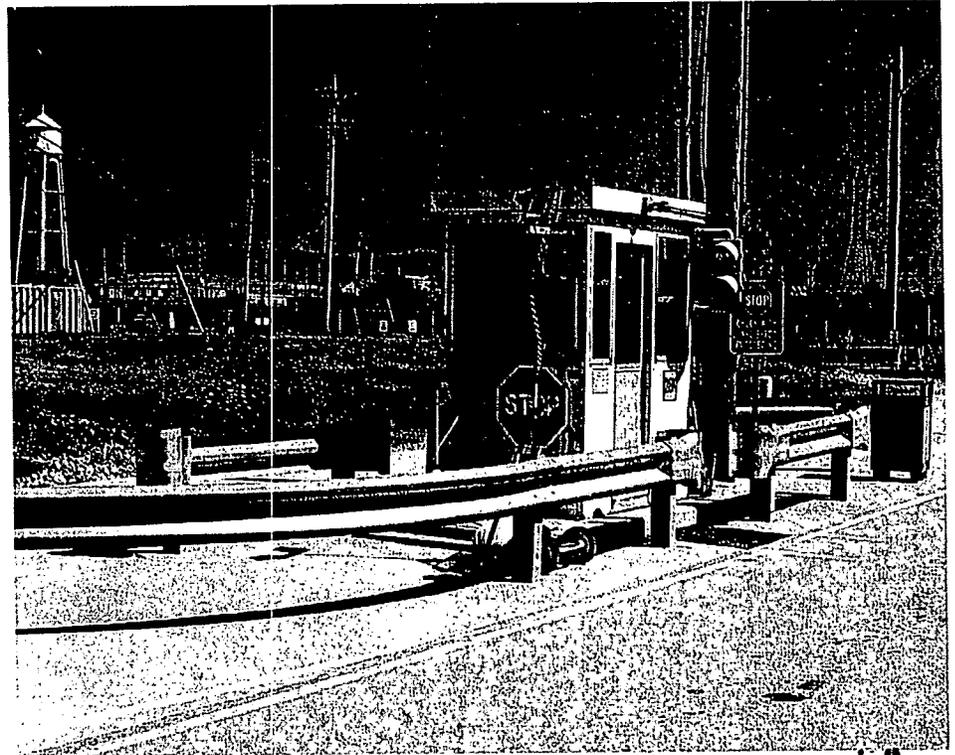
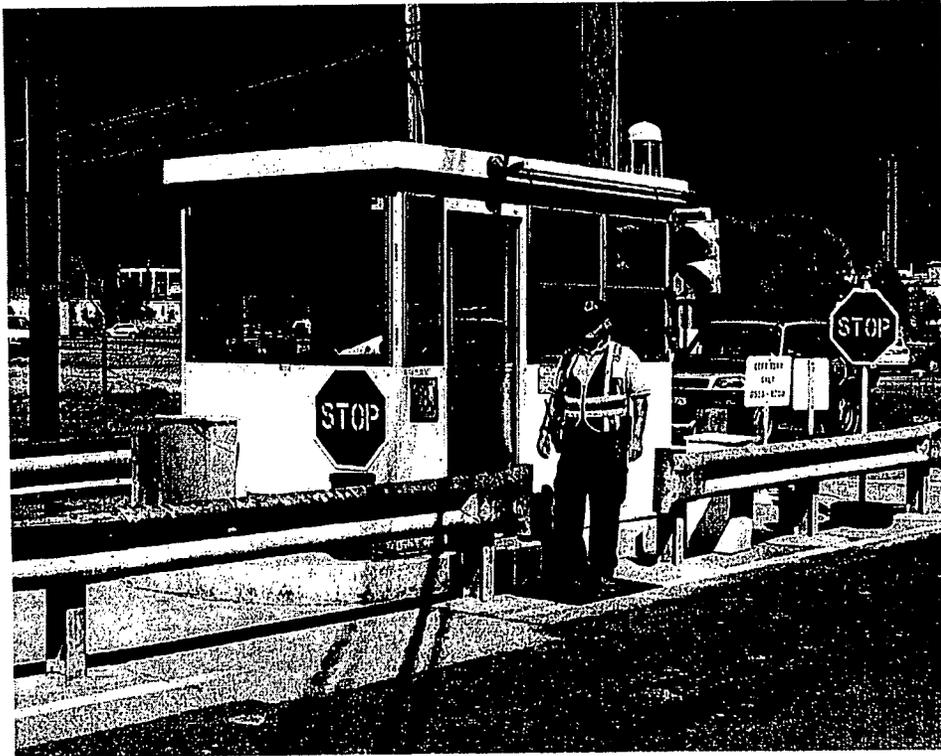
FEMP Neg. No. 7846-D24



4748

SECURITY CHECKPOINT -28J

SECURITY CHECKPOINT - 28K



FEMP Neg. No. 7846-D11

FEMP Neg. No. 7846-D12

000174

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RTRAK BUILDING - 52A

ASTD SCEP BUILDING - 52B



FEMP Neg. No. 7846-D4

0000175



FEMP Neg. No. 7846-D5

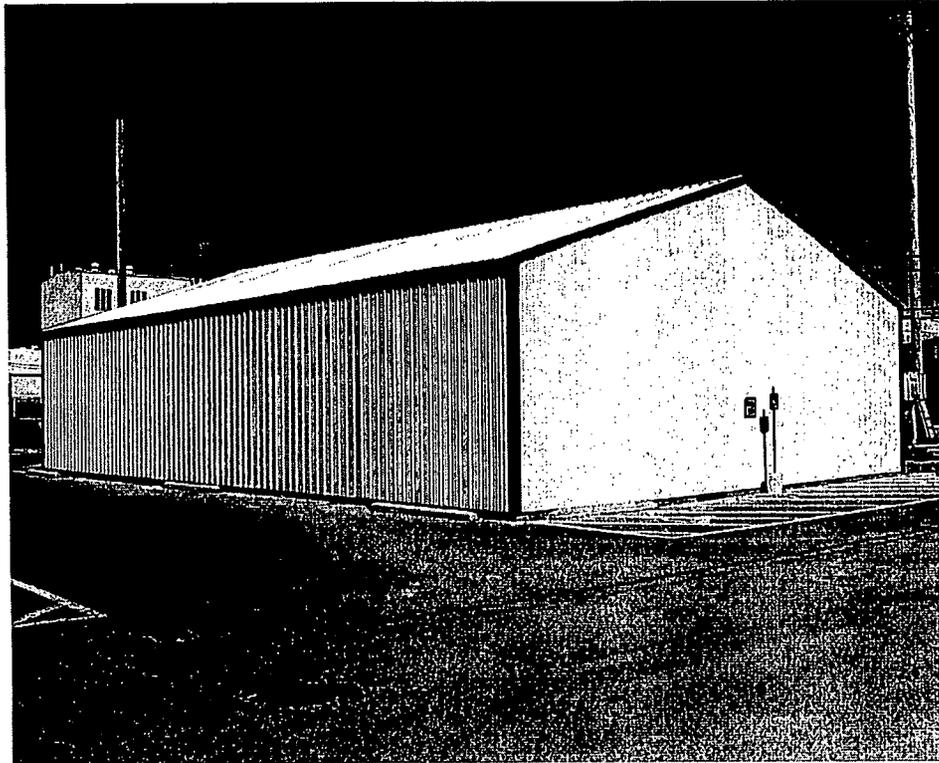
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FERNALD

Environmental Management Project

MAINTENANCE STORAGE BUILDING - 50



FEMP Neg. No. 7846-D6

000176

TENSION SUPPORT STRUCTURE - TS-008



FEMP Neg. No. 7846-D9

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APPENDIX F

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TRAILER SUMMARY

Trailers currently scheduled for dismantlement under the MSS Phase II D&D Project are identified in this appendix.

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**MISCELLANEOUS SMALL STRUCTURES PHASE II D&D IMPLEMENTATION PLAN
APPENDIX F**

D&D Trailer Summary

Sept. 2002

Structure Number	Description	Structure Type	Implementation Plan Complex	Square Feet
T001	4 plex (Office/Conference Rooms)	Trailer	Misc	3976
T002	Single Wide (Office)	Trailer	Misc	360
T003	Single Wide (WISE Const.)	Trailer	Misc	360
T004	Single Wide (Training)	Trailer	Misc	360
T005	Single Wide (Office)	Trailer	Misc	360
T006	Single Wide (restrooms)	Trailer	Misc	360
T007	Single Wide (Office)	Trailer	Misc	360
T008	Single Wide (WISE Const.)	Trailer	Misc	360
T012	Single Wide (Silos)	Trailer	Misc	336
T017	Single Wide (Office)	Trailer	Misc	440
T018	Double Wide (Training)	Trailer	Misc	1344
T019	Single Wide (Rad Safety)	Trailer	Misc	792
T023	10 Plex (office)	Trailer	Misc	6608
T024	7 Plex (Office)	Trailer	Misc	4620
T025	7 Plex (Office)	Trailer	Misc	4620
T026	Single Wide (WGS Office)	Trailer	Misc	792
T029	Single Wide (IM Support)	Trailer	Misc	924
T030	Single Wide (IM Support)	Trailer	Misc	924
T034	Single Wide (WGS Operations)	Trailer	Misc	80
T035	Double Wide (Transportation)	Trailer	Misc	1584
T036	Single Wide (Heavy Equip. Operators Breakroom)	Trailer	Misc	240
T041	Single Wide (WGS Waste Certification)	Trailer	Misc	792
T043	Double Wide (Office)	Trailer	Misc	1344
T044	Double Wide (Office)	Trailer	Misc	1344
T045	Double Wide (Office)	Trailer	Misc	1344
T046	Double Wide (Rad Instruments)	Trailer	Misc	1344
T049	Single Wide (Rad Instruments)	Trailer	Misc	448
T050	Single Wide (Rad Safety)	Trailer	Misc	160
T057	Double Wide (Office)	Trailer	Misc	1960
T058	Double Wide (Office/Conference Room)	Trailer	Misc	1960
T059	Single Wide (WGS Thorium Overpack)	Trailer	Misc	360
T060	Single Wide (Office)	Trailer	Misc	160
T061	Single Wide (Training)	Trailer	Misc	672
T062	Single Wide (Training)	Trailer	Misc	600
T065	Single Wide (WGS MC&A Office)	Trailer	Misc	64
T066	Triple Wide (WGS Shipping Office)	Trailer	Misc	2772
T067	Single Wide (WPRAP)	Trailer	Misc	160
T068	Single Wide (WPRAP Office)	Trailer	Misc	600
T069	Single Wide (RIMIA Control Point)	Trailer	Misc	200
T071	Single Wide (Office)	Trailer	Misc	672
T072	Single Wide (Office)	Trailer	Misc	600
T074	4 Plex (WPRAP Change Room)	Trailer	Misc	3360
T075	Single Wide (Public Affairs-Multi Media)	Trailer	Misc	720

Structure Number	Description	Structure Type	Implementation Plan Complex	Square Feet
T076	10 Plex (Office)	Trailer	Misc	9108
T077	10 Plex (Office)	Trailer	Misc	9108
T078	Double Wide (Office)	Trailer	Misc	1792
T079	Double Wide (Office)	Trailer	Misc	1792
T080	10 Plex (Office)	Trailer	Misc	9108
T081	10 Plex (Office)	Trailer	Misc	9108
T082	Double Wide (Office)	Trailer	Misc	1848
T083	Double Wide (Office)	Trailer	Misc	1848
T084	Double Wide (Office)	Trailer	Misc	1848
T085	Double Wide (Office)	Trailer	Misc	1848
T086	Double Wide (Office)	Trailer	Misc	1848
T087	Double Wide (Office)	Trailer	Misc	1848
T089	Single Wide (Silos Change Room)	Trailer	Misc	784
T090	Single Wide (Silos Change Room)	Trailer	Misc	784
T091	Single Wide (Silos Change Room)	Trailer	Misc	784
T092	Single Wide (Silos Breakroom)	Trailer	Misc	784
T093	4 Plex (WGS Control Point)	Trailer	Misc	3360
T094	5 Plex (D&D Control Point)	Trailer	Misc	3360
T095	6 Plex (D&D Control Point)	Trailer	Misc	3360
T096	Double Wide (OSDF)	Trailer	Misc	1680
T097	Single Wide (Office)	Trailer	Misc	360
T098	Single Wide (OSDF)	Trailer	Misc	840
T100	Single Wide (Office)	Trailer	Misc	200
T103	Single Wide (Rad Instruments)	Trailer	Misc	120
T108	Single Wide (Aquifer)	Trailer	Misc	672
T109	Single Wide (Aquifer)	Trailer	Misc	672
T114	Single Wide (laboratory)	Trailer	Misc	384
T115	Single Wide (laboratory)	Trailer	Misc	384
T116	Single Wide (laboratory)	Trailer	Misc	384
T117	Double Wide (Office)	Trailer	Misc	1584
T118	Double Wide (Office)	Trailer	Misc	420
T119	Single Wide (Office)	Trailer	Misc	460
T121	Single Wide (Office)	Trailer	Misc	1036
T122	Single Wide (Facility Shutdown Tools)	Trailer	Misc	320
T124	Double Wide (Badging)	Trailer	Misc	1344
T125	Single Wide (OSDF)	Trailer	Misc	192
T126	Single Wide (OSDF)	Trailer	Misc	192
T127	Double Wide (Office next to T68)	Trailer	Misc	1680
T128	Double Wide (D&D Office)	Trailer	Misc	1500
T129	Double Wide (Office next to T68)	Trailer	Misc	1440
T130	Double Wide (D&D Breakroom)	Trailer	Misc	1560
T131	Double Wide (D&D Breakroom)	Trailer	Misc	1560
T132	Single Wide (Office)	Trailer	Misc	500
T135	Single Wide (Breakroom)	Trailer	Misc	784
T137	Single Wide (Storage)	Trailer	Misc	400
T138	Double Wide (Soils Office)	Trailer	Misc	1960
T139	Double Wide (Soils Office)	Trailer	Misc	1960
T141	Single Wide (Storage)	Trailer	Misc	256
T142	Single Wide (Storage)	Trailer	Misc	320
T164	Double Wide (Office)	Trailer	Misc	1440
T165	Double Wide (Office)	Trailer	Misc	1440

Structure Number	Description	Structure Type	Implementation Plan Complex	Square Feet
T166	Double Wide (Office)	Trailer	Misc	1440
T167	Double Wide (Office)	Trailer	Misc	1440
T168	Double Wide (Office)	Trailer	Misc	1440
T169	Double Wide (Office)	Trailer	Misc	1440
T170	Double Wide (Office)	Trailer	Misc	1440
T171	Double Wide (Office)	Trailer	Misc	1440
T172	Double Wide (Office)	Trailer	Misc	1440
T173	Double Wide (Office)	Trailer	Misc	1440
T174	Double Wide (Office)	Trailer	Misc	1440
T175	Double Wide (Office)	Trailer	Misc	1440
T176	Double Wide (Office)	Trailer	Misc	1440
T177	Double Wide (Office)	Trailer	Misc	1440
T178	Double Wide (Office)	Trailer	Misc	1440
T179	Double Wide (Office)	Trailer	Misc	1440
T180	Double Wide (Office)	Trailer	Misc	1440
T181	Double Wide (Office)	Trailer	Misc	1440
T182	Double Wide (Office)	Trailer	Misc	1440
T183	Double Wide (Office)	Trailer	Misc	1440
T186	Single Wide (OSDF)	Trailer	Misc	100
T189	Double Wide (WPRAP Locomotive Repair)	Trailer	Misc	1440
T190	Single Wide (WGS)	Trailer	Misc	112
T191	Single Wide (WGS)	Trailer	Misc	320
T193	Single Wide (Control Point)	Trailer	Misc	80
T194	Single Wide (Comm Center)	Trailer	Misc	360
T195	6 Plex (Medical)	Trailer	Misc	4800
T301	Single Wide (Office)	Trailer	Misc	400
T303	Double Wide (Aquifer Office)	Trailer	Misc	1344
T304	Double Wide (Aquifer Office)	Trailer	Misc	1344
T305	Double Wide (Aquifer Office)	Trailer	Misc	1344
T306	Single Wide (Silos Office)	Trailer	Misc	320
T312	Single Wide (OSDF Breakroom)	Trailer	Misc	160
T330	Single Wide (OSDF Change Room)	Trailer	Misc	100
T403	Double Wide (Office)	Trailer	Misc	1440
T404	Double Wide (Office)	Trailer	Misc	1440
T405	Single Wide (Office)	Trailer	Misc	720
T406	Single Wide (Breakroom)	Trailer	Misc	720
T407	Single Wide (Office)	Trailer	Misc	720
T408	Single Wide (Office)	Trailer	Misc	720
T414	Single Wide (Office)	Trailer	Misc	672
T415	Double Wide (Office)	Trailer	Misc	1440
T418	Single Wide (Office)	Trailer	Misc	720
T502	Single Wide (Office)	Trailer	Misc	720
T503	Single Wide (Office)	Trailer	Misc	720
T505	Single Wide (WGS Office)	Trailer	Misc	840
T506	Single Wide (WGS Breakroom)	Trailer	Misc	840
T512	Single Wide (WGS Breakroom)	Trailer	Misc	600
T513	Single Wide (WGS Breakroom)	Trailer	Misc	600
T514	Single Wide (WGS Office)	Trailer	Misc	605
T517	Single Wide (WGS Control Point)	Trailer	Misc	208
T520	Single Wide (Aquifer Office)	Trailer	Misc	192
T540	Triple Wide (Office/Breakroom)	Trailer	Misc	2880

Structure Number	Description	Structure Type	Implementation Plan Complex	Square Feet
T603	Single Wide (Storage)	Trailer	Misc	320
T604	Single Wide (Storage)	Trailer	Misc	320
T608	Single Wide (WGS Office)	Trailer	Misc	840