

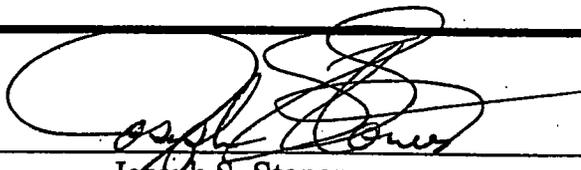
Fluor Fernald, Inc.

MISCELLANEOUS SMALL STRUCTURES DECONTAMINATION AND DISMANTLEMENT PROJECT

SPECIFICATIONS

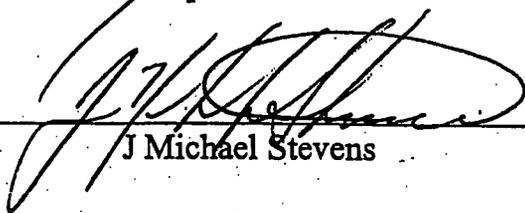
PROJECT NUMBER: 1751
SPEC 1751-TS-0001
FLUOR FERNALD ENGINEERING SUPPORT
REVISION 4

PREPARED BY:


Joseph S. Stoner

10/09/01
Date

APPROVED BY:


J Michael Stevens

10/10/01
Date

U. S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fluor Fernald, Inc.
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INFORMATION
ONLY

000001

Title: Miscellaneous Small Structures	Specification No: 1751-TS-0001		
	Date: 10/10/01	I&RS/TOC	Rev 4

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.

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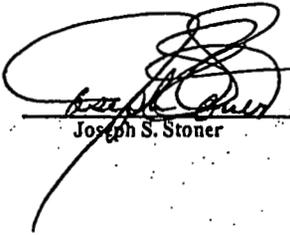
<u>Revision</u>	<u>Section</u>	<u>Description of Issue or Revision</u>
4	01120	Debris/Waste Handling Criteria
5	01515	Mobilization, Demobilization and General Site Requirements
5	01516	Asbestos Abatement
4	01517	Removing/Fixing Radiological Contamination
4	01519	Decontamination of Contractor Provided Tools, Equipment and Material
4	03315	Concrete/Masonry Removal
4	05126	Structural Steel Dismantlement
4	07415	Transite Removal
4	15065	Equipment/System Dismantlement
4	15067	Ventilation and Containment

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END OF SECTION

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Approved:


 Joseph S. Stoner
 Date: 10/10/01

SECTION 01120

DEBRIS/WASTE HANDLING CRITERIA

PART 1 GENERAL

1.1 SCOPE

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

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1.3 REFERENCE MATERIALS

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See the Traveler Package for the following:

- A. Drawings, if available.
- B. Waste Management Plan (WMP), which includes the Material Segregation and Containerization Criteria (MSCC) form. The 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. DOE Order 460.1A Packaging and Transportation Safety.
- B. 10 CFR 835 Occupational Radiation Protection

1.5 PROJECT CONDITIONS

- A. Categories of debris/waste are identified in the WMP (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, Inc. Alternatives to hazardous materials shall be used whenever possible.
- C. The Site Support Contractor shall notify Fluor Fernald, Inc. 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, Inc.

PART 2 PRODUCTS

2.1 EQUIPMENT • NOT APPLICABLE

2.2 MATERIALS C OWNER (Fluor Fernald, Inc.) FURNISHED

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

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PART 3 EXECUTION

3.1 PREPARATION

A. Container Staging Area:

Fluor Fernald, Inc. Project Management will identify the location of the container staging area. The Site Support Contractor shall be responsible for stabilizing and maintaining the areas 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, Inc. 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 classifications: 1) non-process debris; 2) process debris; and 3) suspect process debris. All debris shall be sized, segregated, and containerized in accordance with the MSCC-WMP.

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.4 of this Specification Section. Non-process debris would include, but are not limited to, piping for utility systems (i.e., steam, condensate, drinking water, air, and others), electrical systems (i.e., conduit, motors, electrical panels, and others), and obvious non-process items such as structural steel (Debris Category A), concrete (Debris Category E), transite (Debris Category G), and most miscellaneous materials categorized as Debris Category I. Surface decontamination of non-process debris per Specification Section 01517, Article 3.1 applies.

2. Process Debris:

Process debris is defined as debris that fails the inspection for *visible process residues* per Article 3.2.A.4.a. and debris listed in the MSCC as Debris Category C. Process piping and debris predetermined to be Debris Category C in the MSCC will be exempt from the inspection for *visible process residues* and decontamination of internal surfaces; however, the applicable provisions under Specification Section 01517 still apply.

3. Suspect Process Debris:

Suspect process debris, which includes all other debris not specifically

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identified as non-process debris or process debris, shall be subject to inspection by Fluor Fernald, Inc. per Article 3.2.A.4 to determine the presence or absence of *visible process residues*.

4. Visible Process Residue Inspection Requirements:

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The definition of *visible process residues* (green salt, yellow cake, black oxide, etc.) is hold-up/materials on the interior or exterior surfaces of debris that is obvious and that if rubbed, would be easily removed. 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 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.

a. Fluor Fernald, Inc. visual inspection will take place following dismantlement, sizing, and prior to sealing of openings in accordance with Specification Section 15065, decontamination in accordance with Specification Section 01517, and relocation to the material inspection staging area.

b. Debris That Fails Inspection for Visible Process Residues:

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

ii. Pipe: Piping that fails the first inspection criteria for visible process residues will be deemed as "Process Debris" and will be identified with red paint by Fluor Fernald, Inc. The ends of process pipe shall be sealed per Specification Section 01517; decontamination of internal surfaces shall not be performed. The requirement for decontamination of external surfaces per Specification Section 01517 still applies.

c. Debris That Passes Inspection for Visible Process Residues:

Debris that passes the Fluor Fernald, Inc. inspection for visible process residues shall be identified with green paint by Fluor Fernald, Inc. The debris then shall be containerized or staged according to this Specification Section.

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B. The Site Support 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 moving containers back to the designated container staging area. The Site Support 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 Specification 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.

Palletized equipment, material or debris shall be managed by the Site Support Contractor 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.
3. Secure material to pallet with vinyl or metal banding material; however, transite panels shall be banded first, then placed on pallets.

3.3 PERFORMANCE

A. Loading of Containers:

1. A Fluor Fernald, Inc. supervisor responsible for waste management, who has met Nevada Test Site Waste Acceptance Criteria/Waste Certification Program Plan (NTSWAC/WCPP) training, must be present during all loading of containers.
2. Segregate and containerize all debris/waste according to the categories defined in the MSCC. Should a debris/waste stream be discovered that is not on the MSCC, then work on the handling of this debris/waste will stop, whereupon Fluor Fernald, Inc. shall be contacted for further direction.
3. Commingle Debris Categories A, B, D (except for lead), and incidentally generated E in the designated container or stockpile, as directed by the MSCC. Debris Category I shall be segregated and containerized according to two subcategories: I2 C Non-compressible and/or Non-organic Misc. Debris; and I4 C Compressible and/or Organic Misc. Debris.
4. Upon receipt of containers, the Site Support Contractor shall perform a visual inspection to ensure that the containers do not contain any of the prohibited items identified in this Section. Should any containers contain freestanding liquids (ice is considered a freestanding liquid) upon delivery

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or removal from the work zone, Fluor Fernald, Inc will remove liquids if any is found.

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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. The following "Prohibited Materials List" shall be displayed in the containerization area or on each container. Notify Fluor Fernald, Inc. if any of the prohibited materials are identified for specific material handling directions.

PROHIBITED MATERIALS LIST

- a. Compressed gases (e.g., cylinders, unpunctured aerosol cans);
 - b. Explosives;
 - c. Free liquids;
 - d. Fine particulates (respirable fines);
 - e. Hazardous waste;
 - f. Corrosive materials;
 - g. Etiologic agents;
 - h. Flammable liquids or combustible solids; and
 - i. Whole or shredded scrap tires.
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 Category J Debris, 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 Site Support 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

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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, Inc.
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.
 - 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, Inc.).
 - g. Filled ROBs must remain inside the established staging area until they can be removed by Fluor Fernald, Inc.
 - h. Filled drums and white metal boxes must remain inside the established full container staging area until they can be removed by Fluor Fernald, Inc.

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- i. The Site Support 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.

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C. Stockpiling of Materials:

- 1. The Site Support 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 Site Support 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 pad(s) and the stockpile area fencing. The Site Support 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, Inc. will perform routine radiological contamination surveys and airborne radioactivity monitoring. If deemed necessary by Fluor Fernald, Inc., the Site Support 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 Site Support Contractor chooses to stage any debris on a floor other than a slab-on-grade a structural engineering analysis shall be required. Fluor Fernald, Inc. will perform the analysis to verify the loading capacity of said floor.

3.4 FIELD QUALITY ASSURANCE

The Site Support Contractor and Fluor Fernald, Inc. 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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Approved:


 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 Site Support Contractor (SSC) 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 15065 - Equipment/System Dismantlement.
- G. Section 15067 - Ventilation and Containment.

1.3 REFERENCE MATERIALS

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

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1.4 REFERENCES, CODES AND STANDARDS

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

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

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

B. National Fire Protection Association (NFPA):

1. NFPA 70 National Electrical Code, 1996 Edition.
2. NFPA 101A-98 Code for Life from Fire in Buildings and Structures.

C. American National Standards Institute (ANSI):

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

D. American Wood-Preservers Association (AWPA): AWP C4-95 Poles, Pressure Treatment

E. National Electrical Manufacturers Association (NEMA):

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

F. Underwriters Laboratories (UL):

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

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- G. United States Department of Agriculture, Soil Conservation Service: Water Management and Sediment Control in Urbanizing Areas.
- H. Code of Federal Regulations (CFR):
 - 1. 29 CFR 1926 Occupational Safety and Health Administration, Dept. of Labor (as applicable).
 - 2. 29 CFR 1910 Occupational Safety and Health Administration, Dept. of Labor (as applicable).
- I. American Water Works Association (AWWA): AWWA C506-78 C Backflow Prevention Devices-Reduced Pressure Principle and Double Check Valve Types
- J. Ohio State Plumbing Code: 4104:26:105 Backflow

1.5 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 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:

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

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E. Gravel Pads for Access and Container Staging Areas

The aggregate shall be 6 - 8 inch (i.e., aggregate size) 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 AWWA C4, Pentachlorophenol.
4. Apply preservative to AWWA 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.

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- J. Pole Anchors: Helical screw anchor type sized for load; galvanized steel; ASTM A36/36M.
- K. Backflow Prevention for Temporary Water Conditions (Reduced Pressure Type):
 - 1. The backflow preventor shall meet Ohio State Plumbing Code 4101:26:105 Backflow and the American Water Works Association (AWWA) Standard (AWWA C506-78) for Backflow Prevention Devices.
 - 2. Acceptable products and suppliers:
 - a. WATTS 909 Backflow Preventor (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.

PART 3 EXAMINATION

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

3.1 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 Engineering.
 - 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.

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- 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.
- 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 SSC 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 SSC.
4. The SSC 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 SSC 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 SSC shall coordinate water hook-up with Fluor Fernald. Fluor Fernald will activate hydrants.
 - c. At project completion, the SSC shall turn all backflow prevention devices, fittings, and valves over to Fluor Fernald in good working order.

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- d. Backflow devices shall have freeze protection and be accessible for inspection.

D. Signs and Barriers:

1. The SSC 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 SSC shall install construction zone fencing outlining construction boundary. Construction safety signs shall be posted at 50 feet intervals around the defined construction area. The SSC 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 SSC 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 SSC 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 SSC 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 SSC 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.
3. Additional requirements for mobilization and demobilization of remediation equipment may be listed in the Work Permit/Radiological Work Permit.

I. Ventilation and Containment:

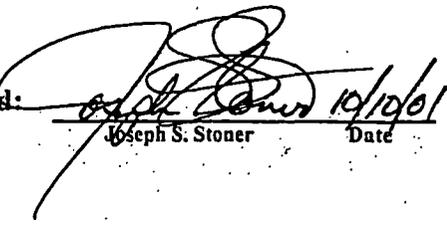
1. If release cleaning for structures is required a vestibule on the entry/exit of the building access prior to the beginning of work shall be installed. The vestibule shall be constructed so as to prevent the escape of airborne contamination. Material used for the construction of vestibules shall be 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.

3.2 DEMOBILIZATION AND FINAL PROJECT SITE ACCEPTANCE

- A. Demobilization includes the removal of all SSC tools, equipment, materials, and construction zone perimeter fencing.
- B. Final project site acceptance shall be conducted by Fluor Fernald, Inc in accordance with Fluor Fernald Site Procedures, and will consist of verification of completion of all work activities relating to the work scope.

END OF SECTION

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Approved:  10/10/01
 Joseph S. Stoner Date

SECTION 01516

ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SCOPE

This section specifies the requirements for an asbestos hygiene program, and methods to be used for removal, movement, and disposition of 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 15067 - Ventilation and Containment

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. 29 CFR 1910 Occupational Safety and Health Administration - Dept. of Labor (as applicable).
- B. 29 CFR 1926 Occupational Safety and Health Administration - Dept. of Labor (as applicable).
- C. Ohio Department of Health Asbestos Hazards Abatement Rules Chapter 3701 - 34, OAC (Ohio Department of Health).
- D. Ohio Environmental Protection Agency Chapter 3745-20, OAC.

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

1.5 SUBMITTALS

- A. Prior to initiation of ACM work, the SSC shall submit or have the following on record with Fluor Fernald, Inc.:
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 SSC.
 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.

1.7 SITE CONDITIONS

- A. Interior 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.

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- 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), encapsulants, and lockdowns shall be mixed in a proportion specified by the manufacturer and contain a colorant to make coverage areas readily apparent. Products that have been acceptable to Fluor Fernald include those listed below. Equivalent or better products may be acceptable and shall be approved by Fluor Fernald.
 - 1. Surfactants:
 - a. CP-225 CHIL-SORB by Childers.
 - b. Approved equal.
 - 2. Encapsulants:
 - a. CP-240 CHIL-LOCK - Childers.
 - b. Certane 2050 - Certified Technologies.
 - c. Eppco #1 - Expert Environmental Products.
 - d. Serpiloc - International Protection Coatings Corp.
 - e. Approved equal.
 - 3. Lockdowns:
 - a. 1050 - Clearcoat by Certane.
 - b. Fiber-Seal - Eppert.
 - c. Serpiloc. - International Protection Coatings Corp.
 - d. Approved equal.

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

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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 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 are 120 volts AC and 1 amp. The PCM minimally requires an area of 5.5 feet by 4 feet by 8 feet in height. The buffer area shall also contain a sink for the rinsing of respirators prior to doffing.
5. Water shall be collected from the shower room and 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

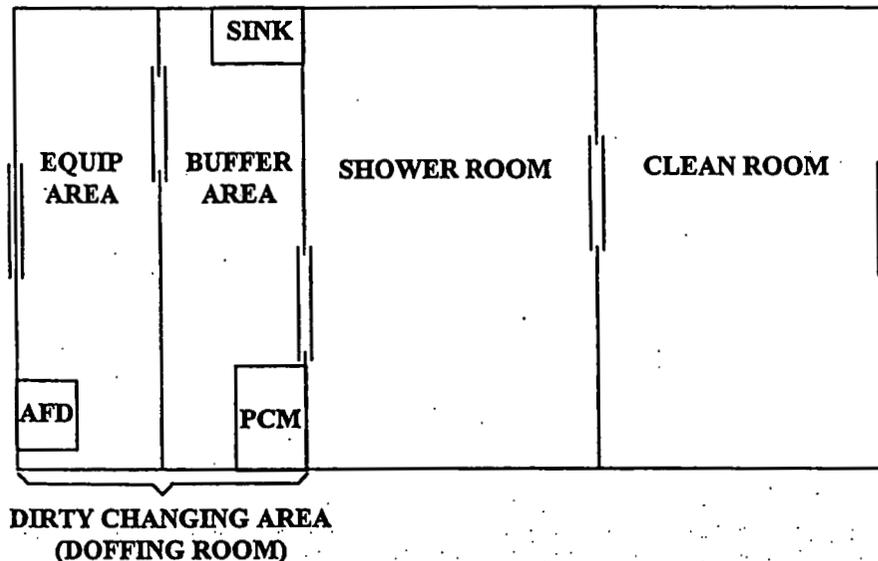
A. Regulatory:

1. Fluor Fernald, Inc. shall notify the Ohio Department of Health (ODOH) ten

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(10) days prior to start of ACM removal. Fluor Fernald, Inc. will also be responsible for notifying the EPAs and all other applicable governmental agencies before start of work.



2. The SSC 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.

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3. Install work area barriers.
4. Cover the floor with one layer of 6 mil polyethylene sheeting.
5. Post the required asbestos hazard warning signs.

3.2 APPLICATION

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 Waste Management Plan.
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, Inc.
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 SSC shall remove containment and dispose of it as ACM waste per the Waste Management Plan.
9. Wastewater associated with asbestos abatement shall be handled in accordance with Specification Section 01517.

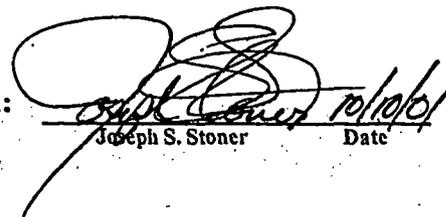
D. Floor tile, mastic, woven cloth-covered electric wire, and gaskets may become friable during removal; therefore, the SSC shall remove such material in a manner that does not allow it to become friable while also adhering to all applicable government, state, and local asbestos abatement regulations.

END OF SECTION

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Approved:


Joseph S. Stoner
Date: 10/10/01

SECTION 01517

REMOVING/FIXING RADIOLOGICAL CONTAMINATION

GENERAL

1.1 SCOPE

- 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, Inc. prior to D&D activities. If process material is found during D&D activities, Fluor Fernald, Inc. 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 onsite roof panels is addressed in this Specification Section; handling of onsite 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.
- C. Fluor Fernald, Inc. will perform all effluent sampling and analysis.

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1.2 RELATED SECTIONS

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

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 Radiation Protection of the Public and the Environment.
 - 2. DOE/EH-0256T Radiological Control Manual, April 1994.
 - 3. DOE/EM-0142P Decommissioning Handbook, Chapter. 9, Mar. 1994.
- B. 10CFR835 Occupation Radiation Protection
- C. Facility/Radiological Release Criteria:

Facility or radiological release cleaning criteria referenced in this Section and other Sections of this specification package are defined as follows: 100 dpm/100 cm² loose; 5,000 dpm/100 cm² fixed average, with the average taken over 1 m²; 15,000 dpm/100 cm² fixed hot spot.

PART 2 PRODUCTS

2.1 EQUIPMENT

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

- A. The filter system shall consist of a 20 micron pre-filter and a 5 micron filter to remove entrained particulate prior to effluent discharge to tankage.
- B. The SSC shall construct all holding tank systems and secondary containment systems as specified in Article 3.1.D and 3.1.E of this specification.

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2.2 MATERIALS

- A. Encapsulating coatings: If encapsulating coatings are employed, they shall be Carboline D3358 or approved equal. Manufacturers may include, but are not limited to: Tnemec Series 6 - Tnemec-Cryl, and products by Sherwin-Williams and International Protective Coatings.
- B. If non-strippable coatings are employed, they shall include Polymeric Barrier System (Bartlett), or a Fluor Fernald, Inc-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.
- 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, Inc.
 2. Debris and equipment/systems shall be managed in accordance with Specification Section 01120.
 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 and brought directly to containers labeled as containing thorium-contaminated items (not for re-packaging), or containerized prior to removal from the enclosure.
 4. Equipment/systems identified by Fluor Fernald, Inc. as being contaminated with uranium with an enrichment over 2 percent will be removed, wrapped, and containerized by the SSC 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:

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Prior to opening the structures that require decontamination to meet facility release cleaning requirements to the environment, the SSC 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, Inc. will perform a radiological release survey to ensure the radioactivity criteria are met.

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 Waste Management Plan (Debris Category J).

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.

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- iii. Hot cutting may be performed on contaminated surfaces less than 25,000 dpm/100cm² beta-gamma total contamination with local HEPA ventilation.
 - 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, Inc.-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, Inc. 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 SSC 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 SSC 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.
- 8. If hydro-blasting or steam cleaning is employed, the SSC 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 SSC 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 SSC 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. Rinseate/Effluent Handling:

1. The SSC 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 rinseate/effluent generated from decontamination of a structure containing uranium and/or thorium contamination or from decontamination washwater generated from contact with outdoor pads with process tanks and pipes. Fluor Fernald, Inc 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 rinseates or sludges with a U-235 enrichment less than 1 percent.
 - a. For enrichments greater than 1 percent and less than or equal to 1.25 percent, effluent storage tanks 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 SSC 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.

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4. 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.
5. Upon approval from Fluor Fernald, Inc, the SSC shall empty the contents of the effluent storage tanks and transport the effluent to the FEMP Advanced Wastewater Treatment Facility.
6. Effluent generated from the decontamination and/or rinsing of HWMUs shall be collected and temporarily stored separately from general, non-HWMU effluent. Fluor Fernald, Inc. will notify the SSC when commingling of HWMU and non-HWMU effluent may occur.

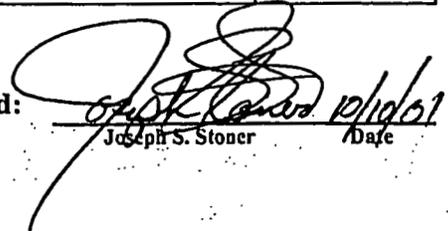
E. Sludge Drumming

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.)

END OF SECTION

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Approved:


 Joseph S. Stoner
 Date: 10/10/01

SECTION 01519

**DECONTAMINATION OF TOOLS,
EQUIPMENT, AND MATERIAL**

PART 1 GENERAL

1.1 SCOPE

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

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

B. Project Conditions and Requirements:

1. All facilities, unless expressly noted 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 SSC 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 SSC 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

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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.

1.2 RELATED SECTIONS

Work related to this Specification Sections 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 15067 - Ventilation and Containment.

1.3 REFERENCES, CODES, AND STANDARDS

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

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

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A. Prevention of or Minimizing Contamination:

1. The SSC 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) 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., fork-lifts) except where only electric driven equipment is available.
 - d. Protective sheathing/covers, strippable coatings, or protective caps should be used to minimize the potential for contamination (e.g., coating the buckets of man lifts or other walking/standing surfaces). In addition, all openings on equipment, tools, or vehicles that may permit contamination of inaccessible or difficult to clean areas shall be covered and protected.
3. If encapsulants, sealants and/or coatings are utilized during the project, the SSC shall be responsible for protecting their tools and equipment from over spray.

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

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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:
 - a. Dry cleaning.
 - b. Steam cleaning.
 - c. High pressure, hot water hydroblasting (may be used in conjunction with abrasive techniques and approved decontamination agents) with a minimum of 1,000 psi and HEPA vacuuming.
2. When selecting a decontamination technique other than those identified in C.1 above, consideration should be given to those technologies which minimize radiological airborne emissions, secondary wastes, and tool or equipment damage.

D. Control of Effluent and Waste Management Activities:

1. The SSC 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 Waste Management Plan located in the Traveler Package.

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

1. The SSC 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.

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- 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 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 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 Waste Management Plan located in the Traveler Package.

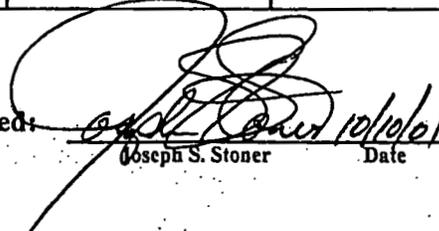
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NUCLIDE ^(f)	FIXED PLUS REMOVABLE		REMOVABLE ^{(b),(e)}
	AVERAGE ^{(b),(c)}	MAXIMUM ^{(b),(d)}	
U-nat, U-235, U-238, and associated decay products, alpha emitters.	5,000 dpm /100 cm ²	15,000 dpm /100 cm ²	1,000 dpm/100 cm ²
Transuranics, Ra-226, Ra-228,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

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

END OF SECTION

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Approved: 

Joseph S. Stoner

Date

SECTION 03315

CONCRETE/MASONRY REMOVAL

PART 1 GENERAL

1.1 SCOPE

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 15067 - Ventilation and Containment.

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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Title: Miscellaneous Small Structures	Specification No: 1751-TS-0001		
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- A. American National Standards Institute (ANSI):
1. ANSI A10.6-90 Safety Requirements for Demolition Operations.
 2. ANSI A10.8-88 Construction and Demolition Operations - Scaffolding - Safety Requirements.
 3. ANSI A10.9-83 Construction and Demolition Operations - Concrete and Masonry Work- Safety Requirements.
- B. National Fire Protection Association (NFPA):
1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures.
 2. NFPA 241-93 Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- C. DOE N441.1 Radiation Protection of the Public and the Environment.
- D. 10 CFR 835 Occupational Radiation Protection.
- E. Ohio Administrative Code (OAC): 3745-17-08 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.
- B. Surfactants:
1. CP-225 CHIL-SORB by Childers.
 2. Fluor Fernald approved equal.
- C. Encapsulants/Sealants:
1. CP-240 CHIL-LOCK by Childers
 2. Certane 2050 by Certified Technologies.
 3. Eppco #1 by Expert Environmental Products.
 4. Serpiloc by International Protection Coatings Corp.
 5. Fluor Fernald approved equal.

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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 areas designated on the Civil Demolition Plan for potential debris stockpiling. For all other areas, reinforcements and anchors need only be cut down to within one inch of the base slab. 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 Waste Management Plan.

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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 Waste Management Plan.
 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

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Approved:

Joseph S. Stoner
Joseph S. Stoner

10/10/01
Date

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.

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:

Title: Miscellaneous Small Structures	Specification No: 1751-TS-0001		
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- A. American National Standards Institute (ANSI):
1. ANSI A10.6-90 Safety Requirements for Demolition Operations.
 2. ANSI A10.8-88 Construction and Demolition Operations - Scaffolding - Safety Requirements.
 3. ANSI A10.13-89 Construction and Demolition Operations - Steel Erection.
- B. National Fire Protection Association (NFPA):
1. NFPA 241-96 Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- C. United States Occupational Safety and Health Administration:
1. 29 CFR 1926.858 Removal of Steel 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.

3.2 APPLICATION

- A. All dismantlement activities shall be performed in accordance with the standards listed in Article 1.4 of this Section.

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- 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 in accordance with Section 05125 of this specification package.
- 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 Waste Management Plan.

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.
 - 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 Waste Management Plan.

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

3.4 QUALITY ASSURANCE

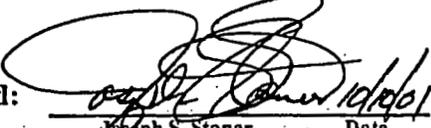
Inspect debris generation, stockpiling, and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with the Waste Management Plan.

END OF SECTION

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Approved:


 Joseph S. Stoner Date 10/10/01

SECTION 07415

TRANSITE REMOVAL

PART 1 GENERAL

1.1 SCOPE

The work includes:

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

1.2 RELATED SECTIONS

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

1.3 REFERENCE MATERIALS

See the Traveler Package for the following, if available:

- A. Photographs.
- B. Drawings.

1.4 REFERENCES, CODES, AND STANDARDS

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

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

1.5 SUBMITTALS

If not already on record with Fluor Fernald, the Site Support Contractor shall submit the following OSHA-required documentation for Asbestos Removal Contractors to Fluor Fernald before start of work:

- A. Documentation of training.
- B. Medical surveillance.
- C. Respirator fit-test.
- D. Employee exposure assessments.

1.6 HANDLING AND STORAGE

- A. Manage transite in accordance with Specification Section 01120 and the Waste Management Plan. Corrugated transite panels shall be stacked separately from flat transite panels.
- B. Take precautions to prevent breakage of transite panels during handling.

1.7 PROJECT CONDITIONS

If multiple layers of transite roof panels exists on a structure, specific methods for removal/fixing of radiological contamination between the layers of transite apply. Specification Section 01517 contains specific instructions for removing/fixing contamination during removal of transite roof panels.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Encapsulants:
 1. CP-240 by Chil-Lock by Childers.
 2. Certane 2050 by Certified Technologies.
 3. Eppco-1 by Expert Environmental Products.
 4. Serpiloc by International Protective Coatings Corp.
 5. 1050-Clearcoat by Certane.
 6. Fiber-Seal by Eppert.

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

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B. Surfactants:

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

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

PART 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 referenced in the Traveler Package.

3.2 APPLICATION

A. Apply poly sheeting, encapsulants, and/or surfactants according to the product manufacturer's specifications for application conditions (e.g., temperature).

B. Where transite panels show significant deterioration, which results in potentially friable surfaces, panels shall be removed in accordance with Specification Section 01516.

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

1. If cut, fasteners shall be cut in a manner which minimizes abrading the transite panel. A flat, sharp instrument shall be used to cut the fasteners.
2. When encapsulant and/or surfactant is applied, it shall be applied to provide visible coverage. If original application becomes dried out before or during removal or handling, apply a second application.

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- 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 encapsulant and/or surfactant to the edges of deteriorated areas.
 4. Removed transite panels shall be encapsulated or wrapped in 6-mil poly sheeting by the end of the work shift.
- 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:

Refer to the requirements contained in Specification Section 01517 for removing/fixing radiological contamination on single and multiple transite panels.

B. Gutters:

Remove and collect all ACM from gutters, and apply an encapsulant 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 Waste Management Plan.
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 Waste Management Plan.**

END OF SECTION

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SECTION 15065

EQUIPMENT/SYSTEM DISMANTLEMENT

PART 1 GENERAL

1.1 SCOPE

- 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 15067 - Ventilation and Containment.

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1.3 REFERENCE MATERIAL

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:

- A. 29 CFR 1926.301 Hand Tools.
- B. 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. All equipment and systems such as ductwork and piping shall be dismantled, staged, size-reduced, segregated, and either containerized or stockpiled according to the requirements of Specification Section 01120 and the Waste Management Plan. Non-process equipment/systems, as defined in Specification Section 01120, may be left in place for structural dismantlement. Process and suspect process piping and ductwork shall have their ends (openings) sealed at both ends prior to movement from the immediate work area. Sealing material shall be sufficiently durable to maintain its integrity during handling, containerization, and exposure to weather. Equipment/systems will be inspected by Fluor Fernald for visible process residues and size criteria per Specification Section 01120 in the project-established inspection area (which would reside in the enclosure if containment is required) per Specification Section 01120. Criteria for decontamination are detailed in Specification Section 01517.

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- C. 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.
- D. 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.
- E. In some cases, equipment may be elevated from the ground by the means of a structural platform. In these cases, the equipment should be cut away or disconnected from the platform and lowered to the ground. The dismantlement of this equipment shall be accomplished by shearing and cutting whenever possible. If this is not possible, the equipment shall be dismantled at convenient assembly joints.
- F. Fluor Fernald Radiological Control shall be contacted prior to performing any torch cutting on contaminated surfaces.
- G. Prior to cutting into piping or equipment known or suspected of containing nitric acid or other corrosive, toxic, flammable or combustible material, such systems shall be purged to remove any potentially explosive or otherwise potentially harmful gases.
- H. Equipment 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.
- I. Uncontrolled dropping of materials is not allowed.
- J. Piping insulated with asbestos may be removed in its entirety per the requirements of Specification Section 01516 of this specification package.
- K. Take the necessary actions to preclude spillage of residual material, if encountered.
- L. Debris segregation, sizing, and management shall be in accordance with Specification Section 01120 and the Waste Management Plan.
- M. HEPA-filtered local ventilation shall be implemented for disassembly and sizing of process and suspect process pipe and equipment and for all burning (e.g., torch cutting) activities on contaminated surfaces.

3.2 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.

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3.3 SPECIAL INSTRUCTIONS

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 Waste Management Plan.
- 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, a 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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Date

SECTION 15067**VENTILATION AND CONTAINMENT****PART 1 GENERAL****1.1 SCOPE**

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 15065 - Equipment/System Dismantlement.

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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 5400.5 Radiation Protection of the Public and the Environment.
 - 2. DOE/EH 0256T Radiological Control Manual, April 1994.
- B. Energy Research and Development Administration (ERDA):
 - 1. ERDA 76-21-79 Nuclear Air Cleaning Handbook.
- C. American Conference of Governmental Industrial Hygienists (ACGIH):
 - 1. ACGIH Industrial Ventilation (latest edition).
- D. American Society of Civil Engineers (ASCE):
 - 1. OBBC Ohio Basic Building Code.

PART 2 PRODUCTS

2.1 MATERIALS

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

- A. Fire retardant polyethylene shall be used.
- B. 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 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.

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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 DBBC.

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:
 - 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.

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- 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 undesigned holes in the containment and the entrance/exit-way closes sufficiently to meet the air exchange/negative pressure requirements.

3.4 FIELD QUALITY ASSURANCE

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

END OF SECTION

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