

**ACTION MEMORANDUM  
ENGINEERING EVALUATION/COST ANALYSIS**

**BUILDING HH REMOVAL ACTION**

**MOUND PLANT  
MIAMISBURG, OHIO**

**AUGUST 2002**

**Final**



**Department of Energy**



**BWXT of Ohio, Inc.**



The Mound Core Team  
P.O. Box 66  
Miamisburg, Ohio 45343-0066

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August 2002

Mr. Daniel Bird, AICP  
Planning Manager  
Miamisburg Mound Community Improvement Corporation  
720 Mound Road  
COS Bldg. 4221  
Miamisburg, Ohio 45342-6714

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Environmental Management Project (DOE-MEMP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates your comments on the HH Building Action Memorandum. Attached are our responses.

Should the responses to comments require additional detail, please contact Rob Rothman at (937) 865-3823 and we will gladly arrange a meeting or telephone conference.

Sincerely,

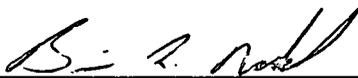
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# Response to Comments

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Public Review Comments  
On HH Building Action Memorandum, Public Review Draft, September 2000

Comments included are from MMCIC. No other public comments were received.

**Comment 1.** The Clean Up Objectives listed in Table 5.1 should be consistent with Ohio Department of Health's and the Ohio/US EPA's comments (dated November 21,2000) on Mound Draft Screening Values. These comments were verbally accepted by DOE and BWXT at the November 20,2000 Core Team Meeting. Table 5.1 should be adjusted to reflect a 1.2 pCi/g background value for Lead<sup>210</sup> (to compare with Uranium<sup>238</sup>) and a correction of two slope factors for Protactinium<sup>231+D</sup> with an associated recalculation of the 10<sup>-5</sup> Risk-Based Guideline Value for the construction worker scenario.

**Response.** Since receipt of public comments, the Building HH Action Memorandum has been revised to remove from its scope of work the Building HH foundation removal and the soils under and surrounding the building. A separate Action Memorandum that incorporates the Building HH foundation removal and soils is currently in development.

Accordingly, Appendices B and C were omitted from the document as they were no longer applicable to this scope of work.

**Comment 2.** The Mound Reuse Plan indicates that the building HH location is slated to be developed as either a parking area or a roadway. Cost efficiencies can be achieved if the Building HH contractors will coordinate with MMCIC to complete the final grading of the Building HH site in a manner consistent with the reuse objective of either a parking area or roadway.

**Response.** The Core Team agrees that overall cost efficiencies could be achieved if the restoration of the HH Building site is designed with its reuse in mind. To the extent practicable, that goal will be pursued.

**Comment 3.** MMCIC assumes the Parking & Traffic Circulation Committee will coordinate with MMCIC and BWXT during the actual building HH removal to ensure that MATC, DOE, and BWXT employees continue to have access to parking areas on the Main Hill (i.e. near M and DS Buildings).

**Response.** DOE/MEMP and BWXTO will notify and work with the organizations noted to coordinate the subject tenant access and parking requirements during the response action.

# Response to Comments

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Public Review Comments

On HH Building Action Memorandum, Public Review Draft, September 2000

**Other Changes.** The action memorandum was revised to include a recent analysis of Applicable or Relevant and Appropriate Requirements (ARARs) with respect to the Resource Conservation and Recovery Act (Appendix B). The Schedule Summary (Table 5.2) and Cost Estimate (Table 5.3) were updated.

**ACTION MEMORANDUM**

**BUILDING HH REMOVAL ACTION**

**MOUND PLANT  
MIAMISBURG, OHIO**

August 2002

Final

PREPARED BY:

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for the

**U.S. DEPARTMENT OF ENERGY**

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**Appendices**

Appendix A	Application of ARARs to wastes expected from Building HH Removal Action
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## ACRONYMS

AEC	Atomic Energy Commission
AM	Action Memorandum
AM/EE/CA	Action Memorandum/Engineering Evaluation/Cost Analysis
ARARs	Applicable or Relevant and Appropriate Requirements
BGS	Below Ground Surface
BVA	Buried Valley Aquifer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
D&D	Decontamination and Decommissioning
DOE	United States Department of Energy
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
ER	Environmental Restoration (Program)
FFA	Federal Facilities Agreement
FSP	field sampling plan
HH	Hydrolysis House
ID	identification
LSA	Low Specific Activity
mrem	millirem
MSL	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NTS	Nevada Test Site

## ACRONYMS (cont.)

OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OU	Operable Unit
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
pCi/g	picoCuries per gram
PRS	Potential Release Site
RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactive Material Program (Software)
RI/FS	Remedial Investigation/Feasibility Study
RSE	Removal Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
TRU	Transuranic
USEPA	United States Environmental Protection Agency

## 1. PURPOSE

The U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (USEPA) have agreed on an approach for decommissioning surplus DOE facilities consistent with the *Policy on Decommissioning of Department of Energy Facilities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)* dated May 22, 1995. According to this approach, decommissioning activities will be conducted as CERCLA removal actions, unless the circumstances at the facility make it inappropriate (DOE 1995a). The DOE is the designated lead agency under CERCLA and removal actions at the Mound Plant are implemented as federal-lead actions with DOE funds instead of the funds available to the USEPA under CERCLA (i.e., non-Superfund). DOE provides the On-Scene Coordinator (OSC). Non-Superfund, federal-lead removal actions are not subject to United States Environmental Protection Agency (USEPA) limitations on the OSC (\$50,000 authority) and are not subject to National Oil and Hazardous Substances Pollution Contingency Plan (NCP) limitations on removal actions (i.e., \$2,000,000 in cost and 12 months in duration).

This Action Memorandum (AM) has been completed to document the evaluation of site conditions, to propose the action described herein, and to allow public input.

## **2. SITE CONDITIONS AND BACKGROUND**

### **2.1 SITE DESCRIPTION**

This section describes the physical location, characteristics, release of contaminants into the environment and the National Priorities List (NPL) status at the site of the proposed removal action.

#### **2.1.1 Physical Location**

The Mound Plant is a 306-acre facility on the southern border of the city of Miamisburg in Montgomery County, Ohio. The Mound Plant is approximately 10 miles south-southwest of Dayton and 45 miles north of Cincinnati. This removal action is proposed for Building HH. The letters HH stand for Hydrolysis House. The location of Building HH is shown in Figure 2.1. The building is bordered by Building COS to the north, a hillside to the west, a roadway to the east, and a roadway to the south.

#### **2.1.2 Site Characteristics**

Building HH is a two-story, 15,276 square foot, reinforced concrete block building. The building consists of a basement, a high bay, a cooling tower, a stack, an underground tunnel, three sumps, three penthouses, three sheds, and two small attached buildings. The main services for the building include central steam for heat, chilled ethylene glycol for cooling, and electricity.

The building was constructed in 1948 to receive and process highly acidic and highly contaminated liquid radioactive waste from the processing operations in T (Technical) Building. This waste was processed to recover bismuth for reuse. Liquid waste from this process was collected in a sump in the southwest corner of Room 6 and then sent via an underground line to WD (Waste Disposal) Building. This pipeline was removed a few years ago. The polonium waste processing ended about 1958 (details available in DOE 1993). In the mid-1950's, the building was also used for several projects involving separation of protactinium-231 (Pa-231) and thorium-230 (Th-230), as well as other isotopes from some processed uranium byproduct materials obtained from other Atomic Energy Commission (AEC) operations.

In about 1960, helium-3 (He-3) separation was started in Building HH using carbon traps and thermal diffusion columns. In the early 1960s, the building was used for the separation of a variety of stable isotopes using gaseous thermal diffusion, liquid thermal diffusion, and cryogenic distillation technologies.

In the late 1970s, there was some experimental work done with uranium.

Historical information from the OU-9 Volume 7 Site Scoping Report (DOE 1993) identified two programs at Mound that involved uranium - the Reactor Fuels Program and the Reactor Waste Decontamination Program.

The Reactor Fuels Program involved conducting basic research on the chemical and physical properties of several potential fuels - including U-235. As potential reactor fuels, these materials would have already had the daughters removed.

The Reactor Waste Decontamination Program was established to evaluate waste treatment and disposal technologies for certain radioactive wastes from the reactor fuel processing operations. The radiochemical analyses of these various waste liquids indicate the presence of the parent, U-238 or Pu-239, and a number of fission products, but not daughter products. This would be expected if the wastes were "reactor wastes" and not "reactor fuel production wastes." See DOE 1993 for more details.

In the early 1980s, chemical exchange experimentation was also started in the building. The sulfur, calcium, and nitrogen isotopes were separated using packed columns.

Six Potential Release Sites (PRSs) (PRSs 148, 149, 150, 151, 152, and 248) are associated with Building HH. The PRSs and a brief description are listed in Table 2.1. These PRSs are included in the removal action.

Figure 2.2 is a photograph of Building HH.

**Table 2.1 PRSs Associated with Building HH**

<b>PRS</b>	<b>Description</b>	<b>Comments</b>
148	HH Building Solidification Unit	Previously removed.
149	HH Building Pilot Incinerator	Previously removed.
150	Room HH-15 Beta Wastewater Sump (Tank 236)	
151	Room HH-6 Alpha Wastewater Sump (Tank 237)	
152	HH Building Beta Wastewater Sump (Tank 24)	
248	HH Building Stack	

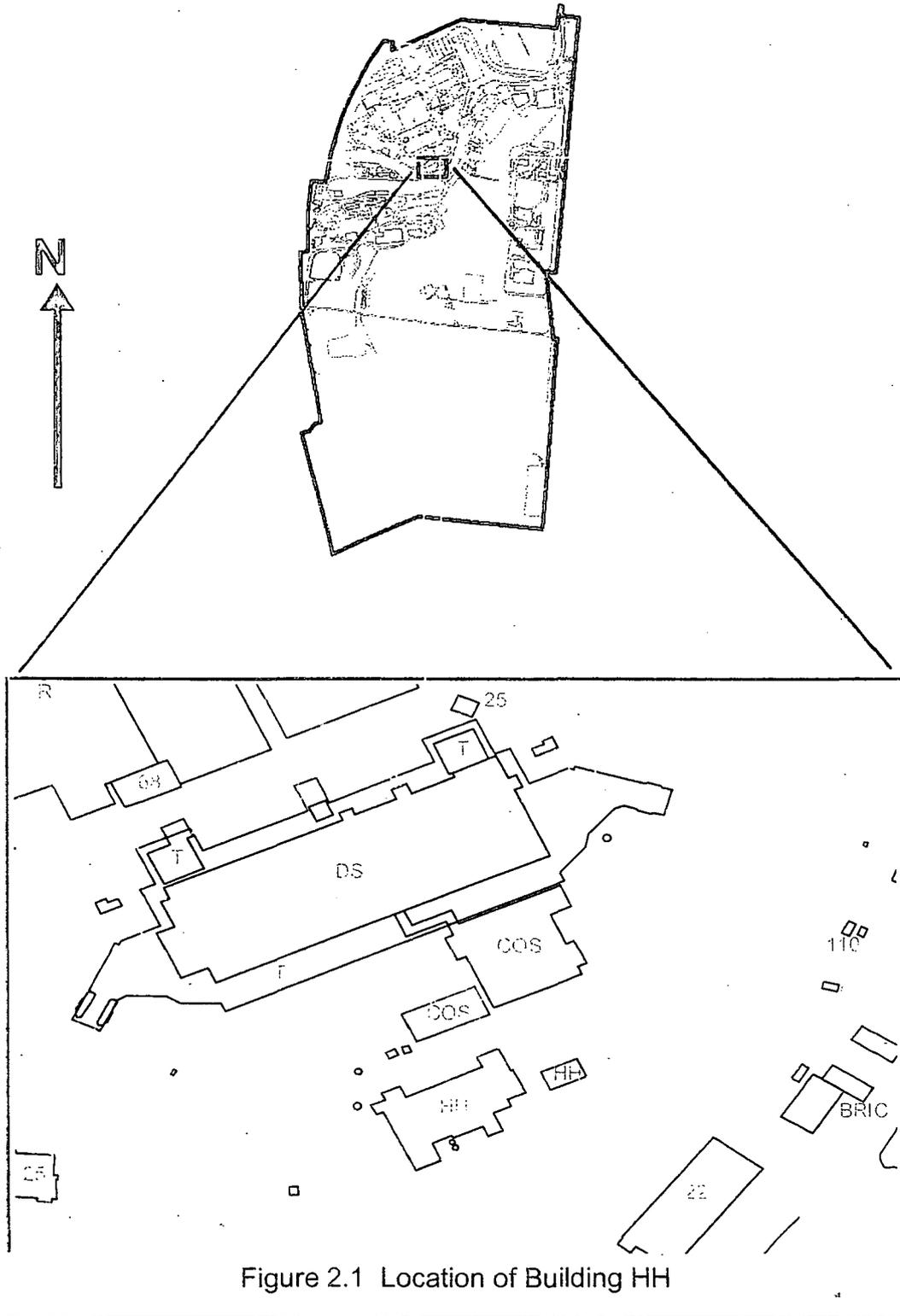


Figure 2.1 Location of Building HH

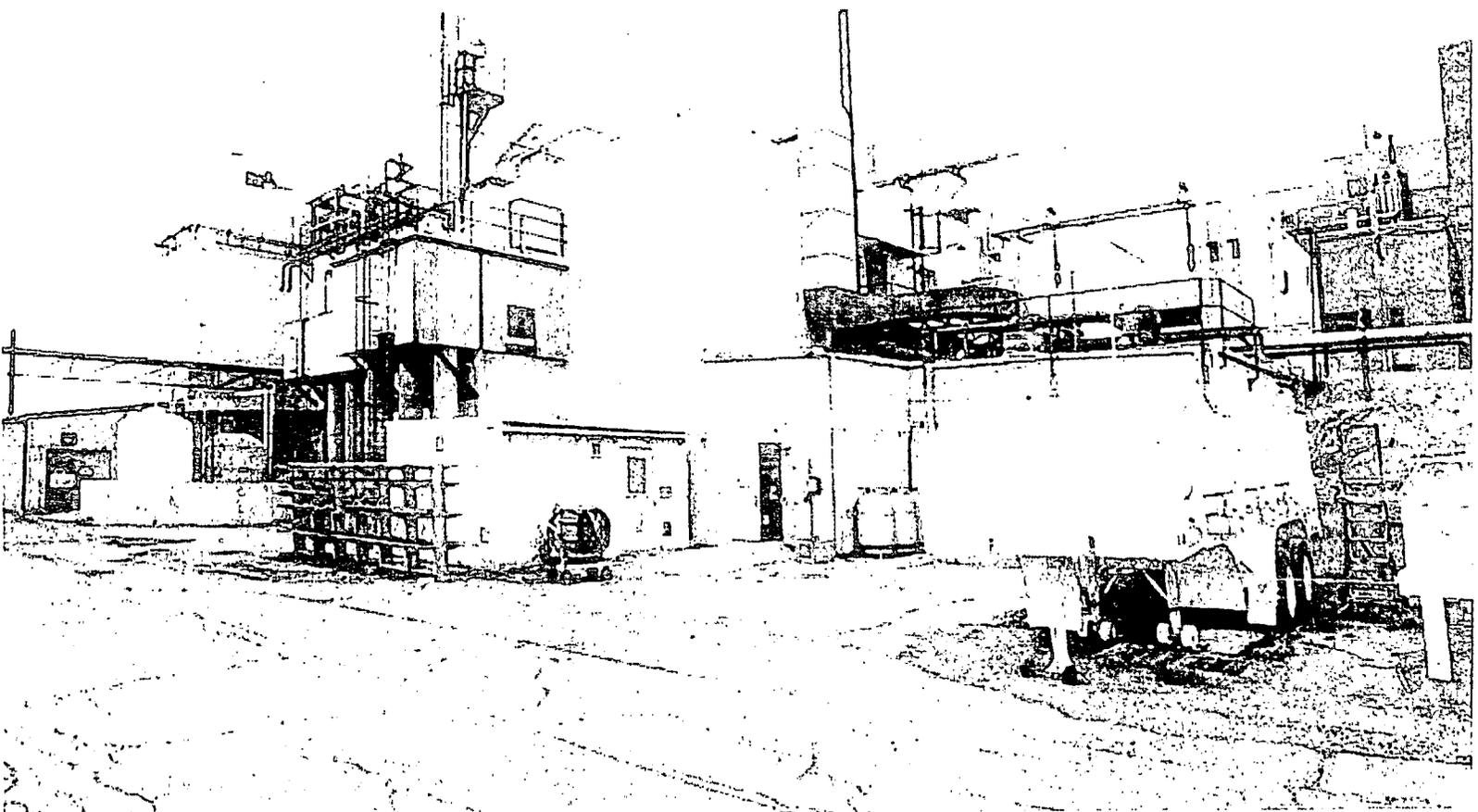


Figure 2.2 Photo of HH Building Viewed from Southeast

### **2.1.3 Release or Threatened Release into the Environment**

The potential release of radionuclides prompted this removal action.

### **2.1.4 National Priorities List Status**

The USEPA placed the Mound Plant in Miamisburg, Ohio on the NPL by publication in the Federal Register on November 21, 1989.

## **2.2 OTHER ACTIONS TO DATE**

The Mound Plant initiated a CERCLA program in 1989, now guided by the agreement among the DOE, Ohio Environmental Protection Agency (OEPA), and USEPA. A Federal Facilities Agreement (FFA) under CERCLA Section 120 was executed between DOE and US EPA Region V on October 12, 1990. It was revised on July 15, 1993 (EPA Administrative Docket No. OH 890-008984) to include OEPA as a signatory. The general purposes of this agreement are to:

- Ensure that the environmental impacts associated with past and present activities at the site are thoroughly investigated and appropriate remedial action taken as necessary to protect the public health, welfare, and the environment.
- Establish a procedural framework and schedule for developing, implementing, maintaining, and monitoring appropriate response actions at the site in accordance with CERCLA, Superfund Amendments and Reauthorization Act (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Superfund guidance and policy, and Resource Conservation and Recovery Act (RCRA) guidance and policy.
- Facilitate cooperation, exchange of information, and participation of the parties in such actions.

### **2.2.1 Previous Removal Actions**

No previous CERCLA Removal Actions were conducted at Building HH. The building components (solidification unit and pilot incinerator) designated as PRSs 148 and 149 were removed previously. Administrative closure of these PRSs is included in this removal action.

### **2.2.2 Current Actions**

Current actions pertinent to Building HH include a tritium removal project, Work Planning for D&D, Safe Shutdown, and Characterization. Work Planning consists

of the up-front work required to execute building disposition activities in accordance with Environmental Safety & Health requirements, DOE orders, and best management practices. Safe Shutdown includes Building Surveillance (weekly and monthly contamination surveys), and disposition of equipment. There are two Safe Shutdown activities for Building HH. The first is the Safe Shutdown of non-hazardous process systems. Approximately twenty-four (24) non-hazardous process systems, many gas manifolds, and a variety of equipment that will be flushed, dismantled, and dispositioned. The second Safe Shutdown activity involves the Safe Shutdown of hazardous equipment/process systems. Approximately nine process systems containing either hazardous or radioactive materials will be flushed, dismantled, and dispositioned. Characterization involves mainly supplemental building characterization. The building itself and its important components, such as the stack, the tunnel, the sumps, and the sub-basement will be characterized.

## **2.3 STATE AND LOCAL AUTHORITIES' ROLES**

### **2.3.1 State and Local Action to Date**

In 1990, as a result of Mound Plant's placement onto the NPL, DOE and USEPA entered into a Federal Facilities Agreement (FFA), which specified the manner in which the CERCLA program was to be implemented at Mound. In 1993, the FFA was amended to include the OEPA. DOE remains the lead agency.

### **2.3.2 Potential for Continued State and Local Response**

OEPA will continue its oversight role until all the terms of the FFA have been completed.

### **3. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT**

#### **3.1 THREATS TO PUBLIC HEALTH OR WELFARE**

The potential release of radionuclides may create a potential threat to the public health or welfare.

#### **3.2 THREATS TO THE ENVIRONMENT**

The potential release of radionuclides may create a potential threat to the environment.

##### **3.2.1 Removal Site Evaluation**

The Removal Site Evaluation (RSE) requirements, as outlined under EPA's NCP regulations in 40 CFR 300.415, are presented throughout this AM. An evaluation by public health agencies has not been performed for this area, and, therefore, is not included in this AM.

The NCP identifies eight factors that must be considered in determining the appropriateness of a removal action [40 CFR 300.415(b)(2)]. These criteria are evaluated in Table 3.1.

**Table 3.1 Evaluation of Removal Action Appropriateness Criteria  
[40 CFR 300.415(b)(2)]**

<b>Criteria</b>	<b>Evaluation</b>
"...potential exposure to nearby human populations, animals, or the food chain..."	There is potential exposure to nearby human populations, animals, or the food chain from radionuclides when present institutional controls are relaxed.
"Actual or potential contamination of drinking water supplies..."	There is potential contamination of onsite drinking water supplies from radionuclides. The contaminants could migrate to the ground water that is the source for the plant drinking water.
"Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;"	Not applicable. This removal action does not address hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage.
"High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;"	Not applicable.
"Weather conditions that may cause hazardous substances to migrate or be released;"	This site is exposed to weather conditions. Rain might cause the associated hazardous substances to migrate.
"Threat of fire or explosion;"	Not applicable.
"The availability of other appropriate federal or state response mechanisms to respond to the release;" and	There are no other appropriate federal or state mechanisms to respond. The Federal Facilities Agreement (FFA) established a combined state and federal mechanism to respond under CERCLA. DOE is the designated lead agency at Mound under CERCLA.
"Other situations or factors that may pose threats to public health or welfare or the environment."	Not applicable.

**4. ENDANGERMENT DETERMINATION**

There is a potential or threat of release of pollutants or contaminants from this site that could pose an endangerment to public health or welfare or to the environment. To eliminate the possibility of endangerment, as the site transfers from DOE ownership and control, DOE has determined that removal of the contaminants is appropriate.

## **5. PROPOSED ACTION AND ESTIMATED COSTS**

### **5.1 PROPOSED ACTION**

The proposed action is the decontamination and demolition (D&D) of Building HH, and the stack. Since the proposed action is within the site boundaries, it is not expected to have a disproportionate impact on low income or minority populations.

#### **5.1.1 Proposed Action Description**

The proposed action is described as follows:

- **Project Planning**

A project plan describing the progression of activities will be developed for the D&D of Building HH. The project plan will be reviewed and approved by DOE, USEPA, and OEPA. Project specific safety documentation (HASP/JSHA) is reviewed and approved by DOE. Due to the complexity of the work, multiple work planning documents will be generated as the work progresses. Because the environmental envelope of the building is intact through the decontamination phase, work planning documents will be reviewed and approved by DOE and made available to USEPA and OEPA on request. Work planning documents for demolition of the building will be reviewed and approved by DOE, USEPA, and OEPA.

- **Public Participation**

A notice of the availability of this Action Memorandum for 30-day public review was published in a local newspaper.

- **Establish Work Zones**

This activity establishes the work zones for the facility in preparation for D&D. The efforts include mobilizing equipment and personnel, establishing air monitoring for personnel and work zone perimeters, establishing the personal protective equipment (PPE) requirements and preparing PPE, installing temporary facilities and utilities (if required), construction hazard abatement, general housekeeping, soil erosion control, and establishing dust control.

- Building Decontamination

Decontamination is the removal of residual radioactive and hazardous materials by mechanical, chemical, or other techniques to achieve a stated objective or end condition. Decontamination of Building HH includes the removal of contaminants from the contaminated sumps (PRSs 150, 151, 152), the stack (PRS 248), the HH-T tunnel, underground drains, and fixed contamination areas/walls.

- Install Sheet Piles

Building HH is located on a hillside between two roadways. In order to remove the foundation of the building, approximately 150 ft long sheet pile wall will be installed along the building upper perimeter to retain the upper level roadway during demolition of the building.

- Demolish Building

This includes demolition of the structure, and waste handling and disposal. Demolition will typically be accomplished using heavy-duty equipment such as excavator-mounted shear and/or grapple.

Building foundation and soils will be left in place and will be included in the Action Memorandum for Test Fire Valley Soils (currently in development).

- Verification

This step includes obtaining photographic documentation that verifies that Building HH was demolished and the debris removed.

Soil sampling will be included in the Test Fire Valley Soils Action Memorandum.

- Site Restoration

Site restoration will take place after conclusion of the Test Fire Valley Soils Action Memorandum activities.

- Documentation of Completion

Completion of the Removal Action will be documented by an On-Scene Coordinator (OSC) report.

#### **5.1.1.1 Rationale, Technical Feasibility, and Effectiveness**

The removal action chosen is necessary for the removal of known contamination and to ensure that migration of the contamination does not occur.

#### **5.1.1.2 Monitoring**

Health and safety monitoring will be performed throughout the removal action according to standard Mound procedures.

#### **5.1.1.3 Uncertainties**

The major uncertainties are the concentration levels of the contaminants and the extent of contamination.

#### **5.1.1.4 Institutional Controls**

DOE will remain in control of Building HH during the removal action.

#### **5.1.1.5 Post-Removal Site Control**

Initially, post-removal site control will be provided by DOE/Mound. Ownership of the Mound Plant is to be transferred to Miamisburg Mound Community Improvement Corporation (MMCIC). The Record of Decision for the parcel that includes the location of Building HH will specify the controls needed to ensure future protection of human health and the environment.

#### **5.1.1.6 Cross-Media Relationships and Potential Adverse Impacts**

The potential cross-media impact associated with the removal action is the potential for unintended release of contaminated materials into the atmosphere. Careful monitoring and control will be implemented during the removal action.

No potential adverse impacts of the removal action have been identified.

## **5.1.2 Contribution to Future Remedial Actions**

To facilitate further assessments and removal actions in or near the site of this removal action, the exact dimensions of the excavation and the levels of contamination identified and removed will be documented. The On-Scene Coordinator Report will document the removal action with photographs, drawings, and other information collected during the field work.

The information obtained, as a result of this removal, will be used in determining the availability of the Mound Plant for final disposition and will be subject to review in the subsequent residual risk evaluation.

## **5.1.3 Description of Alternative Technologies**

Alternative technologies frequently evaluated for CERCLA remediation include institutional controls, containment, collection, treatment, and disposal. Based on the prevailing conditions, the following alternatives (in addition to the proposed alternative of dismantlement) were developed.

1. No Action
2. Institutional Controls

The performance capabilities of each alternative with respect to the specific criteria is discussed below.

### **5.1.3.1 No Action**

The level of radioactive contamination in Building HH is unacceptable. The "No Action" option was eliminated from further consideration.

### **5.1.3.2 Institutional Controls**

Existing Mound Plant institutional controls effectively minimize the potential for contact of the subject contamination with the general public. However, after ownership is transferred, these same institutional controls will be difficult to monitor and enforce. Thus, institutional controls were eliminated from further consideration. A Removal Action is warranted.

#### **5.1.4 Engineering Evaluation/Cost Analysis (EE/CA)**

This document serves as the Action Memorandum and EE/CA.

#### **5.1.5 Applicable, or Relevant and Appropriate Requirements (ARARs)**

Mound ARARs for the ER Program have been identified (DOE 1998). CERCLA regulations require that removal actions comply with ARARs. Appendix A provides the ARAR Application Table for the Building HH Removal Action, and Checklist for ARAR Implementation.

The following have been identified as applicable, or relevant and appropriate to this removal action:

- 49 CFR 172, 173: DOT hazardous material transportation and employee training requirements.

##### **5.1.5.1 Air Quality**

- 40 CFR Part 61 Subpart H: National Emissions Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities.
- Ohio Administrative Code (OAC) 3745-15-07(A): Air Pollution Nuisances Prohibited.
- OAC 3745-17-02 (A,B,C): Particulate Ambient Air Quality Standards
- OAC 3745-17-05: Particulate Non-Degradation Policy
- OAC 3745-17-08: (A1), (A2), (B), (D): Emission Restrictions for Fugitive Dust

##### **5.1.5.2 To Be Considered**

- EPA/230/02-89/042: Methods for Evaluating the Attainment of Clean up Standards.
- DOE Order 5400.5: Radiation Protection of the Public and the Environment

##### **5.1.5.3 Worker Safety**

- 29 CFR Part 1910: Occupational Safety and Health Act (OSHA) - General Industry Standards

- 29 CFR Part 1926: Occupational Safety and Health Act (OSHA) - Safety and Health Standards
- 29 CFR Part 1904: Occupational Safety and Health Act (OSHA) – Record Keeping, Reporting, and Related Regulations

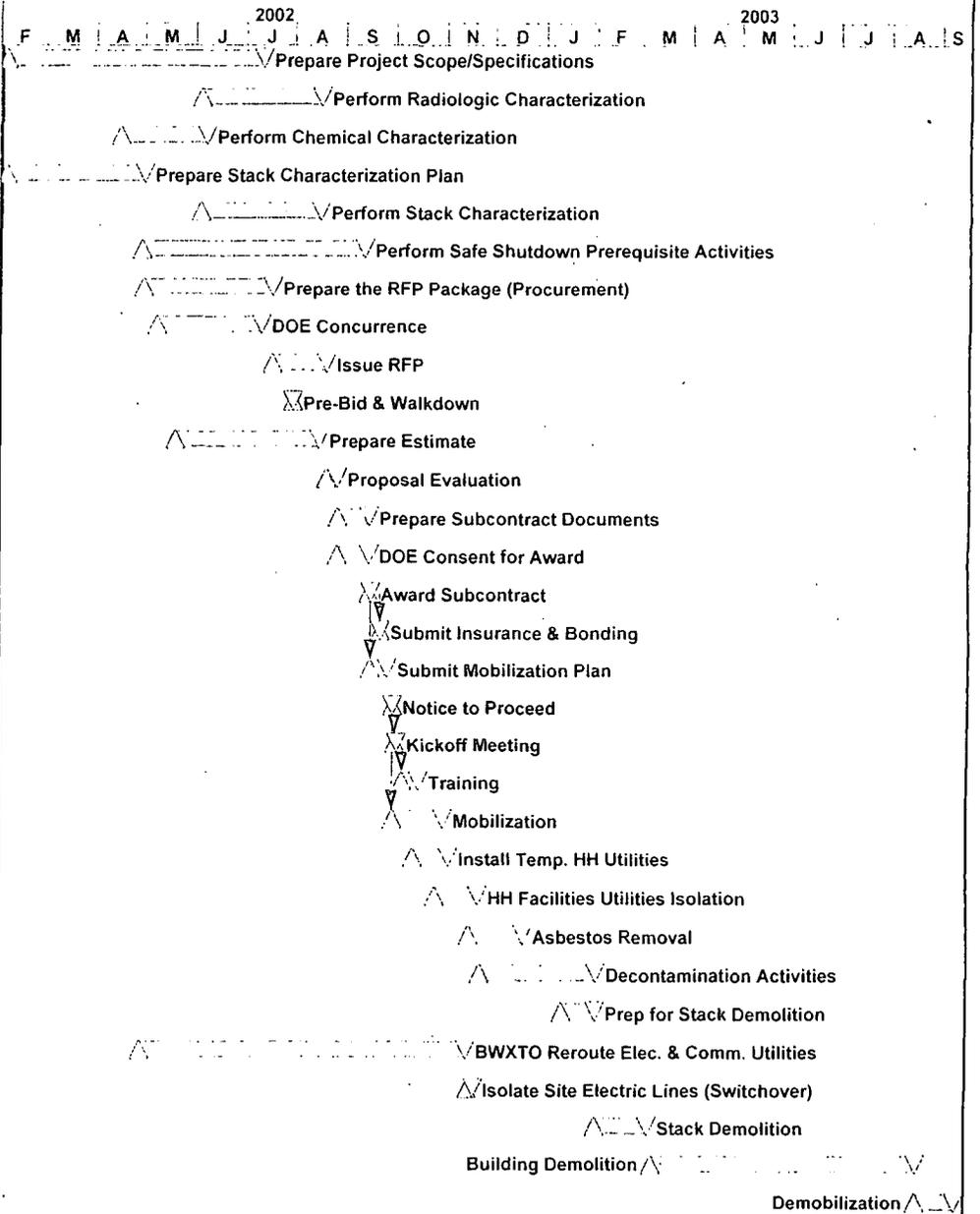
### **5.1.6 Other Standards and Requirements**

Other standards or requirements related to the actual implementation of the response action may be identified subsequently during the design phase and will be incorporated into the Work Plan for this removal action.

### **5.1.7 Project Schedule**

The schedule established for planning and implementing the removal action is summarized in Table 5.1.

Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish
HHDD100	Prepare Project Scope/Specifications	3	112	04FEB02*	11JUL02
HHDD110	Perform Radiologic Characterization	3	52	04JUN02*	15AUG02
HHDD120	Perform Chemical Characterization	3	38	15APR02*	06JUN02
HHDD130	Prepare Stack Characterization Plan	3	62	04FEB02*	30APR02
HHDD135	Perform Stack Characterization	3	52	04JUN02*	15AUG02
HHDD140	Perform Safe Shutdown Prerequisite Activities	3	96	29APR02*	12SEP02
HHDD150	Prepare the RFP Package (Procurement)	3	55	01MAY02*	18JUL02
HHDD160	DOE Concurrence	3	45	08MAY02*	11JUL02
HHDD170	Issue RFP	2	33	19JUL02*	20AUG02
HHDD180	Pre-Bid & Walkdown	3	1	31JUL02*	31JUL02
HHDD190	Prepare Estimate	3	63	20MAY02*	16AUG02
HHDD200	Proposal Evaluation	3	5	21AUG02*	27AUG02
HHDD210	Prepare Subcontract Documents	3	13	28AUG02*	16SEP02
HHDD220	DOE Consent for Award	3	13	28AUG02*	16SEP02
HHDD230	Award Subcontract	3	1	17SEP02*	17SEP02
HHDD240	Submit Insurance & Bonding	3	1	23SEP02	23SEP02
HHDD250	Submit Mobilization Plan	3	8	18SEP02	27SEP02
HHDD270	Notice to Proceed	3	1	01OCT02*	01OCT02
HHDD280	Kickoff Meeting	3	1	03OCT02	03OCT02
HHDD290	Training	3	9	07OCT02	17OCT02
HHDD300	Mobilization	3	23	01OCT02	31OCT02
HHDD310	Install Temp. HH Utilities	3	16	14OCT02*	04NOV02
HHDD320	HH Facilities Utilities Isolation	3	20	28OCT02*	22NOV02
HHDD330	Asbestos Removal	3	24	18NOV02*	20DEC02
HHDD340	Decontamination Activities	3	44	25NOV02*	03FEB03
HHDD350	Prep for Stack Demolition	3	15	14JAN03*	03FEB03
HHDD360	BWXTO Reroute Elec. & Comm. Utilities	3	140	01MAY02*	15NOV02
HHDD370	Isolate Site Electric Lines (Switchover)	2	3	18NOV02*	20NOV02
HHDD375	Stack Demolition	3	24	04FEB03*	07MAR03
HHDD380	Building Demolition	3	114	10MAR03*	18AUG03
HHDD390	Demobilization	2	25	19AUG03*	12SEP03



Start Date 01FEB02  
 Finish Date 12SEP03  
 Data Date 01FEB02  
 Run Date 08AUG02 05:43

Early Bar  
 Progress Bar  
 Critical Activity

HHDD Sheet 1 of 1

HH D&D

Table 5.1 Schedule Summary

Date	Revision	Checked	Approved

## 5.2 ESTIMATED COSTS

The cost estimate to perform the removal action is shown in Table 5.2. Costs include the construction activities, all engineering and construction management, and site restoration.

**TABLE 5.2 REMOVAL ACTION COST ESTIMATE**

<b>COST ESTIMATE</b>	
<b>Activity</b>	<b>Cost</b>
Work Planning	\$ 204,000
Building Decontamination	184,000
Building Demolition	2,350,000
Remove Foundation	126,000
Verification	938,000
Site Restoration	84,000
OSC Report	10,000
<b>TOTAL</b>	<b>\$3,896,000</b>

**6. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

There is the potential for the contaminants to migrate.

## 7. OUTSTANDING POLICY ISSUES

There are currently no outstanding policy issues affecting performance of this removal action.

## 8. ENFORCEMENT

The Core Team consisting of DOE, USEPA, and OEPA has agreed on the need to perform the removal. The work described in this document does not create a waiver of any rights under the Federal Facility Agreement, nor is it intended to create a waiver of any rights under the Federal Facility Agreement. The DOE is the sole party responsible for implementing this cleanup. Therefore, DOE is undertaking the role of lead agency, per CERCLA and the NCP, for the performance of this removal action. The funding for this removal action will be through DOE budget authorization and no Superfund monies will be required.



## 10. REFERENCES

USEPA 1990. Superfund Removal Procedures Action Memorandum Guidance. Office of Emergency and Remedial Response. U.S. Environmental Protection Agency. December 1990.

DOE 1993, Operable Unit 9 Site Scoping Report Vol. 7 Waste Management, Final, Rev. 0, February 1993.

DOE 1998. List of Ohio Administrative Code and Ohio Revised Code ARARs, Letter from Nickel to Kleinrath, August 19, 1998.

DOE 1995a. Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), May 22, 1995.

DOE 1995b. Operable Unit 9 Regional Soil Investigation Report, Vol. 1-Text, Rev. 0, February, 1995.

DOE 1997. Risk Based Guideline Values, Mound Plant, Final (Rev. 4), March, 1997

## Appendix A

Application of ARARs to wastes expected from Building HH Removal Action

### **Building HH Evaluation:**

CERCLA is the regulatory authority that governs the cleanup of the Mound facility. The CERCLA umbrella uses other environmental regulations to ensure that the cleanup of Mound is done in a manner that is protective of human health and the environment. The regulations that are applied to the management of hazardous waste generated at a CERCLA remediation site is RCRA. The following ARAR (Applicable or Relevant and Appropriate Requirements) table is the regulatory analysis of how RCRA will be applied to the management of hazardous waste during the maintenance, decommissioning, and demolition of Building HH.

Demolition of a nuclear facility takes time and planning to accomplish, and during that time the facility must be maintained in a safe condition. Hazardous waste that may be stored in Building HH during the maintenance time period is anticipated to be lead acid batteries. Decommissioning activities take place in preparation for building demolition. Hazardous waste that could be generated from this activity include lead pipe joints and mercury-contaminated equipment.

Waste from maintenance and decommissioning activities will be managed in accordance with the ARAR table until sufficient amounts are generated to transfer to an onsite hazardous waste facility. These amounts are typically 55 gallons for liquids and a 4-foot by 3-foot wooden skid for solids. Once the building has been decommissioned, the actual deconstruction and demolition of the building occurs. This activity involves the removal of the structure and the foundation. The waste will be managed at the job site and then transferred to an onsite hazardous waste storage facility.

The current schedule has all work associated with Building HH demolition completed by September 2003.

# ARAR Application Table for Building HH Removal Action

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
<p><b>Solids</b> Includes:</p> <ul style="list-style-type: none"> <li>- Lead pipe joints (approx. 150)</li> <li>- Lead bricks and shapes (approx. 100 pounds)</li> <li>- Mercury-contaminated equipment</li> <li>- Additional solid waste materials not previously considered</li> </ul>			
<p>1. Following generation, solid hazardous wastes will be stored in drums, on pallets, or in other appropriate containers pending characterization and disposition.</p>	<p>1. Storage of solids will comply with the following RCRA requirements:</p> <ul style="list-style-type: none"> <li>a. Condition of containers</li> <li>b. Compatibility of waste with container</li> <li>c. Management of containers</li> </ul>	<p>1. Hazardous waste storage ARARs:</p> <ul style="list-style-type: none"> <li>a. 40 CFR 265.171; OAC 3745-55-71</li> <li>b. 40 CFR 265.172; OAC 3745-55-72</li> <li>c. 40 CFR 265.173; OAC 3745-55-73</li> </ul>	<p>1. Checklist element based on physical form and types of waste stored. This checklist will be documented either in the building manager's log book or designated project files.</p> <ul style="list-style-type: none"> <li>a. Checklist element - containers are in good condition, no evidence of leaks or spillage.</li> <li>b. Container incompatibility will be rare for solids.</li> <li>c. Checklist element - containers closed except when adding or removing waste.</li> </ul>

## ARAR Application Table for Building HH Removal Action

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	<p>d. Inspections</p> <p>e. Requirements for incompatible wastes</p> <p>f. Marking requirements</p> <p>g. Required equipment</p> <p>h. Communication or alarm system</p> <p>i. Training</p>	<p>d. 40 CFR 264.15(a) and (c); OAC 3745-54-15 (A) and (C)</p> <p>e. 40 CFR 265.177; OAC 3745-55-77</p> <p>f. 40 CFR 262.34(a)(3), (c)(1)(ii); OAC 3745-52-34(A)(3), (C)(1)(b)</p> <p>g. 40 CFR 265.32 (a), (b), (c), (d); OAC 3745-54-32 (A), (B), (C), (D)</p> <p>h. 40 CFR 265.34 (a), (b); OAC 3745-54-34 (A), (B)</p> <p>i. 40 CFR 265.16 (a), (b), (c); OAC 3745-54-16 (A), (B), (C)</p>	<p>d. Document inspections quarterly in Building Managers log or designated project files; visual inspections done periodically by personnel in the area.</p> <p>e. Checklist element – incompatible wastes will have adequate segregation if present in the same storage area.</p> <p>f. Checklist element - containers marked with words to indicate contents, or as “hazardous waste.”</p> <p>g. Checklist element - verify that appropriate equipment is available on plant site or in building.</p> <p>h. Checklist element - verify that communication devices in the building are operable or that other means of communication are available.</p> <p>i. Personnel will be trained to perform inspections.</p>

## ARAR Application Table for Building HH Removal Action

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
2. Solids will be characterized to determine RCRA and radiological status.	j. Treatment  2. Wastes must be characterized following generation. a. RCRA characterization – by sampling or process knowledge.  b. Radiological characterization.	j. Treatment-specific ARARs will be determined and submitted  2. Characterization ARARs: a. 40 CFR 262.11, OAC 3745-52-11  b. No RCRA ARARs apply.	2.  a. If sampling is done, a copy of the analytical results will be kept in the project file
<p><b>Liquids</b> Including:</p> <ul style="list-style-type: none"> <li>- Vacuum pump oil, vane pump oil, and other oils to be solidified</li> <li>- Elemental mercury (approx. 3 liters)</li> <li>- Additional liquid waste materials not previously considered</li> </ul>			
1. Potentially hazardous liquids will remain in place until D&D activities access the materials and generate the waste.  2. Liquids will be characterized to determine RCRA and radiological status.	1. Pumps and bubblers are part of systems that may still be required for D&D. Systems are inspected and maintained to ensure that materials are contained within systems.  2. Liquids must be characterized following generation. a. RCRA characterization – by sampling or process knowledge	1. RCRA ARARs do not apply to the systems.  2. Characterization ARARs: a. 40 CFR 262.11, OAC 3745-52-11	2.  a. If sampling is done, a copy of the analytical results will be kept in the project file.

## ARAR Application Table for Building HH Removal Action

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
<p>3. When generated, liquids will be bulked and stored pending treatment (if necessary), and disposition.</p>	<p>b. Radiological characterization.</p> <p>3. Storage of the hazardous waste liquids will comply with the following RCRA requirements:</p> <p>a. Condition of containers</p> <p>b. Compatibility of waste with container</p> <p>c. Management of containers</p> <p>d. Inspections</p>	<p>b. No RCRA ARARs apply.</p> <p>3. Hazardous waste storage ARARs:</p> <p>a. 40 CFR 265.171; OAC 3745-55-71</p> <p>b. 40 CFR 265.172; OAC 3745-55-72</p> <p>c. 40 CFR 265.173; OAC 3745-55-73</p> <p>d. 40 CFR 264.15(a) and (c); OAC 3745-54-15 (A) and (C)</p>	<p>3. Checklist element based on physical form and types of waste stored. This checklist will be documented either in the building manager's log book or designated project files.</p> <p>a. Checklist element - containers are in good condition, no evidence of leaks or spillage.</p> <p>b. Checklist element - appropriate container used for storage of liquids (typically metal or poly container).</p> <p>c. Checklist element - containers closed except when adding or removing waste.</p> <p>d. Document inspections monthly in Building Manager's log or designated project files; visual inspections done periodically by personnel in the area.</p>

# ARAR Application Table for Building HH Removal Action

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	<p>e. Requirements for incompatible wastes</p> <p>f. Marking requirements</p> <p>g. Required equipment</p> <p>h. Communication or alarm system</p> <p>i. Training</p> <p>j. Treatment</p>	<p>e. 40 CFR 265.177; OAC 3745-55-77</p> <p>f. 40 CFR 262.34(a)(3), (c)(1)(ii); OAC 3745-52-34(A)(3), (C)(1)(b)</p> <p>g. 40 CFR 265.32 (a), (b), (c), (d); OAC 3745-54-32 (A), (B), (C), (D)</p> <p>h. 40 CFR 265.34 (a), (b); OAC 3745-54-34 (A), (B)</p> <p>i. 40 CFR 265.16 (a), (b), (c); OAC 3745-54-16 (A), (B), (C)</p> <p>j. Treatment-specific ARARs will be determined and submitted</p>	<p>e. Checklist element – incompatible wastes will have adequate segregation if present in the same storage area.</p> <p>f. Checklist element - containers marked with words to indicate contents, or as “hazardous waste.”</p> <p>g. Checklist element - verify that appropriate equipment is available on plant site or in building.</p> <p>h. Checklist element - verify that communication devices in the building are operable or that other means of communication are available.</p> <p>i. Person will be trained to perform inspections.</p>