5302-0506210008

BWX Technologies, Inc.
a McDermott company

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ER-076/01
October 8, 2001

Mr. Richard B. Provencher, Director
Miamisburg Environmental Management Project
U. S. Department of Energy
P. O. Box 66
Miamisburg, OH 45343-0066

ATTENTION: Robert S. Rothman

SUBJECT: Contract No. DE-AC24-97OH20044
BUILDING 38 ACTION MEMORANDUM – FINAL REVISION 2

REFERENCE: Statement of Work Requirement C.7.1d—Regulator Data Requests

Dear Mr. Provencher:

Rob Rothman from your office has approved the release of the enclosed Building 38 Action Memorandum – Final, Revision 2.

This document has been revised according to agreements reached at the September 26 Core Team meeting.

The specific changes are:

- addition of the RCRA ARARs analysis developed by Mound and OEPA as Appendix A,
- addition of a letter from the Core Team explaining why the action memo was reissued, and
- addition of section 5.1.5.4 which introduces the RCRA analysis in Appendix A.

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Dave Rakel at extension 4203.

Sincerely,

Monte A. Williams
Project Manager, Environmental Restoration

MAW/DAR:jdg

Enclosures

cc: Tim Fischer, USEPA, (1) w/attachments
Brian Nickel, OEPA, (4) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Ron Church, DOE/MEMP, (1) w/attachments
Budd Thompson, BWXT of Ohio, (1) w/attachments
Dave Rakel, BWXT of Ohio, (1) w/attachments
Karen Arthur, BWXT of Ohio, w/o attachments
Monte Williams, BWXT of Ohio, w/o attachment
Gerry Maul, BWXT of Ohio (1) w/attachment
Carol Anderson, BWXT of Ohio, w/o attachment
DCC

5302-0506210008

ACTION MEMORANDUM

BUILDING 38 REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

SEPTEMBER 2001

Final

(Revision 2)

Department of Energy

Babcock & Wilcox of Ohio

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

Dear Stakeholder:

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 interest in the Building 38 Removal Action. This action memorandum is being reissued (as Final, Revision 2) to include a recent analysis of Applicable Relevant and Appropriate Requirements with respect to the Resource Conservation and Recovery Act. The analysis is included as Appendix A.

Sincerely,

DOE/MEMP: _____
Robert S. Rothman, Remedial Project Manager

USEPA _____
Timothy J. Fischer, Remedial Project Manager

OEPA _____
Brian K. Nickel, Project Manager

ACTION MEMORANDUM

BUILDING 38 REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

September 2001

PREPARED BY:

Babcock & Wilcox of Ohio, Inc.
P.O. Box 3030
Miamisburg, Ohio 45343-3000

for the

U.S. DEPARTMENT OF ENERGY

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

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 Building 38 Removal Action Memorandum. Attached are our responses.

Should the responses to comments require additional detail, please contact Art Kleinrath at (937) 865-3597, and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MEMP: Art Kleinrath
Art Kleinrath, Remedial Project Manager

DOE/MEMP: Timothy J. Fischer
Timothy J. Fischer, Remedial Project Manager

DOE/MEMP: Brian K. Nickel
Brian K. Nickel, Project Manager

MMCIC Comments Regarding
Building 38 Removal Action Memorandum

Substantive Comments

1. Pages 2-7 and 2-8 were missing from our bound copy of the Building 38 Action Memorandum. Please provide copies of these missing pages.

Response:

Pages 2-7 and 2-8 are attached to the response.

2. We have no additional substantive comments. However, we realize that most of the actual specifications of the removal action will be outlined in the work plans yet to be written for each of the removal tasks. Work Plans are not routinely submitted for public review and comment. They are usually made available to the public in the Public Reading Room. We would appreciate notification (or a copy, if possible) whenever a Building 38 work plan is released to the Public Reading Room.

Response:

Based on subsequent discussion with MMCIC, we understand that MMCIC's main interest is with the phases of the demolition of the building and stack that include environmental or waste disposal issues. MMCIC's interest is understood to include transportation of debris. As plans for these phases become available, MMCIC will be notified.

Errata

1. The first sentence of the third paragraph on page 2-5 is incomplete. The first word of that sentence "When" should probably be deleted so that the sentence reads "SM Building was demolished in March 1995."

Response:

Text has been changed.

2.2 OTHER ACTIONS TO DATE

The Mound Plant initiated a CERCLA program in 1989, now guided by the agreement between 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

Until recently, environmental restoration projects at Mound were conducted as Decontamination and Decommissioning projects (D&D, generally buildings) or CERCLA projects (generally soils and groundwater). Although no previous CERCLA Removal Actions were conducted at Building 38 or SM Building, Decontamination and Decommissioning (D&D) projects were.

The locations of these previous D&D projects are shown in Figure 2.5 Two specific areas, SM East Asphalt area and the SM Building Annex area were remediated, verified and documentation sent to the OEPA and the USEPA. The remaining areas, SM Foundation and Soils, Leach field grass area, SM South Asphalt area, and North Asphalt area have been remediated and are ready for verification sampling (approximately 40,000 square feet). All of these projects were performed as part of Operable Unit 6, Decontamination and Decommissioning of the Mound CERCLA program, which utilized a clean-up standard for ^{238}Pu in soils of 100 pCi/g (with an As Low As Reasonably Achievable [ALARA] goal of 25 pCi/g). Verification sampling of these areas will occur simultaneously with areas shown in Figure 2.4. The verification sampling and analysis will use the ^{238}Pu clean-up standard in place at the time these areas were remediated; i.e. 100 pCi/g with an ALARA goal of 25 pCi/g.

2.2.2 Current Actions

Current actions pertinent to Building 38 include Work Planning, Safe Shutdown, and review of Characterization data. 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), inventory of equipment, disposition of non-contaminated equipment, and relocation of Isotope Power Systems (IPS) equipment to another building.

2.3 STATE AND LOCAL AUTHORITIES' ROLES

2.3.1 State and Local Action to Date

In 1989, 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.

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Appendix

Appendix A Application of ARARs to wastes expected from Building 38 removal action

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	Department of Energy
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
ER	Environmental Restoration
FFA	Federal Facilities Agreement
FSP	Field Sampling Plan
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
SW	Semi-Works
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 1995). 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 EPA 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 site location, site characteristics, release of contaminants into the environment and the site's National Priorities List (NPL) status.

2.1.1 Physical Location

The Mound Plant is a 306-acre site on the southern border of the city of Miamisburg in Montgomery County, Ohio. The site is approximately 10 miles south-southwest of Dayton and 45 miles north of Cincinnati. This removal action is proposed for Building 38, the Building 38 Stack, and contaminated soils in the vicinity. Building 38 is also known as Plutonium Processing (or PP) Building. The Building 38 Stack is sometimes referred to as the SM Stack. The location of Building 38 is shown in Figure 2.1.

2.1.2 Site Characteristics

Building 38 was constructed in 1968 to replace the facilities in Building SM, also known as Special Metallurgical Building. Building 38 was originally used as a ^{238}Pu production processing facility and more recently supported the assembly and testing of Radioisotopic Thermoelectric Generators (RTGs), the repackaging and storage of excess nuclear material, and the storage and identification of orphan sources at Mound. Even though Building 38 has undergone extensive Decontamination and Decommissioning (D&D) cleanup in the past, sealed-in-place ^{238}Pu contamination is present. Eight Potential Release Sites (PRSs) (PRS 294, 295, 296, 297, 298, 299, 301, and 326) and numerous items of special processing equipment are also located in the building.

Building 38 is a two-story structure with the lower level constructed of reinforced concrete and prestressed concrete and the upper-level constructed of concrete block. The roof is prestressed concrete with built-up membrane of asphalt. The total floor space is 44,327 square feet. Figure 2.2 is a photograph of Building 38, the Building 38 Stack, and SM Building. Figure 2.3 is a more recent photograph of Building 38.

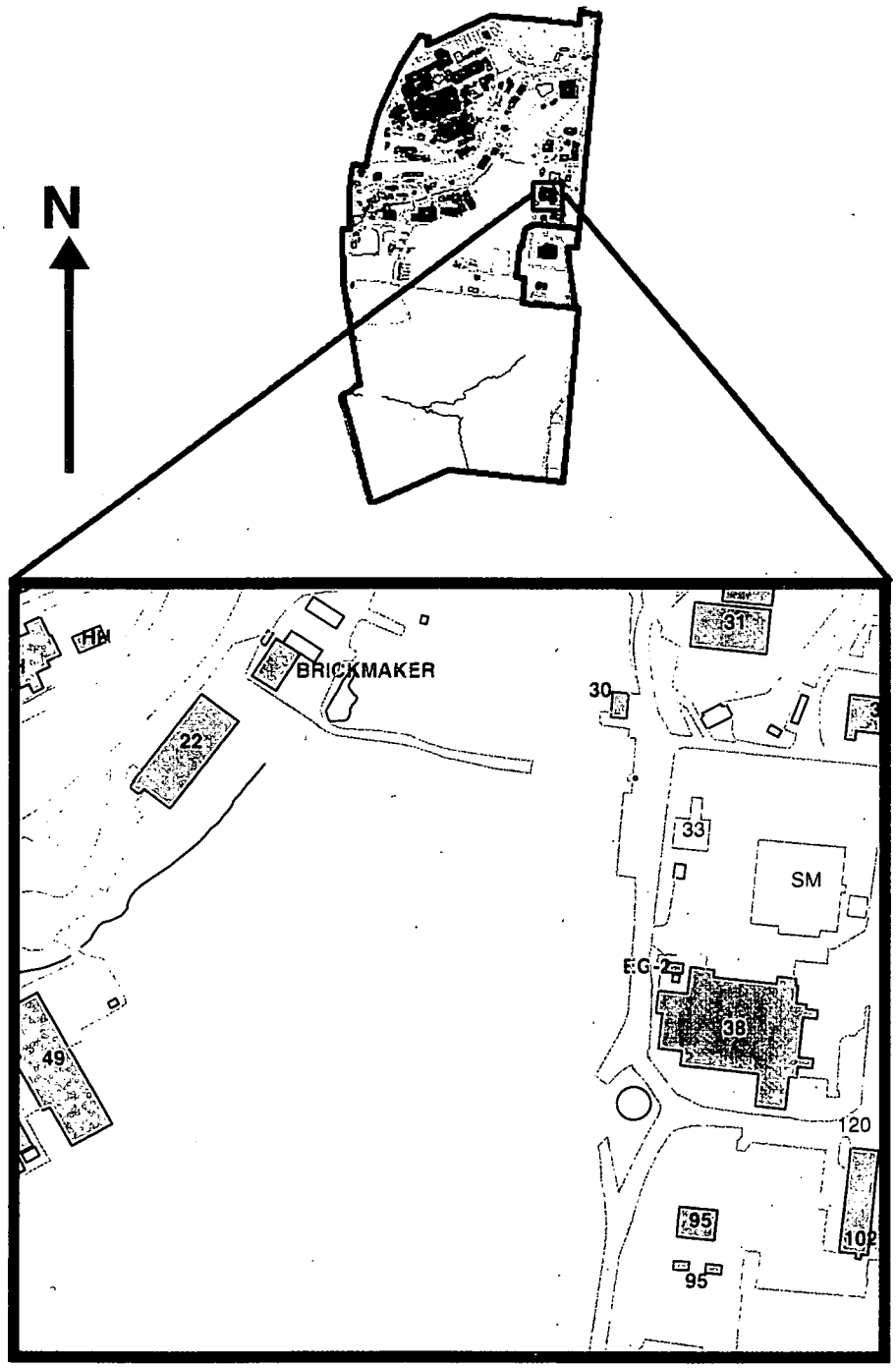

Figure 2.1 Location of Building 38

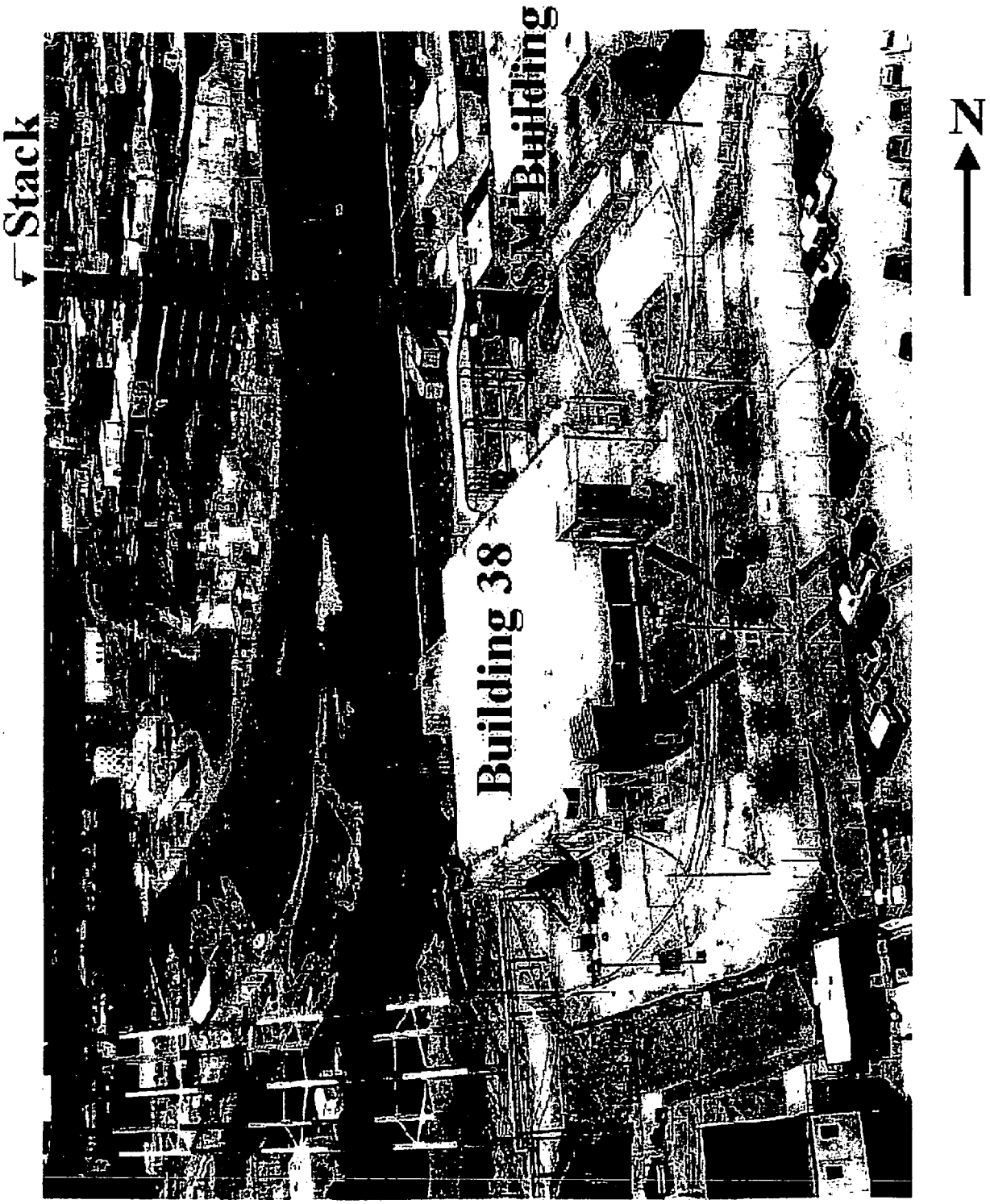

Figure 2.2 Building 38, Building 38 Stack, and SM Building

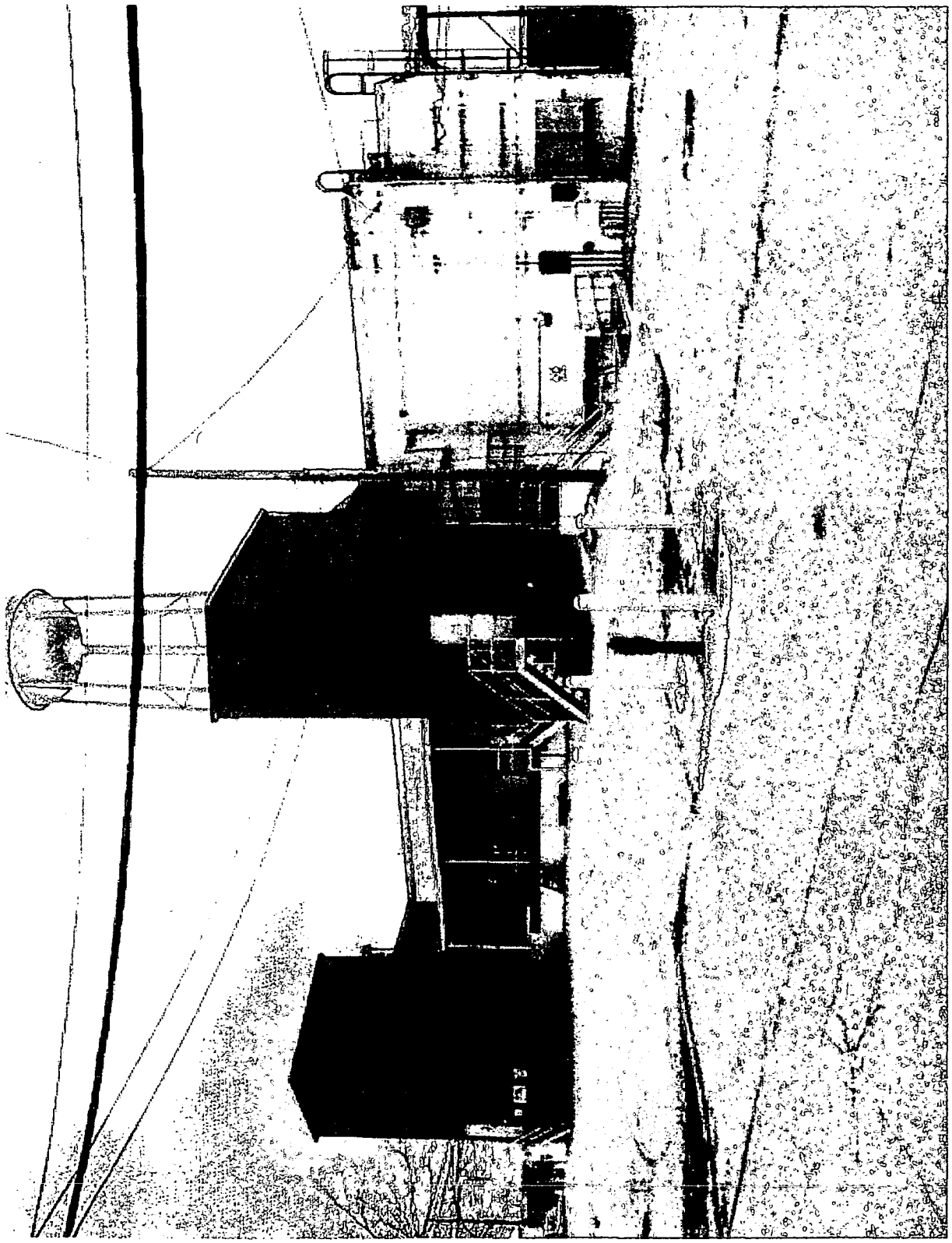

Figure 2.3 East Side of Building 38. At time of this photo, SM has been removed. Building 38 Stack is out of the field of view to the right.

The Building 38 Stack is a masonry process exhaust stack that served SM Building prior to its removal and currently serves Building 38. The stack's interior has been exposed to radioactive isotopes of thorium, americium, uranium, and plutonium. The stack is 200 feet tall. The stack is made of bricks and mortar, reinforced with wire mesh and rebar, and coated on the inside face. The stack is supported by a square reinforced concrete base pad. The stack also includes the 48-inch diameter exhaust duct from Building 38 to the plenum, the exhaust plenum with support platform, and stack exhaust fan. The Building 38 Stack is designated PRS 305; this is included as part of this removal action.

The foundation and soils for Building 38 are included in this proposed removal action. There are other contaminated soils in the vicinity that are also included. Figure 2.4 illustrates the location of these soils areas. The Building 33 foundation consists of the footers, foundation, walls, floor slab, and soils from the Building 33 Maintenance Facility. The structure was demolished in February 1998. The soil area directly south of Building 33 (SM West Asphalt area) is highly contaminated with ^{238}Pu, therefore, the Building 33 foundation will be included as part of the foundation and soils removal.

SM Building was demolished in March 1995. The entire building slab and approximately 75% of the building foundation, footers, and soil have already been removed. The remaining 25% of the foundation, footers, and soil were left in place due to structural considerations associated with the Building 38 Stack. The remaining foundations and footers associated with Building SM and the asphalt/soil area directly west of the original building site are included in the proposed removal action. There are ten PRSs (PRS 77, 78, 285, and 287 through 293) within the boundary of SM Building. The building systems represented by these PRSs were removed when SM Building was demolished. Removal of contaminated soil associated with these PRS's and verification of achieving clean-up objectives will be included as part of this removal action.

An underground fuel oil storage tank served Emergency Generator 2. This 4,000 gallon tank (Tank 121) was closed in December, 1998. It will be removed as part of this removal action.

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.

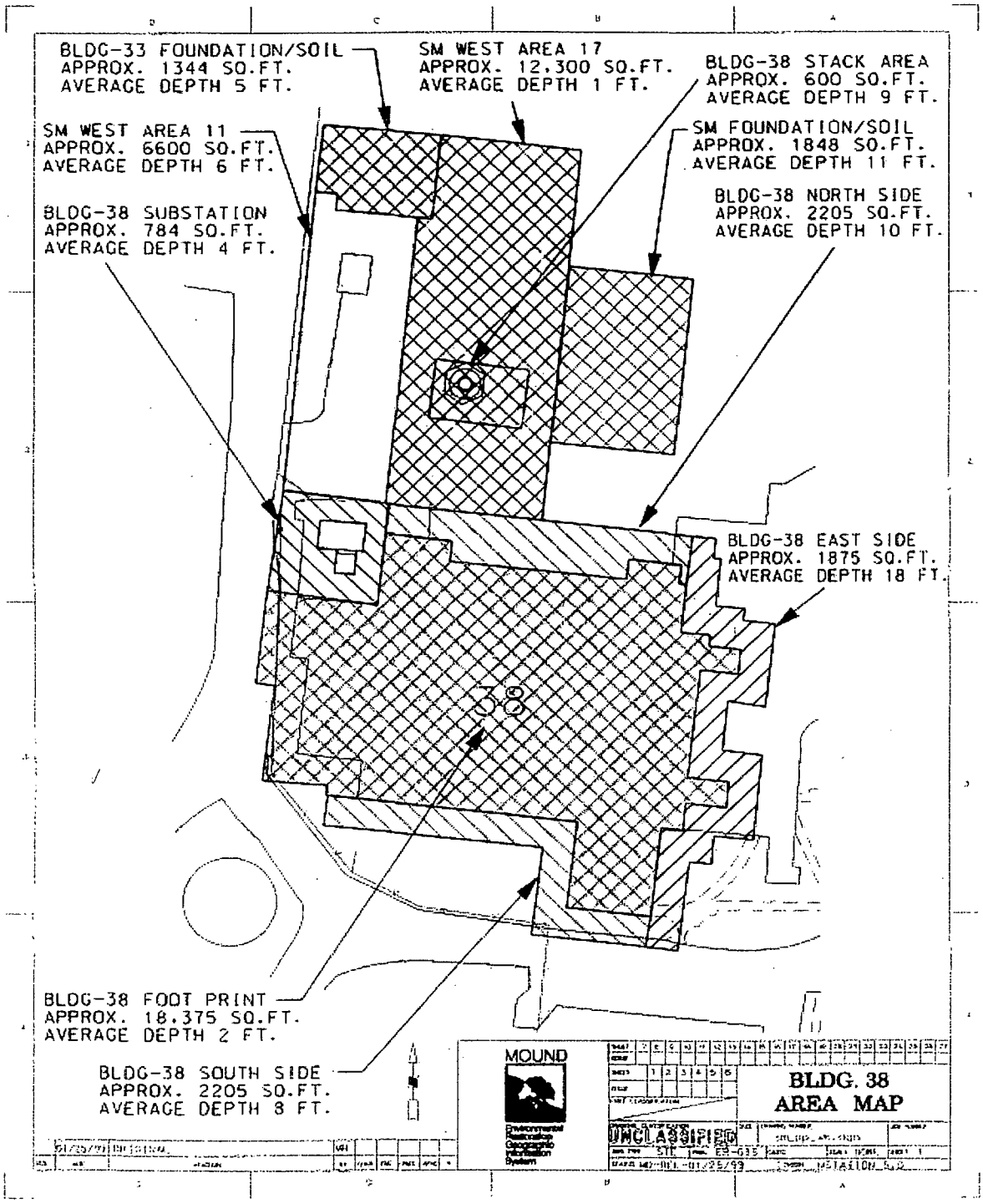

Figure 2.4 Location of Soils Areas Associated with Building 38 Removal Action

2.2 OTHER ACTIONS TO DATE

The Mound Plant initiated a CERCLA program in 1989, now guided by the agreement between 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:

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- Facilitate cooperation, exchange of information, and participation of the parties in such actions.

2.2.1 Previous Removal Actions

Until recently, environmental restoration projects at Mound were conducted as Decontamination and Decommissioning projects (D&D, generally buildings) or CERCLA projects (generally soils and groundwater). Although no previous CERCLA Removal Actions were conducted at Building 38 or SM Building, Decontamination and Decommissioning (D&D) projects were.

The locations of these previous D&D projects are shown in Figure 2.5 Two specific areas, SM East Asphalt area and the SM Building Annex area were remediated, verified and documentation sent to the OEPA and the USEPA. The remaining areas, SM Foundation and Soils, Leach field grass area, SM South Asphalt area, and North Asphalt area have been remediated and are ready for verification sampling (approximately 40,000 square feet). All of these projects were performed as part of Operable Unit 6, Decontamination and Decommissioning of the Mound CERCLA program, which utilized a clean-up standard for ^{238}Pu in soils of 100 pCi/g (with an As Low As Reasonably Achievable [ALARA] goal of 25 pCi/g). Verification sampling of these areas will occur simultaneously with areas shown in Figure 2.4. The verification sampling and

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2.3.1 State and Local Action to Date

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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.

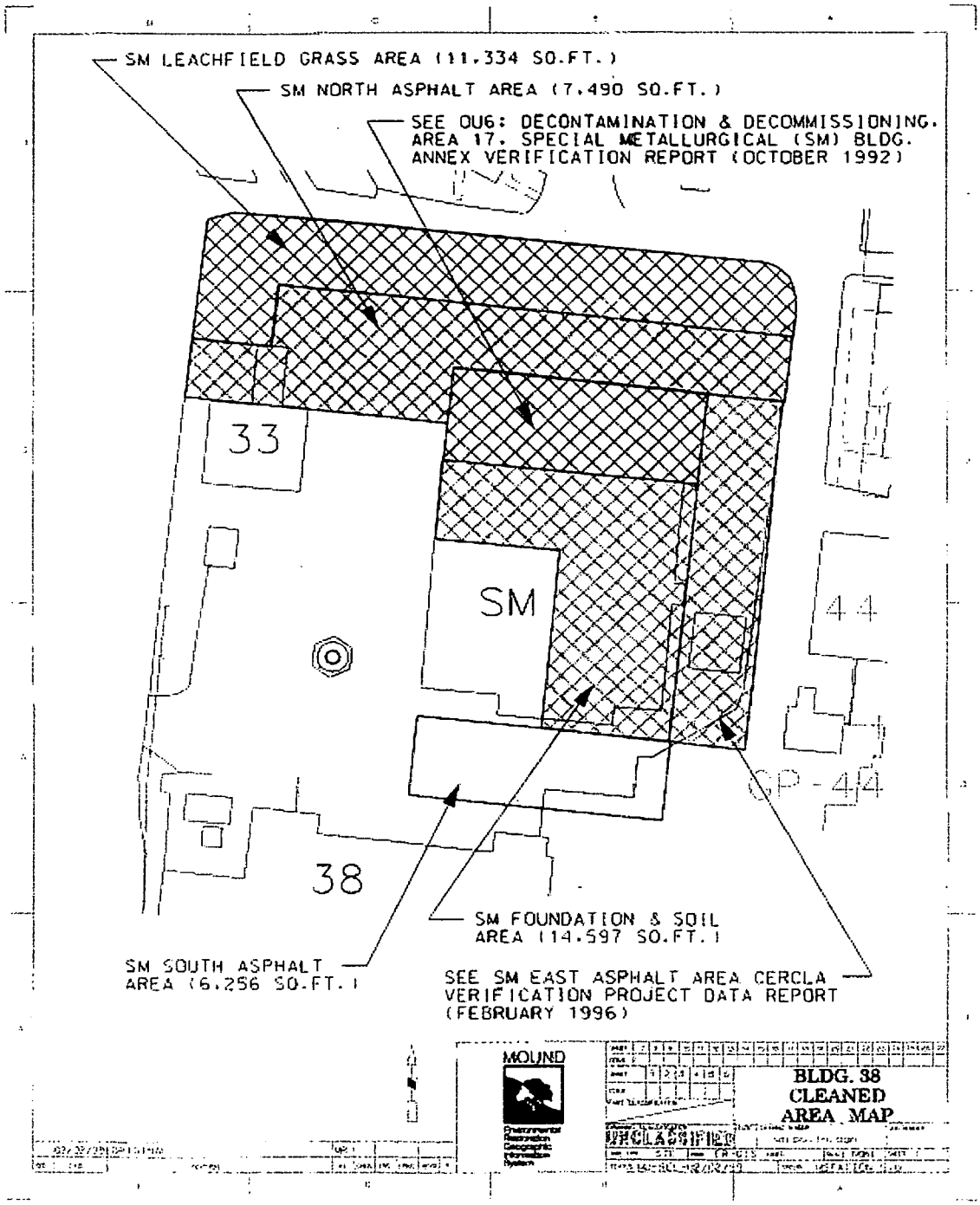


Figure 2.5 Location of Soils Areas Associated With Previous D&D Projects Near Building 38

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)]

Criteria		Evaluation
(I)	"...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.
(ii)	"Actual or potential contamination of drinking water supplies..."	There is potential contamination of on-site drinking water supplies from the radionuclides. The contaminants could migrate to the ground water that is the source for the plant drinking water.
(iii)	"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.
(iv)	"High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;"	There are high levels of radioactive contaminants in soils largely at or near he surface, that may migrate when present institutional controls are relaxed.
(v)	"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.
(vi)	"Threat of fire or explosion;"	Not applicable.
(vii)	"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
(viii)	"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 demolition of Building 38, demolition of the Building 38 Stack, removal of Building 33 foundation and soils, and removal of contaminated soils in the vicinity of Building 38. 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

  Planning and execution of the proposed action is divided into two phases, Phase I and Phase II. Phase I will be accomplished while the integrity of the building's environmental envelope is intact. Phase II will be accomplished after the environmental envelope is breached. The environmental envelope is defined as the building, the ability to maintain a negative pressure to the outside, the absolute filter bank, and the environmental monitoring of discharge air from the filter bank to the outside environment. Due to the complexity of the work , multiple work plans will be generated during each phase. Because the environmental envelope is still intact during Phase I, work plan documents will be reviewed and approved by DOE and made available to USEPA and OEPA on request. Work plans for Phase II will be reviewed and approved by DOE, USEPA, and OEPA. Project specific safety documentation (HASP/JSHA) is reviewed and approved by DOE.

- Public Notification

  A notice of the availability of this Action Memorandum for 30 day public comment period will be published in a local newspaper.

- Phase I

  The Phase I work addresses the major system removals within the building's environmental envelope. The decontamination activities include removal of contamination from equipment and facility interior walls, ceilings, columns, and floors. The North A-Line includes 21 gloveboxes and four fumehoods. These gloveboxes contain some of the highest levels of ^{238}Pu in the building. Corridor 5-A contains five gloveboxes and one fumehood. They will be decontaminated by removing wipeable contamination and sealing fixed contamination in place.

Gloveboxes will be cut apart for size reduction and loaded into waste burial boxes. The Low-Level Liquid Waste vacuum system, transfer lines, and 10,000 gallon holding tank are ^{238}Pu contaminated and must be removed. All floor drains and the two sump tanks will be removed due to ^{238}Pu contamination. Miscellaneous contaminated piping and electrical conduits associated with these systems will be removed and disposed as radioactive waste. The ventilation exhaust duct work is ^{238}Pu contaminated and will be removed.

- Phase II: Building Decontamination

  The decontamination Phase II work is associated only with Building 38 and will be accomplished after the ventilation system is shut down. A temporary filter bank rated for nuclear service will be established to perform the remaining work within the building. The motor control center and absolute filter bank will be removed. This work will be similar to the glovebox removals.

- Phase II: Demolish Building 38, Demolish Building 38 Stack, Remove Underground Storage Tank

  Building 38 and its additions will be demolished. Demolition will typically be accomplished by heavy equipment such as excavator-mounted shear and/or grapple. The exhaust duct from Building 38 to the Building 38 Stack will be removed along with a large air plenum and stack fan. The Building 38 electrical substation will be removed.

  The plan for the demolition of the Building 38 Stack includes abrasive blasting of the interior and vacuuming out the contaminated debris and demolishing the stack wall with power sawing and removing the contaminated debris.

  The underground storage tank serving Emergency Generator 2 was abandoned and replaced by an above ground tank in December, 1998. The underground tank will be removed.

- Phase II: Remove Associated Foundations and Soils

  The foundations and soils associated with Building 38 and the Building 38 Stack will be removed. The Building 33 foundation and soil will be removed. The remaining foundations and footers from SM building and the asphalt/spoil area directly west of the original building site will be removed.

- Phase II: Verification

  This step includes among other activities: sampling and analysis of soil at edges of excavation to determine the residual contaminant concentration and verifying that the residual contaminant concentration is within acceptable limits. The locations previously remediated by D&D projects (described in Section 2.2.1 - Previous Removal Actions) will also be verified. A region with a surface area of approximately 90,000 square feet will be verified. Approximately 40,000 square feet of this surface area is from previous D&D projects. The verification sampling and analysis process will be further defined by a Verification Sampling and Analysis Plan. Table 5.1 lists the ^{238}Pu clean up objective and corresponding risk value. This objective applies to the areas remediated as part of this removal action; Building 33 foundation and soil, Building 38 foundation and soil, SM West Asphalt area soil.

- Site Restoration

  Equipment, materials, waste containers, and boundaries will be removed. The site will be back-filled and restored to industrial use standards. The grounds will be seeded and mulched.

- 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.

Table 5.1 Clean-Up Guideline

Standard	^{238}Pu Concentration	Corresponding Risk[+]
Risk Based Clean-Up Standard	55 pCi/g	1.0×10^{-5}

[+] Construction/Mound Employee, Risk Based Guideline Values, March 1997, Final, Rev. 4.

5.1.1.2 Monitoring

Health and safety monitoring will be performed throughout the removal action according to standard Mound procedures. Sampling and analysis of excavated soil will be described in more detail in the Work Plan for this removal action.

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 38 during the removal action.

5.1.1.5 Post-Removal Site Control

Initially, post removal site control will be provided by DOE/Mound. The Mound Plant is to be sold to Miamisburg Mound Community Improvement Corporation (MMCIC). The institutional and site controls needed at the time of the site transfer in order to ensure future protection of human health and the environment will be included in the Record of Decision.

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 site 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 levels of radioactive contamination in Building 38, Building 38 Stack, and associated soils are 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.

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 Cleanup 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

5.1.5.4 Resource Conservation and Recovery Act (RCRA)

Appendix A is an analysis of the application of RCRA to the management of hazardous waste during the maintenance, decommissioning, and demolition of Building 38.

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 5.2.

Table 5.2 Schedule Summary

Activity	Start Date	Completion Date
Work Planning	29 June 1998	16 April 2001
Safe Shutdown	29 June 1998	28 January 2002
Characterization	29 June 1998	01 October 2002
A-Line Removal	20 May 1999	19 January 2000
F-Line Removal	27 October 1999	26 October 2000
Building Decontamination	02 August 1999	18 September 2001
Building Demolition	19 September 2001	16 July 2002
Stack Demolition	19 September 2001	30 May 2002
Soil Remediation	24 April 2001	31 October 2002
Verification	04 November 2002	16 December 2003
Site Restoration	17 December 2002	19 February 2003
OSC Report	24 February 2003	24 April 2003

5.2 ESTIMATED COSTS

The cost estimate to perform the removal action is shown in Table 5.3. Costs include the construction activities, all engineering and construction management, and site restoration.

TABLE 5.3 REMOVAL ACTION COST ESTIMATE

COST ESTIMATE	
Activity	Cost
Work Planning	$ 1,130,090
Safe Shutdown	1,002,200
Characterization	4,386,600
A-Line Removal	1,756,160
F-Line Removal	1,259,890
Building Decontamination	2,424,380
Building Demolition	883,010
Stack Demolition	635,770
Soil Remediation	1,951,270
Verification	800,360
Site Restoration	417,910
OSC Report	37,940
Miscellaneous Items	365,460
TOTAL	$17,051,040

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 clean-up. 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.

9. RECOMMENDATION

This decision document represents the selected removal action for the Building 38 site, developed in accordance with CERCLA as amended by SARA, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP Section 300.415 (b)(2) criteria for a removal and we recommend initiation of the response action.

Approved:

Della Auville for Art Kleinrath		7/1/99
Art Kleinrath, On-Scene Coordinator	DOE/MEMP	Date
Timothy J. Fischer		7/7/99
Timothy J. Fischer, Remedial Project Manager	USEPA	Date
Brian K. Nickel		7/12/99
Brian K. Nickel, Project Manager	OEPA	Date

10. REFERENCES

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

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

DOE 1992. OU6: Decontamination & Decommissioning, Area 17, Special Metallurgical (SM) Building Annex Verification Report, October, 1992.

DOE 1996. SM East Asphalt Area CERCLA Verification Project Data Report, February, 1996.

Appendix A
Appplication of ARARs to wastes expected from Building 38 removal action

Building 38 ARARS evaluation:

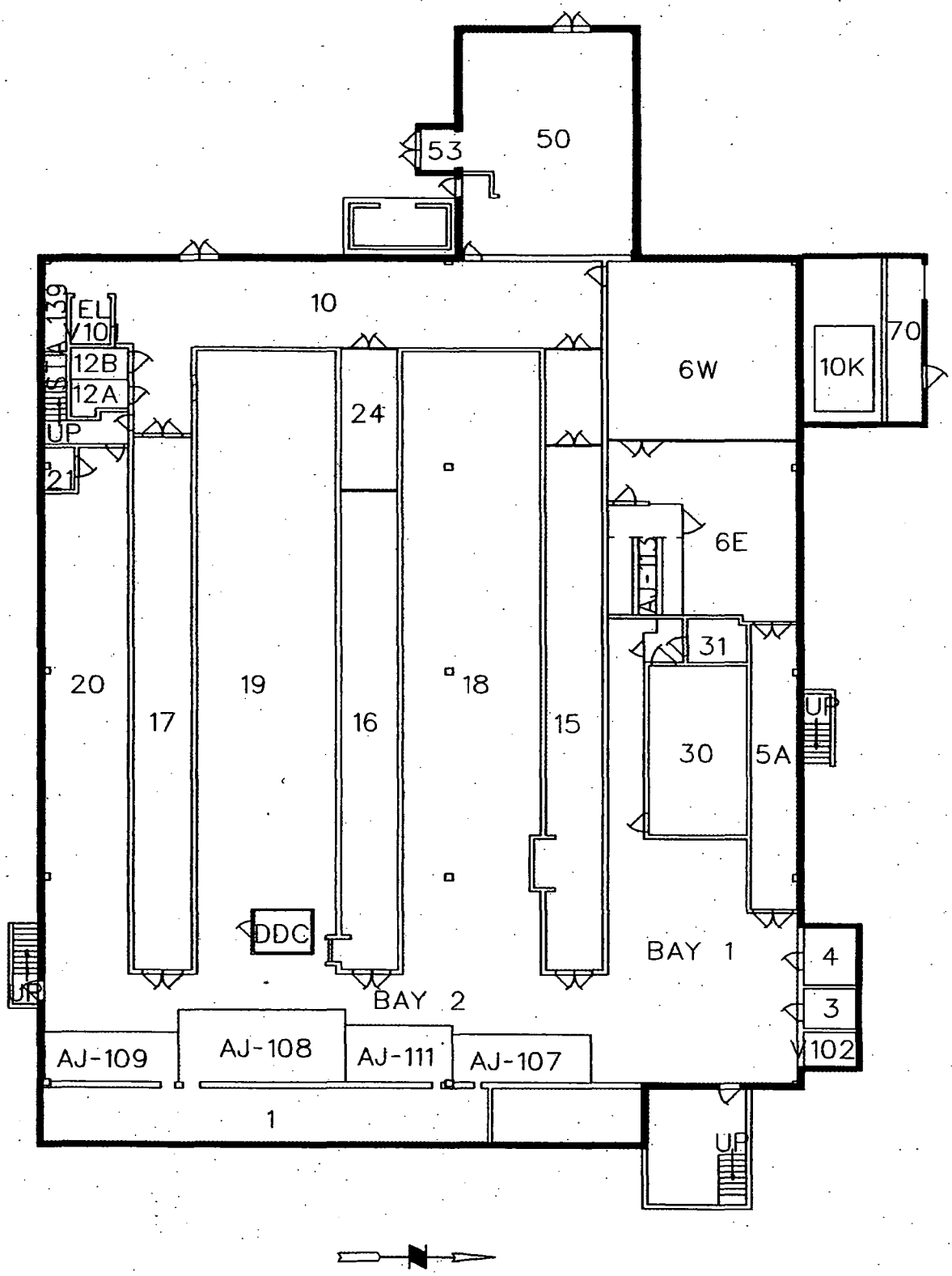
CERCLA is the regulatory authority that governs the clean-up of the Mound facility. The CERCLA umbrella uses other environmental regulations to ensure that the clean-up of Mound is done in a manner that is protective of human health and the environment. The regulations that are applied to the management 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 38.

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 generated in Building 38 during the maintenance time period is anticipated to be lead acid batteries from back-up electrical systems, and waste oil from vacuum pumps. Decommissioning activities take place in preparation for building demolition. Hazardous waste that could be generated from this activity include, lead loaded gloves from glove boxes, oil in pumps and reservoirs, lead bricks and miscellaneous small volume lab chemicals.

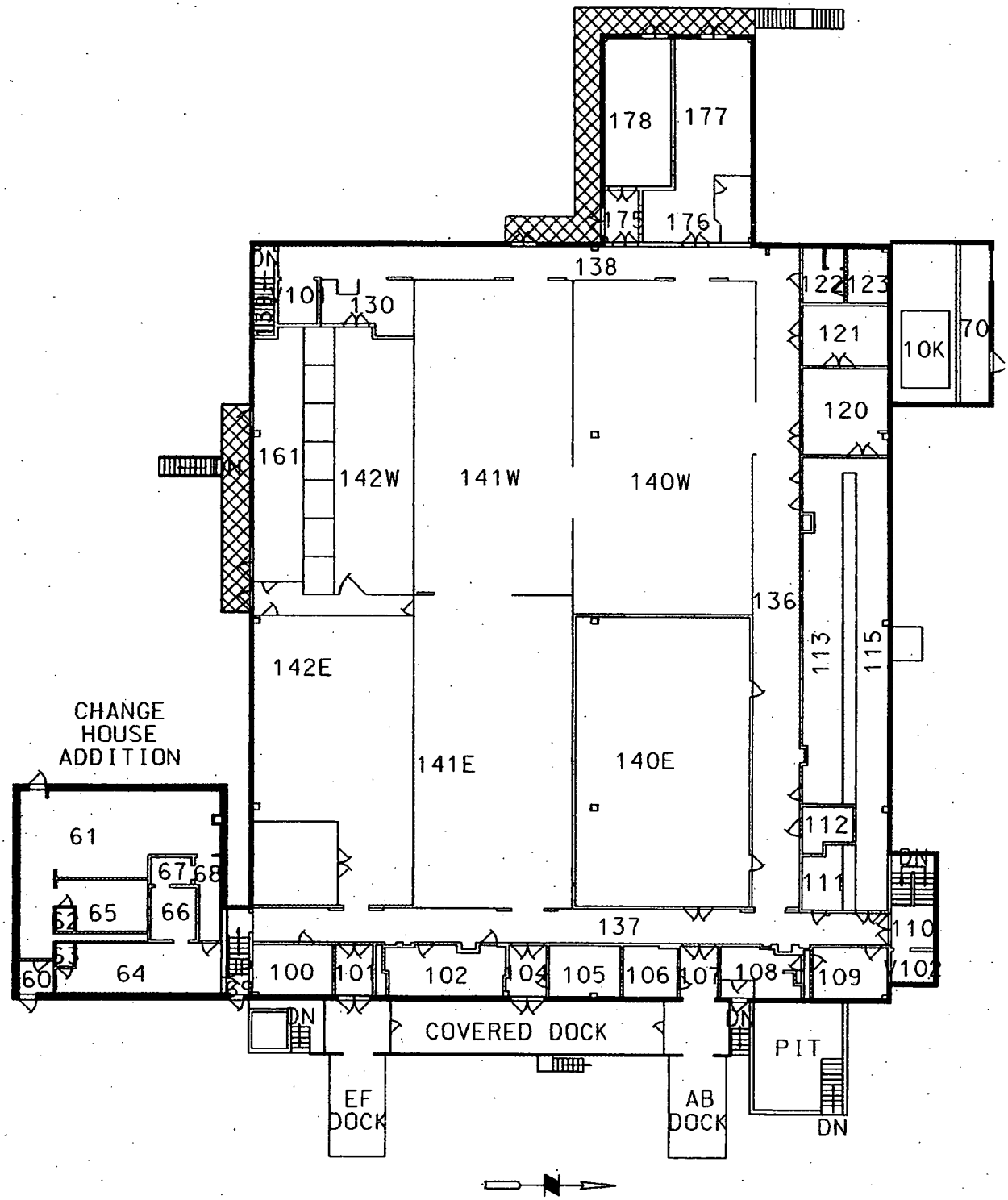
Waste from maintenance and decommissioning activities will be managed in accordance with the ARAR table until sufficient amounts are generated to transferred to an on-site hazardous waste facility. These amounts are typically 55 gallons for liquids and a 4-foot by 4-foot wooden skid for solids. Once the building has been decommissioned the actual deconstruction / demolition of the building occurs. This activity involves the removal of the structure and the foundation. Hazardous waste generated from this last activity will be approximately 150 lead pipe joints. This waste will be managed at the job site and then transferred to an on-site hazardous waste storage facility.

Lead and oil wastes are currently staged in various locations in Building 38 (see-attached floor plans). Lead bricks and shapes are stored on the ground floor in Rooms 30 and 31. Waste Oil is bulked and staged on the ground floor in Corridor 17. Potential for exposure to workers or the public is extremely low, since waste staging areas are unoccupied and secured from unauthorized entry.

Current schedules have all work associated with Building 38 demolition completed by September 2005.



Building 38 Ground Floor Layout



Building 38 First Floor Layout

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
Solids: Includes: - lead pipe joints (approx. 150) - lead-loaded gloves (three pairs) - lead-acid batteries (1-2 dozen) - lead bricks and shapes (approx. 600) - additional solid waste materials not previously considered			
1. Following generation, solid hazardous wastes will be stored in drums, on pallets, or in other appropriate containers pending characterization and disposition.	1. Storage of solids will comply with the following RCRA requirements:	1. Hazardous waste storage ARARs:	1. An appropriate check list will be developed for waste material based on physical form and types of waste stored. This check list will be documented either in the building manager's log book or designated project files.
	a. Condition of containers	a. 40 CFR 265.171; OAC 3745-55-71	a. Check list element - containers are in good condition, no evidence of leaks or spillage.
	b. Compatibility of waste with container	b. 40 CFR 265.172; OAC 3745-55-72	b. Container incompatibility will be rare for solids
	c. Management of containers	c. 40 CFR 265.173; OAC 3745-55-73	c. Check list element - containers closed except when adding or removing waste

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	d. Inspections	d. 40 CFR 265.174; OAC 3745-55-74 40 CFR 264.15(a) and (c); OAC 3745-54-15 (A) and (C)	d. Document inspections quarterly in Building Managers log or designated project files; visual inspections done periodically by personnel in the area.
	e. Requirements for incompatible wastes	e. 40 CFR 265.177; OAC 3745-55-77	e. Check list element – incompatible wastes will have adequate segregation if present in the same storage area.
	f. Marking requirements	f. 40 CFR 262.34(a)(3), (c)(1)(ii); OAC 3745-52-34(A)(3), (C)(1)(b)	f. Check list element - containers marked with words to indicate contents, or as "hazardous waste".
	g. Required Equipment	g. 40 CFR 265.32 (a), (b), (c), (d); OAC 3745-54-32 (A), (B), (C), (D)	g. Check list element - verify that appropriate equipment is available on plant site or in building.
	h. Communication or Alarm System	h. 40 CFR 265.34 (a), (b); OAC 3745-54-34 (A), (B)	h. Check list element - verify that communication devices in the building are operable or that other means of communication are available.
	i. Training	i. 40 CFR 265.16 (a), (b), (c); OAC 3745-54-16 (A), (B), (C)	i. Personnel will be trained to performs inspections

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	j. Treatment	j. Specific ARARs will be determined at the time treatment is proposed and the treatment plan is submitted	2.
2. Solids will be surveyed and/or sampled to determine hazardous and radiological characteristics.	2. Wastes must be characterized following generation a. RCRA characterization – by sampling or process knowledge. b. Radiological characterization	2. Characterization ARARs: a. 40 CFR 262.11, OAC 3745-52-11 b. No RCRA ARARs apply.	a. If sampling is done a copy of the analytical results kept in the project file
Liquids, Including: - Vacuum pump oil / Bubbler oil (less than 55 gallons) - Elemental mercury (1 liter) - additional liquid waste materials not previously considered			
1. Potentially hazardous liquids will remain in place until D&D activities access the materials and generate the waste.	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.	1. RCRA ARARs do not apply to the systems.	

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
2. Liquids will be characterized to determine RCRA and radiological status.	2. Liquids must be characterized following generation. a. RCRA characterization – by sampling or process knowledge b. Radiological characterization	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
3. When generated, liquids will be bulked and stored pending treatment (if necessary), and disposition.	3. Storage of hazardous waste liquids will comply with the following RCRA requirements: a. Condition of containers b. Compatibility of waste with container c. Management of containers	3. Hazardous waste storage ARARs: a. 40 CFR 265.171; OAC 3745-55-71 b. 40 CFR 265.172; OAC 3745-55-72 c. 40 CFR 265.173; OAC 3745-55-73	3. An appropriate check list will be developed for waste material based on physical form and types of waste stored. This check list will be documented either in the building manager's log book or designated project files. a. Check list element - containers are in good condition, no evidence of leaks or spillage. b. Check list element - appropriate container used for storage of liquids (typically metal or poly container) c. Check list element - containers closed except when adding or removing waste

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	d. Inspections	d. 40 CFR 265.174; OAC 3745-55-74 40 CFR 264.15(a) and (c); OAC 3745-54-15 (A) and (C)	d. Document inspections monthly in Building Managers log or designated project files; visual inspections done periodically by personnel in the area.
	e. Requirements for incompatible wastes	e. 40 CFR 265.177; OAC 3745-55-77	e. Check list element – incompatible wastes will have adequate segregation if present in the same storage area.
	f. Marking requirements	f. 40 CFR 262.34(a)(3), (c)(1)(ii); OAC 3745-52-34(A)(3), (C)(1)(b)	f. Check list element - containers marked with words to indicate contents, or as "hazardous waste".
	g. Required Equipment	g. 40 CFR 265.32 (a), (b), (c), (d); OAC 3745-54-32 (A), (B), (C), (D)	g. Check list element - verify that appropriate equipment is available on plant site or in building.
	h. Communication or Alarm System	h. 40 CFR 265.34 (a), (b); OAC 3745-54-34 (A), (B)	h. Check list element - verify that communication devices in the building are operable or that other means of communication are available.

Proposed actions involving waste	Specific actions	ARARs	Implementation of ARARs
	i. Training	i. 40 CFR 265.16 (a), (b), (c); OAC 3745-54-16 (A), (B), (C)	i. Person will be trained to performs inspections
	j. Treatment	j. Specific ARARs will be determined at the time treatment is proposed and the treatment plan is submitted	

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