0204-0203260006

ACTION MEMORANDUM
ENGINEERING EVALUATION/COST ANALYSIS

B BUILDING REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

MARCH 2002

Final

Department of Energy

Babcock & Wilcox of Ohio

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 B Building Action Memorandum. Attached are our responses.

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

Sincerely,

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

USEPA: _____
Timothy J. Fischer, Remedial Project Manager

OEPA: _____
Brian K. Nickel, Project Manager

MMCIC Comments

B Building Action Memorandum

Public Review Draft, April 2001

Substantive Comments

1. MMCIC supports the selected removal action for the B Building site. We understand that work will proceed in phases, as listed in the Action Memorandum, with Work Plans generated for each phase. From other meetings between MMCIC and DOE/BWXTO, we understand that the Building B slab will remain in place until it is removed in conjunction with the removal of the Buildings R and SW slabs. MMCIC also understands the roadway traffic circulation in and around Building B will be restricted starting July 1.

   MMCIC anticipates that there will be no immediate impact from the demolition of Building B on MATC activities.

   Response
   No response needed.

ERRATA

1. The guideline value calculations for 1,2-cis-Dichloroethene have been included in the B Building Action Memorandum. It would also be useful for the Soil Screening Level (SSL) calculations (for the SSLs presented in Table 5.2 of the Action Memorandum) to be included in an appendix as well.

   Response
   We have tried to follow the practice of including support calculations in he document in which a new parameter is introduced. The guideline value for 1,2-cis-Dichloroethene had not previously been used at Mound. Therefore, its supporting calculations were included. The SSLs were calculated for the B-Building Solvent Storage Shed On-Scene Coordinator Report and are included in that report.

2. Under Section 5.1.7, *Project Schedule*, the table referenced as Table 5.2 should read Table 5.3

   Response
   The text will be revised to read Table 5.3 in the Final version of this action memorandum.

ACTION MEMORANDUM
ENGINEERING EVALUATION/COST ANALYSIS

B BUILDING REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

MARCH 2002

PREPARED BY:

BWXT OF OHIO, INC.
P.O. BOX 3030
MIAMISBURG, OHIO 45343-3000

FOR THE

U.S. DEPARTMENT OF ENERGY

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

ACRONYMS

ACM	Asbestos Containing Material
AM	Action Memorandum
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
DOE	Department of Energy
DOT	Department of Transportation
dpm/100cm^2	disintegrations per minute per 100 square centimeters
EE/CA	Engineering Evaluation/Cost Analysis
ER	Environmental Restoration
FFA	Federal Facilities Agreement
HEPA	High Efficiency Particulate Air (filter)
HVAC	Heating, Ventilation, and Air Conditioning
MARSSIM	Multi-Agency Radiological Survey and Site Investigation Manual
MEMP	Miamisburg Environmental Management Project
mg/kg	milligrams per kilogram
MMCIC	Miamisburg Mound Community Improvement Corporation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Assessment
NPL	National Priorities List
OAC	Ohio Administrative Code
ODH	Ohio Department of Health
OEPA	Ohio Environmental Protection Agency
OSC	On Scene Coordinator
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
pCi/g	picoCuries per gram
PRS	Potential Release Site
PVD	Physical Vapor Deposition
RAT	Radiological Action Team

ACRONYMS

RCRA	Resource Conservation and Recovery Act
RREM	Residual Risk Evaluation Methodology
RSE	Removal Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
SSL	Soil Screening Levels
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
VSAP	Verification Sampling and Analysis Plan

1.0 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 Liabilities 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 non-Superfund, federal-lead actions with DOE funds instead of the funds available to the USEPA under CERCLA (i.e., non-Superfund). The DOE provides the On Scene Coordinator (OSC). Non-Superfund, federal-lead removal actions are not subject to USEPA limitations for 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.

2.0 SITE CONDITIONS AND BACKGROUND

2.1 SITE DESCRIPTION

2.1.1 Physical Location

The Mound Plant is a 306-acre site on the south 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. The specific location of the proposed removal action is B Building.

2.1.2 Site Characteristics

B Building is located on the western perimeter of the Mound Plant Main Hill. The location of B Building is depicted in Figure 2.1. B Building is a one story structure with three separate penthouses. The building encompasses 25,736 square feet. The building is constructed of concrete block walls, with brick face veneer and a metal roof covered with a built-up coal tar and carboline membrane.

The building is bordered by a sidewalk and roadway on the north and west sides, a paved alley and courtyard on the south, and a paved alley on the east side. It shares a corridor with H Building on its east side. Adjacent buildings are OSW Building to the north, SW/58 Building to the south, and H Building on the east.

B Building is one of the original buildings constructed in 1948. It was later expanded with additions to the west (completed 1967) and north (completed 1970) of the original building. The original construction and both additions each have penthouses on the roof housing heating, ventilation, and air conditioning (HVAC) equipment. The building is served by the central steam system for heat, chilled water for cooling, and electrical service of 480V. A photograph of B Building is shown in Figure 2.2.

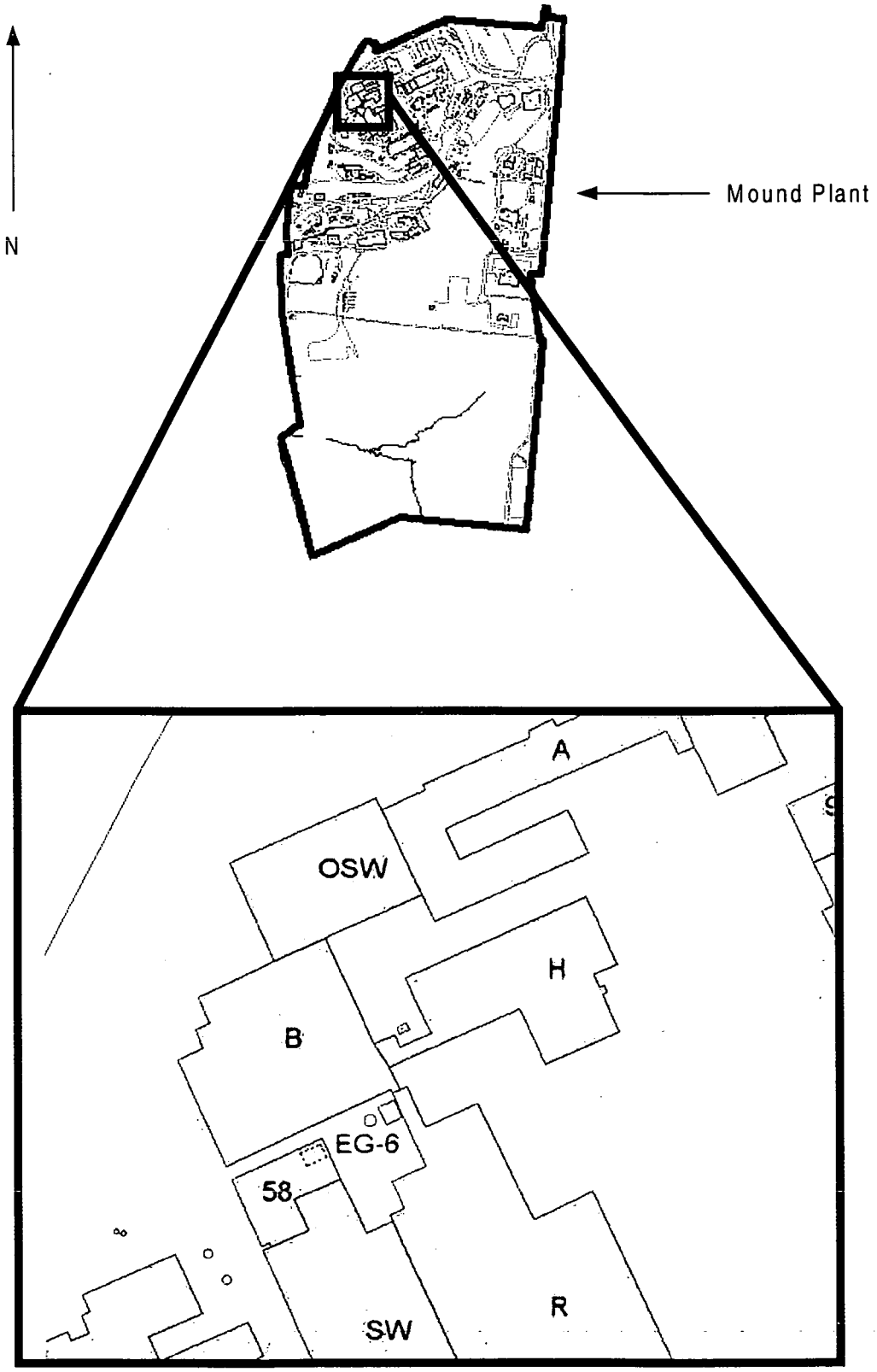

Figure 2.1 Location of B Building

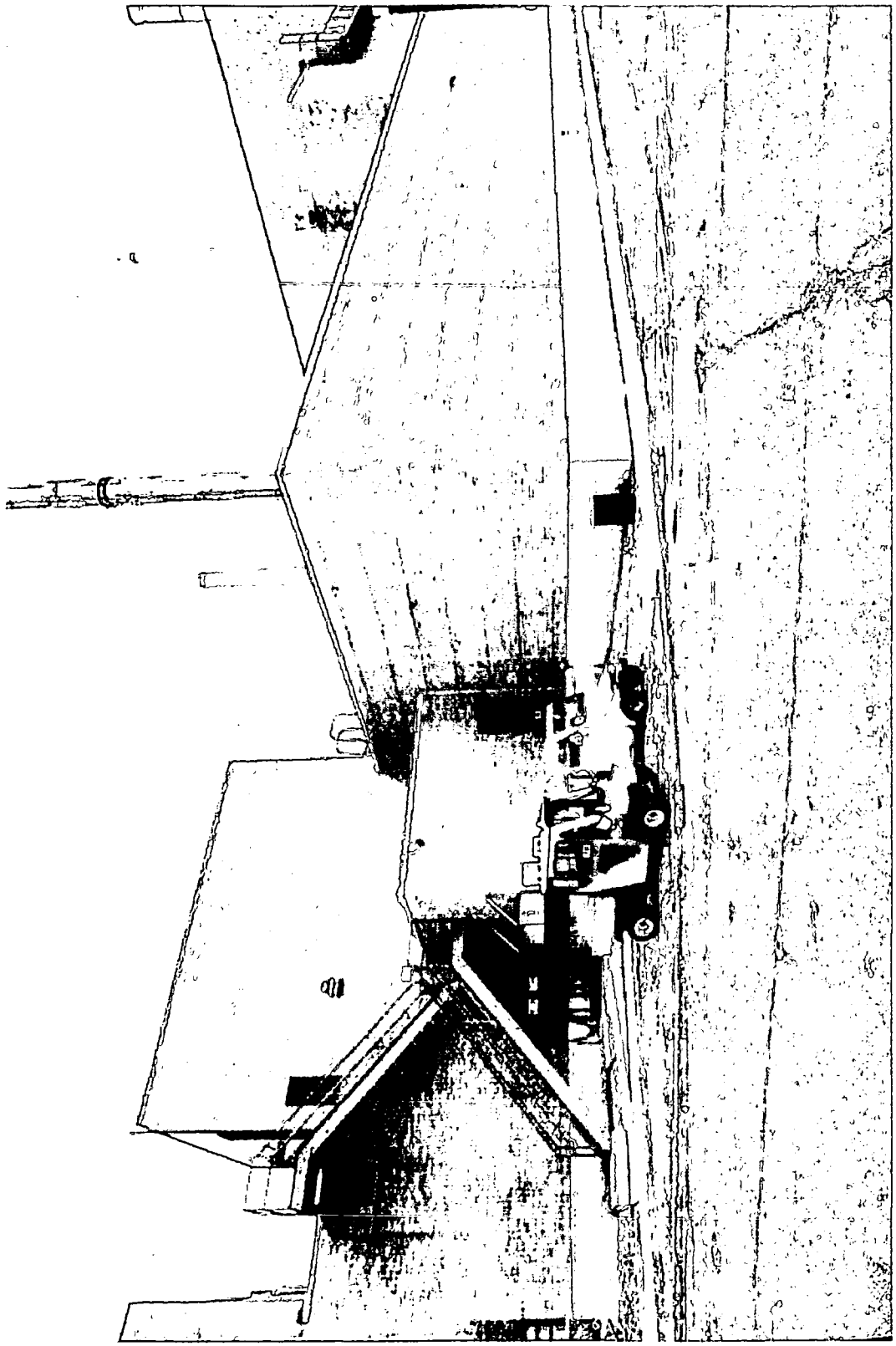

Figure 2.2 Mound Plant B Building Photograph (Viewed from Northwest)

The original B Building consisted of rooms B-101 through B-146 and Penthouse B-207P. The first addition was the B Building West Addition. This addition was completed in 1967 and consists of rooms B-152 through B-160 and Penthouse B-217P. The second addition, the B Building North Addition, rooms B-161 through B-180 and the B-210P penthouse, was completed in 1970. B Building is currently unoccupied.

Until 1956, B Building was used for biological animal studies addressing acute and toxic effects of exposure to polonium and actinium. Following the biological project activities, the building exhaust and penthouse filter banks were deactivated and subsequently removed. After 1956, the building was used for the production of inert and/or plastic components of weapons devices and detonators. It was also used for non-destructive testing, laser welding and marking, a mold shop and Physical Vapor Deposition (PVD). Organic solvents were used in some of these operations. A clean room in the north building addition was used for transducer production and PVD. The room employed high efficiency particulate air (HEPA) filter modules to filter the incoming room air. Most recently, B Building was used for training rooms and industrial hygiene laboratories. Safe Shutdown and building characterization activities are currently underway. Presently, only bulk equipment remains in B Building.

Radiological surveys are currently being conducted. The asbestos surveys are complete - with asbestos containing material (ACM) identified as pipe insulation, fumehood linings, some floor tile, and ceiling tiles. Preparations are being made to perform a complete asbestos abatement.

The building is not contaminated with energetic (explosive) materials. There may be minor chemical and radiological contamination present. The planned asbestos abatement will be performed before demolition.

Associated Potential Release Sites (PRSs)

There are four PRSs associated with B Building. These are PRS 129, 130, 244, and 252. PRS 129 represents the B Building Solvent Storage Shed and PRS 130 represents the B Building Temporary Storage Area. Following a response action performed in 1994, PRSs 129 and 130 were determined by DOE, USEPA, and the Ohio Environmental Protection Agency (OEPA) to require No Further Assessment (NFA) per the *B Building Solvent Storage Shed, On Scene Coordinator Report* (DOE 1995b), and

subsequent NFA recommendation (included in Appendix A) was signed on May 14, 1997. PRS 244 represents potential volatile organic compound (VOC) hot spot locations 1076, 1077, 1079, and 1080. PRS 244, Soil Contamination - B Building, was also determined by DOE, USEPA, and OEPA to require No Further Assessment per the recommendation signed on December 17, 1996. The NFA recommendation can be found in Appendix A.

PRS 252, the B Building stack, will be surveyed and removed as a separate, forthcoming response action.

2.1.3 Current Conditions

Heating and cooling are provided to B Building via aboveground steam and glycol piping originating from the Powerhouse, P Building. Ventilation is provided to the building through a roof mounted HVAC system. Potable water and sanitary services are provided by means of the Mound Plant underground domestic water lines, an on-site sanitary treatment plant, and a stormwater sewer system. The wastewater currently generated in the building is sanitary water only. Electrical power for B Building is supplied from the B Building substation.

Radiological/Chemical

Based on data from the *Mound Site Radionuclides by Location Technical Manual MD-22153*, Issue 2, March 1998, the *Environmental Appraisal of the Mound Plant*, March 1996, and the *HOK/K Phase I Environmental Site Assessment of DOE Mound, B Building*, July 1996, several areas of potential contamination may exist in B Building. They are as follows:

Room/Area	Type	Potential Source
B-112	Alpha	Steel Storage Well (possibly under floor)
Courtyard/Subsurface	Alpha/Chemical	Hot Waste Manhole
Various/Subsurface	Alpha/Chemical	Hot Waste Drain Pipes
Various	Chemical	Interior Solvent Drain Pipes
Loading Dock	Chemical	Hydraulic Lift Station (potential PCB contamination)

Note: Two areas of stained soil near a trench drain west of building listed in the HOK/K report of July 1996 was not evident in a recent walk through of the area.

Table 2.1 is a summary of radiological contamination found to date in B Building.

Based on the latest survey data from 1999 and 2000, all known and readily removable sources of potential chemical and radiological contamination (including all items listed in Table 2.1) have been removed from the building. Confirmation surveys are ongoing as part of the project Safe Shutdown activity.

Asbestos

Asbestos sampling results indicate ACM in the pipe insulation, some fumehood linings, floor tile, and some ceiling tiles. The walls were sampled and the results confirmed that they are free of ACM. Industrial Hygiene will be working with the project until all asbestos is removed prior to demolition. Asbestos sampling results and information relative to the asbestos assessment summary and planned asbestos abatement of B Building are located in the project file.

PCBs

There is one transformer which could possibly contain Polychlorinated Biphenyls (PCBs) in B Building. A lift station located at the B Building loading dock could potentially contain hydraulic oil containing PCBs. Further characterization is planned. The only other suspected source of PCBs is the fluorescent light ballasts manufactured before 1979. If a ballast is not labeled "No PCBs," it will be removed and disposed of as a PCB-containing ballast in an approved landfill.

Table 2.1 Summary of Contamination Detected in B Building

Room/Area	Item[1]	Activity Levels (dpm/100cm^2)*
105A	Radiation Action Team (RAT) Metal Suitcase	1,227 fixed alpha
140/141	Industrial Hygiene Voltmeter	350 fixed alpha
Corridor by vending machine	Floor Tiles by Door to B	10,000 fixed alpha 4,300 fixed beta
102/105/120	Krypton Arc Lamp Flow Control Tubes	Naturally occurring 23,000 fixed beta (U-235/U-238)
125	Floor HEPA Hose Connection	110,000 removable alpha 7,000 dpm/masslin cloth
105	Speedomax Recorder	692 fixed alpha (Pu-238/AM-241)
141	Office Chair Cushion	3,480 fixed alpha (Pu-238)
Roof	Drain Spouts	1,500 fixed alpha
124	Gamma Spec Detector	9,000 fixed alpha 250 fixed beta 185 removable alpha (Pu-238/Am-241)
105	Mastic/Floor underneath removed floor tile	44,000 fixed alpha (Ac-227)

[1] All listed items have been removed from building.
* dpm/100cm^2: disintegrations per minute per 100 square centimeters

Lead

Lead paint is expected. Recent surveys indicate paint is chipping and flaking. Manual handling and dust generation will be minimized. Historical drawings indicate that the walls in Room 135 used for x-ray analysis were lead-lined. The lead lining was apparently removed. Recent sampling indicated no evidence of the lead lining. Lead shielding associated with two x-ray machines located in Room 136 has been removed and properly disposed of. After the building is demolished, the debris containing suspect lead

or lead paint will be disposed of as construction debris in a local landfill. Sampling results will be located in the B Building project file.

Freon

"Cold Rooms" 128 and 129 contain Freon. Freon may also be found in building water coolers. Freon will be purged and properly disposed of prior to demolition.

Monitoring Requirements

Asbestos will be monitored in accordance with the Mound Industrial Safety and Health Department Asbestos Program Manual (DOE 1999).

Previously inaccessible areas will be surveyed by the Radiological Control Department for radiological contamination during the equipment disposition activity.

2.1.4 Release or Threatened Release into the Environment

The hazardous materials found in B Building are ACM, lead (assumed), and PCBs (assumed to be contained in lighting ballast, and possibly a lift station and transformer). There is ACM in the pipe insulation and in both ceiling and floor tile. All ACM will be removed, as required. There is assumed to be lead paint inside the building. Contaminated drain piping associated with the labs will be removed during the floor slab demolition and disposed of after being checked for contamination. Equipment remaining on or inside the building will be drained of refrigerants and hydraulic fluids prior to demolition and disposition. The fluorescent lighting ballast suspected of containing PCBs will be removed prior to demolition. There will be no hazardous process chemicals stored in B Building at the time of demolition.

Radiological surveys in B Building to date indicate contamination as detailed in Table 2.1. All contaminated items listed in the table were removed from the building, including floor tiles. The potential of further radioactive or chemical contamination that could be released to the environment is the primary reason for this removal action.

2.1.5 National Priorities List Status

The USEPA placed the Mound Plant in Miamisburg, Ohio on the National Priorities List (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 between the DOE, OEPA, and USEPA. A Federal Facilities Agreement (FFA) under CERCLA Section 120 was executed between DOE and USEPA 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 NCP, Superfund guidance and policy, and Resource Conservation and Recovery Act (RCRA) guidance and policy, and
- facilitate cooperation, exchange of information, and participation of the parties in such actions.

2.2.1 Previous Removal Actions

The previous removal action performed at B Building was PRSs 129 and 130, the Solvent Storage Shed and Temporary Drum Storage Area removal.

2.2.2 Current Actions

Insulation (potential ACM) and fluorescent light ballasts potentially containing PCBs will be removed as part of the building decontamination activities, unless they are found to present an immediate hazard. The removal and disposal of these materials will be performed according to the appropriate regulations.

All materials and equipment that can be sold or donated will be removed from B Building. Any remaining equipment or piping will

be drained of all fluids. Any remaining equipment will be demolished with the building. Among those items to remain are the following: several fumehoods, sinks and cabinets, some furniture, windows, doors, plumbing fixtures, non-ACM ceiling and floor tile, heating units and their associated ductwork.

B Building has active potable water, compressed air, telephone, computer network connections (Molan), fire alarm, steam, storm sewer, and sanitary sewer systems. B Building also has electricity, a wet fire sprinkler system, and both bulk and bottled gas systems. All of these services will be terminated and isolated from the building prior to demolition.

The documented building demolition process supports the need to provide a certain level of information prior to demolition. However, a significant portion of that information is obtained during the building survey and is therefore only available after issuance of the Action Memo. As with E Building, this information will be incorporated into the Verification Sampling and Analysis Plan (VSAP).

Historical information concerning B Building was gathering from several resources and the information was used in determining contaminants of concern. Chief among these were the B Building Historic American Building Survey, dated October 26, 2000; MD-22153, Mound Site Radionuclides by Location, dated December 1, 1993; B Building Solvent Storage Shed Removal Action Memorandum, dated Feb. 28, 1994; and B Building Solvent Storage Shed On Scene Coordinator Report (OSC), dated Feb. 1996. These are available for review.

Lead and Asbestos information is being gathered in the process leading up to the demolition. A complete asbestos inventory was developed and was used in the Asbestos Abatement Contract Request for Proposal. This information is available for review.

Radiological surveys are ongoing and all significant results to date have been summarized in Table 2.1 of this Action Memo. MARSSIM pre-disposition surveys, have not yet been conducted. Following the precedent of E Building, these results will be reviewed by the Core Team when the VSAP is being developed. At that time, results of building characterization will be used to update the contaminants of concern list and will determine the radiological isotopes and chemicals included in the soil analysis.

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 FFA that specified the manner in which Mound CERCLA-based Environmental Restoration (ER) was to be implemented. In 1993, the FFA was amended to include the OEPA. Under the ER program, DOE remains the lead agency.

2.3.2 Potential for Continued State and Local Response

Eventual release of this area for industrial use is planned. Periodic environmental monitoring of the area may be required until a final Record of Decision is implemented for the entire Mound site. This monitoring would need to be coordinated with local, state, and federal authorities. Current plant-wide environmental monitoring programs will continue until such time as remediation is completed. OEPA will continue its oversight role until all terms of the FFA have been completed.

3.0 THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

The potential release of radioactive and/or chemical contamination may create a potential threat to the public health or welfare.

3.2 THREATS TO THE ENVIRONMENT

The potential release of radioactive and/or chemical contamination 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/Engineering Evaluation Cost Analysis (EE/CA).

An evaluation by public health agencies has not been performed for this area and therefore, is not included in this AM/EE/CA. The determination of the need for a removal action is outlined in this section in Table 3.1.

The NCP identified 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)]

(iv)	"...potential exposure to nearby human populations, animals, or the food chain..."	Discovery of contamination could potentially expose nearby human populations, animals, or the food chain from chemical and/or radionuclides when present institutional controls are relaxed.
(v)	"Actual or potential contamination of drinking water supplies..."	There is the potential that contaminated drain lines have leaked into the ground at the floor drains in B Building. There is the potential for chemical and/or radiological contamination to be present in the soil near the drain lines and beneath the floor.
(vi)	"Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;"	None.
(vii)	"High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate,"	None.
(viii)	"Weather conditions that may cause hazardous substances to migrate to be released;"	None.
(ix)	"Threat of fire or explosion;"	None.
(x)	The availability of other appropriate federal or state response mechanisms to respond to the release;"	There are no other appropriate federal or state mechanisms to respond. The FFA established a combined state and federal mechanism to respond under CERCLA. DOE is the designated lead agency at Mound under CERCLA.
(xi)	"Other situations or factors that may pose threats to public health or welfare or the environment."	Although all known and readily removable sources of potential chemical and radiological contamination have been removed, B Building surveys to date did indicate approximately 10 items/areas of radiological contamination. (Reference Table 2.1.) There are indications of oil stains in the trench drain west of the building.

4.0 ENDANGERMENT DETERMINATION

As this location is currently configured and access controlled, actual or threatened releases of pollutants and contaminants from this site do not pose an endangerment to public health or welfare or to the environment. However, 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.

5.0 PROPOSED ACTION AND ESTIMATED COSTS

5.1 PROPOSED ACTION

The proposed action is to perform the safe shutdown of B Building and then demolish the building in accordance with all DOE, Occupational Safety and Health Administration (OSHA), OEPA, USEPA, Ohio Department of Health (ODH), and other applicable procedures, regulations, and requirements.

5.1.1 Proposed Action Description

5.1.1.1 Work Planning Activities

Site Preparation

This step includes establishing work area boundaries, radiological postings, radiological barriers (as required), access and egress routes, material and supply storage, waste container staging and placement of all necessary permits.

Building Preparation

This includes the establishing of evacuation routes and assembly points, disconnecting utility feeds to all abandoned equipment and systems, removing excess equipment and material, removing designated abandoned systems, process and utility piping and conduit, and removing ACM, as necessary.

Building Decontamination Activities

Building decontamination will include the following activities.

1. Remove all ACM insulation throughout the building.
2. Isolate utilities; drain all systems of liquid.
3. Remove excess equipment and surplus materials which can be sold or donated.
4. Remove any contaminated fans and ductwork.

During decontamination activities, continuing inspections by the Project Supervisor will be made as work progresses to detect hazards resulting from weakened or deteriorated floors, walls, or loosened material.

Mobilization

This activity will include the set-up of decontamination airlocks, portable HEPA exhausters, as required, for asbestos removal, establishing staging and waste loading areas, relocation of equipment to the demolition site, delivery of waste containers, monitoring equipment and water misters.

Radiological Surveys

A building and foundation sampling plan is being developed and will be submitted to the Core Team. The Contaminants of Concern (COCs) for the sampling plan will be based on historical information reviewed. The action levels will be based on DOE 5400.5 guidelines for surface activity. If contaminants are detected in B Building, then DOE 5400.5 guidelines for surface activity will be the default values for action levels. If contamination is found above action levels, the project team will decide whether to decontaminate via chemical wiping or mechanical means or to dispose of the item as radioactive waste. Sample results will be presented to the Core Team for evaluation and consideration of residual contamination.

5.1.1.2 Demolition Activities

Demolition activities will be as specified in the Work Plan as summarized below.

Demolish Building

1. Demolish the roof and walls.
2. Remove the building floor slab.
3. Remove any contaminated drains and associated piping.
4. Remove soil under the slab, if contaminated.
5. Remove the foundation and the Room 112 steel source storage well, if it exists, down to 2' below grade.
6. Remove inactive drain lines and underground piping, down to 2' below grade.
7. Backfill and grade the area to meet the necessary drainage requirements.

Verification

This step includes among other activities, sampling and analysis of soil at the edges of excavation to determine the residual contaminant concentration and verifying that the residual contaminant concentration is within acceptable limits. A Verification Sampling and Analysis Plan (VSAP) will further define the verification sampling and analysis process. The primary contaminants of concern for B Building are listed in Table 5.1 along with the risk-based clean up objectives. The primary contaminants of concern were selected based on process knowledge of B Building and adjacent structures, such as the B Building Solvent Storage Shed and SW Building. Additional clean up objectives for organic contaminants of concern are listed in Table 5.2. The objectives for solvents in soil take into consideration leaching to groundwater, as well as the risk from contaminated soil. Information obtained during decontamination and demolition phases could identify additional contaminants of concern or could indicate that one or more of the primary contaminants of concern are not present. This will be addressed and documented in the VSAP. The VSAP will also include hot spot criteria. Currently, a verification result that exceeds the clean up objective by a factor of three indicates a hot spot and the need for further excavation at that location.

Table 5.1 Clean Up Objectives For Soil Under B Building

Contaminant	10-5 Risk Based Guideline Value (pCi/g or mg/kg)[1]	Hazard Index = 1 Value (mg/kg)[1]	Background Value (pCi/g or mg/kg)[2]	Clean Up Objective (pCi/g or mg/kg)
Actinium-227 + decay products in secular equilibrium to Lead-207	10	N/A	0.1	10
Lead-210 + decay products in secular equilibrium to Lead-206	17	N/A	1.2[3]	18
Tritium	235,000	N/A	1.6	235,000
Beryllium	7.0	1,000	1.3	8.3

1 Mound Plant construction worker or site employee 1 x 10-5 risk based or hazard index = 1 guideline value concentrations for soil and sediment (DOE 1997a)
2 Mound 2000 Residual Risk Evaluation Methodology (RREM), Final (DOE 1997b)
3 Taken from Mound Guideline and Screening Values table, Draft, (DOE 2000)
pCi/g: picocuries per gram mg/kg: milligrams per kilogram

Note: Due to their short radiological half-lives, Po-210, Ra-223, Po-215, Th-227, Rn-219, and Bi-211 (which were used in B Building) are assumed to be insignificant and not COCs.

In addition to the contaminants listed in Table 5.1, organic contaminants are also of concern due to the proximity of B Building to the B Building Solvent Storage Shed, which underwent a Removal Action in 1996. Of particular concern is the possibilty of the organic contaminants leaching to ground water. As a result, Table 5.2 lists the 10^{-5} Risk Based Guideline Value, Hazard Index, and Calculated Soil Screening Level for the organic contaminants, which were detected at the B Building Solvent Storage Shed.[4]

Table 5.2 Soil Screening Values for Organic Contaminants

ORGANIC CONTAMINANTS SOIL SCREENING VALUES			
CHEMICAL	10-5 Risk Based Guideline Value (pCi/g or mg/kg)	Hazard Index = 1 Value (mg/kg)	SSL (mg/Kg)
Trichloroethene	410	N/A	0.0621748
1,2 trans-Dichloroethene	N/A	4300	-
1,2 cis-Dichloroethene	N/A	2130	0.2550524

[4] From B Building Solvent Storage Storage Shed On Scene Coordinator Report, February, 1996

If soil concentrations exceed the calculated levels (SSL) in Table 5.2, additional, more detailed site-specific contaminant fate and transport models could be used to determine whether remedial action is needed.

Site Restoration

This activity includes reducing the work zone area and the placement of the area in a safe condition. Equipment, materials, waste containers, and barriers will be removed. Any excavated area outside the building walls will be backfilled and compacted to the contours and elevation specified in the B Building Grading Plan.

Documentation of Completion

All Project documentation will be forwarded to the Project Engineer and maintained in the project file. The OSC Report will document the completion of the removal action.

Upon completion of the project, the project notebook or a copy of the project records will be forwarded to the document management system. Land within the project boundaries is designated for future industrial land use after decommissioning and demolition activities are complete. The boundaries of this project include the entire footprint of B Building in addition to a 15 foot perimeter surrounding the building, excepting areas which are within the 15 foot perimeter of remaining, surrounding structures.

5.1.1.3 Rationale, Technical Feasibility, and Effectiveness

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

5.1.1.4 Monitoring

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

5.1.1.5 Uncertainties

The major uncertainties are the level of and extent of contamination in and beneath the B Building floor from any broken drains or migration from adjacent nuclear facilities. The minor uncertainties include location of utilities in the area of the project.

5.1.1.6 Institutional Controls

DOE will remain in control of the subject area until the parcel is transferred. However, portions of the Mound Plant may be released to non-DOE uses in the foreseeable future. If necessary, enforceable deed restrictions will be in place at the time of transfer in order to ensure future protection of human health and the environment.

5.1.1.7 Post-Removal Site Control

Post removal site control will be provided by DOE. See Institutional Controls above.

5.1.1.8 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 by misting will be implemented as necessary during the removal action.

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

5.1.2 Contribution to Future Remedial Actions

To facilitate further assessments in or near the site of the removal action, the exact dimensions of the excavation and the levels of contamination identified and removed will be documented. The excavation will be documented by utilizing photographs, record drawings, the OSC Report, and other information collected during the removal action.

The Miamisburg Environmental Management Project (MEMP) is anticipated to be cleaned up via removal actions. Demolition of B

Building is planned to be performed as one of these removal actions. If the clean up objectives are met, the property will be transitioned over to the Miamisburg Mound Community Improvement Corporation (MMCIC) by DOE. The information obtained, as a result of this removal, will be used in determining the availability of the B Building site for final disposition of the Mound site and will be subject to review in the subsequent 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 follow.

5.1.3.1 No Action

The No Action approach was eliminated from consideration. The level and extent of contamination in B Building soils and slab could potentially be unacceptable.

5.1.3.2 Institutional Controls

Institutional controls implemented for B Building were eliminated. This option was not feasible to future site plans. Building B will be demolished.

5.1.4 Engineering Evaluation/Cost Analysis

This document serves as the action memo and the EE/CA.

5.1.5 Applicable or Relevant and Appropriate Requirements (ARARs)

Mound ARARs for the ER Program have been identified (OEPA 1998). CERCLA regulations require that removal actions comply with ARARs.

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

- 49 Code of Federal Regulations (CFR) 127, 173: Department of Transportation (DOT) Hazardous Material Transportation and Employee Training Requirements.

5.1.5.1 Air Quality

- 49 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: (A)(1), (A)(2), (B), (D): Emission Restrictions for Fugitive Dust.
- OAC 3745-20: Asbestos Emission Control.

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: OSHA - General Industry Standards.
- 29 CFR Part 1926: OSHA - Safety and Health Standards.
- 29 CFR Part 1904: 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 removal action may be identified subsequently during the design phase and will be incorporated into the Work Plan for B Building decontamination and demolition.

5.1.7 Project Schedule

The proposed schedule established for planning and implementing the removal action is shown in Table 5.3. The proposed schedule summary is depicted in Figure 5.1.

5.2 ESTIMATED COSTS

The project schedule and cost estimate to perform the removal action is shown in Table 5.3 The costs include the decontamination and demolition activities, all engineering and decontamination and demolition management, waste disposal, and site restoration.

Table 5.3 Project Schedule and Cost Estimate

Activity	From	To	Estimated Cost
Work Planning	10/01/00	03/30/01	$21,630
Safe Shutdown	10/01/00	04/30/01	$93,354
Building Characterization	10/01/00	04/15/01	$453,970
Decontamination	02/01/01	04/15/01	$80,662
Demolition	04/15/01	09/30/01	$224,001
Slab Removal	10/01/01	12/01/01	$34,010
Foundation/Soil Characterization	11/01/01	01/01/02	$79,206
Site Restoration	12/01/01	01/15/02	$17,519
OSC Report*	06/01/02	07/15/02	$5,200
TOTAL			$1,009,552

*All data for the OSC Report will be compiled during six month period after the start of the site restoration activities.

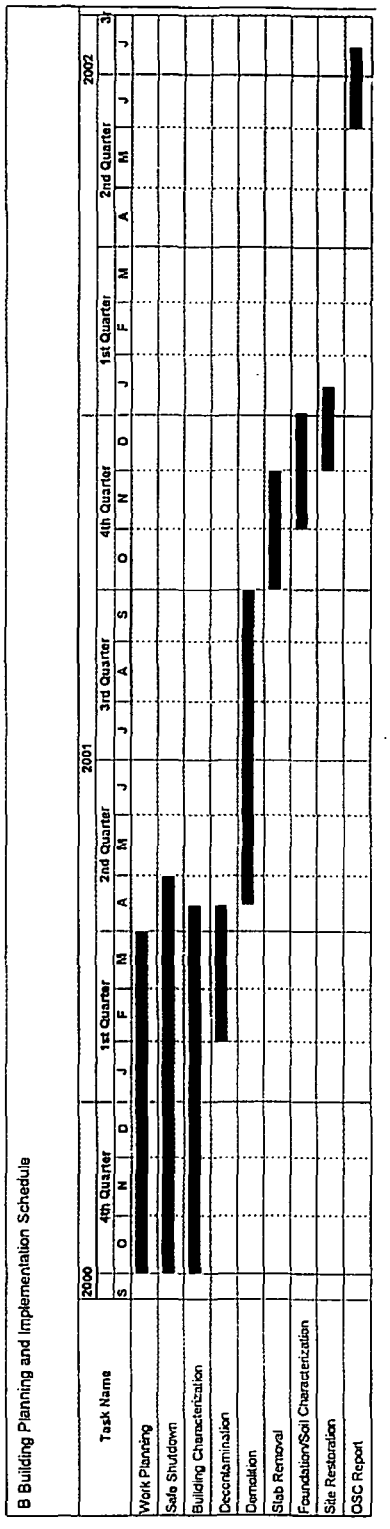

Figure 5.1 Project Schedule for B Building

6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Potential radioactive and/or chemical hazardous waste contamination, if present in the soil, could migrate to groundwater.

7.0 OUTSTANDING POLICY ISSUES

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

8.0 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 FFA, nor is it intended to create a waiver of any rights under the FFA. The DOE is the sole party responsible for implementing this clean up. Therefore, DOE is undertaking the role of lead agency, per the CERCLA and 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.

9.0 RECOMMENDATION

This decision document represents the selected removal action for the B Building 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) criterial for a removal action and we recommend initiation of the removal action.

Approved:

Robert S. Rothman, Remedial Project Manager	DOE/MEMP	3/7/02 Date
Timothy J. Fischer, Remedial Project Manager	USEPA	3/8/02 Date
Brian K. Nickel, Project Manager	OEPA	3/7/02 Date

10.0 REFERENCES

DOE 1993. Mound Site Radionuclides by Location, December 1993

DOE 1994. B Building Solvent Storage Shed, Removal Action Memorandum, February 1994

DOE 1995. Policy on Decommissioning Department of Energy Facilities Under CERCLA, U.S. Department of Energy, U.S. Environmental Protection Agency, May, 1995.

DOE 1996. B Building Solvent and Storage Shed, OSC Report, 1996.

Environmental Appraisal Report of the Mound Plant, March 1996.

HOK/K 1996. Phase I Environmental Site Assessment of DOE Mound, B Building, July 1996.

DOE 1997a. Risk Based Guideline Values, Mound Plant, March 1997.

DOE 1997b. Mound 2000 Residual Risk Evaluation Methodology, Mound Plant, January 1997.

DOE 1998. Mound Site Radionuclides by Location, Technical Manual MD-22153, Issue 2, March 1998.

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

DOE 1999. Asbestos Program Manual, Technical Manual, MD-10391, Issue 5, February 1999.

DOE 2000a. B Building Historic American Building Survey, Mound Document MD-22153 Draft, October 2000.

DOE 2000b. Mound Guideline and Screening Values (table), Draft, December 2000.

DOE 2001. Mound Site Exit Project, B Building Final Status Survey Plan, March 2001.

Appendix A

B Building Related PRS NFA Recommendations

MOUND PLANT
PRS 129/130
Former Solvent Storage Sites

RECOMMENDATION:

PRS 129/130 was the B Building solvent storage shed and its adjacent drum storage pad. They were identified as PRSs during the *1993, Soil Gas Survey and Geophysical Investigation* when volatile organic compounds (VOCs) were detected in the soils around PRS129/130. The shed was dismantled in February 1994. An action memorandum was prepared in February 1994 to proceed with the removal of VOCs. The selected remedial method was soil vapor extraction (SVE). The SVE system was implemented in June 1994 and operated through September 1994. Verification soil samples were taken in October 1994. The removal objectives were met and are documented in the On-Scene Coordinator Report.

Therefore, NO FURTHER ASSESSMENT is recommended for PRS 129/130.

CONCURRENCE:

DOE/MEMP: Arthur W. Kleinrath 5/13/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fisher 5/13/97
Timothy J. Fisher, Remedial Project Manager (date)

OEPA: Brian K. Nickel 5/14/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 6/17/97 to 7/18/97

☐ No comments were received during the comment period.

☒ Comment responses can be found on page 1-26 of this package.

MOUND PLANT
PRS 244
SOIL CONTAMINATION - B BUILDING

RECOMMENDATION:

Potential Release Site (PRS) 244 was designated as a PRS because of the detection of volatile organic compounds (VOCs) in four sampling locations surrounding the Mound Plant road located west of B Building and OSW Building during the 1992 Soil Gas Survey.

The contaminants of concern detected during the 1992 Soil Gas Survey were toluene and 1,1,1 trichloroethane. Calculations were performed converting the toluene and 1,1,1 trichloroethane 10^{-6} Risk Based Guideline Value (given in mg contaminant per kg soil) to a corresponding 10^{-6} Risk Based Guideline Value for soil gas concentrations (parts contaminant per parts soil gas). The results of the calculation showed that the toluene detection was more than 15,000 times less than its guideline criteria and the 1,1,1 trichloroethane detection was more than 1,000 times less than its guideline criteria. Additionally, in 1983, three surface samples taken in the vicinity of PRS 244 showed plutonium-238 at a maximum concentration of 0.47 pCi/g and thorium-232 at a maximum concentration of less than 2 pCi/g. Both below their respective guideline criteria of 25 pCi/g and 5 pCi/g.

Therefore, since neither the 1992 Soil Gas Survey nor the 1983 Radiological Site Survey found any contaminants above their acceptable guideline criteria and since there is no additional laboratory data or history of evidence of contamination, PRS 244 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: _____ 12/17/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: _____ 12/17/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: _____ 12/17/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 1/30/97 to 3/6/97

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

Page R

Appendix B

Guideline Value Calculation for 1,2 cis-Dichloroethene

Guideline Value Calculation for 1,2 cis-Dichloroethene for Construction Workers

Construction Worker - Soil/Sediment Exposure Pathway		Variables defined in Table 4.1.2 p91 RBGV Report 3/97 Equation listed in Table 4.1.2 p90 RBGV Report 3/97 Reference Doses from HEAST	
Enter the following:			
Chemical		1,2 cis-DCE	
Target HI		1.00E+00	
Oral RfD		1.00E-02	mg/kg-day
Ingestion			
Target HI	TR	1.00E+00	
Exposure Frequency	EF	250	days/yr
Body Weight	BW	70	kg
Oral RfD	RfD_0	1.00E-02	mg/kg-day
Conversion Factor	CF	1.00E-06	kg/mg
Ingestion rate - Soil	IR_{soil}	480	mg/day
Chemical Concentration in Soil (Ingestion)	CS_{ing}	2.13E+03	mg/kg

Guideline Value Calculation for 1,2 cis-Dichloroethene for Site Employees

Site Employee - Soil/Sediment Exposure Pathway		Variables defined in Table 5.1.2 p108 RBGV Report 3/97 Equation listed in Table 5.1.2 p107 RBGV Report 3/97 Reference Doses from HEAST	
Enter the following:			
Chemical		1,2 cis-DCE	
Target HI		1.00E+00	
Oral RfD		1.00E-02	mg/kg-day
Ingestion			
Target HI	TR	1.00E+00	
Exposure Frequency	EF	250	days/yr
Body Weight	BW	70	kg
Oral RfD	RfD_o	1.00E-02	mg/kg-day
Conversion Factor	CF	1.00E-06	kg/mg
Ingestion rate - Soil	IR_{soil}	50	mg/day
Chemical Concentration in Soil (Ingestion)	CS_{ing}	2.04E+04	mg/kg