

*Admin. Record*



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ESC-104/99  
June 3, 1999

99-TC/06-03

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

ATTENTION: Dewain Eckman

SUBJECT: Contract No. DE-AC24-97OH20044  
**ACTION MEMORANDUM FOR PRS 411 - FINAL**

REFERENCE: Statement of Work Requirement C 7.1e -- Regulator Reports

Dear Mr. Provencher:

The public comment period for the Action Memorandum for PRS 411, "Soil Contamination, Asphalt Roadway" ended on May 21, 1999. No comments were received. Attached is the Final Action Memorandum for PRS 411.

The release of this document to USEPA, OEPA, ODH and the Public Reading Room has been authorized by Art Kleinrath of MEMP.

Please advise if additional copies are required for distribution within DOE. If you require further information, please contact Dave Rakel at extension 4203.

Sincerely,



Linda R. Bauer, Ph.D.  
Manager, Environmental Safeguards & Compliance

LRB/nmg

Enclosures as stated

cc:    Tim Fischer, USEPA, (1) w/attachments  
      Dave Meredith, TechLaw, Inc., (1) w/attachments  
      Brian Nickel, OEPA, (2) w/attachments  
      Ruth Vandergrift, ODH, (1) w/attachments  
      Terrence Tracy, DOE/HQ, (1) w/attachments  
      Art Kleinrath, MEMP, (1) w/attachments  
      John Price, BWO, (2) w/attachments  
      Administrative Record, (2) w/attachments  
      Public Reading Room, (5) w/attachments  
      DCC

**ACTION MEMORANDUM**

**PRS 411 REMOVAL ACTION**

**MOUND PLANT  
MIAMISBURG, OHIO**

**June 1999**

**Final**

**(Revision 0)**



**Department of Energy**



**Babcock & Wilcox of Ohio**

**ACTION MEMORANDUM**

**PRS 411 REMOVAL ACTION**

**MOUND PLANT  
MIAMISBURG, OHIO**

June 1999

PREPARED BY:

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

for the

**U.S. DEPARTMENT OF ENERGY**

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## ACRONYMS

AEC	Atomic Energy Commission
AM	Action Memorandum
AM/EE/CA	Action Memorandum/Engineering Evaluation/Cost Analysis
ARARs	Applicable, or Relevant and Appropriate Requirements
BGS	Below Ground Surface
BVA	Buried Valley Aquifer
CERCLA	Comprehensive Environmental Response, Compensation, and
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
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NTS	Nevada Test Site

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) is the designated lead agency under the Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA) and removal actions at the Mound Plant are implemented as federal-lead actions with DOE funds instead of the funds available to the United States Environmental Protection Agency (USEPA) under CERCLA (i.e., non-Superfund). DOE provides the On-Scene Coordinator (OSC). Non-Superfund, federal-lead removal actions are not subject to 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 305-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 the Potential Release Site (PRS) 411 (also known as Paint Shop Radioactive Hot Spot). The location of PRS 411 is shown in Figure 2.1.

#### **2.1.2 Site Characteristics**

PRS 411 was identified as a potential release site when elevated readings were observed with a Field Instrument for Detection of Low Energy Radiation (FIDLER) during a 1996 Health Physics Survey. The FIDLER detects x-rays and gamma radiation. A subsequent in-field measurement with a germanium detector (another instrument that detects gamma radiation and can identify the energies of gamma radiation) indicated  $^{238}\text{Pu}$  (238-Plutonium) and possibly  $^{241}\text{Am}$  (241-Americium) as the source of the gamma radiation.

Swipe samples taken at the time of discovery of PRS 411 indicated low alpha activity. Subsequent swipe samples and direct reading instruments showed low levels of alpha and beta activity. The comparison of the gamma activity to the alpha/beta swipe results indicates the contamination is fixed on or within the asphalt.

#### **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.

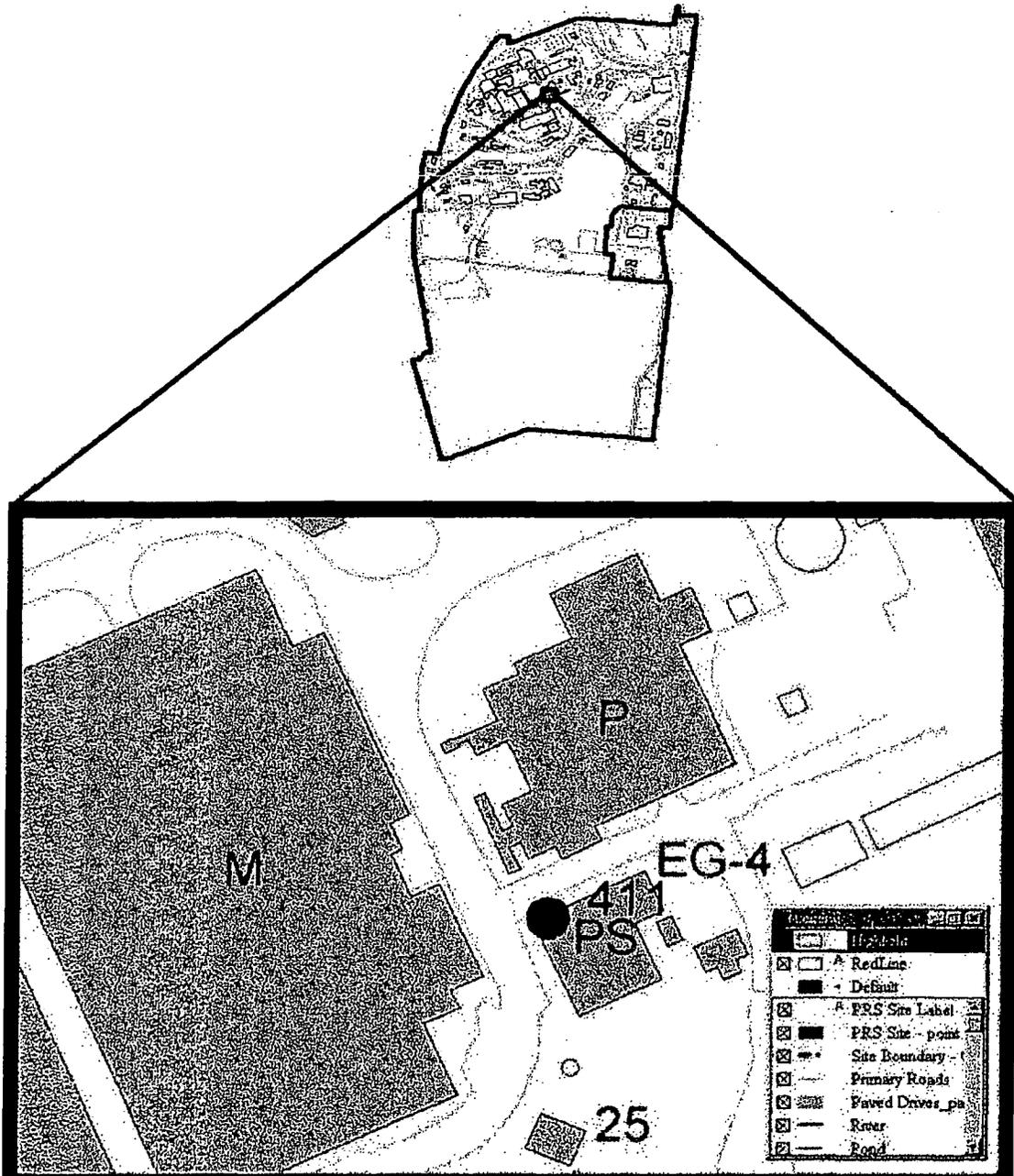


Figure 2.1 Location of PRS 411

## **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 USEPA Region V on October 12, 1990. It was revised on July 15, 1993 (USEPA 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; and
- facilitate cooperation, exchange of information, and participation of the parties in such actions.

On August 6, 1997, the core team consisting of representatives of DOE/Miamisburg Mound Environmental Management Project (MEMP), USEPA, and OEPA recommended a Response Action for PRS 411 (DOE 1997a, see also Appendix A). This recommendation was available for public review and comment from September 15, 1997 to October 15, 1997.

### **2.2.1 Previous Removal Actions**

No previous removal actions have been performed at this location.

### **2.2.2 Current Actions**

Currently, no action is underway at PRS 411.

## **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 of the terms of the FFA have been met.

### **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 is therefore 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 if present institutional controls are relaxed.
(ii) "Actual or potential contamination of drinking water supplies..."	There is the potential for contamination of on-site drinking water supplies from the radionuclides. Although current information indicates the contaminants are fixed in place, the contaminants might migrate to the ground water that is the source for the plant drinking water.
(iii) "Hazardous substances or pollutants 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;"	Not applicable. This removal action does not address high levels of hazardous substances or pollutants or contaminants.
(v) "Weather conditions that may cause hazardous substances to migrate or be released;"	This site is exposed to weather conditions. Temperature fluctuation might cause disturbances in the asphalt that would allow 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 excavation and disposal of contaminated asphalt and soil. 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**

This step includes among other objectives: identify the location of the PRS in the field, identify disposal site and transportation method for contaminated soil, identify real or near-real time monitoring techniques for contaminants of concern, obtain DOE field work authorization, and train personnel as appropriate.

- **Public Notification**

A notice of the availability of this Action Memorandum for a 30-day public review period will be published in a local newspaper concurrent with the start of field work. No closure of the clean-up will be done until all comments received during the public comment period have been considered.

- **Site Preparation**

This step includes among other activities: review activities and safety issues with workforce, obtain appropriate permits, establish control of access and egress to construction site, electronically scan for underground utilities, make provisions for excavation equipment, make provisions for containment (as needed) for contaminated material, and make provisions for monitoring equipment.

- **Excavation**

This step includes among other activities: make 2 ft x 2 ft cut through asphalt at each fixed contamination area with a saw, collect samples from soil exposed by asphalt removal. If analytical results exceed clean-up

guidelines (Table 5.1), excavate soil by hand or small equipment. Progression and extent of excavation will be determined in the field. The removed asphalt and all excavated soil with contaminant concentrations greater than the clean-up objective will be disposed of at a licensed low level waste disposal facility. Any excavated soil with contaminant concentrations less than the clean-up objective will be used as fill in the area of excavation.

- **Verification**

This step includes sampling and analysis of soil at the edges of the excavation to determine the residual contaminant concentration, if any. Since the identified fixed contamination areas are very small, statistically-based verification sampling is not planned. Two soil samples will be collected from each hot spot location. Samples will be analyzed at Mound. If no direct readings are detected on the soil side of the asphalt and soil clean-up guidelines are met, no outside lab verification is needed. The clean-up objectives are identified in Table 5.1.

- **Site Restoration**

Equipment, materials, waste containers, and access controls will be removed. The site will be back-filled and compacted to original contours and elevation. Asphalt patch will be applied to restore the road way.

- **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 to ensure that migration of the contamination does not occur.

**Table 5.1 Clean-Up Guidelines**

Contaminant	Guidelines*
<sup>238</sup> Plutonium	55 pCi/g
<sup>232</sup> Thorium	3 pCi/g
<sup>60</sup> Cobalt	0.1 pCi/g
<sup>137</sup> Cesium	4.6 pCi/g
<sup>230</sup> Thorium	5 pCi/g
<sup>241</sup> Americium	49.5 pCi/g

\*These values represent  $10^{-5}$  excess cancer risk for the on-site construction worker (DOE 1997b).

**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. The Work Plan will be reviewed and approved by DOE and the regulators before field work begins.

**5.1.1.3 Uncertainties**

Although the contamination is expected to be fixed to or with the asphalt, the major uncertainties are the identification of the contaminant, concentration of the contaminant, and the extent of contamination (primarily depth). The contaminated asphalt will be removed and the underlying soil will be sampled. The underlying soil will be excavated if it exceeds the Mound risk-based guideline values.

**5.1.1.4 Institutional Controls**

DOE will remain in control of PRS 411 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 dimensions of the excavation and the locations of verification samples will be documented via field surveys and photographs. The OSC 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 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 removal of contamination by excavation) 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 "No Action" approach was eliminated. The core team determined that a Removal Action is warranted.

### **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, institutional controls for excavation will be difficult to monitor and enforce after ownership title is transferred. Thus, institutional controls were eliminated from further consideration. A Removal Action is warranted.

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

Since there is less than six months planning time for the removal action, an EE/CA is not required.

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

Mound ARARs for the ER Program have been identified in a letter from OEPA to DOE/MEMP (OEPA 1998). CERCLA regulations require that removal actions comply with ARARs.

The following requirements 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.
- 10 CFR 835: Occupational Radiation Protection.

#### **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.

#### **5.1.6 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 removal action is expected to involve a few days of field work (site preparation, excavation, sampling and site restoration). Field work may begin any time after the public review period for this action memorandum begins. Completion of the removal action will be documented in an On-Scene Coordinator Report.

### **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, waste disposal, and site restoration.

**TABLE 5.2 REMOVAL ACTION COST ESTIMATE**

<b>ESTIMATE TOTALS</b>	
Action Memorandum	\$ 500
Planning	1,000
Removal Field Work	2,500
OSC Report	2,500
<b>TOTAL (1998 dollars)</b>	<b>\$ 6,500</b>

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

There is the potential for the contaminants to migrate.

Now there are two hot spots of radioactive contamination fixed to or within the asphalt. Although the radioactive contamination appears to be fixed to or within the asphalt, mechanical stresses in the asphalt caused by temperature fluctuations and nearby traffic could result in the release of the contaminant from its present matrix. The contaminant is believed to be  $^{238}\text{Pu}$ . Its half life (88 yrs) is too long to allow the problem to be resolved by natural attenuation (radioactive decay).

Should the action be delayed or not taken, the potential for the contaminants to migrate is increased.

## 7. OUTSTANDING POLICY ISSUES

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

## 8. ENFORCEMENT

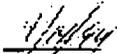
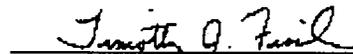
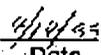
The core team consisting of DOE, USEPA, and OEPA has agreed on the need to perform this removal action. The work described in this document does not create a waiver of any rights under the FFA, nor is it intended to create a waiver of any rights under the FFA. The DOE is the sole party responsible for implementing this clean-up. Therefore, DOE is undertaking the role of lead agency, per 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 PRS 411, Paint Shop Radioactive Hot Spot, developed in accordance with CERCLA as amended by SARA, and consistent 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:**

 _____ Art Kleinrath, On-Scene Coordinator	DOE/MEMP	 _____ Date
 _____ Timothy J. Fischer, Remedial Project Manager	USEPA	 _____ Date
 _____ Brian K. Nickel, Project Manager	OEPA	 _____ Date

## 10. REFERENCES

DOE 1997a Potential Release Site Package, PRS 411, Soil Contamination-Asphalt Roadway (Radiological), December, 1997

DOE 1997b Risk Based Guideline Values, March 1997.

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

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

## **APPENDIX A**

### **Core Team Recommendations for PRSs 411**

**MOUND PLANT**  
**PRS 411**  
**Soil Contamination – Asphalt Roadway (Radiological)**

**RECOMMENDATION:**

Potential Release Site 411 was identified as a potential release site due to elevated FIDLER readings that were discovered during a Health Physics survey. FIDLER readings indicated two small areas of contamination in excess of 500,000 pCi of Plutonium-238. Fixed Plutonium-238 readings of 1,000,000 disintegrations per minute (dpm) per 100 square centimeters exceed the regulatory standard (10 CFR 835) of 500 dpm per 100 square centimeters.

Therefore, a RESPONSE ACTION is recommended for PRS 411.

**CONCURRENCE:**

DOE/MEMP: Arthur W. Kleinrath 8/6/97  
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 8/6/97  
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 8/6/97  
Brian K. Nickel, Project Manager (date)

**SUMMARY OF COMMENTS AND RESPONSES:**

Comment period from 9/15/97 to 10/15/97

- No comments were received during the comment period.
- Comment responses can be found on page 1-2a of this package.