

Environmental Restoration Program

ACTION MEMORANDUM

POTENTIAL RELEASE SITE 408

PRISM SYSTEM

**LUBRICATING OIL CONTAMINATION
RELEASE BLOCK R**

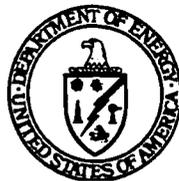
MOUND PLANT

MIAMISBURG, OHIO

November 1996

PROPOSED FINAL

(Revision 0)



**Department of Energy
Ohio Field Office**

**Environmental Restoration Program
EG&G Mound Applied Technologies**

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ACRONYMS

AEC	Atomic Energy Commission
AM	Action Memorandum
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	U. S. 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
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

ACRONYMS (Cont.)

RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactive Material Program
RI/FS	Remedial Investigation/Feasibility Study
RSE	Removal Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
SW	Semi-Works
TRU	Transuranic

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 non-superfund, federal-lead actions. DOE provides the On-Scene Coordinator (OSC). Non-superfund federal-lead, removal actions are subject to United States Environmental Protection Agency (EPA) 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 and to propose the removal action described herein for the Potential Release Site (PRS) 408 Prism System (Lubricating Oil Contamination of soil), Release Block R.

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 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. PRS 408 is a chemically (Shell Rotella 10W lubricating oil) contaminated soils area located in Release Block R, north of I Building

2.1.2. **Site Characteristics**

PRS 408 is the blowdown area for the nitrogen tanks of the "Prism" nitrogen production membrane system which supplied house nitrogen to R and SW buildings. The system operated for about two years from 1989 to 1991. Pump/compressor oil was observed to have to been released onto the ground when blowdown was performed to relieve pressure in the tanks. It is believed that the condensate formed during the blowdown process contained oil from the compressor.

2.1.3. Release or Threatened Release into the Environment

The release of Petroleum Hydrocarbons prompted this removal action.

2.1.4. National Priorities List Status

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

2.2 OTHER ACTIONS TO DATE

The Mound Plant initiated a CERCLA program in 1990, 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, and was revised on July 15, 1993. (EPA Administrative Docket No. OH 890:008984) to include the Ohio EPA. 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.

The CERCLA program is assessing and evaluating the current risks, as necessary, for over 400 potential release sites.

2.2.1. Previous Removal Actions

No previous removal actions at PRS 408 are known.

2.2.2. Current Actions

Actions to implement a plan for the removal of contaminants associated with PRS 408 are presented in this document.

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 FFA which specified the manner in which the Mound CERCLA-based Environmental Restoration (ER) program 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 other commercial (non-DOE) 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 complete in this and adjacent areas.

3. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

The presence of chemical contamination in soil represents a potential threat to the Public Health or Welfare.

3.2 THREATS TO THE ENVIRONMENT

The presence of chemical contamination in the soil represents a potential threat to the environment.

3.2.1. Removal Site Evaluation

The 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 determination of the need for a removal action is outlined in this section, in Table 3.1.

With regards to that determination, the NCP includes eight factors that must be considered in determining the appropriateness of a removal action (40 CFR 300.415(b)(2)). These criteria, as applied for the contamination, are evaluated in Table 3-1.

Table 3.1. - Evaluation of Removal Action Appropriateness Criteria 140 CFR 300.415(b)(2)]

Criteria	Evaluation
(i) "...potential exposure to nearby human populations, animals, or the food chain	Potential for migration into water supplies does exist
(ii) "Actual or potential contamination of drinking water supplies..."	Potential for migration to adjacent ground water and aquifer exist
(iii) "Hazardous substances or pollutants of contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;"	None
(iv) "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;"	Chemical contamination in soil may migrate to groundwater and drinking water sources
(v) "Weather conditions that may cause hazardous substances to migrate or be released;"	Significant rain storm event may cause migration of contamination into area surrounding soil.
(vi) "Threat of fire or explosion;"	None
(vii) "The availability of other appropriate federal or state response mechanisms to respond to the release;" and	There are no state mechanisms, no other Federal mechanisms (DOE is designated lead agency at Mound under CERCLA), and no other DOE programs to provide an appropriate response
(viii) "Other situations or factors that may pose threats to public health or welfare or the environment."	None

4. **ENDANGERMENT DETERMINATION**

Actual or threatened releases of pollutants and contaminants from this site, if not addressed by implementing the response action selected in this AM, may present an imminent and substantial endangerment to public health or welfare or the environment.

5. **PROPOSED ACTION AND ESTIMATED COSTS**

5.1 **PROPOSED ACTION**

The proposed action, in an effort to mitigate contamination migration, is the removal of petroleum contaminated soil and on-site bioremediation treatment. The remediated soil will then be disposed of in the Mound spoils area.

5.1.1. **Proposed Action Description**

The proposed action will include:

- Mound heavy duty equipment will excavate the contaminated soil until the cleanup level of 1156 ppm Total Petroleum Hydrocarbons (see appendix 1) is reached.
- Mound heavy duty equipment will and transport the contaminated soil to the Bioremediation facility
- Verification sampling will insure that PRS 408 has been remediated.
- The Contaminated Soil will be treated at the Bioremediation facility and disposed of in the Mound spoils area.

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

The removal action chosen for PRS 408 is necessary for the removal of known contamination and to ensure that migration of the contamination does not occur.

5.1.1.2. **Monitoring**

Health and safety monitoring will be performed throughout the removal action according to standard Mound procedures. Sampling and analysis of material removed will be described in more detail in the PRS 408 Field Sampling Plan.

5.1.1.3. Uncertainties

The major uncertainties at the site are the original quantity, contamination levels and depth of petroleum hydrocarbons. The minor uncertainties include location of abandoned utilities and possible unknown utilities that may exist in the area.

5.1.1.4. Institutional Controls

DOE will remain in control of the subject area over the near term. However, portions of the Mound Plant may be released to non-DOE uses in the foreseeable future. At the time, all necessary deed restrictions will be put in place to insure future protection of public health and the environment.

5.1.1.5. Soil Treatment/Disposal

The excavated material will be remediated on-site at the Bioremediation Facility and then disposed of in the Mound Spoils area.

5.1.1.6. Post-Removal Site Control

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

5.1.1.7. Cross-Media Relationships and Potential Adverse Impacts

The potential cross-media impact associated with the removal action is the potential for unintended release of contamination into the surrounding soils. 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 in or near the site of the removal action, the work will be documented by photographs, record drawings, the OSC report, and other information collected during the removal action. Because the Mound Plant is anticipated to be cleaned up by removal actions, this clean-up will be a final remedy for this defined problem. The information obtained, as a result of this removal, will be used in determining the availability for final disposition of the release block and will be subject to review in the release block risk evaluation.

5.1.3. Description of Alternative Technologies

Several alternative technologies were identified and screened for their ability to meet specific criteria for the removal action. Criteria used to screen alternatives include timely response, protection of human health and the environment, effectiveness, implementability, and cost. 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 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 from consideration because the need for action has been demonstrated as necessary based on process knowledge and site characterization sampling.

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. Implementation of additional institutional controls to minimize the potential for human contact with the existing contamination will not prevent further migration of the contaminants from the source. Also, institutional controls will be difficult to implement, when commercial use of adjacent areas is permitted. Thus, institutional controls were eliminated from further consideration.

5.1.4. Engineering Evaluation/Cost Analysis (EE/CA)

Because this is a time-critical removal, 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 (DOE 1993b). CERCLA regulations require that removal actions comply with ARARs only to the extent practicable.

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

5.1.5.1. Air Quality

- Air Pollution (Ohio Administrative Codes)
- Particulate Ambient Air Quality Standards (Ohio Administrative Codes) 0
Particulate Non-Degradation Policy (Ohio Administrative Codes)

5.1.5.2. Worker Safety

- General Industry Standards (Occupational Safety and Health Act, OSHA)
- Safety and Health Standards (OSHA)
- Recordkeeping, Reporting, and Related Regulations (OSHA)
- Occupational Radiation Protection (Codes of Federal Regulations, CFRS)

5.1.6. Other Standards and Requirements

No other standards and requirements have been identified for this removal action.

5.1.7. Project Schedule

The schedule established for planning and implementing the removal action is shown in Figure 5.1

Table 5.1 - Removal Action Project Schedule

Scope of Work	Duration
Site Characterization	June - August
Removal Activities	August - October
Verification Sampling/Site Closure	November - December

5.2 ESTIMATED COSTS

The cost to perform the removal action is shown in Table 5. 2.

Table 5.2. - Removal Action Cost Estimate

Activity	Cost
Sampling and Analysis	\$23,000
Treatment/Disposal	\$ 2,200
Total	\$25,200

10.

REFERENCES

- USEPA 1990. Superfund Removal Procedures Action Memorandum Guidance. Office of Emergency and Remedial Response. U. S. Environmental Protection Agency, dated December 1990.
- Ohio Department of Commerce, Bureau of Underground Storage Tank Regulations

APPENDIX 1

PRS 408 Determination of Cleanup Levels

Ohio Department of Commerce
Bureau of Underground Storage Tank Regulations

(4) List of parameters and analytical methods.

TABLE 1

Analytical Group	Constituent	Analytical Method For Soil Samples	Analytical Method For Water Samples
1. GASOLINE (Motor Gasoline, Aviation Gasoline, and Gasohol)	Benzene	EPA Method 8020	EPA Method 602
	Toluene	EPA Method 8020	EPA Method 602
	Ethylbenzene	EPA Method 8020	EPA Method 602
	Total Xylenes	EPA Method 8020	EPA Method 602
	Total Petroleum Hydrocarbons	EPA Method 8015	Not Applicable (MODIFIED)
2. MIDDLE DISTILLATES (Kerosene, Diesel Fuel, Jet Fuel, and Light Oils)	Benzene	EPA Method 8020	EPA Method 602
	Toluene	EPA Method 8020	EPA Method 602
	Ethylbenzene	EPA Method 8020	EPA Method 602
	Total Xylenes	EPA Method 8020	EPA Method 602
	Polynuclear Aromatic Hydrocarbons	EPA Method 8100 (MODIFIED)	EPA Method 610
	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
3. Used Oil and Unknowns	Volatile Organic Aromatics	EPA Method 8240	EPA Method 624
	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
4. Heavy Fuel Oils and Lubricating Oils	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
5. Other Compounds	Not Applicable	Consult With The Fire Marshal	Consult With The Fire Marshal

(E) ACTION LEVELS

(1) Upon completion of a site check pursuant to paragraph (D)(3) of this rule or a closure assessment pursuant to paragraph (K) of rule 1301:7-9-12 of the Administrative Code, owners and operators shall determine the appropriate action levels for the UST site using the scoring system and action level table set forth in paragraph (E)(3)(i) of this rule. If contaminant levels at any location on the UST site, as determined by the site check or closure assessment, exceed the action levels determined for the UST site, owners and operators shall proceed to

conduct a site assessment pursuant to paragraph (I) of this rule.

(2) If owners and operators have obtained laboratory analytical results from a study or survey of the UST site other than from a site check conducted pursuant to paragraph (D)(3) of this rule, a closure assessment conducted pursuant to paragraph (K) of rule 1301:7-9-12 of the Administrative Code, or a site assessment conducted pursuant to paragraph (I) of this rule, owners and operators shall conduct a site check pursuant to this rule if any such results exceed the appropriate action levels determined for the UST site using the scoring system and action level table set forth in paragraph (E)(3)(i).

(3) Scoring system.

(i) UST sites shall be scored using the site feature scoring system set forth in this paragraph.

SITE FEATURE SCORING SYSTEM

SITE FEATURES	COLUMN A		COLUMN B		COLUMN C		COLUMN D	
	SCORE 20 IF TRUE	SCORE	SCORE 15 IF TRUE	SCORE	SCORE 10 IF TRUE	SCORE	SCORE 5 IF TRUE	SCORE
1. Distance of UST system from closest drinking water supply well or intake currently in use.	>1000 feet	20	301-1000 feet		<301 feet		Inside of designated sensitive area	
2. Average depth to ground water.	>50 feet		31-50 feet	15	15-30 feet or unknown		<15 feet	
3. Predominant soil type of substratum.	Clay or Shale	20	Silt or Clayey Sands or Fine Sandstone		Silty Sand or Fine Sand or Sandstone or Unknown		Clean Sand or Gravel or Conglomerate	
4. Natural and/or manmade conduits or receptors.	< 8		8-10	15	11-13		> 13	
Subtotal:								

Total Score - _____

(ii) Site feature 1 shall be measured from the edge of the portion of the UST system closest to the drinking water supply well or intake. A drinking water supply well or intake includes an area upstream from a public surface water supply intake, a public drinking water well, a private drinking water well, or a reservoir or lake greater than five acres in surface area.

(iii) Site feature 2 shall calculate the average depth of ground water utilizing readily accessible public documents and or site-specific investigations, such as local drilling logs within one-quarter mile of the site, Ohio department of natural resources records, Ohio department of transportation records, soil boring logs, site checks, and site assessments. The depth should be

calculated from the ground surface and not from the bottom of the tank excavation. If the depth to ground water can not be determined then you must utilize the score from column C of the site feature scoring system.

(iv) Site feature 3 shall select a substratum type which best represents the soil and/or bedrock under the UST site or is most typical of the area utilizing readily accessible public documents and/or site-specific

investigations, such as local drilling logs within one-quarter mile of the site, geologic maps, Ohio department of natural resources records, Ohio department of transportation records, soil boring logs, site checks, and site assessments.

(v) Site feature number 4 shall be scored using the following site Feature Number 4 Worksheet and in accordance with procedures established by the fire marshal:

SITE FEATURE NUMBER 4 WORKSHEET

Assessments or subsurface foundations within one hundred feet of UST system	4 points	<input checked="" type="checkbox"/>
Storm sewer within fifty feet of UST system	4 points	<input checked="" type="checkbox"/>
Sanitary sewer within fifty feet of UST system	4 points	<input type="checkbox"/>
Septic system leach field within fifty feet of UST system	2 points	<input type="checkbox"/>
Water line main within fifty feet of UST system	1 point	<input type="checkbox"/>
Natural gas line main within fifty feet of UST system	1 point	<input type="checkbox"/>
Bedrock area prone to dissolution along joints of fractures (i.e., caves & sinkholes) within one hundred feet of UST system	1 point	<input type="checkbox"/>
Faults or known fractures within one hundred feet of UST system	1 point	<input checked="" type="checkbox"/>
Buried telephone/television cable main within fifty feet of UST system	1 point	<input type="checkbox"/>
Buried electrical cable main within fifty feet of UST system	1 point	<input type="checkbox"/>
	TOTAL POINTS	<u>9</u>

(4) Action level table.

(i) Action levels shall be determined for the UST site by applying the total score calculated for the UST site pursuant to paragraphs (E)(3)(i) to (E)(3)(v) of this rule to the following table:

	CATEGORY 4	CATEGORY 3	CATEGORY 2	CATEGORY 1
TOTAL SCORE	>71	70-51	50-31	<31
Constituents level in soil:				
Benzene	.500 PPM	.335 PPM	.170 PPM	.006 PPM
Toluene	12 PPM	9 PPM	7 PPM	4 PPM
Ethylbenzene	18 PPM	14 PPM	10 PPM	6 PPM
Total Xylenes	85 PPM	67 PPM	47 PPM	28 PPM
Constituents level in ground water:				
Benzene	.005 PPM	.005 PPM	.005 PPM	.005 PPM
Toluene	1 PPM	1 PPM	1 PPM	1 PPM
Ethylbenzene	.700 PPM	.700 PPM	.700 PPM	.700 PPM
Total Xylenes	10 PPM	10 PPM	10 PPM	10 PPM
TPH level in soil:				
Analytical Group No. 1	600 PPM	450 PPM	300 PPM	105 PPM
Analytical Group Nos. 2, 3, and 4	1156 PPM	904 PPM	642 PPM	380 PPM

