PRS 86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
Mound ER Library
~~DUPLICATE~~
Classification Code: 30-05-02
Accession No. 9707300004
SRF-5J

May 22, 1997

Mr. Arthur Kleinrath
U.S. Department of Energy
Dayton Area Office
P.O. Box 66
Miamisburg, OH 45343-0066

RE: U.S. DOE Mound Plant
Potential Release Site 86
Final Verification Sampling and Analysis Plan

Dear Mr. Kleinrath:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Potential Release Site (PRS) 86 Final Verification Sampling and Analysis Plan, dated May 1997. U.S. EPA has no comments to be addressed with regard to this document. It is U.S. EPA's understanding that the Ohio Environmental Protection Agency will be providing comments regarding this report under separate cover.

If you have any questions, please call me at (312) 886-5787.

Sincerely,

Timothy J. Fischer
Remedial Project Manager

cc: Brian Nickel, OEPA
Monte Williams, EG&G
Gary Coons, EG&G
Alan Spesard, USDOE

Environmental Restoration Program

ON-SCENE COORDINATOR REPORT

POTENTIAL RELEASE SITE 111
MONITORING WELL 0034
RELEASE BLOCK Q

MOUND PLANT
MIAMISBURG, OHIO

June 1997

FINAL

(Revision 0)

U.S. Department of Energy
Ohio Field Office
EG&G Mound Applied Technologies

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ACKNOWLEDGMENTS

This report was prepared by Terran Corporation of Beavercreek, Ohio as report number TK-9717. It was completed under Task Order 68855 with EG&G Mound Applied Technologies, Inc. Contributing authors were Amy D. Lamborg and Roger W. McCready. Renee L. Bicknell completed the figures and Sandra L. Allen completed the flow chart and the word processing.

MIAMISBURG
AREA OFFICE

Department of Energy

Ohio Field Office
Miamisburg Area Office
P.O. Box 66
Miamisburg, Ohio 45343-0066

JUL 23 1997

Mr. Tim Fischer
U.S. Environmental Protection Agency (USEPA)
HSRM-6J
77 W. Jackson Blvd.
Chicago, Illinois 60604

Mr. Brian Nickel
Ohio Environmental Protection Agency (OEPA)
401 E. Fifth Street
Dayton, Ohio 45402-2911

Dear Mr. Fischer and Mr. Nickel:

Enclosed please find the On-Scene Coordinator (OSC) Report for Potential Release Site 111, Monitoring Well 0034, Release Block Q, Final, Revision 0, April 1997. The document has been revised in accordance with your comments received in May 1997. A copy will be placed in the public reading room.

If there are any questions, please contact me at(937) 865-3597 or Debbie White, Environmental Specialist at (937) 865-5197.

Sincerely,

Arthur W. Kleinrath
Project Engineer Team Leader

Enclosure

cc w/enclosure:
Lisa Anderson, OEPA
Ray Beaumier, OEPA Columbus
Ruth Vandegrift, ODH
Debbie White, MEMP
Terrance Tracy, EM-73

cc w/o enclosure:
Gary Coons, EG&G

EXECUTIVE SUMMARY

The Mound Plant is a 306-acre Department of Energy (DOE) research and development facility on the border of the City of Miamisburg in Montgomery County, Ohio. The facility historically studied the chemical and metallurgical properties of various radiological materials in support of DOE. Past releases of radioactive materials have occurred at the facility. The USEPA placed the Mound Plant on the National Priority List (NPL) by publication in the Federal Register on November 21, 1989.

Monitoring Well 0034 is one of over 400 Potential Release Sites (PRSs) at the Mound facility. The well was installed in May 1976 for tritium monitoring. It is 20 feet deep and has a 3-foot steel well screen seated in weathered shale. Groundwater sampling in this well prior to 1980 was for tritium only, and measured 16,000 to 91,000 pCi/L. In 1986, an oily substance was discovered in the well. Based on this apparent release of petroleum hydrocarbons, a removal action was undertaken to mitigate potential petroleum hydrocarbon exposure in the environment.

Contaminant characterization groundwater and wipe sampling identified the oily material as a polychlorinated biphenyl (PCB)-free lubricating oil. Verification groundwater sampling did not detect the presence of benzene, toluene, ethyl benzene or xylenes. Verification soil sampling detected very low concentrations of toluene and ethyl benzene between 16 and 20 feet below land surface (BLS). Very low concentrations of o-xylene were reported between 6 and 21 feet BLS, but the laboratory tentatively identified this as styrene, which co-elutes with o-xylene. Concentrations of total petroleum hydrocarbons (TPH), ranging from 18.9 to 440 ppm were reported for samples between the ground surface and 21 feet BLS.

The State of Ohio Fire Marshall Bureau of Underground Storage Tank Regulation (BUSTR) has set four action levels for TPH in soil based on site characteristics. The Work Plan for PRS 111 closure originally proposed an action level of 380 ppm (Category 1), which is the most conservative action level. Based upon further evaluation using BUSTR scoring criteria, it was determined that the appropriate cleanup level was 904 ppm (Category 3).The TPH concentrations measured during abandonment of Well 0034 fall below action levels for a Category 3 site. The action levels for benzene, toluene, ethyl benzene and xylenes were not exceeded in any sample.

The removal action chosen for this PRS was well abandonment. This was completed by overdrilling, removal of the well casing, and then grouting the hole. Well casing materials were steam cleaned, and screening analysis was performed to insure that the material was not contaminated. The well materials were then taken off site by a Mound Plant waste disposal contractor. Approximately one cubic yard of soil cuttings generated during overdrilling were spread in the vicinity of the former well.

Arthur W. Kleinrath, Remedial Project Manager
U.S. Department of Energy
Miamisburg Environmental Management Project

Timothy J. Fischer, Remedial Project Manager
U.S. Environmental Protection Agency

Brian K. Nickel, Project Manager
Ohio Environmental Protection Agency

1. SUMMARY OF EVENTS

1.1. SITE CONDITIONS AND BACKGROUND

The Mound Plant is a 306-acre Department of Energy research and development facility on the border of the City of Miamisburg in Montgomery County, Ohio. The facility, approximately 10 miles south-southwest of Dayton and 45 miles north of Cincinnati, historically studied the chemical and metallurgical properties of various radiological materials in support of DOE. The area surrounding the plant is light residential and rural farm land. Past releases of radioactive materials have occurred at the facility. The USEPA placed the Mound Plant on the NPL by publication in the Federal Register on November 21, 1989. The Mound Plant is shown in Figure 1.1.

Monitoring Well 0034 is one of over 400 Potential Release Sites (PRSs) at the Mound facility. It is located in Release Block Q, in the central portion of the Mound facility, on the south slope of the Main Hill. It is bound to the east by the COS Building and the COS Building substation, to the north by T Building, to the south by Building HH, and to the west by an undeveloped hillside and a roadway (Figure 1.2). The well was installed in May 1976 for tritium monitoring. It is 20 feet deep and has a 3-foot steel well screen seated in weathered shale. The well log for Well 0034 is provided in Appendix A.

Groundwater sampling in this well prior to 1980 was for tritium only, and measured 16,000 to 91,000 pCi/L. In 1986, an oily substance was discovered in the well. Analytical data from 1987 for a number of organic compounds did not confirm the presence of oil.

The source for the oily substance observed and its potential for containing PCBs was unknown. Therefore, the Action Memorandum (AM) (June 1996) stated that "actual or threatened releases of pollutants and contaminants from this site, if not addressed by implementing the response action, may present an imminent and substantial endangerment to public health or welfare of the environment" (p.4-1). Potential source areas included the nearby substation, nearby underground storage tanks (USTs), or manual placement of limited quantities of oil in the unlocked well casing. As owner of the site, therefore, the DOE is considered to be the potentially responsible party (PRP).

The water source threatened by this PRS is the bedrock aquifer located beneath the Mound facility. The groundwater in this aquifer eventually migrates to the Buried Valley Aquifer, which is designated as a sole source aquifer. Other PRSs located in the vicinity of PRS 111 include:

PRS 147 - HH Bldg. soils
PRS 148 - HH Bldg. Solidification Unit
PRS 149 - HH Bldg. Pilot Incinerator
PRS 213 - T Bldg. Solidification Unit
PRS 214 - T Bldg. Solid Radioactive Waste Compactor.

1.2. ORGANIZATION OF THE RESPONSE

The activities planned to evaluate this well are summarized on a flowchart shown in Figure 1.3. The activities conducted followed the "No oil" path of the flowchart, and the removal action was completed. Table I.1 lists the groups responding to this removal, and their responsibilities.

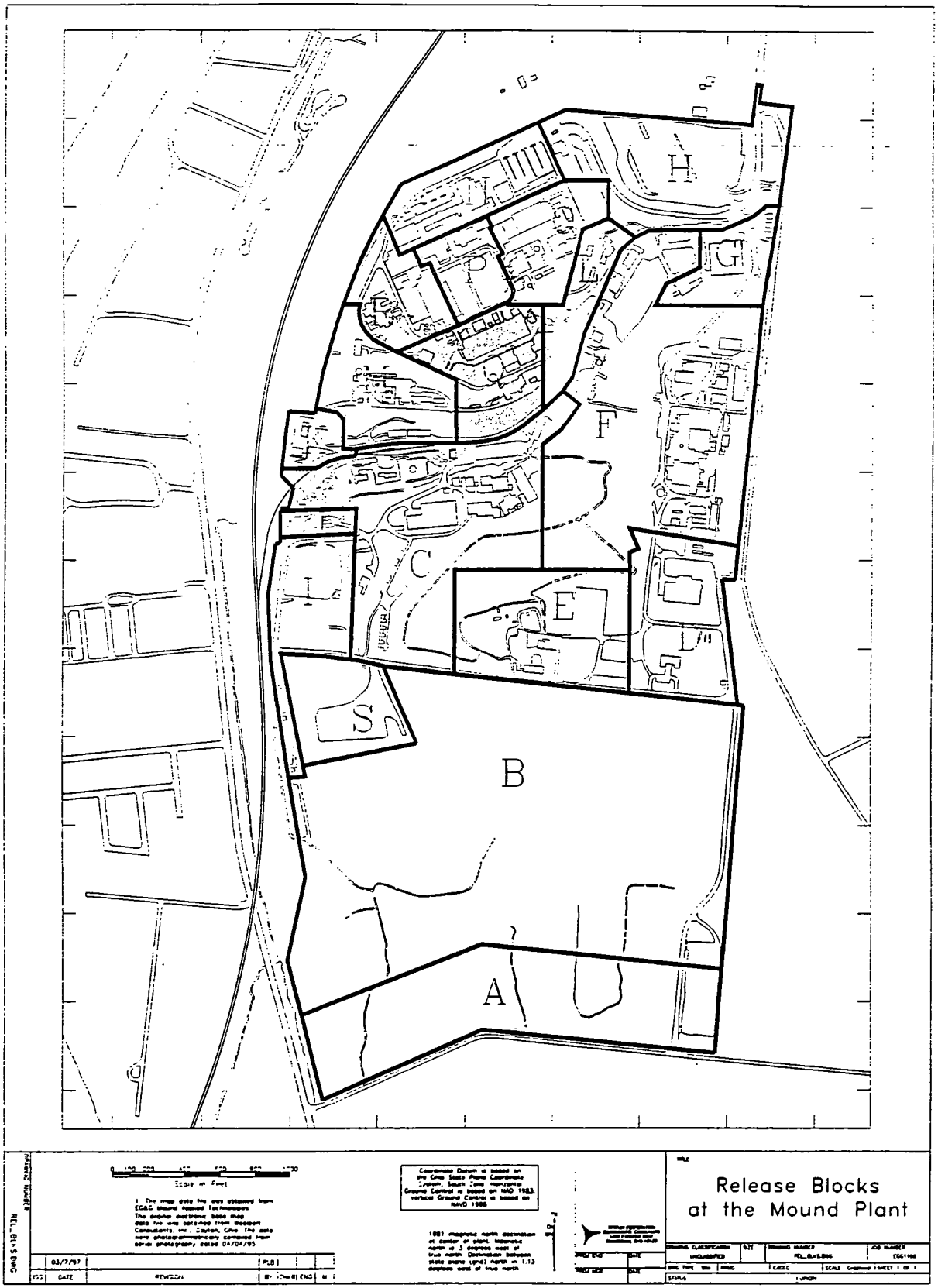


Figure 1.1. Mound Plant showing location of Release Block Q.

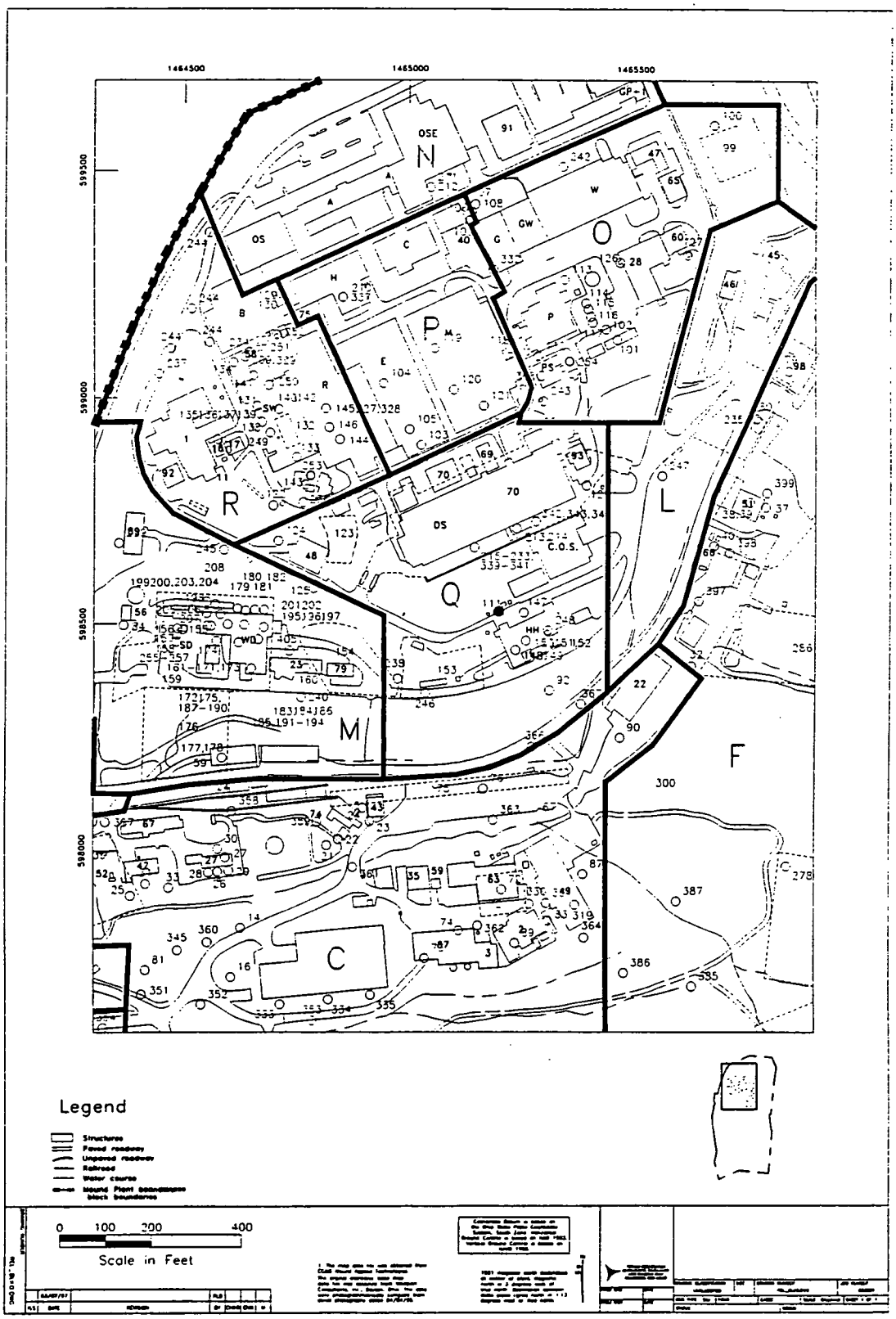


Figure 1.2. Removal Action Site Location.

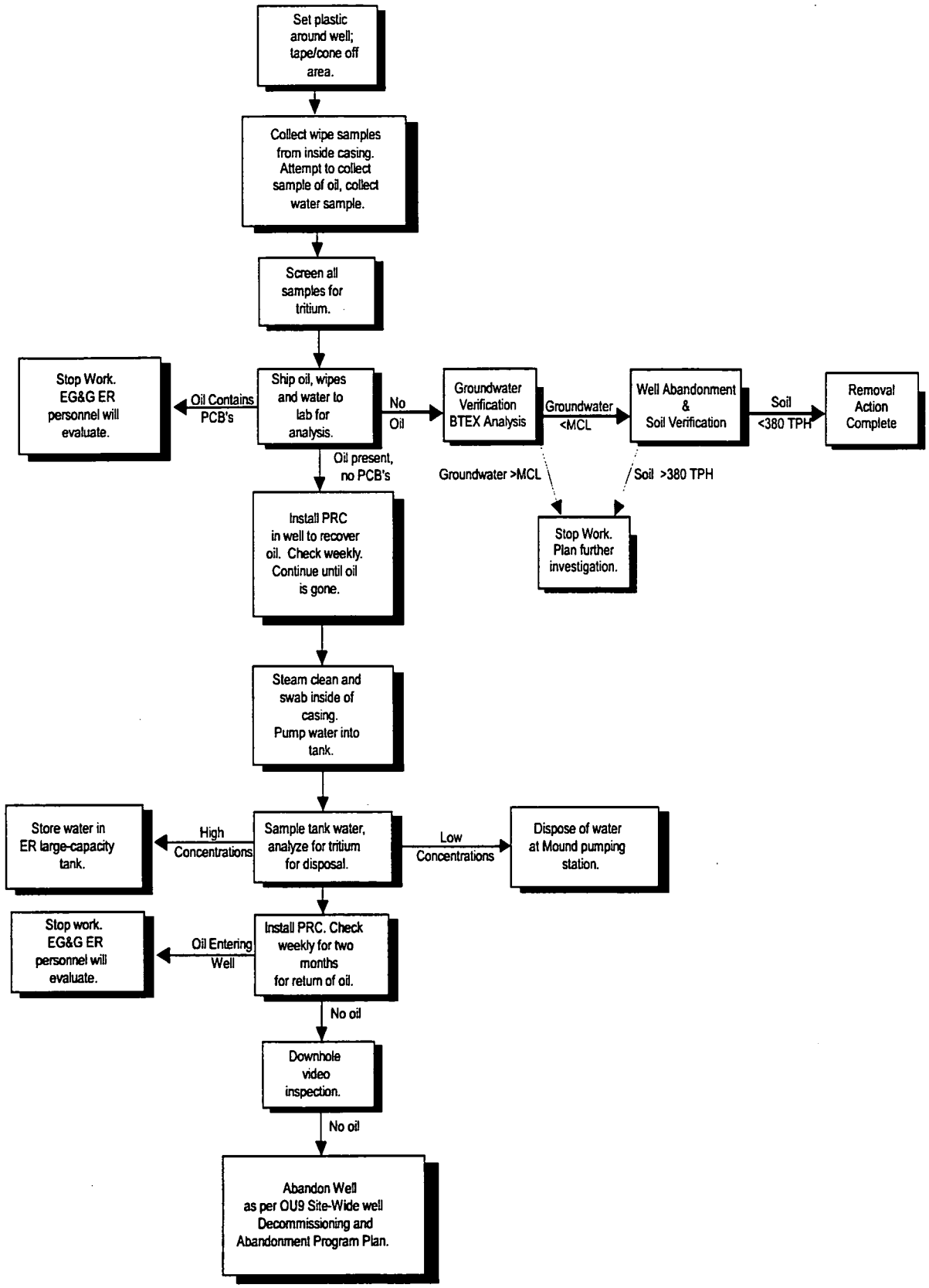


Figure 1.3. Flow diagram of anticipated approach for Removal Action at PRS111.

Table I.1. Organization of the Response

Agencies or Parties Involved	Contact	Description of Participation
US EPA SRF-5J 77 W. Jackson Chicago, IL 60604	Tim Fischer 312-886-5787	Federal agency responsible for response oversight.
Ohio EPA 401 E. Fifth St. Dayton, OH 45402-2911	Brian Nickel (937) 285-6468 Lisa Anderson Matt Justice	State agency responsible for response oversight.
DOE-MEMP P.O. Box 66 1 Mound Road Miamisburg, OH 45343-0066	Art Kleinrath Debbie White (937) 865-3597	Federal OSC responsible for response oversight and success.
EG&G Mound ER Program P.O. Box 3000 Mound Rd. Miamisburg, OH 45343-3000	Gary Coons (937) 865-3867	Program Manager, responsible for oversight of removal action.
Terran Corporation 4080 Executive Drive Beavercreek, OH 45430	Roger McCready, Project Manager Amy Lamborg, Senior Geologist Michael Brady, Field Supervisor Brad Huntsman, Site Safety Officer Chris Ruef, Staff Scientist Scott Hora, Technician (937) 320-3601	Managed general on-site activities and subcontractors. Conducted sampling, photo and site documentation, site safety, and report preparation.
Roy F. Weston 208 Welsh Pool Rd. Lionville, PA 19341	Judy Stone, Project Manager	Provided analytical services during sampling.
Bowser-Morner 4518 Taylorsville, Rd. P.O. Box 51 Dayton, OH 45401-0051	James Nidzgorski, Assistant Manager Subsurface Exploration Services	Providing drilling services to remove and abandon well 0034.
EG&G Mound P.O. Box 3000 Mound Rd. Miamisburg, OH 45343-3000	Rod Long, Construction Inspector	Located underground utilities.
EG&G Mound P.O. Box 3000 Mound Rd. Miamisburg, OH 45343-3000	Henry Robinson, Health Physics Personnel	Provided Health Physics support during earth disturbing activities.
EG&G Mound P.O. Box 3000 Mound Rd. Miamisburg, OH 45343-3000	Steve Howard	Coordinated Mound screening lab analysis of water and soil samples.

1.3. INJURY/POSSIBLE INJURY TO NATURAL RESOURCES

This section not applicable.

1.4. CHRONOLOGICAL NARRATIVE OF RESPONSE ACTIONS

The following is a chronological narrative of events, as they occurred for the PRS 111 removal action.

July 1996 -	Action Memorandum, PRS 111 completed.
September 25, 1996 -	Initial groundwater and wipe sampling.
January 29,1997 -	First verification groundwater sampling.
January 31,1997 -	Second verification groundwater sampling.
February 3, 1997 -	Third verification groundwater sampling.
February 24,1997 -	Verification soil sampling and well abandonment.

Results of the initial sampling indicated that the groundwater in well 0034 contained low concentrations (up to 220 ppm) of a heavy, lubricating-type of oil, and no PCBs. The verification groundwater sampling determined that there was no detectable benzene, toluene, ethyl benzene or xylenes. Screening analysis for radiological contaminants determined that the groundwater did not contain detectable concentrations of any isotopes in a gamma spectroscopy analysis, and the concentration of tritium ranged from 9.46 to 10.48 nCi/l.

Verification soil sampling detected very low concentrations of toluene and ethyl benzene (0.0013 - 0.014 ppm) between 16 and 20 feet BLS. Very low concentrations of o-xylene (0.0019 - 0.270 ppm) were reported between 6 and 21 feet BLS, but the laboratory tentatively identified this as styrene, which co-elutes with o-xylene. Concentrations of TPH, ranging from 18.9 to 440 ppm were reported for samples between the ground surface and 21 feet BLS. Radiological soil screening was conducted on composite samples collected at discrete depths (between the ground surface and 21 feet below ground surface) from soil cuttings obtained during well abandonment. The data show that only two isotopes from the gamma spectroscopy suite were above detection limits: thorium-232, which ranged from 0.50 to 0.80 pCi/g and radium-226, which ranged from 0.80 to 1.90 pCi/g. These two isotopes were below the 1×10^{-5} risk based guideline values respectively. All other isotopes were not detected; the detection limits were below the 1×10^{-6} risk based guideline values with the exception of Pu-238 and Th-228 which were below the 2×10^{-5} risk based guideline values. All analytical data collected during this removal action is presented in Table I.2. Copies of original analytical laboratory Form 1 data sheets and Chain-of-Custody forms are presented in Appendix B, and copies of screening laboratory data sheets are presented in Appendix C.

The State of Ohio Fire Marshall Bureau of Underground Storage Tank Regulation (BUSTR) has set four action levels for benzene, toluene, ethyl benzene, and xylenes (BTEX) in groundwater, based on site characteristics. No BTEX was detected in groundwater from Well 0034, therefore no action levels were exceeded.

BUSTR has also set four action levels for BTEX in soil, and for TPH in soil. The site characteristics for the area around PRS 111 determine that the category, and therefore action levels appropriate for this area would be Category 3. The BUSTR Closure Form for determining site categories is shown in Figure 1.4. No soil samples from Well 0034 exceeded the Category 3 action levels for BTEX or TPH.

The Work Plan for PRS 111 closure proposed an action level of 380 ppm (Category 1) for TPH in soil, which is the most conservative action level. The PRS 111 area clearly does not have the characteristics of a Category 1 site, and therefore should be considered as a Category 3 site. The BTEX and TPH concentrations measured during abandonment of Well 0034 fall below action levels for a Category 3 site.

Table I.2. PRS111 Removal Action Analytical Results

Soil Verification Samples, ppm					
Depth FT. BLS	**TPH**	**Benzene**	**Toluene**	**Ethyl benzene**	**Total Xylene***
0 - 2	70.5	BDL	BDL	BDL	BDL
2 - 4	25.0	BDL	BDL	BDL	BDL
4 - 6	24.6	BDL	BDL	BDL	BDL
6 - 8	24.3	BDL	BDL	BDL	0.0019
8 - 10	26.8	BDL	BDL	BDL	0.013
10 - 12	18.9	BDL	BDL	BDL	0.0082
12 - 14	29.1	BDL	BDL	BDL	0.057
14 - 16	79.7	BDL	BDL	BDL	0.047
16 - 18	331	BDL	0.0020	0.0027	0.045
18 - 21	440	BDL	0.0013	0.014	0.270
Lab Blank	7.7	NA	NA	NA	NA

Groundwater Verification Samples, ppm				
	Benzene	**Toluene**	**Ethyl benzene**	**Total Xylene**
1st verification	BDL	BDL	BDL	BDL
2nd verification	BDL	BDL	BDL	BDL
3rd verification	BDL	BDL	BDL	BDL
Trip Blank	BDL	BDL	BDL	BDL

Groundwater/wipe Characterization Samples, ppm				
	Diesel Range Organics	Gasoline Range Organics	Lubricant Oil	PCB's
Sample #1	BDL	BDL	220	BDL
Sample #2	BDL	BDL	29	NA
Wipe (ug/wipe)	NA	NA	NA	BDL
Wipe (ug/wipe)	NA	NA	NA	BDL

* reported as o-xylene. No other xylene isomers present, however. Qualitative GCMS laboratory check identifies this as styrene, which co-elutes with o-xylene.

PCB's - polychlorinated biphenyls
BDL - below detection limit
BLS - below land surface
TPH - total petroleum hydrocarbons
NA - not applicable

Figure 1.4. BUSTR Closure Form

STATE OF OHIO FIRE MARSHALL - BUREAU OF UNDERGROUND STORAGE TANKS (BUSTR) CLOSURE FORM

SITE FEATURE SCORING SYSTEM (SFSS) CHART

PRS111, MOUND PLANT, RELEASE BLOCK Q; MARCH 1997

Site Features	COLUMN A		COLUMN B		COLUMN C		COLUMN D	
	Score 20	Enter Score	Score 15	Enter Score	Score 10	Enter Score	Score 5	Enter Score
1. Distance of site* from closest potable water supply source currently in use is:	>1000 ft	20	300-1000 ft		<300 ft		Inside of designated sensitive area	
2. Depth to ground water is:	>50 ft		31-50 ft		15-30 ft	10	<15 ft	
3. Predominant soil type of substratum is:	Clay or shale	20	Silt or clayey sands or fine sandstone		Silt sand or fine sand, unknown, or sandstone		Clean sand, gravel or conglomerate	
4. Natural and/or man-made conduits or receptors are: (complete Worksheet below)	<8 points		8-10 points		11-13 points	10	>13 points	
Subtotals:		40	+	0	+	20	+	0
						TOTAL SCORE		60

SITE FEATURE 4 WORKSHEET:

Basements or subsurface foundations within 100 feet of site	4 points	0
Storm sewer within 50 feet of site	4 points	4
Sanitary sewer within 50 feet of site	4 points	4
Septic system leach field within 50 feet of site	2 points	0
Water line main within 50 feet of site	1 point	1
Natural gas line main within 50 feet of site	1 point	1
Bedrock area prone to dissolution along joints of fractures within 100 feet of site	1 point	1
Faults or known fractures within 100 feet of site	1 point	0
Buried telephone/television cable main within 50 feet of site	1 point	1
Buried electrical cable main within 50 feet of site	1 point	1
	TOTAL POINTS	13

If total points from Site Feature 4 Worksheet are:
- <8, enter score of 20 in Column A of Site Feature 4 in SFSS Chart
- 8 - 10, enter score of 15 in Column B of Site Feature 4 in SFSS Chart
- 11 - 13, enter score of 10 in Column C of Site Feature 4 in SFSS Chart
- >13, enter score of 5 in Column D of Site Feature 4 in SFSS Chart

NOTE: AFTER COMPLETING SFSS CHART (ABOVE), COMPARE THAT SCORE WITH TOTAL SCORES IN ACTION LEVEL TABLE (BELOW) TO DETERMINE ACTION LEVELS FOR SITE.

SFSS ACTION LEVELS TABLE (PPM)

CONSTITUENT	CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
TOTAL SCORE	<31	31-50	51-70	>71
Soil BTEX	.006/4/6/28	.170/7/10/47	.335/9/14/67	.500/12/18/85
Ground Water BTEX	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10
Soil TPH (Gasoline)	105	300	450	600
Soil TPH (Others)	380	642	904	1156

* On this copy of the SFSS, the word "site" replaces the term "UST system", which appears on the original SFSS.

For this closure action, no contaminant remediation was required, and the planned PRS remedial activities included only well abandonment. There were no technologies tested (innovative or otherwise); and public information/community relations activities included notification and description of upcoming removal activities, and public comment periods provided for the PRS documentation and the Action Memorandum. The only materials requiring disposal were the well casing and screen. These materials were steam cleaned and then screened by Health Physics personnel, and when determined to be clean, were taken off site by a Mound Plant waste disposal contractor. There was less than one cubic yard of soil cuttings generated during well abandonment, and these were spread on the ground surface in the vicinity of the well. Table I.3 lists these materials and their disposition.

Well abandonment consisted of overdrilling, removal of the well casing, and closing the hole by filling it with grout. A piece of steel rebar was grouted into the hole, to allow future location of the former well with a metal detector. Appendix D contains photographs of the sampling and abandonment of PRS 111, Well 0034.

1.5. RESOURCES COMMITTED

The costs to complete this removal action are $42,913. For comparison, the Action Memorandum for PRS 111 estimated that this Removal Action would cost $62,000. The final costs included Health and Safety Plan preparation; inspection, sampling, and substance characterization of Well 0034; exterior source monitoring; well abandonment; On-scene Coordinator Report preparation; and project management.

Table I.3. Materials and Disposition

Material	Quantity	Disposal Method	Disposal Location
Soil Cuttings	1 cubic yard	Spread at site	Former Well 0034
Well casing	Approx. 7 linear yards	Steam clean and perform screening analysis for contaminants	Mound Plant

2. EFFECTIVENESS OF THE REMOVAL ACTION

2.1. ACTIONS TAKEN BY MOUND PERSONNEL

Mound personnel prepared the Action Memorandum, reviewed site documents, and acted as prime contractor, which included overseeing Terran Corporation and its subcontractors to verify conformity with the approved Work Plan. Mound personnel also performed radiological screening of groundwater and soil samples. All were completed in a timely manner.

2.2. ACTIONS TAKEN BY LOCAL, STATE, AND FEDERAL AGENCIES

The OEPA reviewed documents and provided personnel to oversee the well abandonment. The USEPA and DOE also provided document review. All comments were valuable and timely.

2.3. ACTIONS TAKEN BY CONTRACTORS, PRIVATE GROUPS AND VOLUNTEERS

Terran Corporation prepared the Health and Safety Plan and Work Plan on schedule. Terran insured that all personnel, materials and equipment, including analytical laboratory services and radiological screening services were provided as required and on schedule. All safety and environmental protocols were observed. This removal action, as outlined in the Work Plan, has been completed in a timely and cost effective manner. No private groups or volunteers were involved with this removal action.

3. DIFFICULTIES ENCOUNTERED

3.1. ITEMS THAT AFFECTED THE RESPONSE

Only one difficulty was encountered during this removal action: the Organic Vapor Analyzer used for health and safety monitoring stopped working during well abandonment. Mound personnel from Industrial Health were contacted, and they were able to provide a working OVA which allowed well abandonment to continue.

3.2. ISSUES OF INTERGOVERNMENTAL COORDINATION

Intergovernmental coordination efforts between federal and state parties were successful for this removal action.

3.3. DIFFICULTIES INTERPRETING, COMPLYING WITH, OR IMPLEMENTING POLICIES AND REGULATIONS

No difficulties in interpreting, complying with, or implementing policies and regulations were encountered during this removal action.

4. RECOMMENDATIONS

4.1. MEANS TO PREVENT A RECURRENCE OF THE DISCHARGE OR RELEASE

Due to the limited nature and type of the contamination encountered, it is believed that the oil present in this well was disposed of in the unlocked well. This could be prevented in the future by covering all wells with a locking protective casing. Additionally, a small sign (a sticker, for example), could be placed on the casing which says, effectively, "Monitoring Well. No dumping please". This identifies the purpose of the casing, and prevents confusion with structures such as tank fill ports.

4.2. MEANS TO IMPROVE RESPONSE ACTIONS

In general, this Response Action proceeded smoothly. For future Response Actions in which the BUSTR standards apply, it would be helpful during the planning stage of the removal action to use the BUSTR Site Feature Scoring System to determine which site category to use, and therefore the hydrocarbon action levels that will apply to the site.

4.3. PROPOSALS FOR CHANGES IN REGULATIONS AND RESPONSE PLANS

There are no proposals for changes in regulations and response plans as they pertain to this site.

5. CONCLUSIONS

Monitoring Well 0034 is one of over 400 Potential Release Sites (PRSs) at the Mound facility. In 1986, an oily substance was discovered in the well. Based on this apparent release of petroleum hydrocarbons, a removal action was undertaken to mitigate potential petroleum hydrocarbon exposure in the environment.

Contaminant characterization groundwater and wipe sampling identified the oily material as a PCB-free lubricating oil. Verification groundwater sampling did not detect the presence of benzene, toluene, ethyl benzene or xylenes. Verification soil sampling detected very low concentrations of toluene and ethyl benzene. Very low concentrations of o-xylene were reported, but the laboratory tentatively identified this as styrene, which co-elutes with o-xylene. Concentrations of TPH in soil, ranging from 18.9 to 440 ppm were reported for samples between the ground surface and 21 feet BLS.

Based on the BUSTR Site Scoring System, the site characteristics for the area around PRS 111 determine that the site category appropriate for this area would be Category 3 (based on number of underground utilities in the area). The soil TPH concentrations measured during abandonment of Well 0034 fall below action levels for a Category 3 site. The action levels for benzene, toluene, ethyl benzene and xylenes in both soil and groundwater were not exceeded.

The removal action chosen for this PRS was well abandonment. This was completed by overdrilling, removal of the well casing, and then grouting the hole. Well casing materials were steam cleaned, analyzed for contaminants, and then taken off site by a Mound Plant waste disposal contractor. Approximately one cubic yard of soil cuttings generated during overdrilling were spread around the vicinity of the former well.

This PRS was so designated due to the presence of petroleum hydrocarbons in Well 0034. However, this investigation revealed that BUSTR action levels were not exceeded. Therefore, Well 0034 has been abandoned. PRS 111 should be considered as requiring no further action, and that the abandonment of Well 0034 constitutes a complete site closure.

6. REFERENCE LIST OF SUPPLEMENTAL DOCUMENTS

Contact Arthur Kleinrath, On-Scene Coordinator for PRS 111 removal action, at (513) 865-3597 to request access to these supplemental documents.

- U.S. Department of Energy, Ohio Field Office. July, 1996. ER Program Action Memorandum, Potential Release Site 111, Oil Contamination, Monitoring Well 0034, Release Block Q, (Draft, Revision 0), 10 pp.

- U.S. Department of Energy, Ohio Field Office. February-March, 1996. ER Program Mound Plant Potential Release Site Package PRS 111, 27 pp.

- U.S. Department of Energy, Ohio Field Office. September, 1996. Health and Safety Plan, Potential Release Site 111, Release Block Q (Final, Revision 0), 50 pp.

- U.S. Department of Energy, Ohio Field Office. January, 1997. Work Plan, Potential Release Site 111, Release Block Q (Final, Revision 0), 38pp.

APPENDIX A

WELL LOG, WELL 0034

GEOLOGIC LOG	MOUND PLANT	Project Manager Al Gleason	PAGE: 1 of 1

Drilling Company	Raymond Int.	Borehole/Well Id	0034
Drilling Method	Auger	STATE PLANE COORDINATES	
Drilling Fluid	Unk	North (ft)	598082.49
Date Started	5/26/76	East (ft)	1496257.79
Date Completed	5/26/76	Ground Surface Elev. (ft)	818.10
Logged By	Dames and Moore	Top of Casing Elev. (ft)	818.71
Checked By	Tom Tharp	Total Depth (ft)	20.0
Comments:	Dames and Moore Well # 34-1.		

Depth	Sample T	Sample A	Sample ID	Well Materials	Well Con	Lith	USCS or Rock Type	Lithologic Description
0				SEAL: Bentonite.			FL	Fill.
5								
10				CASING: PVC, 3".			TI	Gray till.
				BACKFILL: Earth.				
				SEAL: Bentonite.			SH	Weathered shale.
15								
				SCREEN: Steel, 3".				
				FILTER PACK: Gravel.			SH	Unweathered shale.
20								Total Depth = 20.0 feet.

GROUNDWATER

DEPTH	HOUR	DATE
16.46	14:10	09/20/90

Well Log for Well 0034

APPENDIX B

ANALYTICAL LABORATORY SAMPLE RESULTS

GROUNDWATER CHARACTERIZATION
SAMPLING DATA

AirBill 8252041453

WESTON Analytics Use Only
9609L375

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 4

Client ~~TERRAN CORP.~~ EG+G ~~TERRAN~~

Est. Final Proj. Sampling Date 9/26/96

Work Order # ~~EG1196~~ 10572-005-001-9999-00

Project Contact/Phone # (513) 320-3401

AD Project Manager AMY LAMBORG / J.S.

QC SW846 Del CLP TAT 4 WORKING DAYS

Date Rec'd 9-27-96 Date Due 10-2-96

Account # BGGMOUTBRA

	Refrigerator #							
#/Type Container	Liquid	G		5 G		5 G	5 G	
	Solid							
Volume	Liquid	40ml		1L		1L	125ml	
	Solid							
Preservatives								

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; PCB; INORG: Metal, CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	TPH GRO		OPCB		TPH DRO	WIPE OPCB
001	PRJ 111			W	9/25/96	1010	2		1		1	X
002	DUPLICATE			W	9/25/96	1010	2				1	X
003	PAS 111			WI	⌶	⌶						✓
004	DUPLICATE			⌶	⌶	⌶						✓

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA-NA CLIENT INFO
AMSC-NR

3.4°

DATE/REVISIONS:
1. TEMP BLANK
9/30/96 2. CORRECT CLIENT NAME
3. Per SOA 96PM0668
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 8252041453
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]		9-26-96	1200	Fed Ex	M Jason	9-27-96	930

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# 4061 Cooler# 1272 381-596a

Roy F. Weston, Inc. - Lionville Laboratory

GAS RANGE ORGANICS

Report Date: 10/02/96 11:27

RFW Batch Number: 9609L375 Client: EG&G MOUND Work Order: 10572005001 Page: 1

	Cust ID:	PRS111	PRS111	PRS111	DUPLICATE	TBLKAN	TBLKAN BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	96LVD060-MB1	96LVD060-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Fluorobenzene		99 %	95 %	88 %	98 %	96 %	107 %
Gasoline		40 U	85 %	76 %	40 U	40 U	131 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 10/02/96 14:55

RFW Batch Number: 9609L375 Client: EG&G MOUND Work Order: 10572-005-001-9999-00 Page: 1

	Cust ID:	PRS111	DUPLICATE	BLK	BLK BS
Sample Information	RFW#:	001	002	96LE1809-MB1	96LE1809-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	20.0	20.0	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L

012

Surrogate: p-Terphenyl	D % fl	D % fl	96 % fl	37 * % fl
Diesel	3.4 U	2.2 U	0.10 U	45 %
Lubricant Oil	220	29	1.1 U	1.1 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

Roy F. Weston, Inc. - Lionville Laboratory
PCBs by GC
Report Date: 10/01/96 14:12

RFW Batch Number: 9609L375 Client: EG&G MOUND Work Order: 10572005001 Page: 1

	Cust ID:	PRS111	PRS111	DUPLICATE	PBLKAK	PBLKAK BS	PBLKAJ
Sample Information	RFW#:	001	003	004	96LE1807-MB1	96LE1807-MB1	96LE1808-MB1
	Matrix:	WATER	WIPE	WIPE	WATER	WATER	WIPE
	D.F.:	5.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/WIPE	ug/WIPE	ug/L	ug/L	ug/WIPE
Surrogate: Tetrachloro-m-xylene		D %	80 %	75 %	28 %	35 %	95 %
Decachlorobiphenyl		D %	95 %	88 %	82 %	98 %	104 %
Aroclor-1016		5.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221		12 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232		5.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242		5.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248		5.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254		5.9 U	1.0 U	1.0 U	1.0 U	114 %	1.0 U
Aroclor-1260		5.9 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

	Cust ID:	PBLKAJ BS
Sample Information	RFW#:	96LE1808-MB1
	Matrix:	WIPE
	D.F.:	1.00
	Units:	ug/WIPE
Surrogate: Tetrachloro-m-xylene		92 %
Decachlorobiphenyl		104 %
Aroclor-1016		1.0 U
Aroclor-1221		2.0 U
Aroclor-1232		1.0 U
Aroclor-1242		1.0 U
Aroclor-1248		1.0 U
Aroclor-1254		120 %
Aroclor-1260		1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

GROUNDWATER VERIFICATION
SAMPLING DATA

#1767896771

WESTON Analytics Use Only
9701L123

EG&G MOUND -

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

008

Client TERRAN

Est. Final Proj. Sampling Date FEB 24, '97

Work Order # SEE BELOW 1/31/97

Project Contact/Phone # Amy LANBURG

AD Project Manager Judy [illegible]

QC Spec Del CLP TAT By FEB 12, '97

Date Rec'd 1/31/97 Date Due FEB 12, '97

Account # [illegible]

Refrigerator #		
#/Type Container	Liquid	3G
	Solid	
Volume	Liquid	40ml
	Solid	
Preservatives		HCl

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA (OLC02)	BNA	Pest/PCB	Herb	Metal	CN
001	0115			W	1/29/97	1340	3					
002	0116			W	1/29/97	1400	3					

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
TAT By FEB 12, '97
RSA - CLIENT INFO
RMSC - COMP

8.8°C

DATE/REVISIONS:
1. TEMP. BLANK
2. 176 Headspace
3. WO# = 10512-007-001-9999-00
4. 2/6/97 WO# = 10572-008-001-9999-00
5. per UNIT REVIEW REVISION
6.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	Fed Ex	1/30/97	1530				
Daley	[illegible]	1/31/97	0930				

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 1767896771
2) (Ambient) or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N

Roy F. Weston, Inc. - Lionville Laboratory
Purgeable Aromatics by GC, Method 602 Report Date: 02/10/97 19:27

RFW Batch Number: 9701L123 Client: EG&G MOUND-TERRAN Work Order: 10572008001 Page: 1

	Cust ID:	0115	0115	0115	0116	TBLKHQ	TBLKHQ BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	97LVF012-MB1	97LVF012-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Fluorobenzene		103 %	99 %	106 %	103 %	103 %	106 %
Benzene		1.0 U	91 %	93 %	1.0 U	1.0 U	91 %
Toluene		1.0 U	87 %	89 %	1.0 U	1.0 U	91 %
Ethylbenzene		1.0 U	93 %	87 %	1.0 U	1.0 U	89 %
Xylenes (total)		1.0 U	88 %	90 %	1.0 U	1.0 U	94 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

011

1767846675

(4) 5 DUP VOA 6C VOA

WESTON Analytics Use Only: 9702L144

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Terran / Omaha SFT — Eggy Mound - Terran
Est. Final Proj. Sampling Date: FEB 26, '97
Work Order #: TCGGTTTKNLS FT
Project Contact/Phone #: Amy Laxberg
AD Project Manager: Judy Stone
QC: Special Del: CLP TAT: FEB 12, '97
Date Rec'd: 2/5/97 Date Due: FEB 12, '97
Account #: Egg Mounter

Refrigerator #		/
#/Type Container	Liquid	3G
	Solid	
Volume	Liquid	40ml
	Solid	
Preservatives		HCl

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA 8260
001	0117			W	1/31/97	1400	3
2	0118			W	2/3/97	1030	3
3	0119 TB			W	2/4/97	1500	3

WO# = ~~10512-007-001-9999-02~~ am 2/6/97

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
TAT By FEB 12, '97
RSAH Client info
NMSC: Comp

DATE/REVISIONS:
1. TEMP BLANK 5.2°C
2. → TAT - 7 Day
3. → no Headspace
4. 2/6/97 WO# = 10572-008-001-9999-00
5. per UNIT REVIEW REVISION
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered — Airbill # 1767846675
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]		2-4-97	1000	[signature]	[signature]	2-5-97	930

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

Roy F. Weston, Inc. - Lionville Laboratory
Purgeable Aromatics by GC, Method 602 Report Date: 02/10/97 17:45

RFW Batch Number: 9702L164 Client: EG&G MOUND-TERRAN Work Order: 10572008001 Page: 1

	Cust ID:	0117	0117	0118	0119 TB	TBLKHQ	TBLKHQ BS
Sample	RFW#:	001	001	002	003	97LVF012-MB1	97LVF012-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
			CONFIRM				
Fluorobenzene		101 %	102 %	101 %	104 %	103 %	106 %
Benzene		1.0 U	NA	1.0 U	1.0 U	1.0 U	91 %
Toluene		1.0 U	NA	1.0 U	1.0 U	1.0 U	91 %
Ethylbenzene		1.0 U	NA	1.0 U	1.0 U	1.0 U	89 %
Xylenes (total)		1.0 U	NA	1.0 U	1.0 U	1.0 U	94 %

	Cust ID:	TBLKHP	TBLKHP BS
Sample	RFW#:	97LVA015-MB1	97LVA015-MB1
Information	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	UG/L	UG/L
Fluorobenzene		81 %	105 %
Benzene		1.0 U	94 %
Toluene		1.0 U	95 %
Ethylbenzene		1.0 U	97 %
Xylenes (total)		1.0 U	98 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

012

SOIL VERIFICATION SAMPLING DATA

#1767896653

WESTON Analytics Use Only
9702L396

Custody Transfer Record/Lab Work Request

WESTON

Client ~~TERRA CORP~~ EG&G Mound-Terran
Est. Final Proj. Sampling Date 2/25/97
Work Order # EGG 1196 (See Below)
Project Contact/Phone # Michael Brady
AD Project Manager Amy Lamborg
QC Special Del CP TAT 5 DAY
Date Rec'd 2/27/97 Date Due 3/4/97
Account # Cant-Local

Refrigerator #							1	5
#/Type Container	Liquid							
	Solid						1G	1G
Volume	Liquid							
	Solid						4oz	8oz
Preservatives								
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb		BTEX	TPH

INORG: Metal, CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	EPA 8020	EPA 418.1	TPHC
001	PRS111 0-2			S	2/24/97	0900	1	1	
2	PRS111 2-4			S	2/24/97	0910	1	1	
3	PRS111 4-6			S	2/24/97	0920	1	1	
4	PRS111 6-8			S	2/24/97	0923	1	1	
5	PRS111 8-10			S	2/24/97	0932	1	1	
6	PRS111 10-12			S	2/24/97	0938	1	1	
7	PRS111 12-14			S	2/24/97	0945	1	1	
8	PRS111 14-16			S	2/24/97	1049	1	1	
9	PRS111 16-18			S	2/24/97	1054	1	1	
010	PRS111 18-21			S	2/24/97	1106	1	1	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
5 DAY TAT. PRS111 project
NSA# client info
02/27/97 NMSC ~~BATCH~~ COMP
8.4°C

DATE/REVISIONS:
1. TEMP. BLANK INCLUDED
2. WO# = 10512-007-001-9999-00
3. NO Headspace
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 1767896653
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]		2/26/97	1200	Fed 4	[signature]	2-27-97	9:00

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 381-596a

1767894653.

WESTON Analytics Use Only

970216396

Custody Transfer Record/Lab Work Request

WESTON

Page 2 of 2

Client: Eagle Mound-Terran / TERRAN CORP.
Est. Final Proj. Sampling Date: 2/25/97
Work Order #: RGG1196
Project Contact/Phone #: MICHAEL BRADY
AD Project Manager: AMY LAMBORG
QC ____ Del ____ TAT: 5DAY
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid 3G; Solid
Volume: Liquid 40ml; Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC: VOA, BNA, Pest/PCB, Herb
INORG: Metal, CN

WESTON Analytics Use Only

MATRIX CODES:
- S - Soil
- SE - Sediment
- SO - Solid
- SL - Sludge
- W - Water
- O - Oil
- A - Air
- DS - Drum Solids
- DL - Drum Liquids
- L - EP/TCLP Leachate
- WI - Wipe
- X - Other
- F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA (D8020)	BNA	Pest/PCB	Herb	Metal	CN
01	TRIP BLANK			W	~~1/10/97~~ 2/24/97	1200	3					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

5 DAY TAT.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___ Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

For MJ.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]	[signature]	2/24/97	1200				

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 03/06/97

CLIENT: EG&G MOUND-TERRAN WESTON BATCH #: 9702L396
WORK ORDER: 10512-007-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	PRS111 0-2	% Solids	84.6	%	0.01	1.0
		Petroleum Hydrocarbons	70.5	MG/KG	3.9	1.0
-002	PRS111 2-4	% Solids	85.1	%	0.01	1.0
		Petroleum Hydrocarbons	25.0	MG/KG	3.9	1.0
-003	PRS111 4-6	% Solids	85.3	%	0.01	1.0
		Petroleum Hydrocarbons	24.5	MG/KG	3.9	1.0
-004	PRS111 6-8	% Solids	84.7	%	0.01	1.0
		Petroleum Hydrocarbons	24.3	MG/KG	3.9	1.0
-005	PRS111 8-10	% Solids	86.1	%	0.01	1.0
		Petroleum Hydrocarbons	26.8	MG/KG	3.9	1.0
-006	PRS111 10-12	% Solids	88.0	%	0.01	1.0
		Petroleum Hydrocarbons	18.9	MG/KG	3.8	1.0
-007	PRS111 12-14	% Solids	86.7	%	0.01	1.0
		Petroleum Hydrocarbons	29.1	MG/KG	3.8	1.0
-008	PRS111 14-16	% Solids	86.1	%	0.01	1.0
		Petroleum Hydrocarbons	79.7	MG/KG	3.9	1.0
-009	PRS111 16-18	% Solids	84.2	%	0.01	1.0
		Petroleum Hydrocarbons	331	MG/KG	4.0	1.0
-010	PRS111 18-21	% Solids	84.9	%	0.01	1.0
		Petroleum Hydrocarbons	440	MG/KG	19.6	5.0

ROY F. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/06/97

CLIENT: EG&G MOUND-TERRAN WESTON BATCH #: 9702L396

WORK ORDER: 10512-007-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	97LHC034-MB1	Petroleum Hydrocarbons	7.7	MG/KG	3.3	1.0

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 03/06/97

CLIENT: EG&G MOUND-TERRAN WESTON BATCH #: 9702L396

WORK ORDER: 10512-007-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	PRS111 0-2	Petroleum Hydrocarbons	1250	70.5	1320	89.2	10.0
		Petroleum Hydrocarbons	1290	70.5	1320	92.1	10.0
BLANK10	97LHC034-MB1	Petroleum Hydrocarbons	137	7.7	140	92.2	1.0

ROY F. WESTON INC.

INORGANICS DUPLICATE SPIKE REPORT 03/06/97

CLIENT: EG&G MOUND-TERRAN WESTON BATCH #: 9702L396

WORK ORDER: 10512-007-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	PRS111 0-2	Petroleum Hydrocarbons	89.2	92.1	3.2

ROY F. WESTON INC.

INORGANICS PRECISION REPORT 03/06/97

CLIENT: EG&G MOUND-TERRAN WESTON BATCH #: 9702L396

WORK ORDER: 10512-007-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	PRS111 0-2	% Solids	84.6	85.5	1.0	1.0

Roy F. Weston, Inc. - Lionville Laboratory
Purgeable Aromatics by GC, Method 8020 Report Date: 03/24/97 10:50

RFW Batch Number: 9702L396 Client: EG&G MOUND-TERRAN Work Order: 10512007001 Page: 1

	Cust ID:	PRS111 0-2	PRS111 2-4	PRS111 4-6	PRS111 6-8	PRS111 8-10	PRS111 10-12
Sample Information	RFW#:	001	002	003	004	005	006
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		66 %	66 %	80 %	62 %	78 %	70 %
Benzene		1.3 U	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U
Ethylbenzene		1.5	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U
Toluene		1.3 U	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U
Xylene (total)		1.3 U	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U

	Cust ID:	PRS111 12-14	PRS111 12-14	PRS111 14-16	PRS111 14-16	PRS111 16-18	PRS111 16-18
Sample Information	RFW#:	007	007	008	008	009	009
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
			CONFIRM		CONFIRM		CONFIRM
Fluorobenzene		78 %	72 %	70 %	75 %	76 %	85 %
Benzene		1.2 U	NA	1.2 U	NA	1.2 U	NA
Ethylbenzene		2.3	2.1	2.1	1.9	2.7	1.3
Toluene		1.2 U	NA	1.2 U	NA	1.2 U	NA
Xylene (total)		1.2 U	NA	1.2 U	NA	1.2 U	NA

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Purgeable Aromatics by GC, Method 8020 Report Date: 03/24/97 10:50

RFW Batch Number: 9702L396 Client: EG&G MOUND-TERRAN Work Order: 10512007001 Page: 2

	Cust ID:	PRS111 18-21	PRS111 18-21	PRS111 18-21	PRS111 18-21	TRIP BLANK	TBLKIX
Sample Information	RFW#:	010	010 CONFIRM	010 MS	010 MSD	011	97LVF019-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	WATER	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/L	UG/KG
Fluorobenzene		81 %	85 %	79 %	82 %	96 %	107 %
Benzene		1.2 U	NA	87 %	92 %	1.0 U	1.0 U
Ethylbenzene		14	6.6	46 %	54 %	1.0 U	1.0 U
Toluene		1.2 U	NA	76 %	78 %	1.0 U	1.0 U
Xylene (total)		4.3	1.5	51 %	48 %	1.0 U	1.0 U

	Cust ID:	TBLKIX BS	TBLKJK	TBLKJK BS	TBLKJJ	TBLKJJ BS
Sample Information	RFW#:	97LVF019-MB1	97LVJ007-MB1	97LVJ007-MB1	97LVF020-MB1	97LVF020-MB1
	Matrix:	SOIL	SOIL	SOIL	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/L	UG/L
Fluorobenzene		104 %	109 %	108 %	95 %	97 %
Benzene		114 %	1.0 U	84 %	1.0 U	118 %
Ethylbenzene		105 %	1.0 U	87 %	1.0 U	111 %
Toluene		109 %	1.0 U	92 %	1.0 U	116 %
Xylene (total)		109 %	1.0 U	92 %	1.0 U	114 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

APPENDIX C

SCREENING LABORATORY SAMPLE RESULTS

ENVIRONMENTAL CONTROL ANALYTICAL LABORATORY
REQUEST FOR ANALYSIS

DATE 9/25/96

SAMPLE IDENTIFICATION PRS 111 SAMPLING METHOD GRAB

TYPE SAMPLE WATER/OIL SAMPLE SIZE .25ml

SAMPLE LOCATION WELL 0034

ANALYSIS REQUIRED (please check)

^3H	GROSS ALPHA	OTHER
✓	✓	

DATE COMPLETED 9/26/96

ANALYTICAL TECHNICIAN Steven Howard

RESULTS:

	^3H	α
PRS-111 "0.1" (0034)	8.61nCi/L	< LDL
PRS-111 "H_2O"-1 (0034)	11.05nCi/L	< LDL
PRS-111 "H_2O"-2 (0034)	9.26nCi/L	< LDL

REMARKS: < DL = 2.2 dpm/cc

PHONE

TO:

MAIL STATION:

PROCEDURE METHODS:

^3H - PD80030 - OP2261
Gross Alpha - PD80030 - OP0260

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 5518

Description:
WELL WATER #0115 TERRAN

Sample ID# HPG01314

Project ID#

Filename: GSC00176.S0

Detector: Ge-C

Geometry: GAMA-533N

Mass (g) 733

Count Time: 50000 sec.

Priority:

Isotope	*Concentration*	pCi/g	*MDA*	pCi/g
Co-60			0.004	
Cs-137			0.004	
Pb-210			0.06	
Ra-226			0.06	
Ac-227D			0.02	
Th-228			1.3	
Th-229			0.05	
Th-230			0.5	
Th-232D			0.01	
Pa-231			0.1	
U-235			0.04	
U-238D			0.6	

Comments
THE MDA FOR Pu-238 WAS 6.2 pCi/g AND FOR Am-241 IT WAS .007 pCi/g.
NO ISOTOPES WERE DETECTED ABOVE THE MDA VALUES SHOWN.

DOT 0 **nCi/g**

Energy Calibration File
QAC00121.S0

Efficiency Calibration File
C533N_10.S0

Resolution Calibration File
C533N_10.S0

Library File
soilscrn.lib

(D) denotes the isotope was identified by its daughter products

Sample Received: 1/29/97

Sample Counted: 1/29/97

Sample Analyzed: 1/30/97

Product Cycle Time: 1 Days

Analyst: [redacted]

HP #: 5882

Date: 1-30-97

Protocol #:11 Name:10cH20 10c UG XR 30-Jan-97 14:29
Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL=30.0-550. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=30.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 10.00 QIP = tSIE/AEC ES Terminator = Count
Conventional DPM
Nuclide 1 = 103745
Luminescence Correction On

NCI/L	S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG	LUM	S#	C:DPM	DPMCC
0.00	1	10.00	4.40		122.00	181.	B	0	1	24.20	1.87
10.48	2	10.00	35.20	232.80	38.620	176.		3	2	7.00	0.47
9.45	3	10.00	34.90	210.01	6.740	187.		3	3	0.70	0.00
8.83	4	10.00	32.50	196.18	0.000	187.		3	4	0.10	0.00

3US = #2

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 5518

Description:
WATER #0117 TERRAN

Sample ID# HPG01319

Project ID#

Filename: GSC00177.S0

Detector: Ge-C

Geometry: GAMA-533N

Mass (g) 735

Count Time: 50000 sec.

Priority:

Isotope	*Concentration* pCi/g	*MDA* pCi/g
Co-60		0.004
Cs-137		0.003
Pb-210		0.05
Ra-226		0.06
Ac-227D		0.02
Th-228		1.2
Th-229		0.05
Th-230		0.5
Th-232D		0.01
Pa-231		0.1
U-235		0.03
U-238D		0.5

Comments
THE MDA FOR Pu-238 WAS 5.4 pCi/g AND FOR Am-241 IT WAS .005 pCi/g.
NO ISOTOPES WERE DETECTED ABOVE THE MDA VALUES SHOWN.

DOT 0 **nCi/g**

Energy Calibration File
QAC00123.S0

Efficiency Calibration File
C533N_10.S0

Resolution Calibration File
C533N_10.S0

Library File
soilscrn.lib

(D) denotes the isotope was identified by its daughter products

Sample Received: 1/31/97

Sample Counted: 2/3/97

Sample Analyzed: 2/4/97

Product Cycle Time: 4 Days

Analyst: [redacted] HP #: 5882 Date: 2-4-97

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 5518

Description:
WATER #0118 TERRAN

Sample ID# HPG01320

Project ID#

Filename: GSD00203.S0

Detector: Ge-D

Geometry: GAMA-533N

Mass (g) 745

Count Time: 50000 sec.

Priority:

Isotope	*Concentration*	pCi/g	*MDA*	pCi/g
Co-60			0.003	
Cs-137			0.003	
Pb-210			0.04	
Ra-226			0.05	
Ac-227D			0.02	
Th-228			1.3	
Th-229			0.04	
Th-230			0.4	
Th-232D			0.01	
Pa-231			0.1	
U-235			0.04	
U-238D			0.6	

Comments
THE MDA FOR Pu-238 WAS 4.9 pCi/g AND FOR Am-241 IT WAS .005 pCi/g.
NO ISOTOPES WERE DETECTED ABOVE THE MDA VALUES SHOWN.

DOT 0 **nCi/g**

Energy Calibration File: QAD00159.S0

Efficiency Calibration File: D533N_12.S0

Resolution Calibration File: D533N_12.S0

Library File: soilscm.lib

(D) denotes the isotope was identified by its daughter products

Sample Received: 2/3/97

Sample Counted: 2/3/97

Sample Analyzed: 2/4/97

Product Cycle Time: 1 Days

Analyst: [redacted] HP #: 5882 Date: 2-4-97

TRITIUM & GROSS ALPHA ANALYSIS

Date Sample Submitted: 2-3-97
Date Sample Analyzed: 2-3-97
Instrument No.: 2200
Program No.: 11
Volume (ml): 10 ml
Sample I.D.: H_2O
Analytical Tech.: RAS
Procedure No. 80030
Operation No. 2261
Verified By:

LABORATORY IDENT. NO.	SAMPLE NO.	SAMPLE LOCATION	COUNTING DATA FROM LIQUID SCINTILLATION INSTRUMENT
	1	Bkgd	
9700812	2	0117	
813	3	0118	
	4	Blank	
	5	Std I	206.6 dpm/cc
	6	Std II	"

Protocol #:11 Name:H20 10/10 XR 03-Feb-97 16:21
Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.20
Region B: LL-UL=30.0-550. Lcr= 0 Bkg= 0.00 %2 Sigma=0.20
Region C: LL-UL=30.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.20
Time = 10.00 G.P = tSIE/AEC ES Terminator = Count
CT 10 ML H20 SAMPLES FOR 10 MIN WITH BKG SUB
Conventional DPM
Nuclide 1 = 226564
Luminescence Correction On

nci/l	S#	TIME	CPMA	DPM1	A:2S%	tSIE	FLAG	LUM	S#	waste	DPMCC
0.00	1	10.00	4.10		31.23	185.	B	2	1	3.22	2.36
9.46	2	10.00	37.00	209.99	12.58	175.		6	2	0.00	0.00
9.66	3	10.00	36.20	214.34	12.59	169.		5	3	0.00	0.00
0.18	4	10.00	0.70	3.89	309.04	178.		4	4	0.00	0.00
9.23	5	10.00	38.50	204.94	11.76	184.		3	5	0.00	0.00
7.93	6	10.00	33.40	176.09	12.70	186.		2	6	0.00	0.00

COMMENTS:

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01371
FILE ID: GSB00193.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.03	1,390,000
Cs-137	<	0.03	6,500,000
Pb-210	<	0.50	1,300,000
Ra-226		1.90	26,300
Ac-227 (D)	<	0.20	31
Th-228	<	13.20	671
Th-229	<	0.40	104
Th-230	<	5.60	650
Th-232 (D)		0.60	130
Pa-231	<	1.20	160
U-235	<	0.40	1,730
U-238 (D)	<	4.40	1,730
Pu-238	<	48.40	452
Am-241	<	0.05	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.08** **nCi/g** Σ Respirator **0.16**

Description:
PRS-111 0-4

Collector: [redacted], 3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01372
FILE ID: GSC00199.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.03	1,390,000
Cs-137	<	0.03	6,500,000
Pb-210	<	0.60	1,300,000
Ra-226		1.00	26,300
Ac-227 (D)	<	0.30	31
Th-228	<	12.60	671
Th-229	<	0.40	104
Th-230	<	5.70	650
Th-232 (D)		0.50	130
Pa-231	<	1.00	160
U-235	<	0.40	1,730
U-238 (D)	<	5.20	1,730
Pu-238	<	60.60	452
Am-241	<	0.06	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.09** **nCi/g** Σ Respirator **0.19**

Description:
PRS-111 4-8

Collector: [redacted] 3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01360
FILE ID: GSC00197.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.04	1,390,000
Cs-137	<	0.04	6,500,000
Pb-210	<	0.70	1,300,000
Ra-226	<	1.20	26,300
Ac-227 (D)	<	0.30	31
Th-228	<	17.70	671
Th-229	<	0.60	104
Th-230	<	7.20	650
Th-232 (D)		0.60	130
Pa-231	<	1.50	160
U-235	<	0.50	1,730
U-238 (D)	<	6.90	1,730
Pu-238	<	69.80	452
Am-241	<	0.08	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.11** nCi/g Σ Respirator **0.23**

Description:
PRS-111 8-10

Collector: [redacted] 3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01359
FILE ID: GSB00190.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.05	1,390,000
Cs-137	<	0.03	6,500,000
Pb-210	<	0.60	1,300,000
Ra-226		0.80	26,300
Ac-227 (D)	<	0.20	31
Th-228	<	13.30	671
Th-229	<	0.50	104
Th-230	<	5.80	650
Th-232 (D)		0.50	130
Pa-231	<	1.30	160
U-235	<	0.40	1,730
U-238 (D)	<	6.00	1,730
Pu-238	<	58.20	452
Am-241	<	0.06	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.09** **nCi/g** Σ Respirator **0.18**

Description:
PRS-111 10-12

Collector: [redacted]3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01373
FILE ID: GSD00216.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.04	1,390,000
Cs-137	<	0.03	6,500,000
Pb-210	<	0.50	1,300,000
Ra-226	<	0.80	26,300
Ac-227 (D)	<	0.20	31
Th-228	<	15.20	671
Th-229	<	0.50	104
Th-230	<	5.50	650
Th-232 (D)		0.80	130
Pa-231	<	1.20	160
U-235	<	0.40	1,730
U-238 (D)	<	5.40	1,730
Pu-238	<	55.00	452
Am-241	<	0.07	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.09** nCi/g Σ Respirator **0.18**

Description:
PRS-111 12-16

Collector: [redacted] 3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG01374
FILE ID: GSB00194.S0
PRIORITY:

Isotope		Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	<	0.04	1,390,000
Cs-137	<	0.03	6,500,000
Pb-210	<	0.50	1,300,000
Ra-226	<	1.00	26,300
Ac-227 (D)	<	0.20	31
Th-228	<	13.30	671
Th-229	<	0.40	104
Th-230	<	5.80	650
Th-232 (D)		0.60	130
Pa-231	<	1.06	160
U-235	<	0.40	1,730
U-238 (D)	<	4.60	1,730
Pu-238	<	55.90	452
Am-241	<	0.06	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)	

Σ DOT **0.08** nCi/g Σ Respirator **0.18**

Description:
PRS-111 16-21

Collector: [redacted] 3945

Date Collected: 2/24/97

Product Cycle Time: 1 Days

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

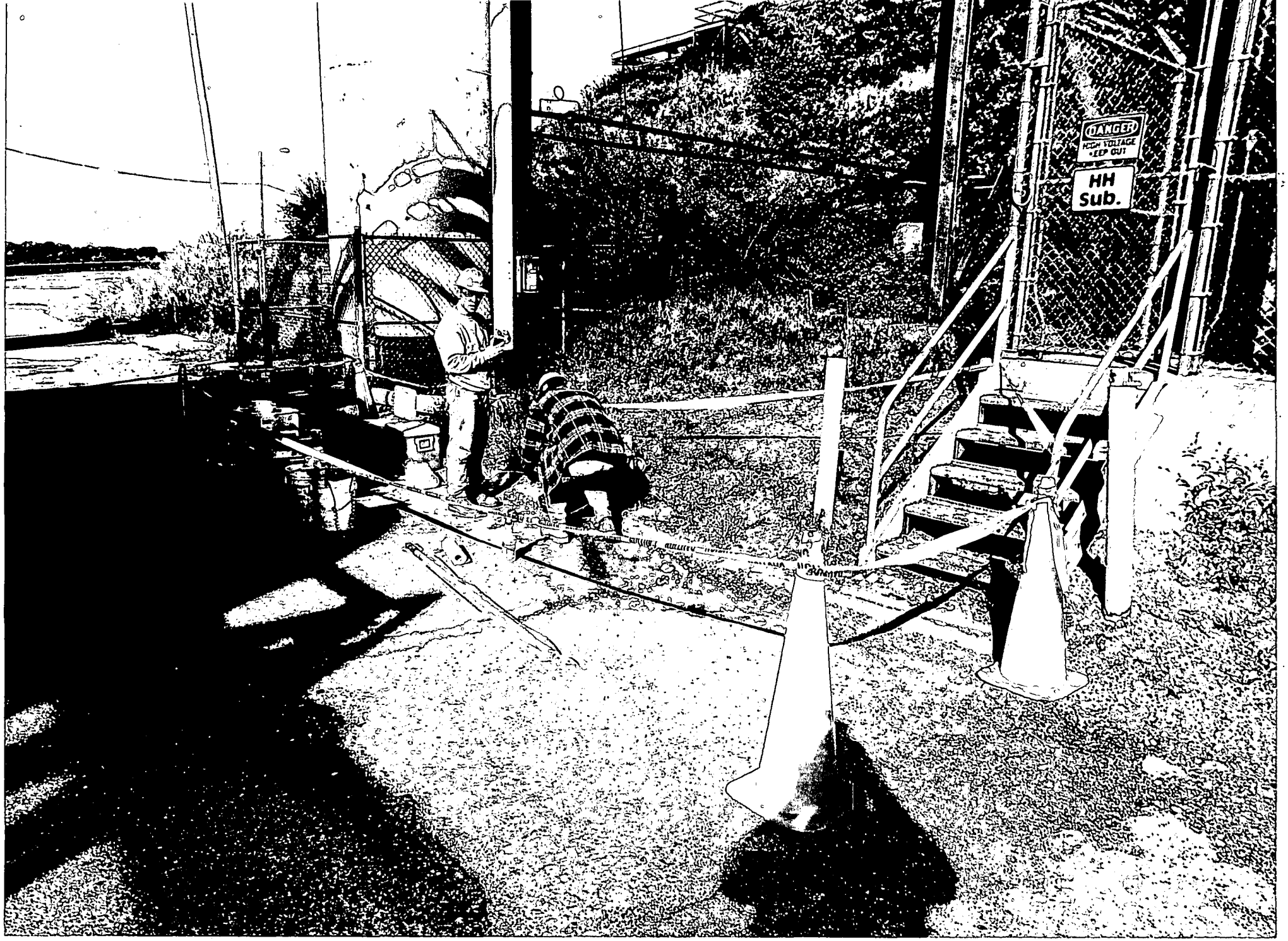
< by activity means it is less than the MDA. MDA value used in calculation of respirator and DOT limits.

Date: 2/25/97 Counted By: 5890 Report By: 5882 INITIALS [redacted]

APPENDIX D

PHOTOGRAPHS OF WELL SAMPLING AND ABANDONMENT


CAUTION
CAUTION
CAUTION


DANGER
HIGH VOLTAGE
KEEP OUT
HH
Sub.