BWX Technologies, Inc.
a McDermott company

Babcock & Wilcox of Ohio, Inc.
1 Mound Road
Miamisburg, Ohio 45343-3000
(937) 865-4020
Fax: (937) 865-3099

ESC-008/97
October 21, 1997

Mr. Tim Fischer
U.S. Environmental Protection Agency
Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Mr. Brian Nickel
Ohio Environmental Protection Agency
Southwest District Office
401 E. Fifth Street
Dayton. Ohio 45402-2911

SUBJECT: Contract No. DE-AC24-97OH20044
PRS 59: DELIVERY OF FINAL POTENTIAL RELEASE SITE DATA PACKAGE

REFERENCE: Mound 2000 process requires distribution of final PRS Data Packages after response to public comments.

Dear Mr. Fischer and Mr. Nickel:

Attached is the Potential Release Site Data Package for PRS 59. This document has been revised to incorporate stakeholder comments received during the public review period.

If you require further information, please contact Dave Rakel at extension 4203 or Sue Mackey at extension 4013.

Sincerely,

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

LRB/dar

Enclosure as stated

cc: Lisa Anderson, OEPA, (1) w/attachments
Ray Beaumier, OEPA, (1) w/attachments
Jim Webb, ODH, (1) w/attachments
Dann Bird, MMCIC, (1) w/attachments
DCC

bc: L. R. Bauer
S. A. Mackey
D. A. Rakel
J. S. Geneczeko
K. A. Gunckle

EG&G MOUND-30-03-04-02--9710290077

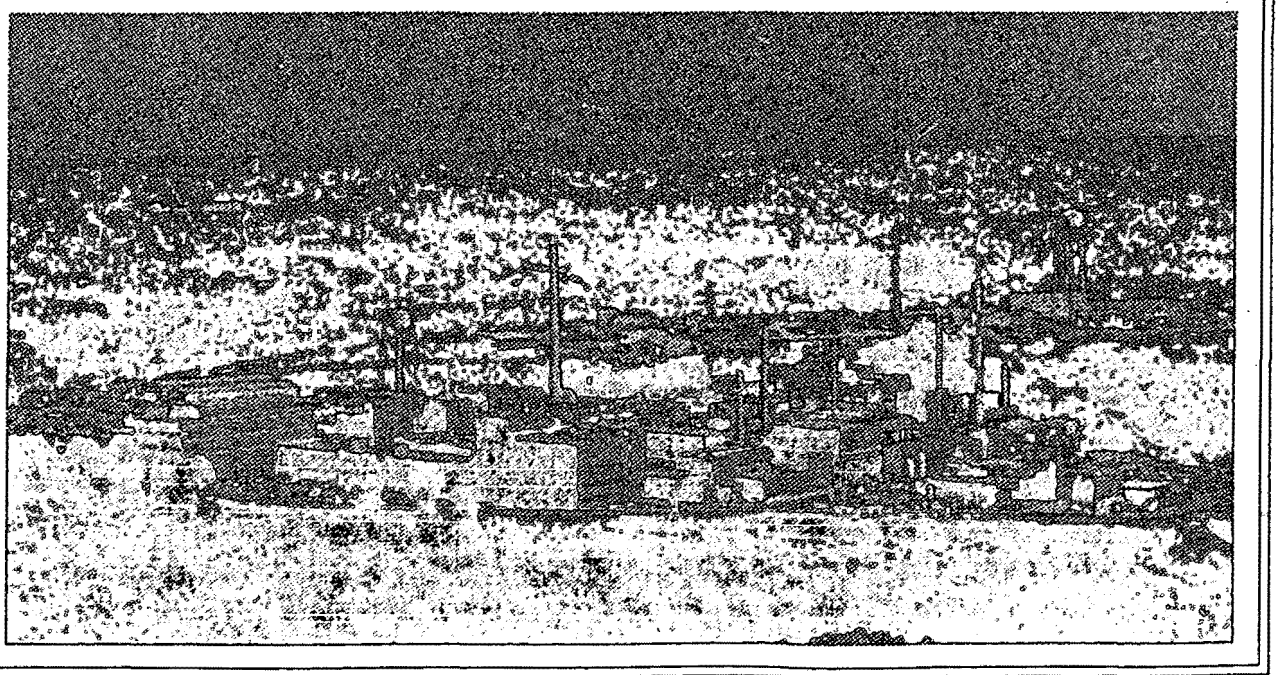
MOUND

Environmental
Restoration
Program

MOUND PLANT

Potential Release Site Package

PRS # 59



MOUND

Environmental Restoration Program

MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

Notice of Public Review Period

OhioEPA

The following potential release site (PRS) package will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio beginning July 15, 1997. Public comment will be accepted on these packages from July 15, 1997, through August 17, 1997.

PRS 59: Waste Storage Site - Soil Boxes Staged South of WD Building

Questions can be referred to Mound's Community Relations at (937) 865-4140.

REV	DESCRIPTION	DATE
PUBLIC RELEASE **0**	Available for comment.	**June 10, 1997**
FINAL **1**	Comment period expired. Comments. Recommendation page annotated.	**Oct. 7, 1997**

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

RECEIVED
OHIO EPA
SEP 12 1997
SOUTHWEST DISTRICT

Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Building 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Environmental Management Project (DOE-MEMP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates the input provided by the public stakeholders of the Mound facility. The public stakeholders have significantly contributed to the forward progress that has been made on the entire release block strategy for establishing the safety of the Mound property prior to its return to public use after remediation and residual risk evaluation.

Attached please find responses to your August 15, 1997 comments on PRS package 59. Document revisions in accordance with the attached responses are expected to be completed in September 1997.

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

Sincerely,

DOE/MEMP: Arthur W. Kleinrath, Remedial Project Manager

USEPA: Timothy J. Fischer, Remedial Project Manager

OHIO EPA: Brian K. Nickel, Project Manager

RECEIVED
OHIO EPA
SEP 12 1997
SOUTHWEST DISTRICT

Reference: Responses to August 15, 1997 Miamisburg Mound Community Improvement Corporation Comments Regarding PRS Package 59

PRS 59

Substantive Comments:

1. The PRS 59 recommendation paragraph on Page R indicates that a sample collected in 1984 from Area 14 near PRS 59 had a Pu-238 concentration of 133.9 pCi/g. This analytical result is not discussed in the PRS 59 History and Contamination paragraphs on Page 3. A review of the excerpt from the OU9 Site Scoping Report: Volume 12 - Site Summary Report labels this 133.9 pCi/g detection as pertaining to the "Contaminated Soil Box Area", and references the OU9 Site Scoping Report: Volume 3 - Radiologic Site Survey as the source of the data. This fact suggests that the identification of PRS 59 was based on a contamination data point, whereas the PRS 59 History paragraph indicates that PRS 59 was identified based on the staging of radioactive waste boxes here during the 1988 EPA Preliminary Review/Visual Site Inspection.

   Upon review of the excerpt from OU9 Site Scoping Report: Volume 3 - Radiologic Site Survey, it becomes clear that the 133.9 pCi/g detection applies to a 1983 core sample #C0094, collected from a spot just a few feet (20-30) north of the PRS 59 Area.

   We suggest that the text of the PRS 59 History paragraph be expanded so that there is no confusion about how the high plutonium detection relates to this site.

Response:

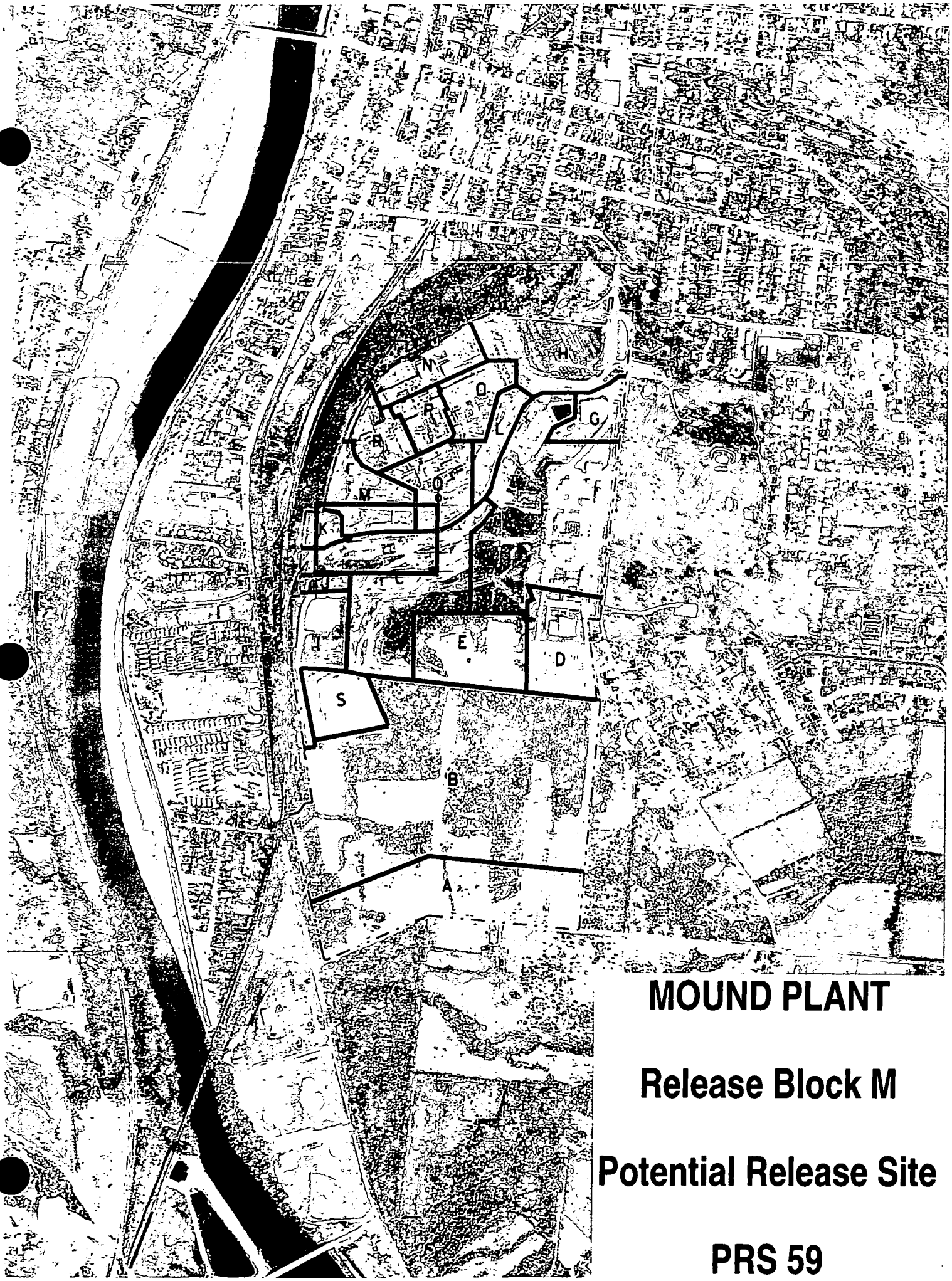
1) The language in the package is correct. The soil box area was determined to be a PRS based on activities that were performed in the area (i.e. box storage) not on analytical data. The data cited lies outside PRS 59 and in Area 14 and is in fact related to PRS 176/177/178/300. Soil from that point was presumably removed during Area 14 remediation as supported by subsequent verification studies.

Errata Comment:

1) The last test paragraph on Page 3 should read "the ER Program conducted verification sampling at Area 14 [not 4] and Area 19...."

Response:

1) The description of contamination for this PRS package will be revised to reflect the area where verification sampling was performed.

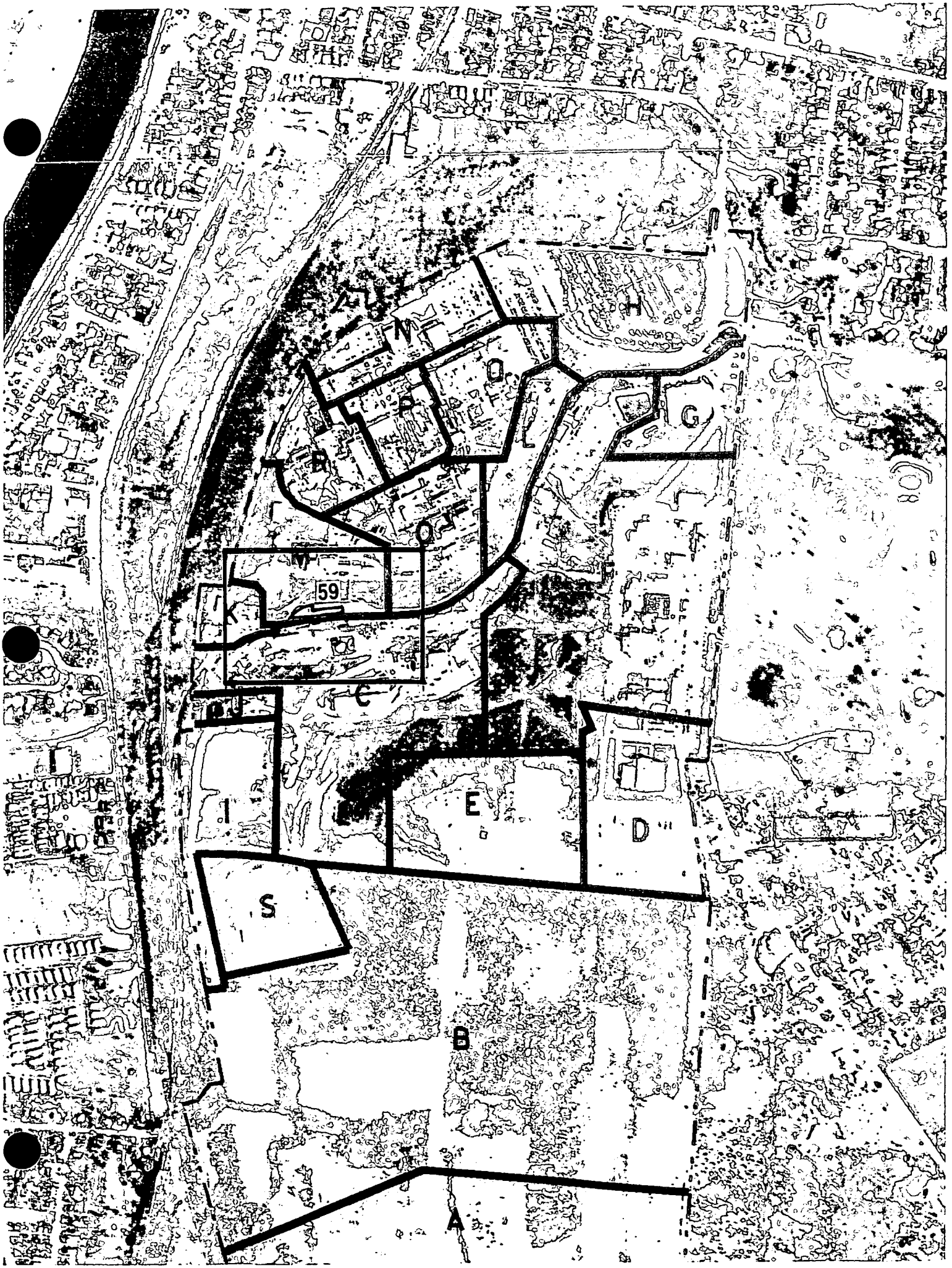


MOUND PLANT

Release Block M

Potential Release Site

PRS 59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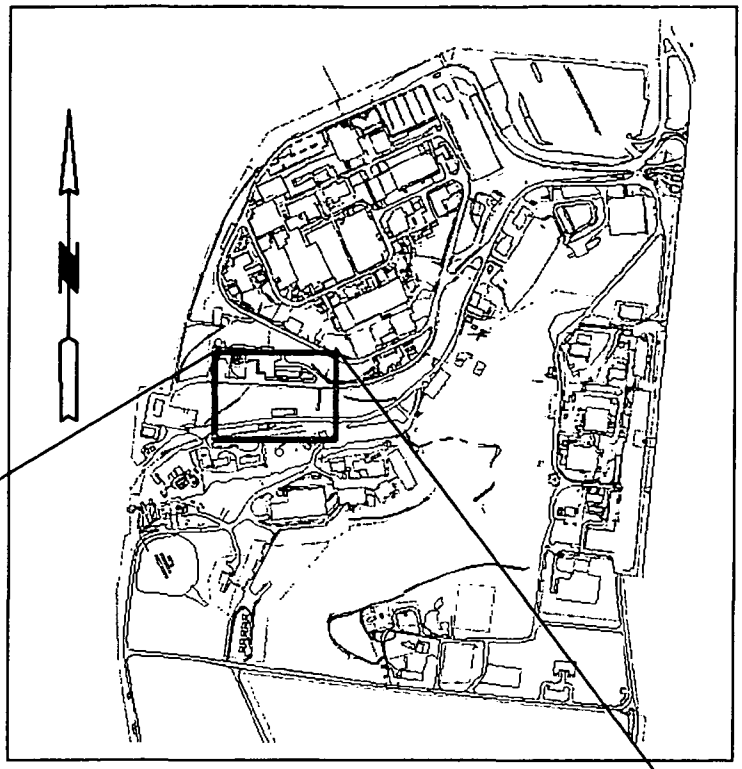
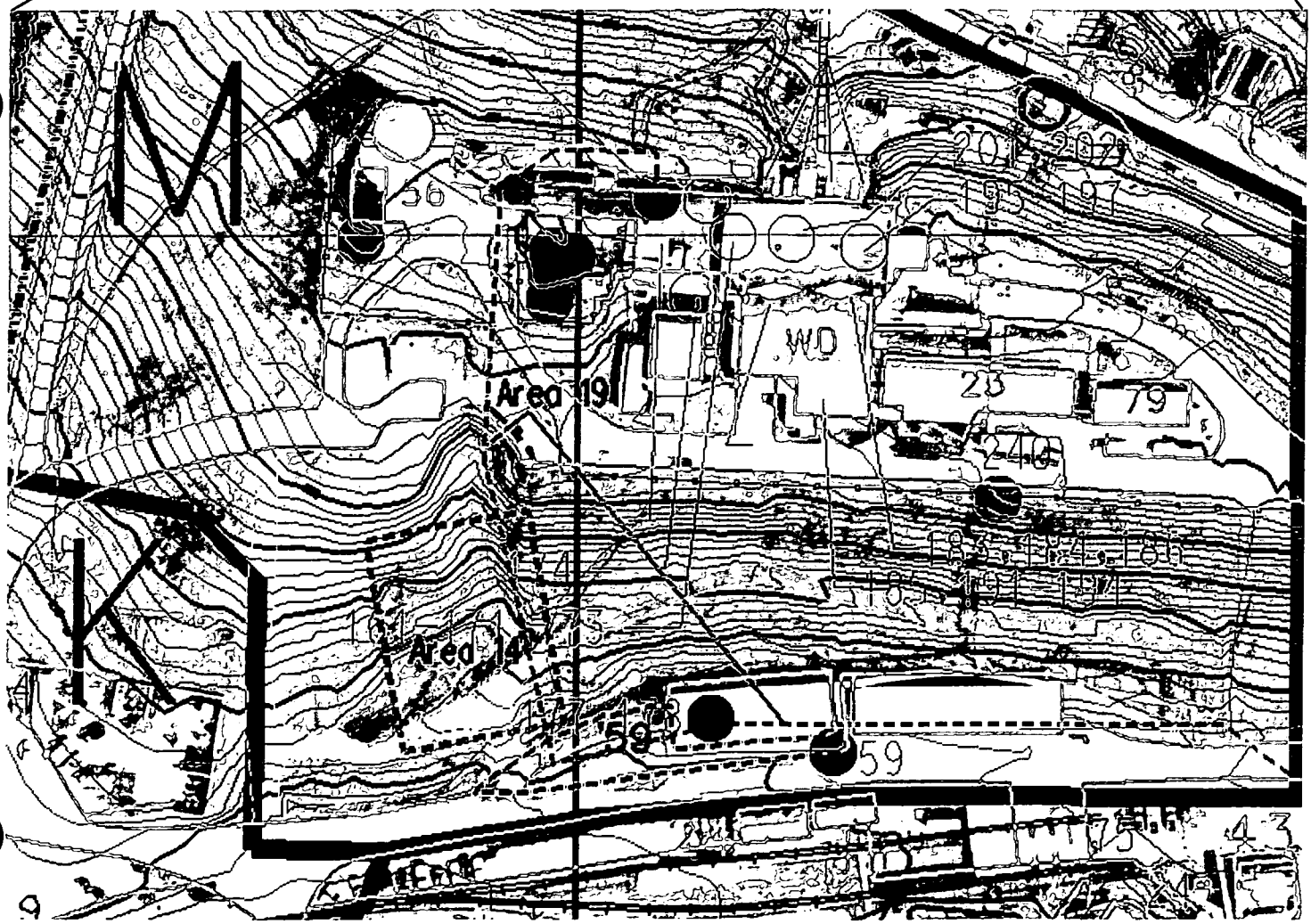
Mound Plant

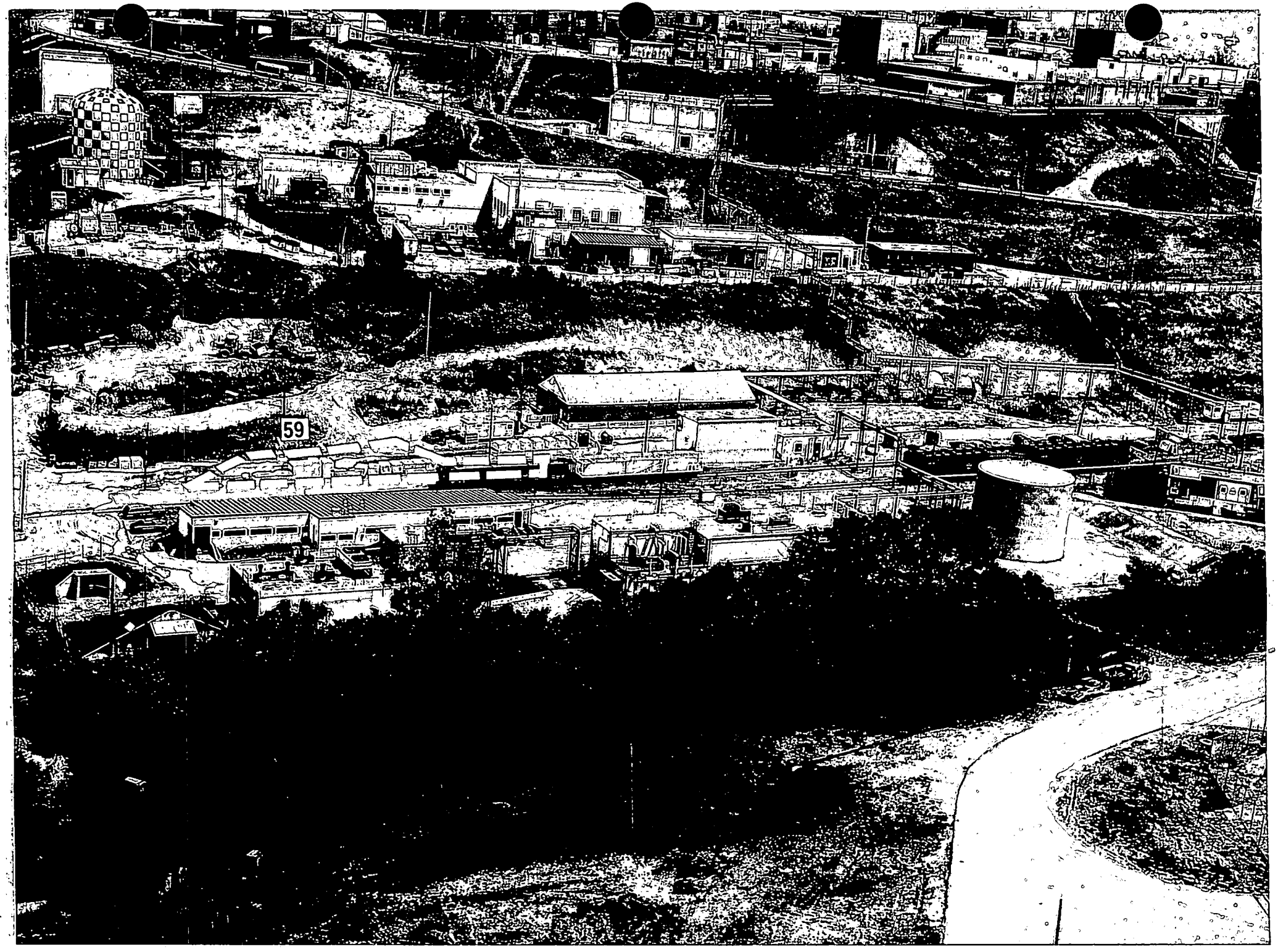
Release Block M

Potential Release Site

PRS 59






59

PRS 59

PRS HISTORY:

The Contaminated Soil Box Storage Area, PRS 59, is located at the base of the hillside south of WD Building.[2,4] In 1969, a radioactive waste line from the SM Building to the WD Building broke and contaminated an area (Area 14) southwest of the WD Building with plutonium. The contaminated soils on the hillside were remediated in 1969 and further remediated in 1974. Spots of contamination remained, and in 1982 the Waste Transfer System Decommissioning Project began under the Mound Decontamination and Decommissioning Program.[5] The project scope included removing the underground waste transfer pipes, the waste storage tanks, and the building which housed the storage tanks and pumping equipment. During remediation contaminated soils and building materials were removed and placed in radioactive waste boxes. During the 1988 Preliminary Review/Visual Site Inspection, EPA inspectors observed and noted that filled waste boxes were staged along the roadway. They did not discover any evidence of contamination in the storage area, but these staged boxes were identified as an Area of Concern in their report.[4] The project was completed in 1991.

CONTAMINATION:

There have been several efforts to verify the clean-up of soils at Area 14. However, the intent of those investigations was to verify that remediation was accomplished. None of those investigations sampled the contaminated Soil Box Area. The Radiological Site Survey collected four samples near this area during 1983 prior to completion of the Waste Transfer System Decommissioning project.[3] No results were above the Mound Plant As Low As Reasonably Achievable guideline criterion of 25 pCi/g for plutonium-238 except for a single point at 133 pCi/g in Area 14. Thorium-232 was not detected.

According to current D&D procedures[6], the external surfaces of waste boxes are checked for radioactive contamination prior to being moved outside controlled areas. Interviews with D&D personnel who worked on the Waste Transfer System Project indicate that this procedure was followed at that time as well.

In the Fall of 1994, the ER Program conducted verification sampling at Area 14 and Area 19[7]. Four sample points were located in the Contaminated Soil Box Area. The analysis detected plutonium at a maximum concentration of 11 pCi/g. No significant VOCs, SVOCs, Pesticide, PCB, or inorganic compounds were detected.

READING ROOM REFERENCES:

1) OU9, Site Scoping Report: Volume 12 - Site Summary Report, December 1994. (pages 6-9)
2) OU9, Site Scoping Report: Volume 7 - Waste Management Report. (pages 10-12)
3) OU9, Site Scoping Report: Volume 3 - Radiological Site Survey, June 1993. (pages 13-17)

OTHER REFERENCES:

4) Preliminary Review/Visual Site Inspection. Report prepared by A. T. Kearney, U.S. Environmental Protection Agency, Region V, Chicago, Illinois. EPA Contract Number 68-01-7374. July 1988. (pages 18-23)
5) Final Report: Waste Transfer System Decommissioning Project (ADS ALMD-1176), 90% Draft. Prepared by P.L. Rader, W.P. Davis, and R. L. Sohn. April 1993. (pages 24-32)
6) Technical Manual MD-10167, Issue 7, D&D Operations Procedures 470 and 426, Mound Plant, May 1994. (pages 33-44)
7) OU6, Area 19 and Area 14 Verification Report, October 1994. (pages 45-53)

PREPARED BY:

James N. Rigano, Member of EG&G Technical Staff

MOUND PLANT
PRS 59
WASTE STORAGE SITE-SOIL BOXES STAGED SOUTH OF WD BUILDING

RECOMMENDATION:

PRS 59 was identified as a storage area for boxes containing plutonium contaminated soil during a US EPA 1988 Preliminary Review/Visual Site Inspection. Procedures were in place to prevent the transfer of contamination from the immediate work site to storage areas. In 1984 plutonium was detected at 133.9 pCi/g at one location in Area 14 near PRS 59. In 1994 four locations were sampled in the area of PRS 59 as part of the cleanup verification at Area 14. No plutonium was detected above the guideline criteria of 25 pCi/g. In addition, all thorium results were below the regulatory limits of 5/15 pCi/g.

Therefore, NO FURTHER ASSESSMENT is recommended for PRS 59.

CONCURRENCE:

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

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

OEPA: Brian K. Nickel 5/13/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 7/15/97 to 8/17/97

☐ No comments were received during the comment period.

☒ Comment responses can be found on page 1, 2 of this package.

REFERENCE MATERIAL
PRS 59

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9
SITE SCOPING REPORT:
VOLUME 12 - SITE SUMMARY REPORT

MOUND PLANT
MIAMISBURG, OHIO

December 1994

U.S. DEPARTMENT OF ENERGY
OHIO FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

Description of History and Nature of Waste Handling						Hazardous Conditions and Incidents			Environmental Data		
No.	Site Name	Location	Status	Potential Hazardous Substances	Ref	Releases	Media	Ref	Analytes[a]	Results	Ref
54	Building 57 Sand Filters (2 units)	(Cont.)	(Cont.)	(Cont.)	(Cont.)	(Cont.)	(Cont.)	(Cont.)	(Cont.)		
55	Building 57 Chlorine contact chamber (Tank 111)										
56	Building 57 Chlorine contact chamber (Tank 112)										
57	Sludge Drying Beds	H-5	Historical	Plutonium-238	4, 5, 18	Suspected	S	4	14	Table B.9	6
58	Dredge Spoil Drying Beds	H-5	Surplus	Contaminants listed under Asphalt-Lined Pond	4, 5, 18	Suspected	S	4	No Data		
59	Contaminated Soil Box Storage Area	G-6	Historical	Plutonium-238	4, 5, 18	Suspected			14	Table B.9	6
60	Hazardous Waste Storage Area (Building 72)	G-5	In service	Combustible and flammable liquids, Waste oils, Solvent-containing wastes, Ignitable wastes, Plating wastes, Photo-processing wastes, Polymeric wastes, Toxic wastes	4, 5, 18	None Suspected			1 14	SGS[b] Table B.5 Locations 5221 and 5222 Table B.9 RSS[c] Location C0103 (Appendix E in Ref. 6)	12 6
61	Building 72 Outdoor Hazardous Waste Storage Area		Inactive	Waste oils	4, 5, 18				1 14	SGS[b] Table B.5 Locations 5221 and 5222 Table B.9 RSS[c] Location S0541 (Appendix E in Ref. 6)	12 6
62	Building 72 Empty Drum Storage Area		In service	None suspected	4, 5, 18				1	SGS[b] Table B.5 Locations 5221 and 5222	12

Table B.9. Summary of Radiological Data[a,b]

Site Name	Radiological Contaminants															
	Potassium-40	Plutonium-239	Plutonium-238	Cesium-137	Thorium-Total	Tritium	Thorium-232	Cobalt-60	Radium-224, -226, -228	Radon-222	Americium-241	Actinium-227	Uranium-233, -234, -238	Bismuth-210m	Bismuth-207	Reference
21. Building 1 Leach Pit Area (Area I)	NA	NA	0.18	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7
32. Underground Sewer Line G12						ND										7
33. Underground Sewer Line G14 East						ND										7
34. Underground Sewer Line G14 West						ND										7
35. Underground Sewer Lines G19 and G14						ND										7
36. Underground Sewer Line G15						ND										7
57. Sludge Drying Beds			1235				63									6
59. Contaminated Soil Box Storage Area			133.9													6
60. Hazardous Waste Storage Area (Building 72)			0.5		3.95											6
61. Building 72 Outdoor Hazardous Waste Storage Area			0.64		<2											6
63. Building 19 Soils	NA	NA	32.4	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6
65. Building 61 Area, Former Heavy Equipment Area	NA	NA	10.35	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6
67. Plant Drainage Ditch	NA		535	LDL	<2			LDL	1.2	NA	LDL	NA		NA	NA	6
68. Asphalt-Lined Pond	7.21		160	0.25		29										18
69. Overflow Pond	22.5		34.2	0.395	268											18
70. Retention Basins and Weir Basin	23		14.6		<2	7.09			1.52							18
72. Area 13, Polonium Contaminated Wood			5.74													6
73. Evaporator Storage Area	NA	NA	2.5	1.3	<2	0.15	NA	LDL	0.9	NA	LDL	NA	NA	NA	NA	6
74. Quonset Hut (former)	NA	NA	0.6	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6

1 - Soil Gas Survey - Freon 11, Freon 113, Trans-1,2-Dichloroethylene, Cis-1,2-Dichloroethylene, 1,1,1-Trichloroethane, Perchloroethylene, Trichloroethylene, Toluene
2 - Gamma Spectroscopy - Thorium-228, -230, Cobalt-60, Cesium-137, Radium-224, -226, -228, Americium-241, Actinium-227, Bismuth-207, Bismuth-210m, Potassium-40
3 - Target Analyte List
4 - Target Compound List (VOC)
5 - Target Compound List (SVOC)
6 - Target Compound List (Pesticides/Polychlorinated Biphenyl)
7 - Dioxins/Furans
8 - Extractable Petroleum Hydrocarbons (EPH)/Total Petroleum Hydrocarbons (TPH)
9 - Lithium
10 - Nitrate/Nitrite
11 - Chloride
12 - Explosives
13 - Plutonium-238
14 - Plutonium-238, Thorium-232
15 - Cobalt-60, Cesium-137, Radium-226, Americium-241
16 - Tritium

Reference List

1. DOE 1986 "Phase I: Installation Assessment Mound [DRAFT]."
2. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (Final)."
3. DOE 1992c "Mound Plant Underground Storage Tank Program Plan & Regulatory Status Review (Final)."
4. DOE 1993a "Site Scoping Report: Vol. 7 - Waste Management (FINAL)."
5. EPA 1988a "Preliminary Review/Visual Site Inspection for RCRA Facility Assessment of Mound Plant"
6. DOE 1993d "Operable Unit 9, Site Scping Report: Vol. 3 - Radiological Site Survey (FINAL)."
7. DOE 1993c "Operable Unit 3, Misc. Sites Limited Field Investigation Report."
8. DOE 1992d "Reconnaissance Sampling Report Decontamination & Decommissioning Areas, OU6, (FINAL)."
9. Fentiman 1990 "Characterization of Mound's Hazardous, Radioactive and Mixed Wastes."
10. DOE 1992f "Operable Unit 9, Site Scpoing Report: Vol. 9 - Spills and Response Actions (FINAL)."
11. Styron and Meyer 1981 "Potable Water Standards Project: Final Report."
12. DOE 1993b "Reconnaissance Sampling Report - Soil Gas Survey & Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill (FINAL)."
13. DOE 1993d "Operable Unit 9, Site Scoping Report: Vol. 3 - Radiological Site Survey (FINAL)."
14. DOE 1991b "Main Hill Seeps, Operable Unit 2, On-Scene Coordinator Report for CERCLA Section 104 Remedial Action, West Powerhouse PCB Site."
15. Halford 1990 "Results of South Pond Sampling."
16. DOE 1993e "Operable Unit 4, Special Canal Sampling Report, Miami Erie Canal."
17. DOE 1990 "Preliminary Results of Reconnaissance Magnetic Survey of Mound Plant Areas 2, 6, 7, and C."
18. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (FINAL)."
19. Rogers 1975 "Mound Laboratory Environmental Plutonium Study, 1974."
20. DOE 1992h "Ground Water and Seep Water Quality Data Report Through First Quarter, FY92."
21. Dames and Moore 1976a, b "Potable Water Standards Project Mound Laboratory" and "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory."
22. DOE 1992i "Closure Report, Building 34 - Aviation Fuel Storage Tank."
23. DOE 1992j "Closure Report, Building 51 - Waste Storage Tank."
24. DOE 1994 "Operable Unit 1, Remedial Investigation Report."
25. EG&G 1994 "Active Underground Storage Tank Plan."

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9
SITE SCOPING REPORT:
VOLUME 7 - WASTE MANAGEMENT

MOUND PLANT
MIAMISBURG, OHIO

February 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

Area 8 and Area 12, Contaminated Soils from Areas 1 and 9 (Stought et al. 1988). A November 1970 survey for thorium-230 and thorium-232 in surface soils and core samples showed no trend in contamination, and readings were within statistical limits of background (MRC 1973a). It was concluded that there was no evidence of loss, leakage, or buildup of thorium in the vicinity of Building 21.

In 1967, a portion of Area 1 was used to stage plutonium-238 waste packages destined for recovery. The area was referred to as the SM field area and is discussed in the section on the SM Drum Storage Area.

A radioactive site survey from 1982 to 1985 (Stought et al. 1988) showed that soils were contaminated with high levels of thorium and plutonium-238 (maximum thorium concentration of 54.3 pCi/g and maximum plutonium-238 concentration of 34,000 pCi/g). That same study alluded to the natural movement of contamination during periods of rain and possible migration of contaminants between 1976 and 1985 into adjacent areas to the south.

There was insufficient sampling for adequate characterization of the vertical extent of contamination (DOE 1991b). A drainage channel to the west was excavated and covered with concrete in 1989. Much of the soil was transferred to the banks of the channel.

5.1.8. Contaminated Soil Box Storage Area (Historical)

The Contaminated Soil Box Storage Area is located south and slightly east of the WD Building (Figure 5.1) (DOE 1992g). In 1969, a radioactive waste line from the SM Building to the WD Building broke and contaminated an area (Area 14) southwest of the WD Building with plutonium. The contaminated soils were excavated from Area 14 in 1974 and placed in wooden boxes for disposal at the NTS (Black 1974). The boxes of soil were decontaminated and screened for surface contamination before they were removed from Area 14. Soil samples from the Soil Box Storage Area collected in 1984 showed some elevated levels of plutonium-238 (DOE 1991c).

5.1.9. Area 21, Old Explosives Bunker (Historical)

The Old Explosives Bunker (Area 21) is on the south central slope of the SM/PP Hill at an elevatio approximately 885 ft (Figure 5.2). This bunker was accessed by a dirt road and was used for storage of explosives during plant construction in 1947 and 1948. There were originally two bunk a large one for explosives storage and a small one for detonator storage. These bunkers were known by the term dynamite caves (Bradley 1953h) and dynamite shacks (MCC 1953-1957).

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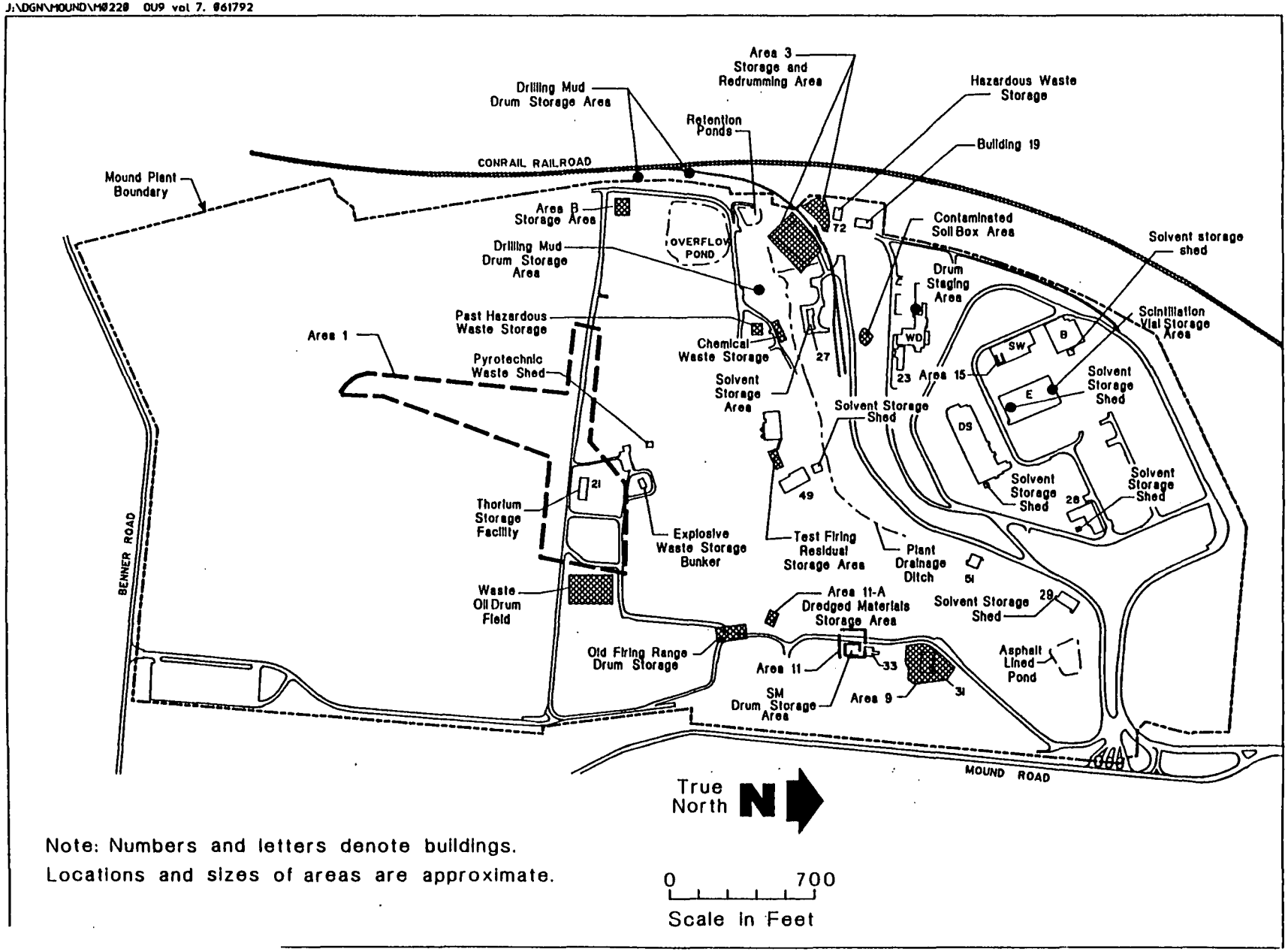


Note: Numbers and letters denote buildings.
Locations and sizes of areas are approximate.

Figure 5.1 Waste storage areas.

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9, SITE SCOPING REPORT: VOLUME 3 - RADIOLOGICAL SITE SURVEY

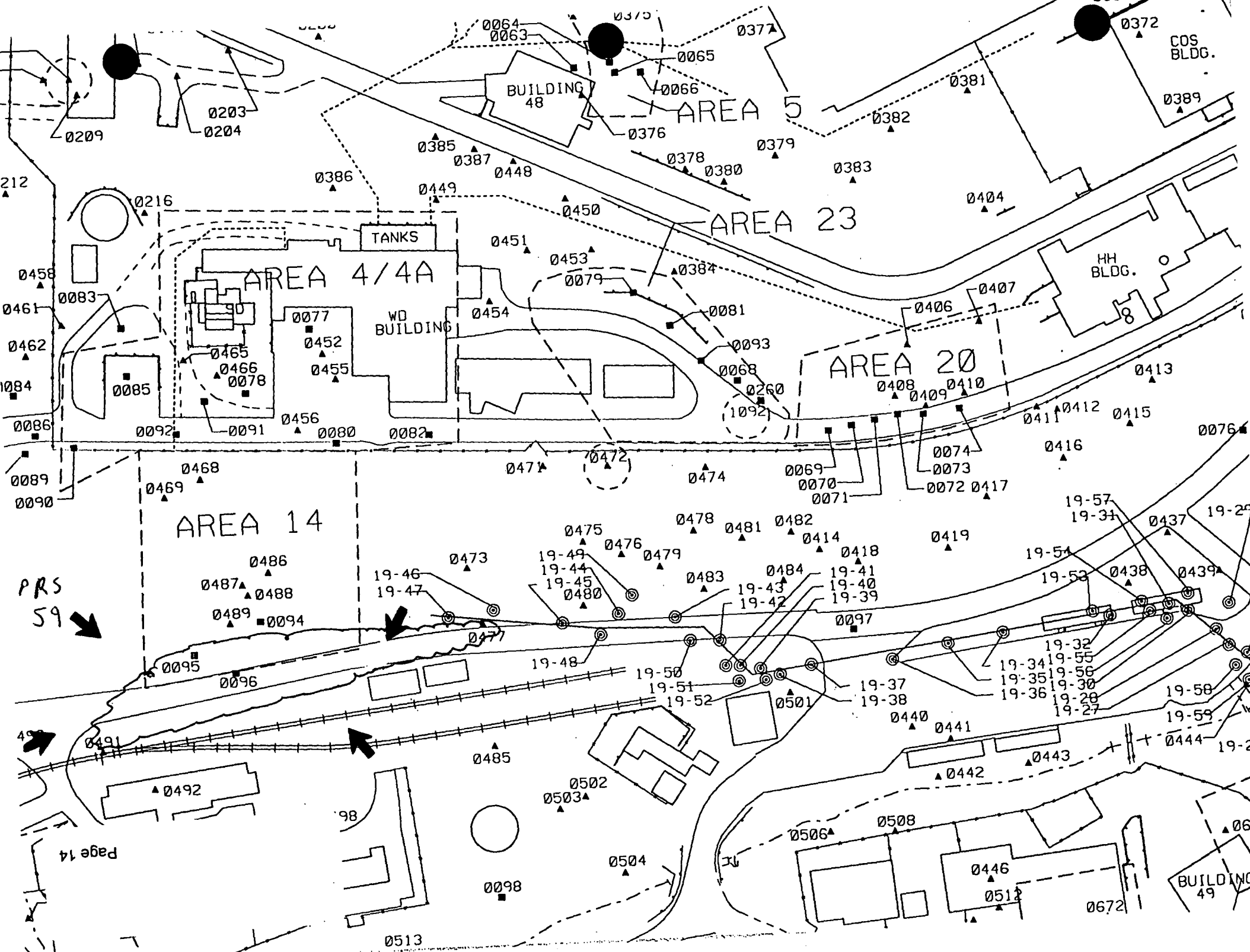
MOUND PLANT
MIAMISBURG, OHIO

June 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL


AREA 5
AREA 23
AREA 4/4A
AREA 20
AREA 14
BUILDING 48
TANKS
WD BUILDING
COS BLDG.
HH BLDG.
BUILDING 49
PRS 59
Page 14

Map Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Pu-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ra-226 (pCi/g)	Am-241 (pCi/g)
C0093	2130	3390	10600	09-85	18	NR	NR		LDL	LDL	0.6	LDL
			10601	09-85	36	NR	NR		LDL	LDL	0.6	LDL
			10602	09-85	54	NR	NR		LDL	LDL	0.6	LDL
			10603	09-85	72	NR	NR		LDL	LDL	0.5	LDL
			10604	09-85	90	NR	NR		LDL	LDL	0.4	LDL
			10605	09-85	108	NR	NR		LDL	LDL	0.5	LDL
			10606	09-85	126	NR	NR		LDL	LDL	0.5	LDL
			10607	09-85	144	NR	NR		LDL	LDL	0.9	LDL
			10608	09-85	162	NR	NR		LDL	LDL	0.5	LDL
			10609	09-85	180	NR	NR		LDL	LDL	0.6	LDL
			10610	09-85	198	NR	NR		LDL	LDL	0.8	LDL
S0471	2150	3555	7602	08-84	0	5.27	b					
S0472	2175	3505	6701	08-84	0	1.20	7.50					
S0473	2200	3655	5877	07-84	0	1.83	b		LDL	1.2	0.9	LDL
S0474	2215	3430	6700	08-84	0	1.10	b					
S0475	2225	3555	5875	07-84	0	6.61	b					
S0476	2250	3530	5874	07-84	0	1.02	b					
S0477	2250	3665	6696	08-84	0	0.02	b					
S0478	2260	3465	5872	07-84	0	0.36	b					
S0479	2275	3505	5873	07-84	0	0.65	b					
S0480	2275	3580	6697	08-84	0	0.05	b					
S0481	2285	3430	5871	07-84	0	0.65[c]	b					
		3390	5870	07-84	0	0.68	b					
		3480	6698	08-84	0	0.41	b					

[b] Indicates Th <2.0 per gram.

Map Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Pu-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ra-226 (pCi/g)	Am-241 (pCi/g)
S0484	2335	3415	6699	08-84	0	1.62[c]	b					
S0485	2350	3705	2915	10-83	0	0.13	b					
S0486	2125	3810	6706	08-84	0	10.27	b					
S0487	2125	3835	6704	08-84	0	5.96	b					
S0488	2135	3835	6703	08-84	0	18.77	b					
S0489	2150	3860	6705	08-84	0	14.10	b					
C0094	2160	3835	1595	04-83	18	133.90	2.24					
			1596	04-83	36	59.90	b					
			1597	04-83	54	70.90	b					
			1598	04-83	72	6.81	b					
			1599	04-83	90	11.82	b					
			1600	04-83	108	1.24	b					
			1601	04-83	126	3.54	b					
C0095	2160	3900	1602	04-83	18	7.87	b					
			1603	04-83	54	3.97	b					
			1604	04-83	72	7.49[c]	b					
			1605	04-83	90	5.00	b					
			1606	04-83	108	5.05	b					
			1607	04-83	126	6.63	b					
S0490	2175	4135	2918	10-83	0	0.71	b					
C0096	2190	3875	1608	04-83	18	0.27	b					
			1609	04-83	36	2.18	b					
			1610	04-83	54	0.26	b					
			1611	04-83	72	0.45	b					
			1612	04-83	90	1.46[c]	b					
			1613	04-83	108	0.62	b					
			1614	04-83	126	0.09	b					
			1615	04-83	144	0.07	b					

[b] Indicates Th <2.0 per gram.

Map Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Pu-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Co-60 (pCi/g)	Cs-137 (pCi/g)	Ra-226 (pCi/g)	Am-241 (pCi/g)
S0491	2200	4010	2917	10-83	0	5.26	b					
S0492	2250	3985	6872	08-84	0	0.02	b					
S0493	2275	4010	6870	08-84	0	0.03	b					
S0494	2275	4135	6874	08-74	0	1.48	b					
(The collection date of 08-74 should probably be either 08-84 or 07-84)												
S0495	2300	4010	2920	10-83	0	0.03	b					
S0496	2300	4135	6873	08-84	0	0.02	b					
S0497	2325	3935	6871	08-84	0	0.04	b					
S0498	2350	3860	2922	10-83	0	0.10	b					
S0499	2350	4135	2919	10-83	0	0.04[c]	b					
S0500	2375	3960	2921	10-83	0	0.54	b					
C0097	2400	3380	8278	10-84	72	0.46	b		LDL	LDL	1	LDL
S0501	2425	3455	2994	10-83	0	2.91	b					
S0502	2425	3655	2993	10-83	0	2.32	b					
S0503	2425	3680	2992	10-83	0	0.13	b					
S0504	2500	3655	5884	07-84	0	0.18	b					
S0505	2525	3755	5887	07-84	0	0.87	b		LDL	LDL	0.9	LDL
S0506	2550	3480	5883	07-84	0	1.32	b					
S0507	2550	3730	5886	07-84	0	1.05	b					

[b] Indicates Th <2.0 per gram.

A.T. Kearney, Inc.
222 South Riverside Plaza
Chicago, Illinois 60606
312 648 0111

Management
Consultants

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WASTE MANAGEMENT DIVISION
U.S. EPA, REGION V

AT KEARNEY

July 15, 1988

Ms. Pat Vogtman
Regional Project Officer
Environmental Protection Agency
230 South Dearborn Street
Chicago, IL 60604

Reference: EPA Contract No. 68-01-7374; Work Assignment No. R25-01-21; U.S. DOE-Mound, Miamisburg, Ohio; EPA I.D. #OH6899008984; PR/VSI Report

Dear Ms. Vogtman:

Enclosed is the Preliminary Review/Visual Site Inspection Report for the U.S. DOE-Mound facility in Miamisburg, Ohio. The report presents the results of the Preliminary Review (PR) and the Visual Site Inspection (VSI) portions of the RCRA Facility Assessment (RFA) for this facility. The PR report, VSI trip report, VSI field notes, and VSI photograph log are included as attachments to this report. A Summary of Suggested Further Actions is included separately in Section VII at the EPA's Technical Monitor's request.

The PR and VSI resulted in identification of 86 Solid Waste Management Units (SWMUs) and 38 Other Areas of Concern. Release of hazardous constituents was documented in the file material or observed during the VSI from the following SWMUs:

Building 1 Leach Pit (SWMU SI-4)
Building 27 Leach Pit (SWMU SI-5)
Building E Solvent Storage Shed (SWMU CS-2)
Waste Oil Drumfield (SWMU CS-6)
Pyrotechnic Waste Disposal Area (SWMU OB-8)
Waste Disposal Pipeline (SWMU MI-2)
Fire Fighting Training Facility (SWMU MI-5)
Lithium Carbonate Disposal Area (SWMU MI-6)
Chromium Trench (SWMU MI-7)
Acid Leach Field (SWMU MI-11)
Monitoring Well 34-1 (SWMU MI-13)

We suggest that a subsurface investigation be conducted at the following units to determine the magnitude and extent of the contamination in underlying soil and groundwater.

MI-15 - Dredge Spoil Drying Beds	Not Regulated	Active

* Wastewater is discharged to an NPDES outfall.
** Regional Air Pollution Control Authority.
† Unit has been dismantled.

The following Areas of Concern were identified during the VSI:

A - Thorium Drum Storage	Not Regulated	-
B - Runoff Hollow	Not Regulated	-
C - Septic Tank and Leach Field	Not Regulated	-
D - North Slope Springs	Not Regulated	-
E - Waste Pipeline	Not Regulated	-
F - SM/PP Hill-9	Not Regulated	-
G - Hillside Hole	Not Regulated	-
H - Epoxy Resin Disposal	Not Regulated	-
I - North Canal	Not Regulated	-
J - Miami-Erie Canal (South Canal)	Not Regulated	-
K - North Pond	Not Regulated	-
L - South Pond	Not Regulated	-
→ M - Contaminated Soil Box Storage Area	Not Regulated	-
N - Paint Shop Spills	Not Regulated	-
O - Powerhouse Spills	Not Regulated	-
P - Building 9 Spills	Not Regulated	-
Q - Building 61 Spills	Not Regulated	-
R - HH Building Contamination	Not Regulated	-
S - SM/PP Hill-1	Not Regulated	-
T - Valley-1	Not Regulated	-
U - Main Hill-1	Not Regulated	-
V - Main Hill-2	Not Regulated	-
W - SM/PP Hill-2	Not Regulated	-
X - SM/PP Hill-3	Not Regulated	-
Y - Valley-2	Not Regulated	-
Z - Main Hill-3	Not Regulated	-
AA - Main Hill-4	Not Regulated	-
BB - Main Hill-5	Not Regulated	-
CC - Valley-3	Not Regulated	-
DD - Mail Hill-6	Not Regulated	-
EE - SM/PP Hill-4	Not Regulated	-

OTHER AREAS OF CONCERN

No.	Name	Waste Managed/ Contaminant	Location	Volume/Area	Concern	Reference
L	South Pond	Surface runoff from North Canal	Northwest of facility, off-site south of North Pond	Approximately 100 by 50 feet, unknown volume	Plutonium in impounded water	7, 10, 72, 84
M	Contaminated Soil Box Storage Area	Excavated soil	South of WD Building at base of hill	Unknown	Plutonium contaminated soil from pipeline leak	84
N	Paint Shop Spills	Paint wastes	PS Building	Unknown	Suspected leaks and spills to soil	55
O	Powerhouse Spills	Fuel Oil	P Building	Unknown	Possible underground tank leakage	55
P	Building 9 Spills	Waste oil in soil	Building 9	Unknown	Dumping	55
Q	Building 61 Spills	Waste/Oil	Building 61	Unknown	Suspected dumping onto soil	55

74. Sharon L. Roney, Division of Water Quality Monitoring and Assessment, Ohio EPA, Compliance Sampling Inspection, Mound Laboratory, September 8, 1987.

75. James A. Morley, DOE-Mound Facility, Letter transmitting NPDES Information to Kendra Dearth, Ohio EPA, September 9, 1987.

76. James C. Simpson, Unit Supervisor, Water Pollution Control, Ohio EPA, Transmittal of NPDES Compliance Inspection Report to James Morley, DOE-Mound Facility, September 10, 1987.

77. Scott R. Shane, Solid and Hazardous Waste Management Unit, Letter to Richard Janowiecki, DOE-Mound Facility, September 22, 1987.

78. Draft Phase 2 Installation Generic Monitoring Plan/Remedial Investigation Plan - Stage 2 Supplement, Mound, Comprehensive Environmental Assessment and Response Program, September 1987.

79. John B. Hussman, Sr. Industrial Hygienist, Monsanto Research Corporation - Mound, Transmittal of Asbestos Demolition/Renovation Notification to Jack Kemp, Regional Air Pollution Control Agency, October 20, 1987.

80. Safety and Hygiene Manual, DOE-Mound, October 1, 1987.

81. G. W. Johnson, Acting Area Manager, DOE-Mound Facility, Transmittal of Environmental Survey (dated March 1987) to Scott Shane, Ohio EPA, October 30, 1987.

82. Contact Report, DOE-Mound, Meeting regarding GDF Inspection, December 21, 1987.

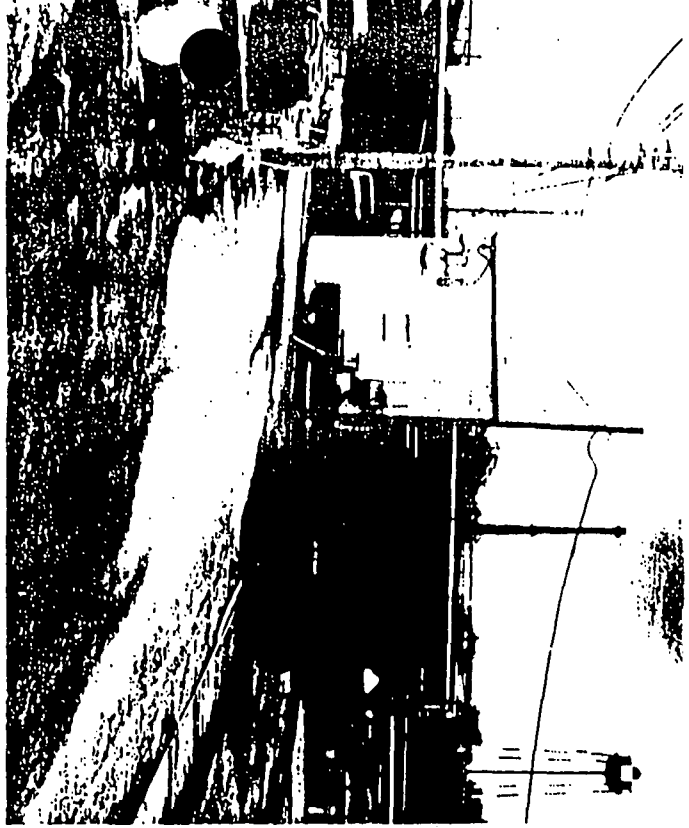
83. Monica B. Roll, Technical Director, A. T. Kearney, Transmittal of Completeness/Technical Review of Part B Application, U. S. DOE, Mound, Miamisburg, Ohio to Pat Vogtman, Regional Project Officer, U.S. EPA Region V, February 11, 1987.

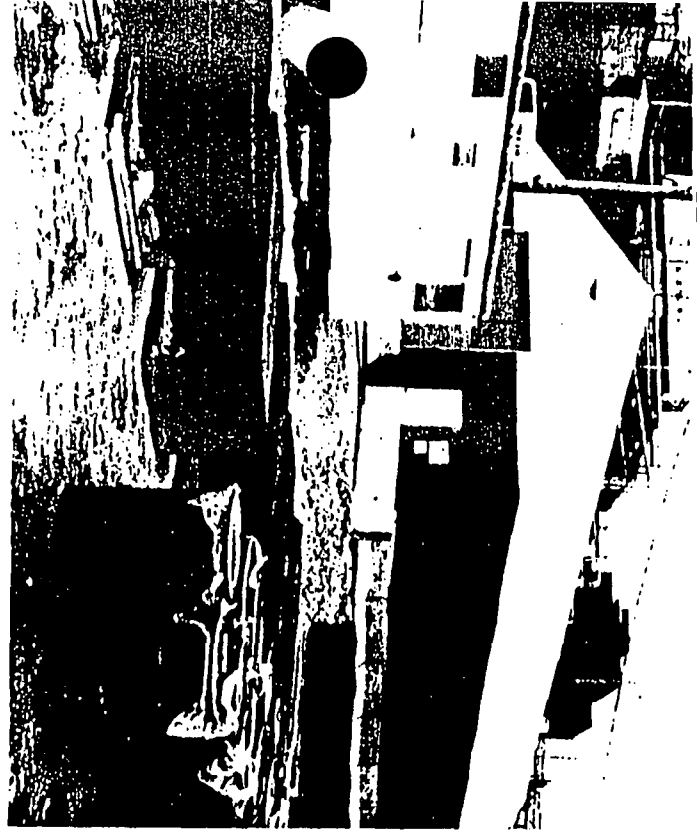
84. Information retained from Visual Site Inspection at DOE-Mound, field log books, photograph logs, William Murphy Rohrer and Steven C. Heikkila, DPRA, Inc., May 3-5, 1988.

85. Lab Analysis Report from NUS Corporation, WD Sludge Analysis, September 27, 1985.

86. Site Plan, Incinerator Facility, Sketch No. 2, W. Russell, June 30, 1970.

UNIT	PHOTOGRAPH NUMBER OR REASON FOR NO PHOTOGRAPH TAKEN
MI-6 - Lithium Carbonate Disposal Area	4-19
MI-7 - Chromium Trench	6-13
MI-8 - Cooling Tower Basins	5-15
MI-9 - Glass Melter Feed Tank	1-8
MI-10 - Trash Dumpsters	2-28
MI-11 - Acid Leach Field	5-3
MI-12 - Vapor Degreaser	6-1
MI-13 - Monitoring Well 34-1	6-7
MI-14 - Building 27 Concrete Flume	3-22
MI-15 - Dredge Spoil Drying Beds	2-22
A - Thorium Drum Storage	3-13 to 3-14
B - Runoff Hollow	3-28
C - Septic Tank and Leach Field	5-6
D - North Slope Springs	6-14 to 6-16
E - Waste Pipeline	Underground unit
F - SW Building C	6-18
G - Hillside Hole	6-24 to 6-25
H - Epoxy Resin Disposal	Classified Area
I - North Canal	6-33
J - Miami-Erie Canal (South Canal)	Unit not photographed because of time constraints
K - North Pond	6-35
L - South Pond	6-29 to 6-32
M - Contaminated Soil Box Storage Area	2-7 to 2-9
N - Paint Shop Spills	Spills no longer visible
O - Powerhouse Spills	5-18
P - Building 9 Spills	Spills no longer visible
Q - Building 61 Spills	Spills no longer visible
R - HH Building Contamination	Unit is in same area as Photograph MI-13





2-7 to 2-9 Staging area (AOC M) for radioactive contaminated soil removed from Pu 238 spill site in Waste Disposal Pipeline (SWMU MI-2). Low specific activity (LSA) wastes will be trucked off-site in wooden boxes. Transuranic wastes (TRU) will be shipped off-site in specially designed rail cars. Green barrels contain dust suppressant.

Final Report: Waste Transfer System Decommissioning Project (ADS ALMD-1176) (90% Draft)

Prepared by P. L. Rader, W. P. Davis and R. L. Sohn

January 28, 1993
Revised April 27, 1993

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Miamisburg, Ohio 45343

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EG&G MOUND APPLIED TECHNOLOGIES

for the
U. S. DEPARTMENT OF ENERGY

WASTE TRANSFER SYSTEM DECOMMISSIONING PROJECT

Executive Summary

The Waste Transfer System (WTS) decontamination and decommissioning project involved the removal and disposal of contaminated soil, equipment and materials associated with the system used to transfer liquid wastes from the Special Metallurgical (SM) and Plutonium Processing (PP) Buildings to the Waste Disposal (WD) facility. This system consisted of two (2) underground transfer lines (~5100 feet total) and a 350 square foot building (Building 41) containing two (2) 3500 gallon tanks and a pumping system. The transfer lines exited the PP Building and ran approximately 1800 feet in a northwest direction to Building 41. This run was almost entirely down grade, and liquids were gravity fed to the holding tanks. At that point, wastes were collected in the two tanks, then pumped uphill, approximately 400 feet, and to the rear of the Waste Disposal (WD) Building (approximately another 300 feet).

The WTS was designed and built in the mid-1960's. In 1969, the lines on the WD Hillside developed leaks which resulted in contamination of soils from the WD Building to Building 41. In 1974, the underground line from Building 41 to the WD Building was abandoned and replaced with an above-ground double walled black plastic PVC line. Waste transfer using the WTS system was terminated in 1976, and wastes were subsequently hauled by a dedicated tanker truck from the PP Building to WD Building.

In 1978, Monsanto Research Corporation (MRC) prepared a Comprehensive Program Plan for the decontamination and decommissioning of inactive Advanced Nuclear Systems and Projects Division (ANSPD) areas, which included the entire Waste Transfer System (including Building 41) between the PP and WD Buildings.

It was determined that complete decontamination (i.e., decontamination to levels required for a conditional release requiring no radiological controls on site) was feasible and could be achieved by demolition and removal techniques.

Work began in other ANSPD areas in 1978, and on the WTS in the spring of 1982. Small sections of the underground line were removed in 1982, with the remainder (with a few small exceptions) removed from 1983 to 1985. Work on Building 41 commenced in 1984 and continued through 1987. Removal of subsurface hot spots continued until early 1991, when the project soil excavation was completed. Most of the radioactive soil waste generated after April, 1990 was shipped for burial in FY 1992 and FY 1993.

Decommissioning of the WTS presented a number of difficult tasks. Removal of Building 41 required construction of a complete containment structure to control the potential release of contamination during demolition. Removal of underground lines included the removal of large volumes of contaminated soils. The elevation changes required temporary silt retention basins to prevent run-off. Much of the decommissioning required special enclosures.

The radiation emissions of the principle contaminant, Pu-238 (alpha and low energy X-rays), made it difficult to detect and quantify, especially in the field. In addition, significant controls were required to protect personnel.

The WTS project plan was presented in the 1978 D&D Program Plan, and revised in 1980, due to delays in funding and activities in other areas. The 1980 plan called for WTS project planning and estimates to be performed in 1982, work to begin in late 1982 and proceed through 1987, with a final report to be issued by the end of 1988. The initial cost estimate (1980 dollars) was $10.0M.

In 1986, the project schedule was revised to show a projected completion date of September 1990, and a projected cost of $16.0M. The principle reasons for these revisions were; a much larger volume of contaminated soil than initial estimates, difficult physical conditions and increases in waste shipping and burial costs.

The project was completed essentially as shown in the 1986 projection at a cost of $17.0M.

4.3.5 Waste Packaging & Forms

The waste generated from this project consisted of transfer lines and building materials (piping, pumps, concrete, tanks, structural material) and soils. The principle contaminant was plutonium-238, although thorium-232 was encountered in some soils and disposed of as part of the WTS project. Since Pu-238 is a transuranic isotope, all wastes containing concentrations of Pu-238 exceeding 100 nCi/g were classified as transuranic (TRU) wastes. Materials with less than 100 nCi/g were classified as low specific activity (LSA) wastes. Materials (i.e., soils) less than 25 pCi/g were considered clean with respect to unrestricted release on-site. There were no known hazardous chemicals in these materials and no "mixed wastes" generated as a result of the WTS D&D.

These radioactive wastes were packaged and shipped in a variety of containers over the life of the project. The type of containers used was a function of a number of factors, which included:

- regulatory requirements (DOT and disposal site requirements)
- cost
- vendor production capabilities
- handling capabilities
- sampling and measuring capabilities
- strength and durability

All LSA wastes were shipped in boxes which met the requirements for LSA containers. Initially, wood boxes were used. Later, the program utilized metal containers (Figure 41). The metal boxes are approximately 6 x 4 x 4 feet, with a 90 cubic feet capacity, a net payload of 8000 pounds and are available from a commercial vendor. Half-size wooden LSA boxes were used for more dense materials to minimize weight loading problems.

TRU wastes were packaged and shipped in type 7A containers. Standard 17C 55 gallon drums with high-density polyethylene liners were used. Because of limited capacity and high labor costs associated with the 55 gallon drums, TRU metal boxes were acquired and utilized.

These boxes had a 6000 pound capacity for TRU waste and required more stringent sealing and closure procedures than the LSA containers.

Containers were filled either mechanically (front loader, back hoe) or by hand. Funnel devices and

tarps or plastic (Figures 41 & 42) were used at loading areas to prevent spillage. Absorbent materials were added to packages as required to prevent free-standing liquids.

Contaminated soils were segregated as TRU or LSA wastes based on field survey measurements (See Section 8.2). Each bucket of excavated soil (via backhoe, excavator, etc.) was scanned and sorted accordingly. For LSA containers, the field instrument (FIDLER) readings were converted to equivalent concentration values and were used to estimate the activity content of the LSA boxes. LSA wastes were shipped off-site to a low level radioactive waste burial site at the Nevada Test Site (NTS).

TRU boxes required sampling and analysis of each container. For TRU soil boxes, two samples were collected when the box was 1/3 full, two when the box was 2/3 full, and two when full. The total activity in each box was based on the average of these samples. The TRU wastes were shipped to the DOE facility (Idaho National Engineering Laboratory) at Idaho Falls, for interim storage, pending disposal at the proposed high-level disposal site (WIPP facility).

There are still 10 metal boxes of LSA and 47 metal boxes of TRU at Mound that require certification before they can be released for shipment and burial. Plans are to transfer responsibility and budget at these waste packages to Waste Management or other D&D projects for final disposition.

Figure 41

Staging Metal Waste Containers

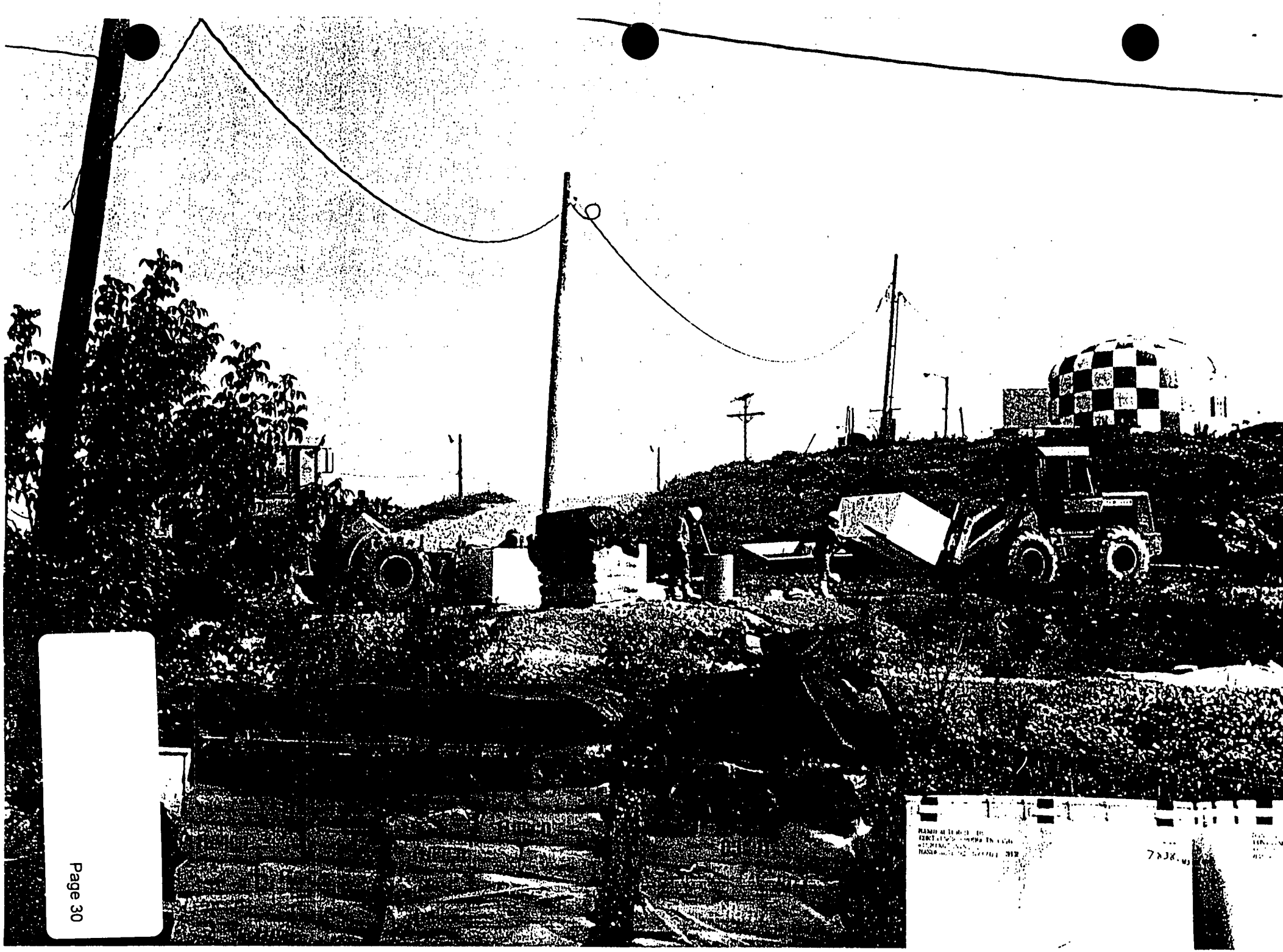
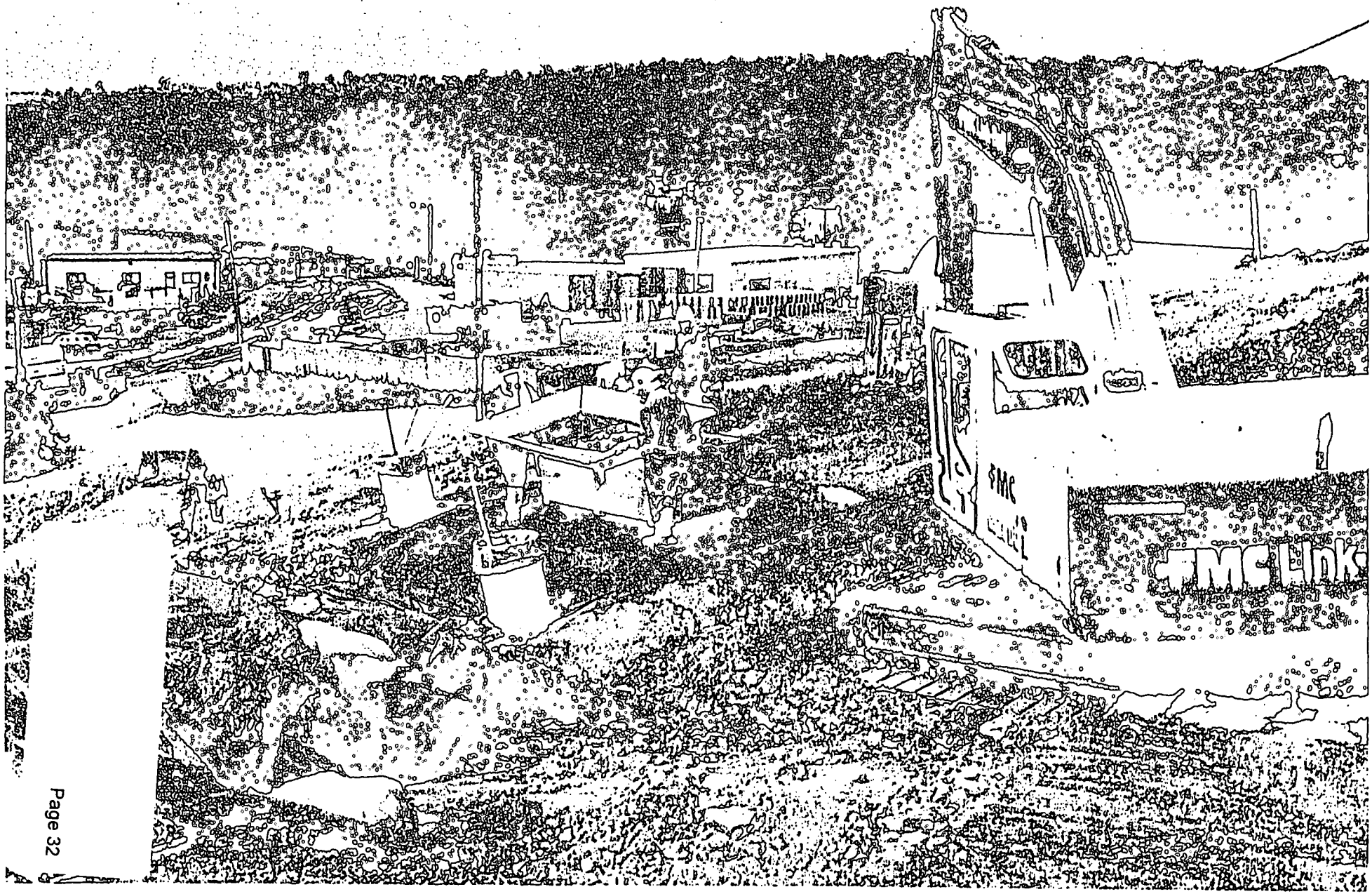


Figure 42

Loading Waste Boxes


GMC Links

TECHNICAL MANUAL

MOUND

MD-10167, ISSUE 7
D&D OPERATIONS PROCEDURES

See attached for Distribution.

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CHANGES INCORPORATED

- [x] Replace Pgs. 1, 2, 3; Ops. 405, 426, 580
- [ ] Insert (New Pages)
- [ ] Remove
- [ ] Complete Reprint

This issue approved by TRUESOC:

D. R. Rogers / cw 5/4/95
Date

All appropriate reviews by senior safety committees were conducted. This issue was authorized for use by Advanced Change Order on file in Technical Manuals.

R. R. Jaeger, Manager
D&D Program M

TR-TECHNICAL RESPONSIBILITY E-EDITOR PE-PRODUCT ENGINEER

TPS-1 PC-141 JS cc827

PUBLICATION RECORD

ISSUE	DATE	APPLICATION	CHANGE DATE	CHANGE ACO
1	06-19-91	D&D Field Coordinator Procedures	03-08-90	905289MD-C 905324MD-C 905500MD-C
2†	02-18-92	D&D Field Coordinator Procedures	01-16-92	910769MD-C
		† Issue 2 consists of new D&D procedures as well as format changes to existing procedures. Nonapplicable and other group's responsibilities have been removed, and equipment and material lists have been developed.		
3	04-21-92	D&D Field Coordinator Procedures	04-02-92	920260MD-C
4	10-08-92	D&D Field Coordinator Procedures	08-12-92	920487MD-C-1
5	4-27-93	D&D Operations Procedures	04-05-93	930082MD-C
6	3-24-94	D&D Operations Procedures	02-10-94	930419MD-C
		Sections 110, 130, 330, 425, 430, 460, 470, 510, 550, 570, 620, and 630 were included to facilitate a complete reprint.		
7		D&D Operations Procedures 405, 426, 580	05-10-94	940122MD-C-1

1. **PURPOSE**

This procedure describes the individual responsibilities associated with the use of Low-Level Radioactive Waste Input (LLW) Form (ML-7042X).

2. **SCOPE**

This procedure applies to Decontamination and Decommissioning (D&D) personnel at Mound generating Low-Level Radioactive Waste (LLW).

3. **APPLICABILITY**

The use of Low-Level Radioactive Waste (LLW) Input Form (ML-7042X) is required for each Container of Low-Level Radioactive Waste (LLW) generated from D&D Project(s) for the following Waste Streams ONLY:

- AMDM-000000012, Low-Level Radioactive Contaminated Soil

4. **REFERENCES**

- MD-10120, Product Index System
- MD-81020, Mound Plant Waste Certification Program Plan
- SPA 930055, Low-Level Radioactive Prohibited Materials List

5. **REQUIRED EQUIPMENT, MATERIAL AND DOCUMENTATION**

- Form ML-7042X, Low-Level Radioactive Waste Input Form
- Form ML-7042X, Supplement, Low-Level Radioactive Waste Input Form, if needed
- MD-10173, User's Handbook: Waste Accountability Shipping and Packaging (WASP)
- Product Index (P.I.)

6. **PROCEDURES**

6.1. **D&D Field Coordinator will:**

[1] Prior to performing work, check the list of personnel and expiration dates provided by the designated D&D Project Engineer. Ensure that only trained personnel are used on the job.

[2] Initiate Low-Level Radioactive Waste Form (ML-7042X).

[3] Complete the Generator Section of ML-7042X Form (Figure 1) for each Low-Level Radioactive Waste Container generated from a D&D Project according to the instructions in MD-10173. If room is needed for additional radionuclides or comments, use ML-7042X Supplement Form (Figure 2).

IMPORTANT

LOAD ONLY items found on the ACCEPTABLE MATERIALS LIST for the specific Waste Stream.

Soil and Rock

* Debris:

- o Asphalt
- o Ceramic tile
- o Clay absorbent (e.g., Florco)
- o Clay tile
- o Cloth/leather (e.g., gloves)
- o Concrete
- o Dried vegetation
- o Glass
- o Paper/cardboard (e.g., empty absorbent bags suits, and head covers)
- o Plastic (e.g., shoe covers, bags, radiation rope/signs, tarps)
- o PCV pipe
- o Styrofoam
- o Rubber (e.g., gloves, gasket material)
- o Scrap metal, **EXCLUDING LEAD** (e.g., steel strapping material, steel reinforcement rod {rebar}, sheet metal)
- o Tape (e.g., masking, clear decon)
- o Wood/lumber

†Different Subject
*Text Change

Contact designated D&D Project Engineer if questionable items are found.

[4] As each item is loaded into the box, complete the Waste Description Section and Comments Section of ML-7042X.

[5] Sign form for Package Custodian, write HP number and date.

[6] Obtain signature and HP number of Package Filler.

6.2. Designated D&D Project Engineer will:

[1] Review Training Records for EG&G Mound Employees used on D&D Excavation Projects with the training requirements defined in MD-81020.

[2] Develop a list of trained personnel to be used and any applicable expiration dates.

[3] Provide the list to the D&D Field Coordinators on the job sites.

[4] Maintain training files and update the list as needed.

LOW LEVEL RADIOACTIVE WASTE INPUT FORM

GENERATOR SECTION

UNIT ID

FILL START DATE

GRID/BATCH NO.

HP NO.

Package Filler

GROSS WT. (LBS)

GROSS WT. (KG)

WASTE STREAM ID NUMBER: AMDM000000

COMBUSTIBLE: VOL. %

DRUM LINER USED? ☐ Yes ☐ No

WASTE VOLUME (CU.M)

FILL LOCATION: BLDG. ROOM

COMPACTOR RATIO: DRUMS IN / DRUMS OUT 0 1

LOT NUMBER (DRUMS ONLY): 1 7 H 1 6 5 5

WEIGHING DATE

SCALE CONTROL NO.

RADIONUCLIDE	CURIES	CONCENTRATION
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g

WASTE DESCRIPTION AND COMMENTS

TID RE-SEAL DATE

ACCT. NO.

TID SEAL NO./TYPE

TID SEAL DATE

TID RE-SEAL NO./TYPE

WASTE TYPE

PKG. CODE

CONTAINER PREUSE INSPECTION COMPLETED AND PACKAGE FILLED AND SEALED IN ACCORDANCE WITH TECHNICAL MANUAL(S) MD _____ or SPA930056.

DATE

HP NO.

Package Custodian

HEALTH PHYSICS SECTION

PACKAGE IS WITHIN DOE EXTERNAL CONTAMINATION LIMITS.
(SEE DOE ORDER 5480 11, "RADIATION PROTECTION FOR OCCUPATIONAL WORKERS")

HIGHEST WIPE		INIT.
ALPHA (DPM/100 CM²)		
BETA (DPM/100 CM²)		
TRITIUM (DPM/100 CM²)		

HIGHEST NET READING	MR/HR @ CONTACT	MR/HR @ 1 METER	INSTRUMENT NO.
GAMMA RATE			
NEUTRON RATE			
TOTAL MREM HR			

DATE

HP NO.

HP Monitor

WASTE COMPLIANCE SECTION

THIS CONTAINER IS FROM AN ACCEPTABLE LOT THIS FORM HAS BEEN REVIEWED FOR COMPLETENESS AND FOUND ACCEPTABLE

DATE

HP NO.

Waste Compliance Engineering Representative

ML-7042X (10-93) DISTRIBUTION:
1. Nuclear Material Accountability
2. RAD Waste Management
3. Health Physics
4. Package Custodian

Page 1 of ____

Figure 1: ML-7042X, Low-Level Radioactive Waste Input Form.

†Different Subject
*Text Change

LOW LEVEL RADIOACTIVE WASTE INPUT FORM

UNIT ID

RADIONUCLIDE	CURIES	CONCENTRATION
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g
	Ci	nCi/g

COMMENTS:

ML-7042X (10 93) SUPPLEMENT

Page 2 of 2

Figure 2: ML-7042X Supplement, Low-Level Radioactive Waste Input Form.

†Different Subject
*Text Change

1. **PURPOSE**

This procedure describes the individual responsibilities, required materials and equipment, sealing steps, and documentation forms associated with sealing transuranic (TRU) waste in metal boxes.

2. **SCOPE**

This applies to all transuranic (TRU) waste sealed for Decontamination and Decommissioning (D&D) activities at Mound.

3. **REQUIRED EQUIPMENT, MATERIALS AND DOCUMENTATION**

- o Form ML-8221A, TRU Waste Loading List (Figure 1)
- o Form ML-7042B, TRU Waste Input Form (Figure 2)
- o TRU metal box

4. **PROCEDURE**

D&D Field Coordinator will:

4.1. Request required number of Quality Accepted TRU metal boxes from designated D&D (Decontamination and Decommissioning) Clerk.

*4.2. Attach Form ML-7042B (TRU Waste Input Form) and Form ML-8221A (TRU Waste Loading List) to Quality Accepted Boxes upon receipt.

4.3. Contact Health Physics for coverage during loading (D&D Decontamination Procedure MD-10332, Operation 740) and sealing (by Fabrication Mechanics - see 4.4 through 4.4.5) operations.

4.4. Provide Fabrication Mechanics with the following instructions in order for them to seal the appropriate box:

4.4.1. Clean flange sealing area as follows:

- o Capital TRU metal box: Clean flange sealing area on metal box and lid using a clean damp rag to remove dirt and metal shavings.
- o Rogar TRU metal box: Clean flange sealing area only on the metal box using a clean damp rag to remove dirt and metal shavings.

NOTE: Dispose of damp rags (used for cleaning flange sealing areas) by placing them in the TRU metal box before sealing.

4.4.2. Install TRU metal box gaskets as follows:

- o Capital TRU metal box: Ensure proper gasket-bolt hole alignment by dropping bolts through several gasket-bolt holes for each gasket section.
- o Rogar TRU metal box: Rogar metal boxes have factory installed gaskets that do not require gluing. However, the Rogar gasket must be inspected for damage and correct seating in the metal box lid gasket groove.

4.4.3. Seal TRU metal boxes as follows:

- o Capital TRU metal boxes: Lay two 3/8 in. beads of GE-RTV silicone sealant directly onto the full length of the flange sealing area (one bead on each side of the gasket and RTV sealant on all four gasket butt joints).
- o Rogar TRU metal boxes: Lay two 1/4 in. beads of GE-RTV silicone sealant directly onto the full length of the metal box flange sealing area.

4.4.4. Install TRU metal box lid as follows:

Capital TRU metal box:

1. Lower metal box lid carefully into position, making sure both guide pins are aligned with guide holers.

2. Lower lid to fully closed position and remove lifting harness.

3. Install bolts and nuts with two flat washers and one lock washer and hand tighten all bolts and nuts.

4. Use alternate torque technique to torque nuts to approximately 20 to 30 ft-lb.

5. Retorque all nuts in sequence (see illustration, next page) to approximately 40 foot-pounds.

NOTE: Security bolts and safeguards seal are to be installed, one each in the center of each side of the box.

Rogar TRU metal box:

1. Align flag on box with flag on lid.

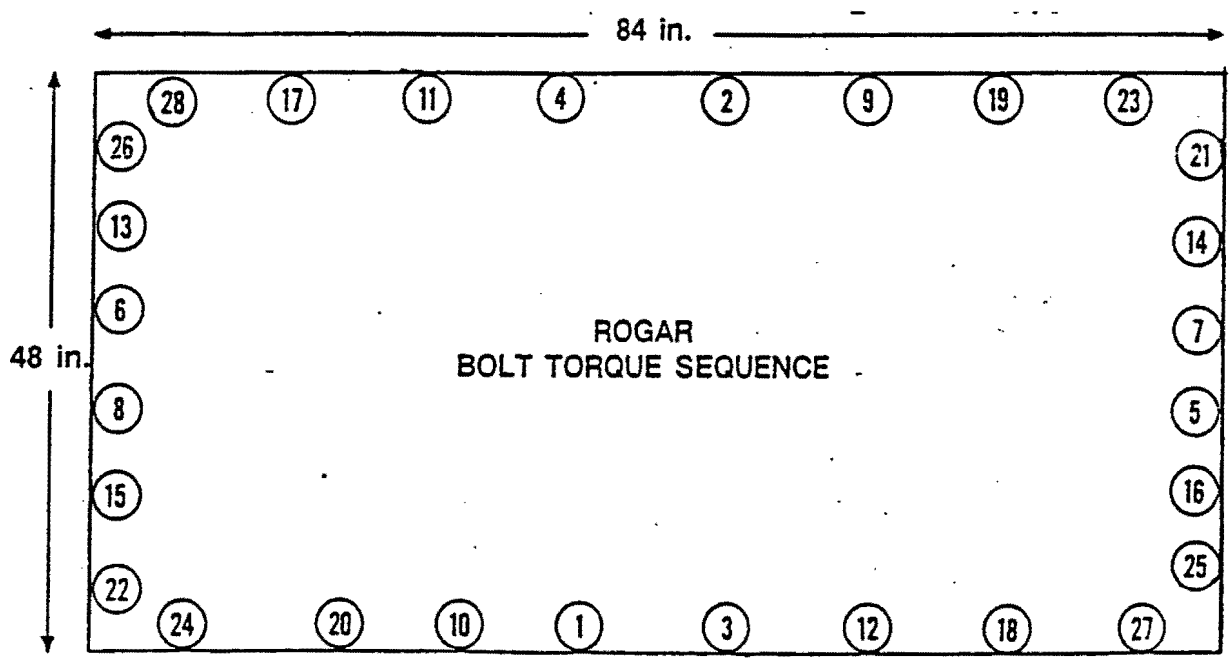
2. Ensure box/lid alignment BEFORE lowering lid on box by dropping bolts through several bolt holes.

3. Moving the lid after setting it on the box can damage the gasket.

4. Install bolts, washers, and nuts provided and hand tighten all nuts.

5. Use alternate torque technique to torque nuts to approximately 35 ft-lb.

6. Retorque all nuts in sequence (see illustration, next page) to approximately 70 foot-pounds.



4.4.5. Using bolt cutters, sawsall, or hacksaw, cut off all lifting handles. Use care to prevent damage to box paint.

NOTE: DO NOT USE cutting torch to remove handles.

4.5. Request Health Physics to perform required survey of the TRU metal box.

4.6. Complete the seal Log Book Sheet with the required information.

4.7. Place the cup seal on each of the four seal bolts.

4.8. Place the paper seal over the vent hole at the end of the box. Puncture the paper over the vent hole after the seal is secured.

4.9. Complete safeguards seal number section on Form ML-7042B, TRU Waste Input Form (Figure 2), sign form a return it to the envelope attached to the box.

4.10. Request designated D&D Field Coordinator to move fille sealed, and surveyed TRU metal box to Building 31 or other designated area for staging or gamma scanning.

TRU WASTE PACKAGE LOADING LIST

WASTE BOX I.D. # ——— ——— ——— LOCATION ———

INSTRUCTIONS: For each item, or group of similar items, loaded into this TRU Package, list below a short description of the item (i.e., pipe, A.C. duct, soil, concrete pieces, etc.); date item loaded; loader's name and verifying person's name.

DO NOT LOAD:
- A. Any box or drum that contains free liquid
- B. Powders such as cement fines or sandblasting residue
- C. HEPA or other filters (without authorization-See Operation 205 of TRU Waste Management Manual MD 70205)
- D. Liquids
- E. Compressed gas cylinders, unless vented and the valve removed
- F. Spray or other pressurized cans, unless punctured by approved method
- G. Chemicals, oils, or powders of any kind
- H. Lead bricks or lead in any form
- I. Combustibles with noncombustibles
- J. Soil with combustibles or noncombustibles
- K. Bottles or containers, unless marked "Rinsed"

TRU COMBUSTIBLES, NONCOMBUSTIBLES, and SOIL MUST BE SEGREGATED and loaded into separate TRU Packages

If you have any doubts, contact your Supervisor BEFORE loading the TRU Package

LOAD DATE	WASTE DESCRIPTION PRINT - USE PEN ONLY	LOADER'S NAME	VERIFIER'S NAME

SAMPLE

MM-8221A (7-87)

Figure 1: Form 8221A, TRU Waste Box Loading List.

Environmental Restoration Program

OPERABLE UNIT 6, AREA 19 AND AREA 14 VERIFICATION REPORT

MOUND PLANT
MIAMISBURG, OHIO

October 1994

FINAL

(Revision 0)

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
EG&G Mound Applied Technologies

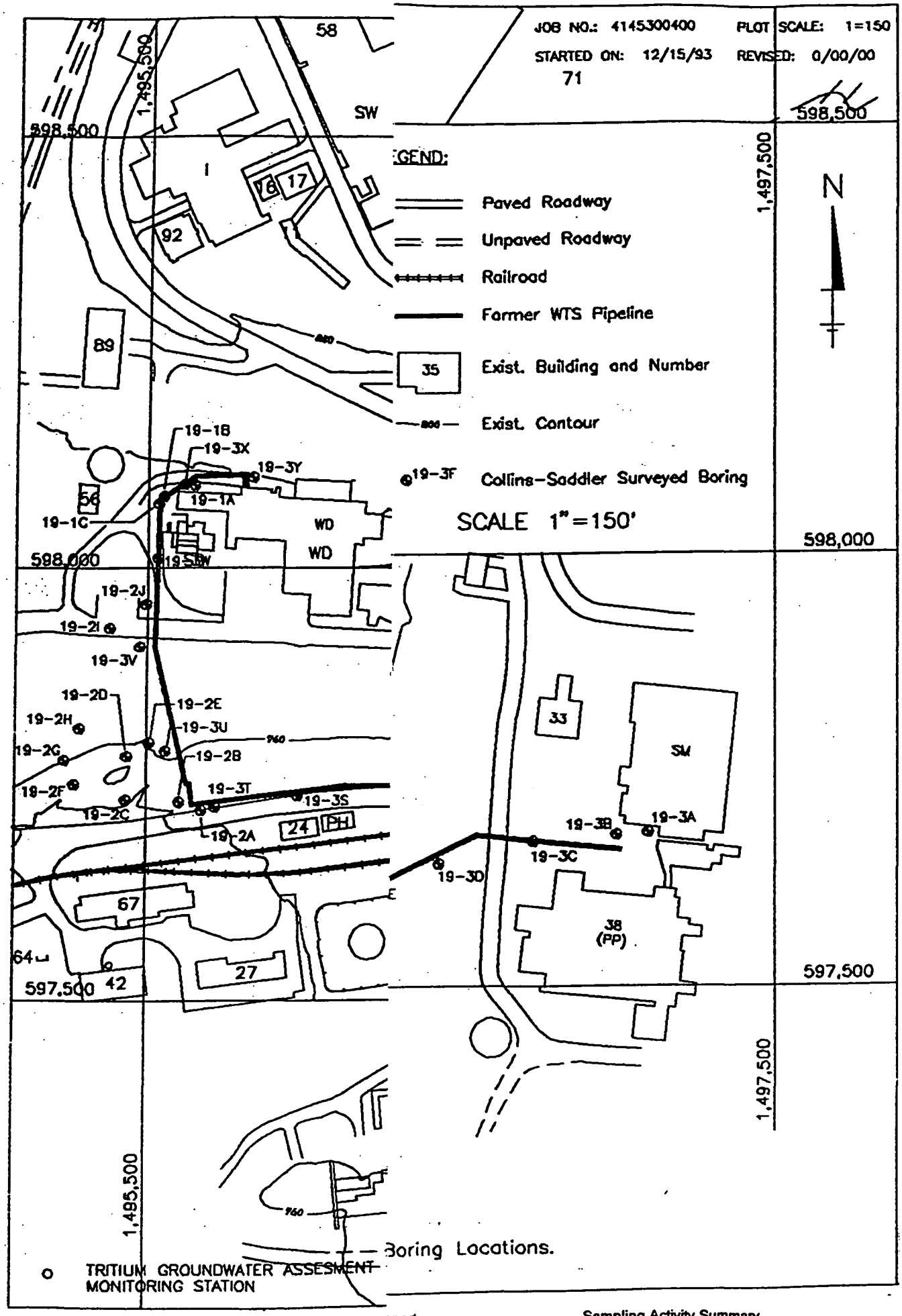

JOB NO.: 4145300400
PLOT SCALE: 1=150
STARTED ON: 12/15/93
REVISED: 0/00/00
71
58
SW
598,500
1,495,500
1,497,500
598,000
597,500
GEND:
Paved Roadway
Unpaved Roadway
Railroad
Former WTS Pipeline
Exist. Building and Number
Exist. Contour
Collins-Saddler Surveyed Boring
SCALE 1"=150'
N
1
76
17
92
89
35
56
WD
WD
33
SM
38
(PP)
67
27
24
PH
64
42
19-1B
19-3X
19-3Y
19-1A
19-1C
19-1W
19-2J
19-2I
19-3V
19-2D
19-2E
19-2H
19-3U
19-2G
19-2B
19-2F
19-3T
19-3S
19-2C
19-2A
19-3B
19-3A
19-3C
19-3D
Boring Locations.
TRITIUM GROUNDWATER ASSESMENT
MONITORING STATION

Table II.1. Soil Sample Summary Table

Sample Location	Sample Number	Date Sampled	Date Depth	Surface Elev. (MSL)	Sample Interval (MSL)	Bedrock Depth (MSL)	Complet. Depth (MSL)	Sample Description	USCS Symbol	QA/QC
19-1A	MND14-3037-0006	10/07/93	6-8'	806.84	798.84 - 800.84	792.84	792.84	Brownish grey sandy Silt	SM/ML	
	MND14-3037-0012	10/07/93	12-14'	806.84	792.84 - 794.84	792.84	792.84	Greenish grey Gravel and Silt	GM	
19-1B	MND14-3038-0006	10/11/93	6-8'	801.46	793.46 - 795.46	786.96	786.96	Brown silty Clay	CL	MS/MSD
	MND14-3038-0012	10/11/93	12-14'	801.46	787.46 - 789.46	786.96	786.96	Grey silty Clay	CL	
19-1C	MND14-3039-0006	10/11/93	6-8'	799.4	791.4 - 793.4	786.9	786.9	Greyish brown clayey Silt	ML	
	MND14-3039-1006	10/11/93	6-8'	799.4	791.4 - 793.4	786.9	786.9	Greyish brown clayey Silt	ML	DUP
	MND14-3039-0011	10/11/93	11-12.5'	799.4	786.9 - 788.4	786.9	786.9	Greyish green clayey Silt	ML	
19-2A	* MND14-3027-0000	10/08/93	0-2'	740.21	738.21 - 740.21	N.O	718.21	Brown gravelly Silt	GM/ML	
	MND14-3027-0006	10/08/93	6-8'	740.21	732.21 - 734.21	N.O	718.21	Greyish brown clayey Silt	ML	
	MND14-3027-0013	10/08/93	13-15'	740.21	725.21 - 727.21	N.O	718.21	Blackish brown clayey Silt	ML	
	MND14-3027-0020	10/08/93	20-22'	740.21	718.21 - 720.21	N.O	718.21	Blackish grey clayey Silt	ML	
19-2B	* MND14-3028-0000	10/04/93	0-2'	743.06	741.06 - 743.06	721.56	721.56	Red/Brown Sand and Gravel	GP	
	MND14-3028-1000	10/04/93	0-2'	743.06	741.06 - 743.06	721.56	721.56	Red/Brown Sand and Gravel	GP	DUP
	MND14-3028-0006	10/04/93	6-8'	743.06	735.06 - 737.06	721.56	721.56	Dark Brown Clay and Silt	CL/ML	
	MND14-3028-0013	10/04/93	13-15'	743.06	728.06 - 730.06	721.56	721.56	Black Brown clayey Silt	ML	
	MND14-3028-0020	10/04/93	20-21.5'	743.06	721.56 - 723.06	721.56	721.56	Dark Grey clayey Silt	ML	
19-2C	* MND14-3029-0000	10/05/93	0-2'	742.78	740.78 - 742.78	728.28	727.78	Brown silty Sand	SM	
	MND14-3029-0006	10/05/93	6-8'	742.78	734.78 - 736.78	728.28	727.78	Greyish brown clayey Silt	ML	MS/MSD
	MND14-3029-0013	10/05/93	13-14.5'	742.78	728.28 - 729.78	728.28	727.78	Brownish grey clayey Silt	ML	
19-2D	MND14-3030-0000	10/05/93	0-2'	745.71	743.71 - 745.71	741.71	741.71	Brown sandy Silt	ML	
	MND14-3030-1000	10/05/93	0-2'	745.71	743.71 - 745.71	741.71	741.71	Brown sandy Silt	ML	DUP
19-2E	MND14-3031-0000	10/05/93	0-2'	746.66	744.66 - 746.66	742.66	742.66	Greenish grey silty Clay	CL	
19-2F	MND14-3032-0000	09/30/93	0-2'	747.2	745.2 - 747.2	736.7	736.7	Brown Clay	CL	
	MND14-3032-0006	09/30/93	5-7'	747.2	740.2 - 742.2	736.7	736.7	Brownish black clayey Silt	ML	
19-2G	MND14-3033-0000	10/04/93	0-2'	751.76	749.76 - 751.76	743.76	743.76	Brown gravelly Sand	SP	MS/MSD
	MND14-3033-0006	10/04/93	6-8'	751.76	743.76 - 745.76	743.76	743.76	Grey gravelly Silt	ML	
19-2H	MND14-3034-0000	10/06/93	0-2'	756.55	754.55 - 756.55	748.55	748.55	Brownish grey sandy Silt	ML	
	MND14-3034-1000	10/06/93	0-2'	756.55	754.55 - 756.55	748.55	748.55	Brownish grey sandy Silt	ML	DUP
	MND14-3034-0006	10/06/93	6-8'	756.55	748.55 - 750.55	748.55	748.55	Olive green sandy Silt and Rock	ML	
19-2I	MND14-3035-0000	10/04/93	0-2'	789.77	787.77 - 789.77	768.27	767.77	Greenish grey silty Clay	CL	
	MND14-3035-0006	10/04/93	6-8'	789.77	781.77 - 783.77	768.27	767.77	Brown sandy Clay & Silt, Gravel	ML/CL	
	MND14-3035-0013	10/04/93	13-15'	789.77	774.77 - 776.77	768.27	767.77	Brownish silty Clay & Gravel(fill)	FILL	
	MND14-3035-0020	10/04/93	20-22'	789.77	767.77 - 769.77	768.27	767.77	Grey clayey Silt	ML	

Legend:
N.O. - not observed
M.S.L. - mean sea level
Dup - duplicate soil sample
MS/MSD - matrix spike / matrix spike duplicate

Table II.1. Soil Sample Summary Table (Continued)

Sample Location	Sample Number	Date Sampled	Date Depth	Surface Elev.	Sample Interval	Bedrock Depth	Complet. Depth	Sample Description	USCS Symbol	QA/QC
19-3S	MND14-3019-0007	10/06/93	7-9'	741.78	732.78 - 734.78	N.O	719.78	Brown gravelly Silt	ML	
	MND14-3019-0020	10/06/93	20-22'	741.78	719.78 - 721.78	N.O	719.78	Greyish brown gravelly Silt	ML	
	MND14-3019-1020	10/06/93	20-22'	741.78	719.78 - 721.78	N.O	719.78	Greyish brown gravelly Silt	ML	DUP
19-3T	MND14-3020-0009	10/06/93	9-11.5'	740.61	729.11 - 731.61	N.O	718.61	Brownish grey clayey Silt	ML	MS/MSD
	MND14-3020-0020	10/06/93	20-22'	740.61	718.61 - 720.61	N.O	718.61	Blackish grey clayey Silt	ML	
19-3U	MND14-3021-0005	09/30/93	5-7'	751.78	744.78 - 746.78	737.78	737.78	Blackish grey green silty Clay	CL	
	MND14-3021-0012	09/30/93	12-14'	751.78	737.78 - 739.78	737.78	737.78	Greenish grey clayey Silt with rock	ML	
19-3V	MND14-3022-0005	10/06/93	5-7'	774.36	767.36 - 769.36	763.86	762.86	Greenish grey clayey Silt	ML	
	MND14-3022-0010	10/06/93	10-11.5'	774.36	762.86 - 764.36	763.86	762.86	Brown grey sandy Silt	ML	
19-3W	MND14-3023-0005	10/11/93	5-7'	797.56	790.56 - 792.56	780.56	780.56	Greenish grey silty Clay	CL	
	MND14-3023-0014	10/11/93	14-15.5'	797.56	782.06 - 783.56	780.56	780.56	Greenish grey gravelly clayey Silt	ML	
19-3X	MND14-3024-0004	10/07/93	4-6'	805.85	799.85 - 801.85	793.35	792.85	Greenish grey gravelly Silt	ML	
	MND14-3024-0011	10/07/93	11-12.5	805.85	793.35 - 794.85	793.35	792.85	Greenish grey gravelly Silt	ML	
19-3Y	MND14-3025-0009	10/07/93	9-11.5'	810.94	799.44 - 801.94	793.94	793.44	Olive grey clayey Silt	ML	
	MND14-3025-0016	10/07/93	16-17.5'	810.94	793.44 - 794.94	793.94	793.44	Brown clayey gravelly Silt	ML	
19-4A	MND14-3026-0002	09/29/93	1-3'	747.63	744.63 - 746.63	N.O	725.63	Brown silty Clay	CL	
	MND14-3026-0010	09/29/93	9-11'	747.63	736.63 - 738.63	N.O	725.63	Brownish black silty Clay	CL	
	MND14-3026-0020	09/29/93	20-22'	747.63	725.63 - 727.63	N.O	725.63	Brownish grey silty Clay	CL	

Table IV. 1. Volatile Organic Analytical Data (Continued)

Sample Number	RBTL/RBGCV	100020	160010	160018	160012	160020	210005	210012	260002	260010	260020	260000	260008	260013	260020	2810[illegible]	290000	350000	350013	350020	354000
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
Compound																					
1,1,1-Trichloroethane	7000000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 U	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,1,2,2-Tetrachloroethane	8500	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,1,2-Trichloroethane	30000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,1-Dichloroethane	7800000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,1-Dichloroethene	2800	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,2-Dichloroethane	7.00E+13	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,2-Dichloroethene (total)	700000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
1,2-Dichloropropane	25000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
2-Butanone	3900000	11.00 U	72.00	12.00 U	10.00 U	34.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	0.60 J	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
2-Hexanone	NE	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	6.00 J	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
4-Methyl-2-Pentanone	3900000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 J	10.00 UJ	12.00 U	12.00 U	10.00 U	3.00 J	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Acetone	7800000	11.00 U	7.00 J	36.00 J	10.00 U	11.00 U	12.00 U	43.00 J	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	13.00 J	34.00 J	11.00 U	12.00 U	11.00 U	10.00 U
Benzene	22000	0.60 J	1.00 J	12.00 U	1.00 J	11.00 U	12.00 U	11.00 U	10.00 U	1.00 J	0.70 J	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Bromodichloromethane	10000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Bromoform	220000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Bromomethane	110000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Carbon Disulfide	7800000	1.00 J	4.00 J	12.00 U	10.00 U	3.00 J	12.00 U	11.00 U	10.00 U	1.00 J	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Carbon Tetrachloride	4900	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Chlorobenzene	1600000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	0.60 J	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Chloroethane	1600000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Chloroform	260000	11.00 U	0.70 J	12.00 U	10.00 U	1.00 J	12.00 U	11.00 U	10.00 U	11.00 U	0.60 J	10.00 UJ	12.00 U	12.00 U	10.00 U	0.30 J	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Chloromethane	130000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Dibromochloromethane	7800	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Ethylbenzene	7800000	11.00 U	3.00 J	12.00 U	3.00 J	11.00 U	12.00 U	11.00 U	0.60 J	1.00 J	2.00 J	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Methylene Chloride	230000	17.00 J	17.00 J	23.00 J	21.00 J	13.00 J	18.00 J	21.00 J	8.00 J	7.00 J	28.00 J	10.00 UJ	12.00 U	12.00 U	10.00 U	14.00 J	18.00 J	11.00 U	12.00 U	11.00 U	3.00 J
Styrene	57000	0.60 J	12.00 U	12.00 U	0.70 J	11.00 U	12.00 U	11.00 U	10.00 U	0.60 J	0.60 J	10.00 UJ	0.60 J	0.60 J	10.00 U	0.70 J	11.00 U	0.60 J	12.00 U	11.00 U	10.00 U
Tetrachloroethene	33000	11.00 U	12.00 U	3.00 J	2.00 J	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	2.00 J	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	1.00 J	10.00 U
Toluene	16000000	11.00 U	3.00 J	2.00 J	3.00 J	2.00 J	1.00 J	11.00 U	10.00 U	1.00 J	2.00 J	10.00 UJ	12.00 U	12.00 U	10.00 U	1.00 J	11.00 U	11.00 U	12.00 U	1.00 J	10.00 U
Trichloroethene	150000	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Vinyl Chloride	900	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
Xylene (total)	160000000	0.60 J	2.00 J	2.00 J	1.00 J	1.00 J	1.00 J	11.00 U	0.40 J	0.50 J	1.00 J	10.00 UJ	12.00 U	12.00 U	10.00 U	0.90 J	11.00 U	0.60 J	1.00 J	1.00 J	10.00 U
cis-1,3-Dichloropropene	9500	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U
trans-1,3-Dichloropropene	9500	11.00 U	12.00 U	12.00 U	10.00 U	11.00 U	12.00 U	11.00 U	10.00 U	11.00 U	11.00 U	10.00 UJ	12.00 U	12.00 U	10.00 U	10.00 UJ	11.00 U	11.00 U	12.00 U	11.00 U	10.00 U

Table IV. 2. Semivolatile Organic Analytical Data (Continued)

Sample Number	RBTL/RBGCV	200009	200029	290005	290010	290009	290006	290018	294000	900000	901000	910000	930006	940000	940006	941000	950006	970006	970018
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Compound																			
1,2,4-Trichlorobenzene	780000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
1,2-Dichlorobenzene	7000000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
1,3-Dichlorobenzene	7000000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
1,4-Dichlorobenzene	71000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2,2'-oxybis(1-Chloropropane)	24000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2,4,5-Trichlorophenol	7800000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
2,4,6-Trichlorophenol	150000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
2,4-Dichlorophenol	230000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2,4-Dimethylphenol	1600000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2,4-Dinitrophenol	160000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
2,4-Dinitrotoluene	160000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
2,6-Dinitrotoluene	2500	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
2-Chloronaphthalene	6300000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
2-Chlorophenol	390000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2-Methylnaphthalene	NE	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2-Methylphenol	3900000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
2-Nitroaniline	6700	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
2-Nitrophenol	4800000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
3,3'-Dichlorobenzidine	3600	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
3-Nitroaniline	230000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
4,6-Dinitro-2-methylphenol	NE	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
4-Bromophenyl-phenylether	4500000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
4-Chloro-3-methylphenol	NE	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
4-Chloroaniline	310000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
4-Chlorophenyl-phenylether	NE	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
4-Methylphenol	390000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 U
4-Nitroaniline	230000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
4-Nitrophenol	4800000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	940 U	1100 U	980 U	1000 U	970 U	920 UJ
Acenaphthene	4700000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
Acenaphthylene	NE	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	57 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
Anthracene	23000000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	660 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 U	360 U	370 UJ
Benzo(a)anthracene	660	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	790 J	370 UJ	100 J	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
Benzo(a)pyrene	66	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	730 J	370 UJ	100 J	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
Benzo(b)fluoranthene	660	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	1000 J	370 UJ	200 J	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
Benzo(g,h,i)perylene	66	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	610 J	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
Benzo(k)fluoranthene	660	360 UJ	370 U	370 U	370 UJ	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 U	360 U	370 U
Carbazole	65000	360 U	370 U	370	370	360 UJ	360 UJ	370 UJ	10 U	61 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Chrysene	NE	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	790 J	370 UJ	100 J	360 U	370 UJ	430 U	360 U	410 UJ	360 U	370 U
Di-n-butylphthalate	7800000	370 U	1900	1800	790	610 J	580 J	760 J	10 U	610 J	610 J	400 J	630 U	610	1000	760	600 J	940 B	610 J
Di-n-octylphthalate	1600000	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 UJ	360 U	370 U
Dibenz(a,h)anthracene	66	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 UJ	360 U	370 U
Dibenzofuran	NE	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	26 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Diethylphthalate	6300000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Dimethylphthalate	78000000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Fluoranthene	3100000	360 U	370 U	370 U	370 U	370 J	360 UJ	370 UJ	10 U	2200 J	63 J	610 J	19 J	370 U	430 U	360 U	410 UJ	360 U	340 J
Fluorene	3100000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	61 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Hexachlorobenzene	1100	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Hexachlorobutadiene	22000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
Hexachlorocyclopentadiene	550000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Hexachloroethane	28000	360 UJ	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
Indeno(1,2,3-cd)pyrene	660	360 U	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	610 J	370 UJ	400 UJ	360 U	370 UJ	430 U	360 U	410 UJ	360 U	370 U
Isophorone	67	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
N-Nitroso-di-n-propylamine	240	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
N-Nitrosodiphenylamine (1)	130000	360 U	370 U	370 U	370 U	360 UJ	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Naphthalene	3100000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
Nitrobenzene	39000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
Pentachlorophenol	63000	900 U	920 U	940 U	920 U	900 UJ	900 UJ	920 UJ	25 U	980 UJ	910 UJ	980 UJ	910 U	180 J	1100 U	980 U	1000 UJ	970 U	920 UJ
Phenanthrene	66	360 U	370 U	370 U	370 U	370 J	360 UJ	370 UJ	10 U	1200 J	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 UJ
Phenol	47000000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
Pyrene	2300000	360 UJ	370 U	370 UJ	370 UJ	360 U	360 UJ	370 UJ	10 U	2000 J	46 J	200 J	61 J	370 J	430 U	360 U	410 UJ	360 U	370 U
bis(2-Chloroethoxy)methane	NE	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
bis(2-Chloroethyl)ether	46000	360 U	370 U	370 U	370 U	360 U	360 UJ	370 UJ	10 U	400 UJ	370 UJ	400 UJ	360 U	370 U	430 U	360 U	410 UJ	360 U	370 U
bis(2-Ethylhexyl)phthalate	120000	360 UJ	46 J	370 UJ	61 J	66 J	1600 J	1300 J	10 U	400 UJ	1600 J	1600 J	180 J	46 J	430 U	360 U	180 J	49 J	370 U

Table IV. 5. Pesticide/PCB Analytical Data (Continued)

Sample Number	RBTL/RBGCV	100020	160010	160018	160012	160020	210005	210012	260002	260010	260020	260000	260008	260013	260020	261000	290000	350000	350013	350020	354000
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
Compound																					
4,4'-DDD	1900	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
4,4'-DDE	1900	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
4,4'-DDT	6000	3.70 UJ	1.50 J	3.10 J	3.70 UJ	3.70 UJ	4.00 UJ	3.60 J	2.30 J	2.60 J	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	1.70 J	3.50 UJ	0.90 J	3.80 UJ	3.90 UJ	3.80 UJ	0.06 UJ
Aldrin	100	1.80 UJ	2.10 UJ	2.00 U	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	0.61 J	2.00 UJ	1.80 UJ	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	0.06 U
Aroclor-1016	220	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Aroclor-1221	220	73.00 UJ	82.00 UJ	81.00 U	73.00 UJ	73.00 UJ	80.00 UJ	76.00 UJ	72.00 UJ	76.00 UJ	75.00 UJ	69.00 UJ	79.00 UJ	80.00 UJ	72.00 UJ	69.00 U	70.00 UJ	77.00 UJ	78.00 U	76.00 UJ	2.30 U
Aroclor-1232	220	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Aroclor-1242	220	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Aroclor-1248	83	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Aroclor-1254	83	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Aroclor-1260	83	37.00 UJ	41.00 UJ	41.00 U	37.00 UJ	37.00 UJ	40.00 UJ	38.00 UJ	36.00 UJ	38.00 UJ	37.00 UJ	35.00 UJ	40.00 UJ	40.00 UJ	36.00 UJ	35.00 U	35.00 UJ	38.00 UJ	39.00 U	38.00 UJ	1.10 U
Dieldrin	40	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.90 UJ	5.20 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.06 U
Endosulfan I	3900	1.80 UJ	2.10 UJ	2.00 UJ	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.40 J	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 UJ	1.80 UJ	1.90 UJ	2.00 UJ	1.90 UJ	0.11 UJ
Endosulfan II	3900	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.06 U
Endosulfan sulfate	3900	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
Endrin	23000	3.70 UJ	0.12 J	0.29 J	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	0.78 J	0.16 J	3.70 UJ	3.50 UJ	4.00 UJ	0.25 J	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
Endrin aldehyde	23000	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
Endrin ketone	23000	3.70 UJ	4.10 UJ	4.10 U	3.70 UJ	3.70 UJ	4.00 UJ	3.80 UJ	3.60 UJ	3.80 UJ	3.70 UJ	3.50 UJ	4.00 UJ	4.00 UJ	3.60 UJ	3.50 U	3.50 UJ	3.80 UJ	3.90 U	3.80 UJ	0.11 U
Heptachlor	380	1.80 UJ	2.10 UJ	2.00 UJ	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 UJ	1.80 UJ	1.90 UJ	2.00 UJ	1.90 UJ	0.11 UJ
Heptachlor epoxide	190	1.80 UJ	8.00 J	11.00 J	1.80 UJ	1.80 UJ	2.00 UJ	7.00 J	6.00 J	1.90 UJ	1.90 UJ	0.48 J	2.00 UJ	2.00 UJ	1.80 UJ	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	0.06 U
Methoxychlor	390000	18.00 UJ	21.00 UJ	20.00 UJ	18.00 UJ	18.00 UJ	20.00 UJ	19.00 UJ	18.00 UJ	19.00 UJ	19.00 UJ	17.00 UJ	20.00 UJ	20.00 UJ	18.00 UJ	17.00 UJ	18.00 UJ	19.00 UJ	20.00 UJ	19.00 UJ	0.60 UJ
Toxaphene	1500	180.00 UJ	210.00 UJ	200.00 U	180.00 UJ	180.00 UJ	200.00 UJ	190.00 UJ	180.00 UJ	190.00 UJ	190.00 UJ	170.00 UJ	200.00 UJ	200.00 UJ	180.00 UJ	170.00 U	180.00 UJ	190.00 UJ	200.00 U	190.00 UJ	6.00 U
alpha-BHC	270	1.80 UJ	1.60 J	2.10 J	2.20 J	2.00 J	2.00 UJ	1.90 J	1.80 UJ	0.88 J	1.90 UJ	1.70 UJ	2.00 UJ	0.20 J	1.80 UJ	1.70 U	0.99 J	2.50 J	2.60 J	2.30 J	1.90 U
alpha-Chlordane	1300	1.80 UJ	2.10 UJ	2.00 U	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	2.30 U
beta-BHC	350	1.80 UJ	2.10 UJ	2.00 UJ	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 UJ	1.80 UJ	1.90 UJ	2.00 UJ	1.90 UJ	1.90 U
delta-BHC	950	1.80 UJ	2.10 UJ	2.00 U	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	0.01 J	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	0.06 U
gamma-BHC(Lindane)	1300	1.80 UJ	2.10 UJ	2.00 U	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	0.06 U
gamma-Chlordane	1300	1.80 UJ	2.10 UJ	2.00 U	1.80 UJ	1.80 UJ	2.00 UJ	1.90 UJ	1.80 UJ	1.90 UJ	1.90 UJ	1.70 UJ	2.00 UJ	2.00 UJ	1.80 UJ	1.70 U	1.80 UJ	1.90 UJ	2.00 U	1.90 UJ	0.06 U

Table IV. 3. Inorganic Analytical Data (Continued)

Sample Number	RBTL/RBGCV	180020	180010	180018	180018	180020	210005	210012	260002	260010	260020	260000	260005	260013	260020	261000	260000	350000	350013	350020	354000
Units		MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Compound																					
AG	390	0.69 U	0.71 U	0.71 U	0.48 U	0.69 U	0.68 U	0.66 U	0.69 U	0.61 U	0.65 U	1.80 J	0.69 U	0.70 U	0.64 U	1.30 J	0.63 U	0.67 U	0.63 U	0.62 U	3.00 U
AL	230000	4960.00	17300.00	16200.00	6240.00	9460.00	7860.00	14200.00	9780.00	7820.00	6190.00	1440.00	11600.00	11700.00	6350.00	1200.00	7280.00	14300.00	12400.00	3770.00	61.80 J
AS	23	4.90 J	4.90 J	4.00 J	3.80 J	4.10 J	4.80 J	2.80 J	6.90 J	6.00 J	3.80 J	4.10 J	9.40	8.60	2.60 J	4.10 J	6.10	3.90 J	4.30 J	4.00 J	8.00 U
BA	5500	36.00 J	25.80 J	28.80 J	40.60 J	47.80 J	35.60 J	29.00 J	49.40 J	30.80 J	31.40 J	15.80 J	78.40	77.80	27.80 J	14.40 J	24.60 J	37.00 J	33.30 J	32.00 J	35.10 J
BE	150	0.30 J	1.10 J	1.00 J	0.34 J	0.46 J	0.53 J	0.94 J	0.62 J	0.60 J	0.37 J	0.85 J	0.77 J	0.79 J	0.38 J	0.83 J	0.46 J	0.67 J	0.94 J	0.36	1.00 U
BI	NE	0.43 U	0.46 U	0.46 U	0.43 U	0.41 U	0.71 J	0.44 J	0.39 U	0.47 U	0.43 U	0.41 U	0.44 U	0.43 U	0.42 U	0.43 U	0.38 U	0.43 U	0.42 U	0.46 U	2.10 U
CA	NE	104000.00	62800.00 J	72000.00 J	120000.00	100000.00	132000.00	73400.00 J	65400.00	100000.00	106000.00	260000.00	30900.00 J	31300.00 J	170000.00	246000.00	104000.00	82400.00	83000.00	138000.00	37000.00 J
CD	39	0.69 U	0.71 U	0.71 U	0.48 U	0.69 U	0.68 U	0.66 U	0.69 U	0.61 U	0.65 U	0.61 U	0.69 U	0.70 U	0.64 U	0.61 U	0.63 U	0.67 U	0.63 U	0.62 U	3.00 UJ
CN	390	0.78 J	0.89 J	0.61 J	0.60 J	0.62 J	0.67 J	0.63 J	0.10 U	0.68 J	0.66 J	0.61 J	0.69 J	0.10 U	0.77 J	0.78 J	0.38 J	0.10 U	0.10 U	0.36 J	0.10 U
CO	39	4.60 J	13.90	14.00	4.10 J	8.20 J	8.40 J	10.30 J	7.00 J	6.80 J	4.70 J	1.80 J	8.00 J	8.10 J	4.10 J	1.80 J	6.60 J	19.00	10.60	3.00 J	4.00 U
CR	390	9.40 J	26.80	25.80	9.00 J	10.90 J	14.10 J	19.40	19.60 J	11.70 J	7.80 J	6.60 J	16.20	17.00	10.00 J	8.10 J	10.80 J	18.60	18.20	6.60 J	4.00 U
CU	2900	14.00	21.60	24.60	13.70	14.10	18.30	17.10	16.90	13.90	11.60	6.40 J	17.00	17.40	10.30 J	8.60	13.80	20.30	17.00	8.60	3.40 J
FE	NE	11400.00	32600.00	30900.00	9060.00	11700.00	12800.00	23000.00	15900.00	13200.00	10000.00	6260.00	17600.00	18700.00	11800.00	7930.00	12900.00	25700.00	21700.00	7910.00	22.30 J
HG	23	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.13 U	0.13 U	0.11 U	0.10 U	0.11	0.12 U	0.13 U	0.11 U	0.90 U
K	NE	1330.00 J	6040.00	4860.00	1410.00 J	1960.00 J	2200.00 J	4370.00	1950.00 J	2000.00 J	1620.00 J	946.00 J	801.00 J	928.00 J	1790.00 J	649.00 J	1660.00 J	3170.00 J	3180.00 J	1400.00 J	1740.00 J
LI	NE	12.20 J	37.00	37.60	8.10 J	13.90 J	13.30 J	32.70	12.40 J	11.80 J	18.70	1.40 J	6.60 J	7.00 J	11.30 J	1.10 J	11.00 J	28.60	22.20	8.40 J	2.10 U
MG	NE	35600.00 J	11600.00 J	10800.00 J	46000.00	42400.00	35300.00	16200.00 J	24600.00	33600.00	42100.00	43700.00	11400.00 J	8930.00 J	16700.00 J	40800.00	37000.00	9480.00 J	12600.00 J	74600.00	13400.00
MN	7900	278.00 J	598.00 J	953.00 J	304.00 J	360.00 J	439.00 J	695.00 J	722.00 J	248.00 J	223.00 J	413.00 J	460.00 J	404.00 J	340.00 J	348.00 J	355.00 J	531.00 J	742.00 J	350.00 J	2.00 UJ
MO	NE	1.80 U	2.20 U	2.20 U	1.80 U	1.80 U	2.10 U	2.00 U	1.80 U	1.80 U	1.70 U	1.80 U	2.10 U	2.20 U	1.80 U	1.80 U	1.60 U	1.80 U	1.80 U	3.00 J	6.30 U
NA	NE	154.00 J	526.00 J	531.00 J	672.00 J	302.00 J	220.00 J	230.00 J	173.00 J	195.00 J	163.00 J	154.00 J	138.00 J	95.00 J	218.00 J	134.00 J	181.00 J	216.00 J	233.00 J	201.00 J	21800.00
NI	1600	11.60	25.90	26.60	10.80	12.70	12.30	22.10	15.60	13.00	10.80	3.00 J	14.60	15.80	7.00 J	3.10 J	12.80	20.30	18.00	6.60 J	8.00 U
PB	63	6.10	7.90	10.60	4.80	6.10	7.40	3.80	7.80	6.70	4.80	1.60 J	13.30	13.10	4.90	1.80 J	6.20	6.70	6.30	4.80	1.00 UJ
SB	31	6.70 UJ	6.20 UJ	6.30 UJ	6.70 UJ	6.60 UJ	8.00 UJ	7.70 UJ	6.90 UJ	7.10 UJ	6.60 UJ	7.10 UJ	8.10 UJ	6.30 UJ	7.40 UJ	7.10 UJ	6.80 UJ	6.70 UJ	7.30 UJ	7.30 UJ	36.00 U
SE	390	0.38 U	0.47 U	0.48 U	0.32 U	0.39 U	0.46 U	0.44 U	0.40 U	0.40 U	0.37 U	0.41 U	0.46 U	0.47 U	0.42 U	0.41 U	0.35 U	0.38 U	0.42 U	0.42 U	2.00 U
SN	NE	1.60 U	2.40 U	2.40 U	1.60 U	2.00 U	2.30 U	2.20 U	2.00 U	2.00 U	1.80 U	2.00 U	2.30 U	2.30 U	2.10 U	2.00 U	1.80 U	1.80 U	2.10 U	2.10 U	10.00 U
TA	NE	158.00 UJ	358.00 J	283.00 J	134.00 UJ	181.00 UJ	187.00 UJ	182.00 UJ	163.00 UJ	166.00 UJ	152.00 UJ	167.00 UJ	214.00 J	216.00 J	180.00 J	158.00 UJ	146.00 UJ	157.00 UJ	172.00 UJ	171.00 UJ	824.00 U
TL	5.8	0.38 U	0.47 U	0.48 U	0.32 U	0.39 U	0.46 U	0.44 U	0.40 U	0.40 U	0.37 U	0.41 U	0.46 U	0.47 U	0.42 U	0.41 U	0.35 U	0.38 U	0.42 U	0.42 U	2.00 U
V	550	8.00 J	25.60	23.80	10.60 J	12.80 J	13.00 J	17.60	20.40	13.20	10.10 J	2.60 J	27.80	27.40	8.70 J	2.10 J	13.70	18.70	16.80	7.80 J	6.60 J
ZN	23000	31.80 J	61.20 J	66.30 J	30.60 J	29.60 J	36.60 J	46.40 J	49.20 J	34.20 J	27.00 J	6.40 J	46.10 J	60.60 J	19.60 J	4.60 J	37.40 J	49.20 J	62.20 J	21.00 J	5.10 J

ELEMENT LEGEND:

AG	*Silver*	*LI*	*Lithium*
AL	*Aluminum*	*MG*	*Magnesium*
AS	*Arsenic*	*MN*	*Manganese*
BA	*Barium*	*MO*	*Molybdenum*
BE	*Beryllium*	*NA*	*Sodium*
BI	*Bismuth*	*NI*	*Nickel*
CA	*Calcium*	*PB*	*Lead*
CD	*Cadium*	*SB*	*Antimony*
CN	*Cyanide*	*SE*	*Selenium*
CO	*Cobalt*	*SN*	*Tin*
CR	*Chromium*	*TA*	*Tantalum*
CU	*Copper*	*TL*	*Thallium*
FE	*Iron*	*V*	*Vanadium*
	Mercury	*ZN*	*Zinc*
	Potassium		

Legend:

U -> compound was not detected
J -> reported value is estimated
NE-> no regulatory threshold level has been established because these are naturally occuring compounds
RBTL/RBGCV-> risk assessment threshold levels/risk based guidance cleanup values

Table IV.8 Radiological Analytical Data

Sample Number	Boring Location	Sample Depth	Units	Am-241	Q	Pu-238	Q	Pu 239/240	Q	Th-228	Q	Th-230	Q	Th-232	Q	Tritium	Q	U-234	Q	U-235	Q	U-238	Q
010002	19-3A	1-3'	pCi/g	0.30		5.04		0.20	U	0.84		0.59		0.50		14.00	U	0.54		0.07	UJ	0.48	
011002	19-3A	1-3'	pCi/g	0.28	U	132.05		1.92		0.84		0.88		0.71		14	U	0.68		0.07	U	0.52	
020003	19-3B	3-4'	pCi/g	0.31		100.92		0.54	J	1.10		0.99		0.98		14	U	0.52		0.06	J	0.71	
020006	19-3B	6-7'	pCi/g	0.30	U	16.55		0.30		3.66		0.86		0.15		14	U	0.53		0.10		0.53	
030004	19-3C	4-6'	pCi/g	0.31	U	3.25		0.11	U	3.52		0.61		0.23		14	U	0.39		0.07	U	0.37	
040007	19-3D	7-9'	pCi/g	0.31	U	0.23	U	0.11	U	1.16		1.40		0.72		14	U	0.75		0.07	U	0.74	
040012	19-3D	12-14'	pCi/g	0.33	U	0.23	U	0.11	U	0.98		0.84		0.68		14	U	0.55		0.10		0.61	
050004	19-3E	4-6'	pCi/g	0.27	U	0.45	U	0.21	U	0.47	U	0.44		0.38		14.00	U	0.49		0.07	UJ	0.42	
050010	19-3E	10-11.5'	pCi/g	0.40	U	0.45	U	0.21	U	0.48		0.43		0.24		14.00	U	0.61		0.10	J	0.70	
060000	19-3F	0-2'	pCi/g	0.39	U	7.54		0.11	U	1.76		1.25		0.97		14	U	0.67		0.07	U	0.59	
060005	19-3F	5-7'	pCi/g	0.37	U	1.48		0.11	U	1.23		1.25		0.80		14	U	0.58		0.08		0.55	
070001	19-3G	1-2'	pCi/g	0.40	U	6.10		0.12	J	1.53		0.97		1.10		14	U	0.52		0.07	U	0.72	
070012	19-3G	12-12.5'	pCi/g	0.36	U	0.23	U	0.11	UJ	1.44		1.21		1.31		14	U	0.67		0.07	U	0.67	
071001	19-3G	1-2'	pCi/g	0.34	U	10.96		0.11	UJ	1.18		1.06		0.96		14	U	0.52		0.07	U	0.71	
074000	19-3G	BLANK	pCi/L	99.84	U	0.93	U	0.44	U	2.78		1.50		0.35		700		0.33		0.29	U	0.24	U
080001	19-3H	1-3'	pCi/g	0.37	U	1.10		0.11	U	0.84		1.25		0.51		14	U	0.78	J	0.12	J	0.65	
080009	19-3H	9-11'	pCi/g	0.28	U	0.23	U	0.11	U	1.55		0.97		0.98		14	U	0.77	J	0.09	J	0.82	
090002	19-3I	2-4'	pCi/g	0.33	U	0.22	U	0.11	U	0.44		0.90		0.34		14	U	0.58		0.07	U	0.58	
090017	19-3I	17-19'	pCi/g	0.28	U	0.40	U	0.19	U	0.42	U	1.24		0.53		14.00	U	0.69		0.07	UJ	0.68	
100011	19-3J	11-13'	pCi/g	0.32	U	0.23	U	0.11	U	0.64		0.80		0.36		14	U	0.73		0.03	J	0.71	
100020	19-3J	20-22'	pCi/g	0.23	U	0.23	U	0.11	U	1.08		1.00		0.47		14	U	0.63	J	0.09	J	0.77	
101020	19-3J	20-22'	pCi/g	0.35	U	0.23	U	0.11	U	0.78		0.92		0.35		14	U	0.69		0.08	J	0.86	
104000	19-3J	BLANK	pCi/L	60.30	U	0.93	U	0.44	UJ	0.96	U	0.51		0.24	U	530	U	0.41		0.29	U	0.24	U
110006	19-3K	6-8'	pCi/g	0.36	U	0.45	U	0.21	U	0.89		0.95		1.27		14.00	U	1.18		0.11	JJ	1.21	
110017	19-3K	17-19'	pCi/g	0.31	U	0.45		0.11	U	0.74		0.83		0.50		14	U	0.71		0.08		0.67	
120001	19-3L	1-3'	pCi/g	0.36	U	3.01	J	0.21	U	2.58		1.32		1.80		17.40		0.85		0.10	J	0.95	
120020	19-3L	20-22'	pCi/g	0.29	U	0.22	U	0.11	U	4.17		0.88		0.44		14	U	0.68		0.07	U	0.77	
124000	19-3L	BLANK	pCi/L	81.85	U	0.93	U	0.44	U	0.96	U	0.34		0.24	U	530.00	U	0.36		0.29	UJ	0.28	
130003	19-3M	3-6'	pCi/g	0.37	U	6.82		0.11	U	0.89		0.84		0.58		14	U	0.72		0.07	U	0.74	
130006	19-3M	6-9'	pCi/g	0.39	U	0.33		0.11	U	1.35		1.48		1.46		14	U	0.93		0.12		1.12	
140006	19-3N	7-9'	pCi/g	0.32	U	2.50		0.11	U	0.87		1.00		0.58		14	U	0.85		0.08		0.72	
140001	19-3N	0.5-2.5'	pCi/g	0.35	U	20.18		0.20		4.23		0.82		0.57		14	U	1.12		0.18	J	1.09	
150001	19-3O	1-3'	pCi/g	0.43		31.98		0.23		1.05		1.09		0.70		14	U	0.91		0.19	J	0.73	
150020	19-3O	20-22'	pCi/g	0.33	U	0.23	U	0.11	U	0.73		0.70		0.44		14	U	0.83		0.16	J	0.67	
160018	19-3P	18-20'	pCi/g	0.40	U	0.46	U	0.22	U	0.48	U	0.49		0.37		14.00	U	0.71		0.08	J	0.80	
160010	19-3P	10-12'	pCi/g	0.36	U	0.23	U	0.11	U	1.51		1.31		1.18		14	U	0.71	J	0.07	J	0.80	
170007	19-3Q	7-9'	pCi/g	0.36	U	0.23	U	0.11	UJ	1.07		1.02		1.02		14	U	0.65		0.07	U	0.68	
170020	19-3Q	20-22'	pCi/g	0.34	U	0.23	U	0.11	UJ	1.40		1.26		1.16		14	U	0.70		0.13	J	0.74	
171020	19-3Q	20-22'	pCi/g	0.37	U	0.23	U	0.11	UJ	1.20		0.79		0.96		14	U	0.59		0.07	J	0.74	
180012	19-3R	10-12'	pCi/g	0.22	U	0.37	U	0.18	U	0.98		0.69		0.37		14.00	U	0.49		0.07	UJ	0.82	
180020	19-3R	20-22'	pCi/g	0.30	U	0.23	U	0.11	U	1.06		1.00		0.51		14	U	0.72	J	0.07	U	0.69	
190007	19-3S	7-9'	pCi/g	0.37	U	0.23	U	0.11	UJ	0.86		1.06		0.46		18.70		0.70		0.08	J	0.68	
190020	19-3S	20-22'	pCi/g	0.32	U	0.23	U	0.11	UJ	0.50		0.82		0.40		14	U	0.81		0.07	J	0.70	
191020	19-3S	20-22'	pCi/g	0.24	U	0.29	U	0.11	UJ	0.38		1.17		0.25		17.30		0.82		0.06	J	0.76	
200020	19-3T	20-22'	pCi/g	0.22	U	0.41	U	0.20	U	0.43	U	0.86		0.46		14.00	U	0.76		0.10	J	0.77	
200009	19-3T	9-11.5'	pCi/g	0.29	U	0.23	U	0.11	U	0.84		1.01		0.36		14	U	0.89	J	0.12	J	0.77	
210006	19-3U	5-7'	pCi/g	0.34		48.22		0.20		1.44		1.09		0.82		14	U	1.18	J	0.22	J	0.76	
210012	19-3U	12-14'	pCi/g	0.33	U	4.97		0.11	U	1.36		0.68		0.82		14	U	1.19	J	0.08	J	0.88	
220005	19-3V	5-7'	pCi/g	0.31	U	0.39	U	0.19	U	1.09		1.15		1.46		14.00	U	0.77		0.07	UJ	0.65	
220010	19-3V	10-11.5'	pCi/g	0.32	U	0.45	U	0.21	U	0.47	U	0.91		0.58		14.00	U	0.61		0.06	UJ	0.64	
230005	19-3W	5-7'	pCi/g	0.39	U	1.11		0.11	U	0.71		0.55		0.54		14	U	0.44		0.07	U	0.53	
230014	19-3W	15.15.5'	pCi/g	0.35	U	0.22	U	0.11	U	0.65		0.79		0.85		14	U	0.78		0.07		0.91	
240004	19-3X	4-6'	pCi/g	0.37	U	0.23	U	0.11	UJ	1.39		1.07		1.22		14	U	1.19		0.07	U	0.74	
240011	19-3X	11-12.5'	pCi/g	0.36	U	17.67		0.12	J	1.20		0.95		0.97		14	U	0.77		0.07	U	0.91	
250009	19-3Y	9-11.5'	pCi/g	0.29	U	0.74		0.11	U	1.24		1.10		1.09		14	U	0.82		0.08		0.85	
250016	19-3Y	16-17.5'	pCi/g	0.28	U	0.23	U	0.11	UJ	1.04		0.76		0.93		14	U	0.65		0.09	J	0.94	
260002	19-4A	1-3'	pCi/g	0.66		68.84		0.91		1.23		1.01		0.47		14	U	0.60	J	0.07	U	0.59	
260010	19-4A	9-11'	pCi/g	0.30	U	0.23	U	0.11	U	0.86		1.23		0.38		14	U	0.69	J	0.07	J	0.70	
260020	19-4A	20-22'	pCi/g	0.34	U	0.23	U	0.11	U	0.81		0.70		0.44		14	U	0.80	J	0.08	J	0.88	
270000	19-2A	0-2'	pCi/g	0.30	U	0.44	U	0.21	U	1.76		2.59		2.39		14.00	U	0.81		0.07	UJ	0.84	
270006	19-2A	6-8'	pCi/g	0.31	U	0.23	U	0.11	UJ	0.80		0.97		0.36		14	U	0.81		0.07	U	0.74	
270013	19-2A	13-15'	pCi/g	0.39	U	0.23	U	0.11	UJ	0.43		1.06		0.36		14	U	0.70		0.07	U	0.78	
270020	19-2A	20-22'	pCi/g	0.29	U	0.23	U	0.11	UJ	0.66		0.83		0.35		14	U	0.73		0.07	U	0.87	
274000	19-2A	BLANK	pCi/L	79.54	U	0.93	U	0.44	UJ	0.96	U	0.30		0.24	U	558.7		0.29	U	0.29	U	0.24	U
280006	19-2B	6-8'	pCi/g	0.27	U	0.44	U	0.21	U	0.51		0.73		0.21		16.30		0.56		0.07	UJ	0.70	
280013	19-2B	13-15'	pCi/g	0.30	U	0.45	U	0.22	U	0.45		0.61		0.39		14.00	U	0.78		0.15	J	0.82	
280020	19-2B	20-22'	pCi/g	0.28	U	1.68		0.22	U	0.52		0.88		0.42		14.00	U	0.87		0.07	UJ	0.81	
280000	19-2B	0-2'	pCi/g	0.19	U	0.86		0.11	U	0.40		0.07		0.07		14	U	0.28		0.07	U	0.11	
281000	19-2B	0-2'	pCi/g	0.22	U	0.23	U	0.11	U	0.24	U	0.56		0.35		14	U	0.23		0.07	U	0.25	
294000	19-2C	BLANK	pCi/L	48.74	U	0.93	U	0.93	U	0.96	U	0.29	U	0.24	U	530	U	0.29	U	0.29	U	0.24	U
290000	19-2C	0-2'	pCi/g	0.32	U	10.67		0.11	UJ	0.78		0.94		0.55		14	U	0.62	J	0.07	UJ	0.70	J
290006	19-2C	6-8'	pCi/g	0.31	U	0.23	U	0.11	U	0.80		1.06		0.46		14	U	0.79	J	0.21	J	0.97	
290013	19-2C	13-15'	pCi/g	0.35	U	1.35		0.11	U	1.10		0.97		0.89		14	U	0.83	J	0.07	U	0.72	
300000	19-2D	0-2'	pCi/g	0.23	U	8.67		0.11	U	0.50		0.68		0.28		14	U	0.44		0.07	U	0.42	
301000	19-2D	0-2'	pCi/g	0.41	U	16.86		0.11	U	1.27		1.12		0.82		21.3		1.35		0.07	U	0.78	
310000	19-2E	0-2'	pCi/g	0.32	U	21.51		0.45		2.64		1.29		0.46		34.0		7.45		0.15		0.62	
320000	19-2F	0-2'	pCi/g	0.22	U	0.23	U	0.11	U	0.72		0.78		0.43		14	U	0.81		0.24	J	0.82	
320006	19-2F	6-8'	pCi/g	0.33	U	0.23	U	0.11	U	1.10		0.88		0.42		14.9		0.80		0.13	J	0.95	
330006	19-2G	6-8'	pCi/g	0.43	U	1.53		0.22	U	0.76		0.65		0.90		22.00		0.89		0.08	J	0.89	
330000	19-2G	0-2'	pCi/g	0.29	U	3.83		0.11	U	1.08		1.37		0.72		16		0.79		0.07	U	0.65	
340000	19-2H	0-2'	pCi/g	0.36	U	1.22		0.11	U	1.32		0.77		1.07		14	U	0.98		0.07	U	0.92	
340006	19-2H	6-8'	pCi/g	0.38	U	0.35		0.11	U	1.49		0.98		1.05		14	U	1.02	J	0.07	U	0.97	
341000	19-2H	0-2'	pCi/g	0.37	U	0.51		0.11	U	2.19		1.10		1.20		14	U	1.22	J	0.09	J	0.92	
350013	19-2I	13-14.5'	pCi/g	0.39	U	0.40	U	0.19	U	0.81		0.74		0.85		14.00	U	0.65		0.07	UJ	0.71	
354000	19-2I	BLANK	pCi/L	47.02	U	0.93	U	0.44	U	0.96		0.29	U	0.24	U	530.00	U	0.29	U	0.29	UJ	0.24	U
350000	19-2I	0-2'	pCi/g	0.33	U	0.23	U	0.11	U	1.39		1.29		0.82		15	U	0.76		0.07		0.89	
350006	19-2I	6-8'	pCi/g	0.34	U	0.23	U	0.11	U	1.31		1.14		0.94		16.4		0.64		0.16		0.64	
350020	19-2I	20-22'	pCi/g	0.31	U	1.77		0.11	U	1.28		1.22		1.01		14	U	0.82	J	0.07	U	0.73	
360000	19-2J	0-2'	pCi/g	0.32	U	11.37		0.33		10.69		1.01		0.66		14	U	0.97		0.12	J	0.93	
360006	19-2J	6-8'	pCi/g	0.39	U	1.99		0.11	U	1.34		1.29		0.62		14	U	1.07		0.22	J	0.96	
360013	19-2J	13-15'	pCi/g	0.34	U	0.51		0.11	U	1.00		0.74		0.50		14	U	0.77		0.09	J	0.87	
360020	19-2J	20-22'	pCi/g	0.25	U	0.25		0.11	U	1.34		0.87		0.69		14	U	0.78		0.11	J	0.82	
370012	19-1A	12-14'	pCi/g	0.44	U	3.22		0.11	U	2.01		0.78		0.85		14	U	0.55		0.07	U	0.80	
370006	19-1A	6-8'	pCi/g	0.43	U	16.11		0.27		1.49		0.92		0.95		14	U	0.88	J	0.12	J	0.80	
380006	19-2B	6-8'	pCi/g	0.31	U	82.57		0.26	J	0.70		0.68		0.39		20.30		1.02		0.07	U	0.84	
380012	19-2B	12-14'	pCi/g	0.34	U	2.56		0.11	U	0.59		1.11		1.02		14	U	1.00		0.08		0.86	
384000	19-2B	BLANK	pCi/L	78.43	U	0.93	U	0.93	U	0.96	U	0.29	U	0.24	U	530	U	0.29	U	0.29	U	0.24	U
380011	19-2C	12-14'	pCi/g	0.45	U	0.84		0.11	U	1.07		1.07		1.03		14	U	0.81		0.07	U	0.89	
391006	19-2C	6-8'	pCi/g	0.36	U	0.23	U	0.11	U	1.29		0.93		1.20		14	U	0.76		0.07		0.89	
390006	19-2C	6-8'	pCi/g	0.44	U	5.38		0.11	UJ	1.12		0.82		1.25		14	U	1.04		0.07	J	0.88	
400000	NONE	SPIKE	pCi/g	0.86		103.93		1.54		13.36		2.77		1.21		14	U	0.94		0.08		0.82	
410010	NONE	SPIKE	pCi/g	0.37	U	17.09		0.37		2.64		1.59		0.88		14	U	0.77		0.07		0.78	
420020	NONE	SPIKE	pCi/g	0.36	U	0.23	U	0.11	U	1.16		1.55		0.68		14	U	0.54		0.06		0.78	