

3001-0009300001

Main Hill Project

CLOSE OUT REPORT

Demolition of M Building (And PRS Resolution)



MOUND PLANT

Miamisburg, Ohio

September 2000

Final



BWXT of Ohio, Inc.



Department of Energy

Close Out Report For Demolition
Of
M Building (And PRS Resolution)
DOE Mound Plant
Miamisburg, Ohio 45343-3020

Prepared for:

United States Department of Energy
Miamisburg Environmental Management Project
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Prepared by:

BWXT of Ohio

September 2000

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Executive Summary

This is the final report documenting the demolition of M Building, as initially defined in the Building Data Package (BDP) introduced in July 1999. Demolition of the structure was completed in November 1999, and the removal of the pad, foundation, and footers was completed in July 2000. This documentation serves as the record of the demolition action and reports final costs, schedule, waste disposition information, method of demolition, final disposition of associated Potential Release Sites, and any unusual findings. Photographs and references to pertinent documents are also included. This demolition effort was considered a standard industrial construction demolition and was not considered a removal under CERCLA and was not designated as a HAZWOPER site.

M Building was built in 1948 as a two-story steel frame structure with brick masonry block walls with industrial steel sash windows. It was constructed as a maintenance shop and included machine shops, metal plating facilities, sheet metal shops, carpenters' shops, and a glass blowing facility. Later additions included areas for office space and electrical maintenance. The Main Hill Project of BWXT of Ohio demolished the building and concrete pad per planning developed for the project. See reference documents noted in Paragraph 4 of this Close Out report.

All preparation and demolition activities were performed in accordance with detailed Work Plans to include structure characterization, safe shutdown, utilities isolation, site access control, interior decontamination and demolition requirements, structure demolition, and debris removal. Potential Release Sites (PRSs) 118, 119, 120, and 121 were addressed and dispositioned as requiring No Further Assessment (NFA), as described in Appendix C.

The M Building superstructure, slab, and foundation were successfully demolished. Demolition material and debris were dispositioned as noted in Table 2 of this document. Post demolition sampling confirms that established PRS clean up goals were achieved.

It is recommended to the Department of Energy that the scope of work relating to this building be considered complete.

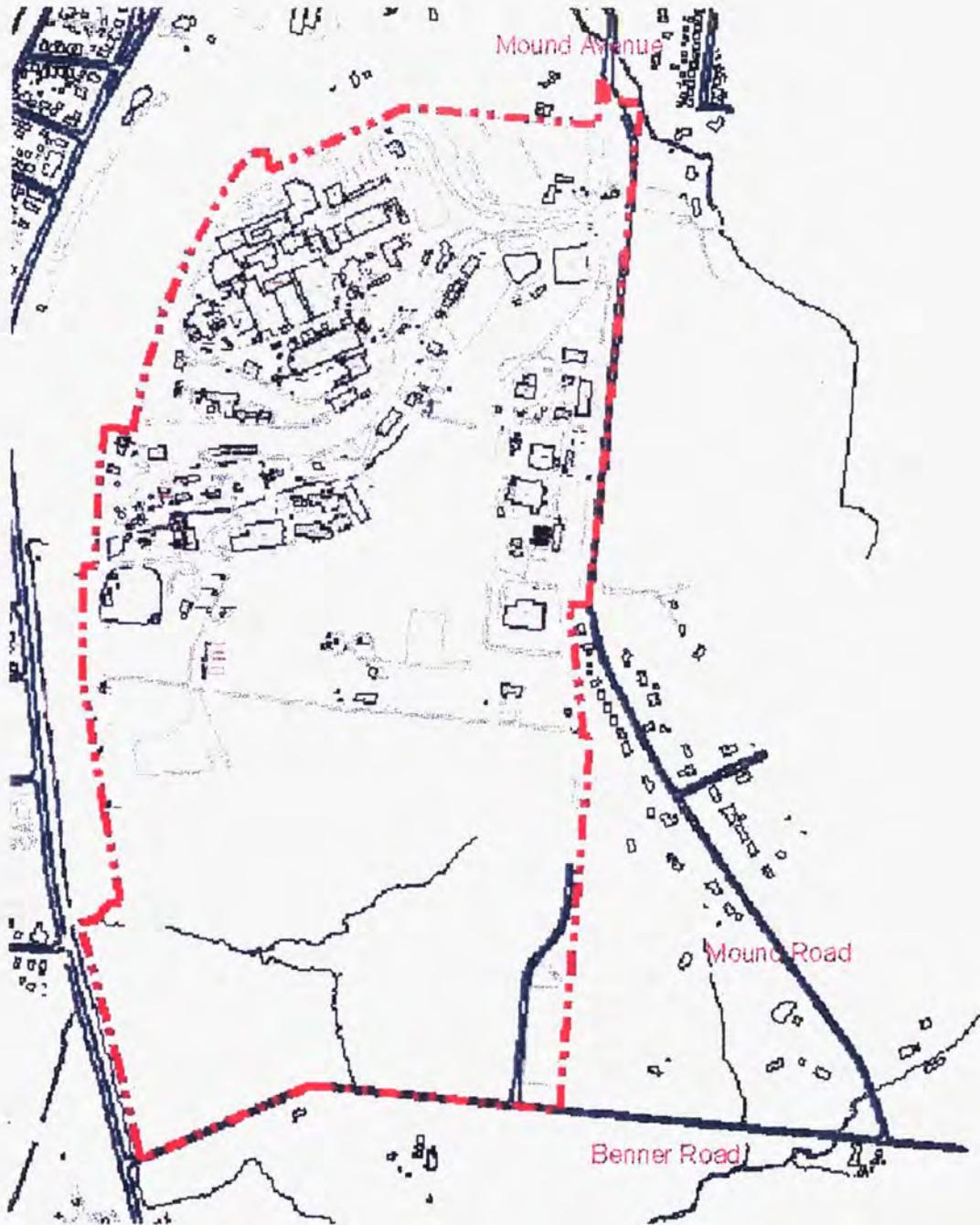


Figure 1. Mound Plant Site Location

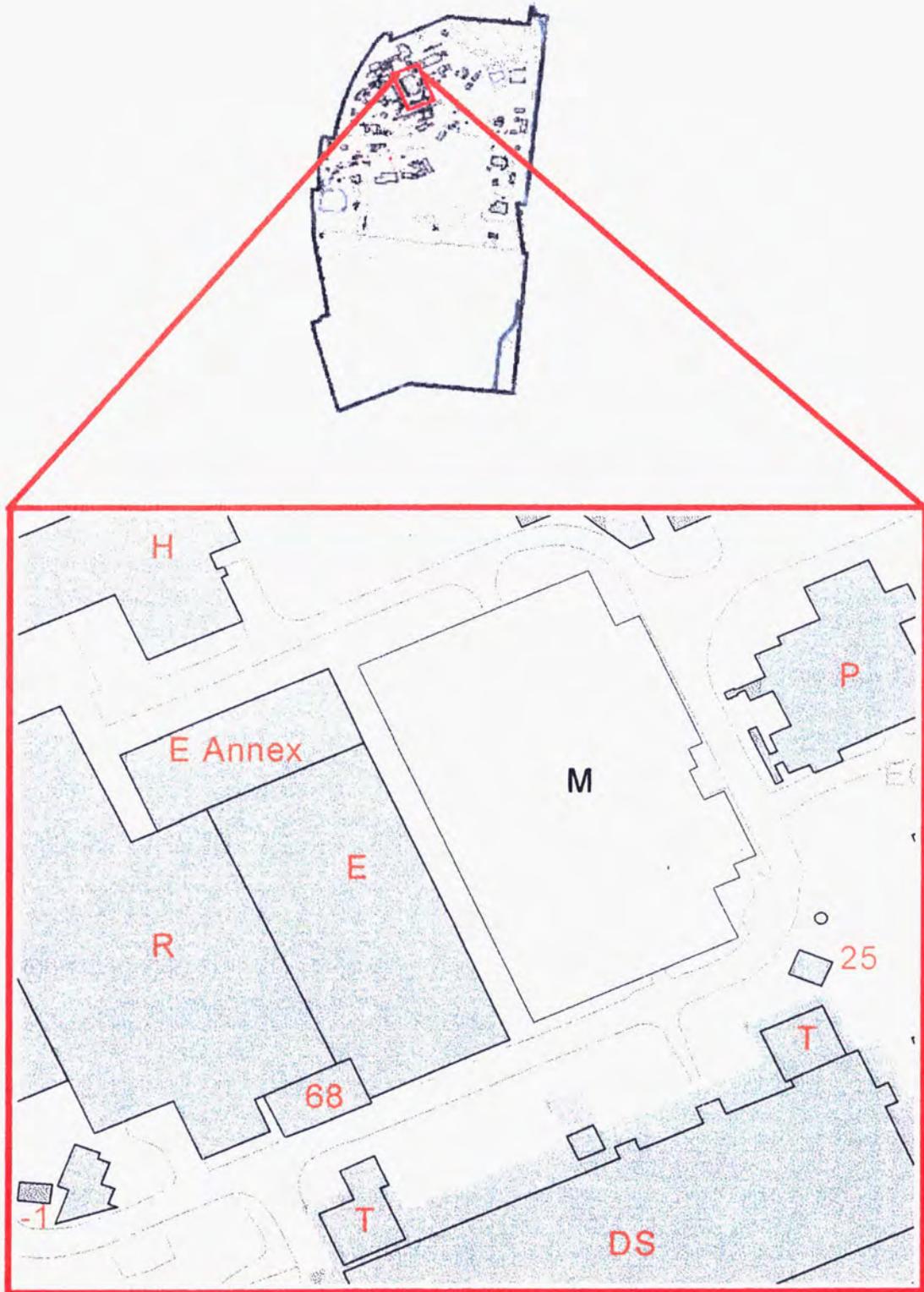


Figure 2. Demolition Site Location

1.0 SUMMARY OF EVENTS

1.1 Objectives of Demolition Activities

M Building was removed in support of the Mound Plant Exit Project. The removal was accomplished as a standard industrial construction demolition as noted by the Building Data Package (BDP).

1.2 Personnel Organization For The Demolition

See Table 1, Personnel Organization For The Demolition.

Table 1. Personnel Organization for the Demolition

Agencies or Parties Involved	Contact	Description of Participation
US EPA HSRM-6J 77 W. Jackson Chicago, IL 60604 312-886-5787	Tim Fischer	Federal agency responsible for Mound Plant oversight.
Ohio EPA 410 E. Fifth Street Dayton, OH 45402-2911 937-285-6468	Brian Nickel	State agency responsible for Mound Plant oversight.
DOE/MEMP P.O. Box 66 1 Mound Road Miamisburg, OH 45343-0066 937-865-4020	Frank Schmaltz	DOE/MEMP Project Manager responsible for project oversight and success.
BWXT of Ohio, Inc. Main Hill Project P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-865-4020	Budd Thompson	Provided the DOE/MEMP Project Manager with technical assistance, administrative support, sampling, decontamination, photo and site documentation, site safety, and report preparation.
BWXT of Ohio, Inc. General Superintendent and Equipment Manager P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-865-4020	Dave Armstrong	Provided the personnel and equipment necessary for the demolition.

1.3 Chronological Narrative of Key Demolition Activities

February 3, 1999	Started radiological surveys.
February 24, 1999	Started decontamination of fixed contamination areas.
March 8, 1999	Building disposition was changed from transition to demolition.
March 10, 1999	Building posted as RMMA - started RMMA rollback surveys.
April 14, 1999	Removed HEPA filters from glovebox in M-27. Developed historical report for National Parks Service.
May 19, 1999	Started removing lights and PCB ballasts.
June 9, 1999	Completed decontamination of fixed contamination areas.
June 9, 1999	Completed removing lights and PCB ballasts.
June 23, 1999	Started asbestos abatement.
July 7, 1999	Completed asbestos abatement.
July 14, 1999	Completed RMMA rollback surveys with exception of the roof areas. (Fixed contamination found on rusted metal on roof.)
July 20, 1998	Started wood block floor removal.
July 21, 1999	Isolated air and steam lines to the building.
August 18, 1999	Removed the brine line bridge between M Building and the Power House.
August 24, 1999	Completed wood block floor removal.
August 25, 1999	Installed bracing for northeast corner stanchion support.

August 25, 1999	Removed canopies on east side of building.
August 25, 1999	Completed isolation of all above ground utilities.
September 1, 1999	Started demolition of the superstructure.
November 16, 1999	Completed demolition of the superstructure.
December 15, 1999	Disposed of the fixed contamination roof material.
February 14, 2000	Started field work for the soils characterization.
March 3, 2000	Completed field work for the soils characterization.
March 13, 2000	Started removal of the building pad.
July 29, 2000	Completed removal of M Building pad.
August 24, 2000	Completed pad backfill with crushed material.

1.4 Listing of Resources Committed

Table 2 shows materials and their disposition. Table 3 includes the demolition total cost summary.

Table 2. Materials and Disposition

Material	Quantity	Method	Location
Construction Debris (concrete/masonry)	1635 cubic yards (as of 5/11/00)	To be crushed later and reused	Mound site: to be used as fill material
Construction Debris (metals)	4,870 cubic yards	Recycled	Franklin Metals
Construction Debris (mixed/miscellaneous)	8,270 cubic yards	Landfill	Koogler/Stoney Hollow
Asbestos	110 cubic yards	Landfill	Koogler/Stoney Hollow

Table 3. Demolition Project Total Cost Summary

Activity	Cost (\$)
Historical D&T Costs	170,735
Historical Preservation Report Preparation	9,295
Work Planning	105,442
Safe Shutdown	154,111
Characterization	299,929
Decontamination & Demolition	657,491
Total Actual Cost (unburdened)	1,388,109
Total Actual Cost (burdened)	2,264,941

2.0 EFFECTIVENESS OF THE DEMOLITION

M Building structure and foundation were successfully demolished per the Work Plans. Field work and supporting activities were accomplished by BWXT of Ohio personnel and subcontractors. This demolition and subsequent evaluation of completed work addresses four PRSs resident in or near M Building. Post demolition evaluation results in verification that PRSs 118, 199, 120, and 121 require No Further Assessment (NFA). See Appendix C.

3.0 RECOMMENDATION

The M Building superstructure, slab, and foundation have been demolished and debris removed in accordance with documentation made available to the Mound 2000 Core Team. (See references following.) It is recommended to the Department of Energy that BWXT of Ohio's contractual obligations for the scope of work relating to this building be considered complete.

4.0 REFERENCE LIST OF SUPPLEMENTARY DOCUMENTS

Contact Mark Becker, BWXT of Ohio, Public Relations, at (937) 865-4450 to request access to these supplemental documents.

- Mound Plant Building Data Package, M Building, November 1, 1999
- JSWP, MH-99-06, M Building Demolition
- JSWP, MH-99-04, M Building Slab and Foundation Removal
- M Building Process and Architectural History, Department of Energy, Mound Plant Site, Miamisburg, Ohio, September 14, 1999.
- Report - M Building, Final, Revision 0, Mound Plant Site, Miamisburg, Ohio, July 2000. (Soil Characterization Report)

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION



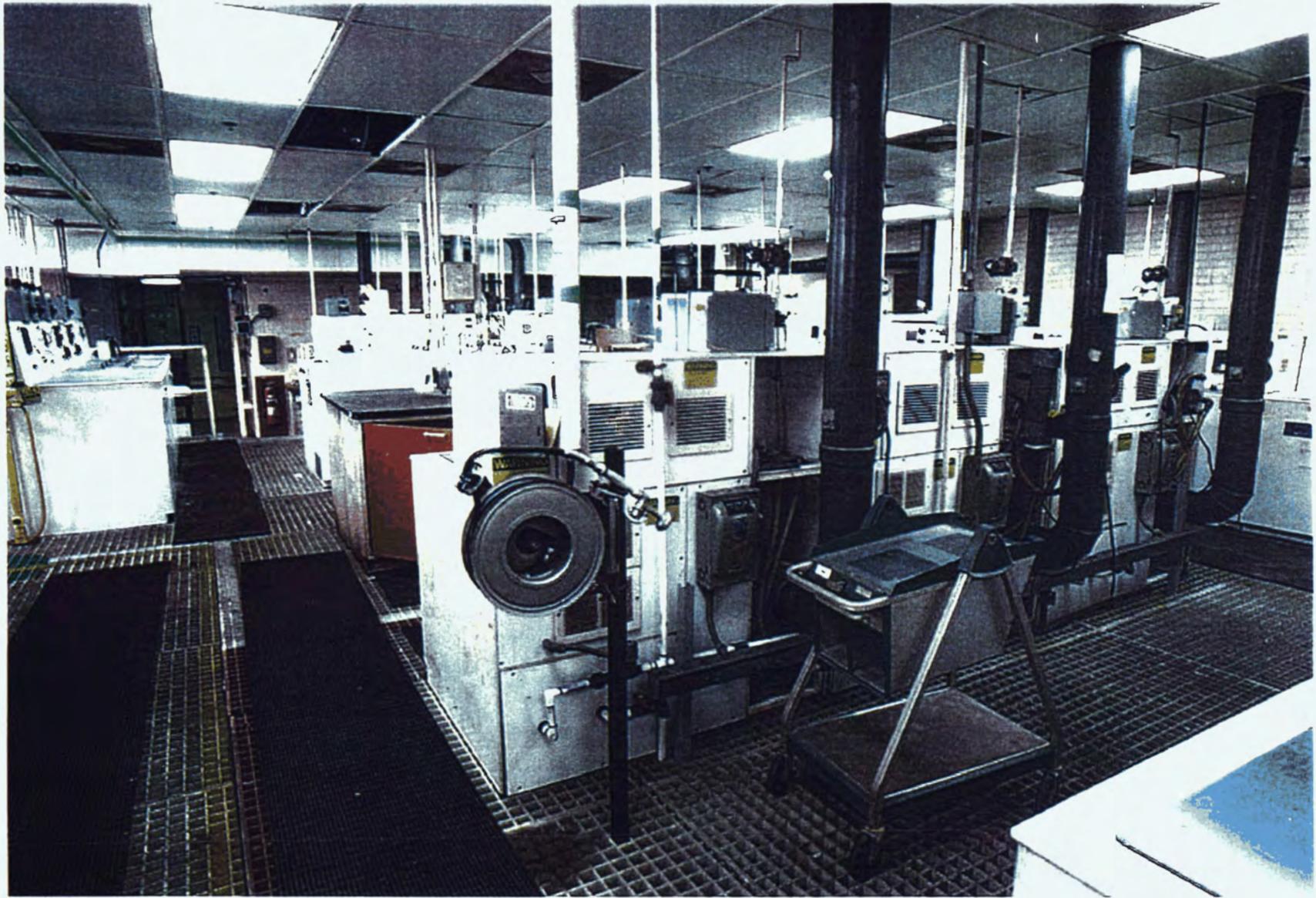
03/15/99 M bldg., north side *990828



05/12/99 M Bldg., roof, from northeast corner *991466



02/24/99 M Bldg., room 8, looking north *990519



02/24/99 M Bldg., room 108 *990533



02/24/99 M Bldg., room 27 *990544



08/13/98 M Bldg., removal of wood floor blocks *981699



08/13/99 M Bldg., removing bridge to P Bldg. *992213



08/24/99 M Bldg. demolition, east end *992404



09/02/99 M Bldg. demolition *992536



09/08/99 M Bldg. demolition *992560



09/13/99 M Bldg. demolition *992592



09/14/99 M Bldg. demolition *992624



09/15/99 M Bldg. demolition *992680



09/17/99 M Bldg. demolition *992682



09/17/99 M Bldg. demolition *992687



09/22/99 Portable air sampler at M Bldg. demolition *992708



09/22/99 M Bldg. demolition *992729



09/27/99 M Bldg. demolition *992799



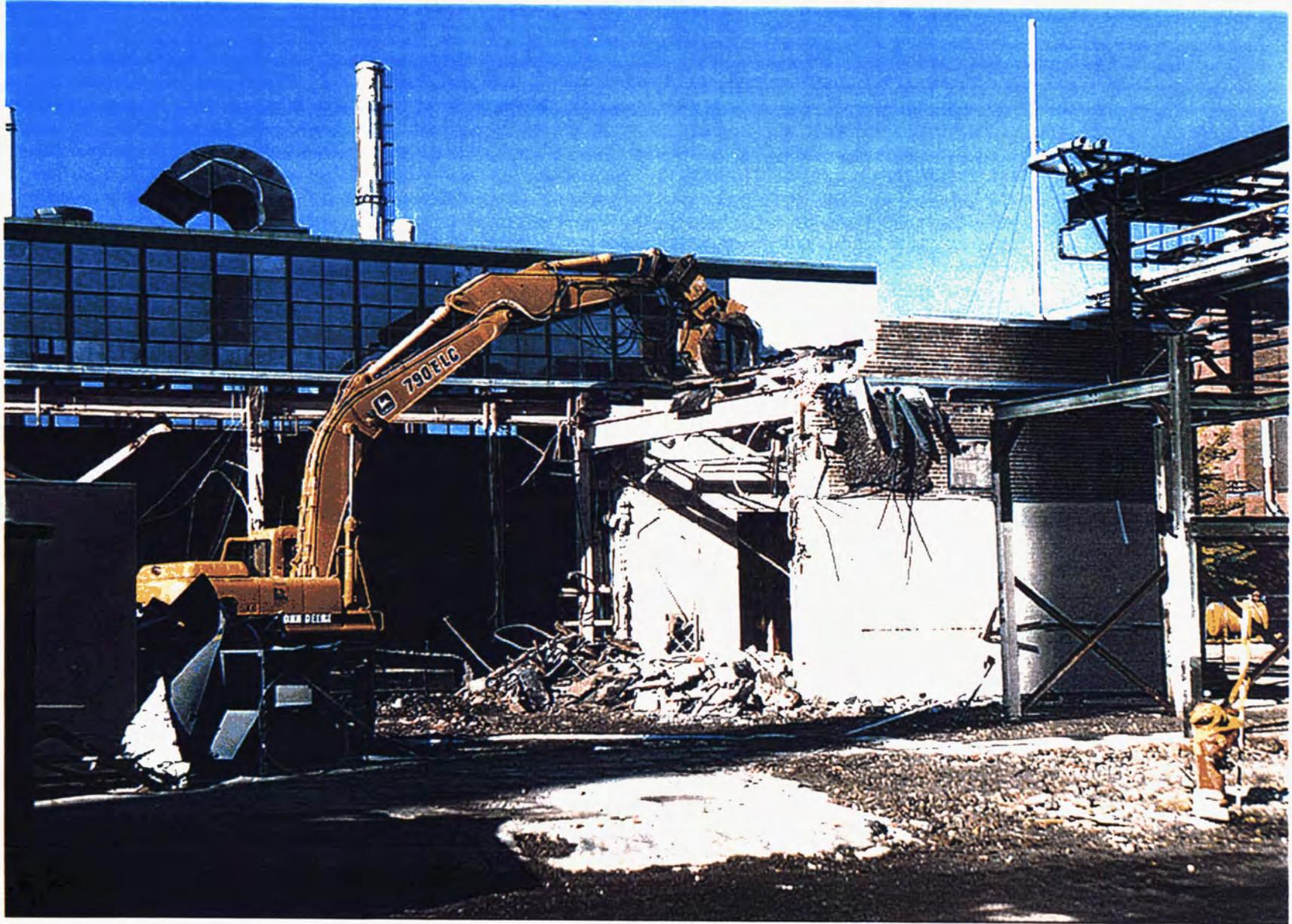
09/28/99 M Bldg. demolition *992819



09/28/99 M Bldg. demolition *992829



10/04/99 M Bldg. demolition *992838



10/05/99 M Bldg. demolition *992844



10/14/99 M Bldg. demolition *992934



10/26/99 M Bldg. demolition *993131



10/26/99 M Bldg. demolition *993132



M Building Demolition



11/01/99 M Bldg. demolition *992975



11/18/99 Former site of M Bldg. looking northeast *993214



11/18/99 Former site of M Bldg. looking southeast *993215



02/17/00 M Bldg. pad, core sample *000239



03/14/00 M Bldg. pad removal *000535



03/14/00 M Bldg. pad removal *000538

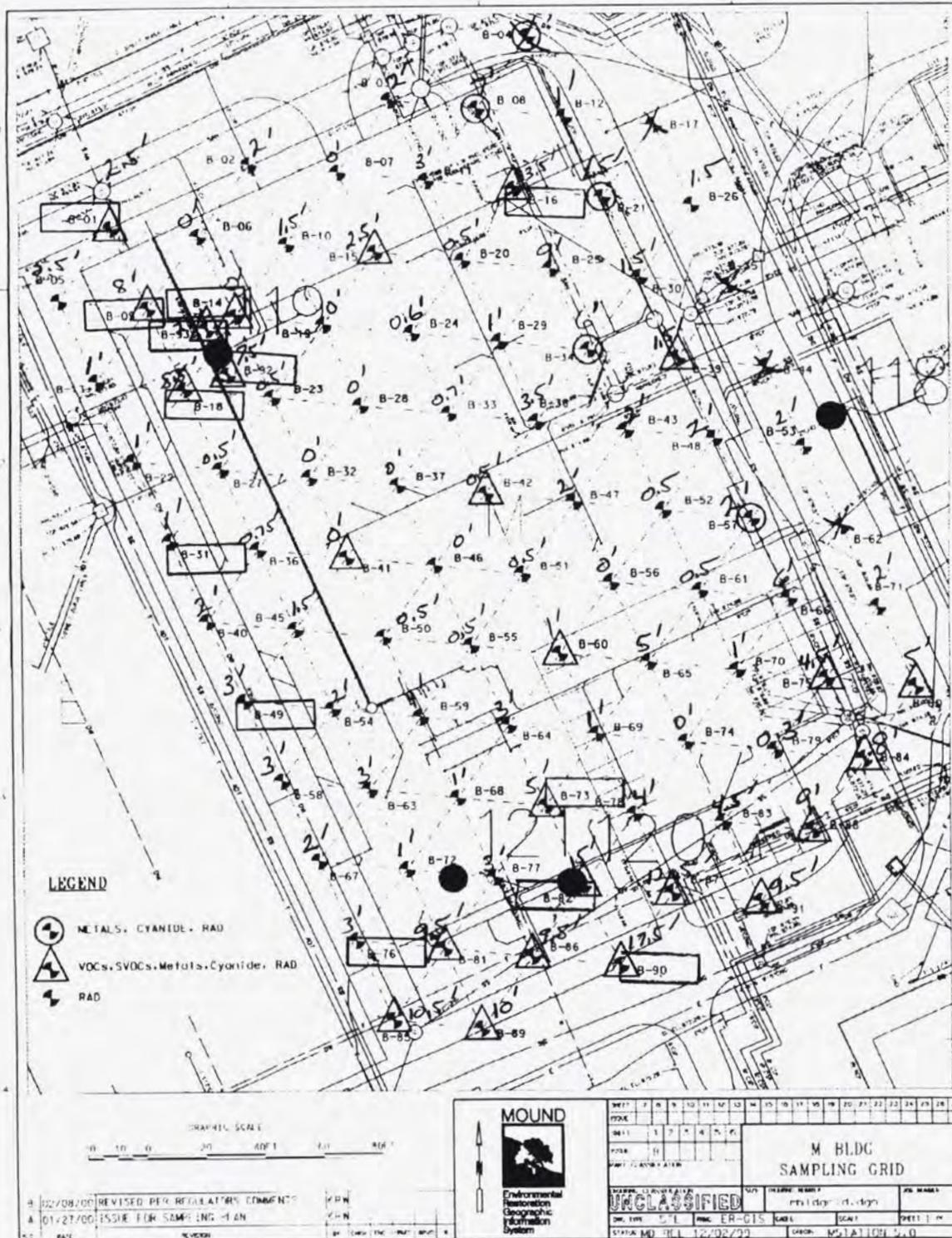


04/06/00 M Bldg. pad removal *000672

APPENDIX B

SAMPLING/CHARACTERIZATION INFORMATION

Figure 3-1 Location of Borings



- LOCATIONS WITH NO RECOVERY
 - LOCATIONS FOR TRITIUM IS SOILS ANALYSIS

**M Building Soils Characterization
Results Exceeding Comparison Criteria (ug/Kg)**

Volatiles

Contaminant	Mound Background ug/kg	Mound Risk-Based Cleanup GV ug/kg	Sample Location and Depth ug/kg
Chloromethane	NS	NS	BGV
Methylene Chloride	NS	NS	BGV
Acetone	NS	21,000,000	BGV
Carbon Disulfide	NS	280,000	BGV
1,2-Dichloroethene (total)	NS	4,300,000	BGV
2-Butanone	NS	9,300,000	BGV
Trichloroethene	NS	125,000	BGV
Tetrachloroethene	NS	2,100,000	BGV
Toluene	NS	250,000	BGV
Ethylbenzene	NS	480	BGV
Styrene	NS	NS	BGV
Xylene (total)	NS	430,000,000	BGV
1,1,2-Trichlorotrifluoroethane	NS	NS	BGV

NS - Not Set

BGV - Below Guideline Value

1. VOC Analytical Results

Table 1 - Detected VOCs

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B73 0-1 000001 ug/kg	B82 0-4 000002 ug/kg	B82 4-8 000003 ug/kg	B82 8-12 000004 ug/kg	B82 12-16 000005 ug/kg
Chloromethane	NS		9 U	11 U	11 U	10 U	1 JB
Methylene Chloride	NS		5 JB	5 JB	8 JB	6 JB	6 JB
Acetone	21,000,000		10 B	6 JB	13 B	13 B	18 B
Carbon Disulfide	280,000		9 U	11 U	11 U	10 U	1 J
1,2-Dichloroethene	4,300,000		9 U	11 U	11 U	10 U	11 U
2-Butanone	9,300,000		9 U	11 U	11 U	10 U	2 JB
Trichloroethene	125,000		9 U	11 U	11 U	10 U	11 U
Tetrachloroethene	2,100,000		9 U	11 U	1 J	10 U	11 U
Toluene	250,000		9 U	11 U	11 U	10 U	11 U
Ethyl benzene	480		9 U	11 U	11 U	10 U	11 U
Styrene	NS		9 U	11 U	11 U	10 U	11 U
Total Xylenes	430,000,000		9 U	11 U	11 U	10 U	11 U
1,1,2-Trichlorotrifluoroethane	NS		9 U	11 U	11 U	10 U	11 U

Analyte	B92 0-4 000018 ug/kg	B92 4-8 000020 ug/kg	B92 4-8 000021 ug/kg	B18 0-4 000023 ug/kg	B18 4-8 000024 ug/kg	B09 0-4 000025 ug/kg	B09 4-8 000027 ug/kg
Chloromethane	12 U	13 U	13 U	11 U	12 U	11 U	11 U
Methylene Chloride	19 B	17 B	14 B	16 B	14 B	15 B	10 JB
Acetone	21 B	100 B	66 BD	39 B	250 B	28 B	39 B
Carbon Disulfide	12 U	13 U	13 U	11 U	12 U	11 U	11 U
1,2-Dichloroethene	12 U	13 U	13 U	11 U	2 J	11 U	11 U
2-Butanone	12 U	13 U	13 U	11 U	12 U	11 U	11 U
Trichloroethene	12 U	4 J	3 J	11 U	1 J	11 U	11 U
Tetrachloroethene	2 J	4 J	3 J	2 J	12 U	11 U	11 U
Toluene	12 U	13 U	13 U	1 J	12 U	11 U	11 U
Ethyl benzene	12 U	13 U	13 U	11 U	12 U	11 U	11 U
Styrene	12 U	13 U	13 U	11 U	12 U	11 U	11 U
Total Xylenes	12 U	13 U	13 U	11 U	12 U	11 U	11 U
1,1,2-Trichlorotrifluoroethane	12 U	13 U	13 U	11 U	12 U	11 U	11 U

Table 1 - Detected VOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B16 0-3 000044 ug/kg	B88 0-4 000055 ug/kg	B88 4-7 000056 ug/kg	B87 0-4 000064 ug/kg	B87 0-4 000065 ug/kg
Chloromethane	NS		11 U	11 U	12 U	11 U	10 U
Methylene Chloride	NS		8 JB	10 JB	7 JB	9 JB	11 B
Acetone	21,000,000		11 U	24 B	21 B	26 B	16 B
Carbon Disulfide	280,000		11 U	11 U	12 U	11 U	10 U
1,2-Dichloroethene	4,300,000		11 U	11 U	12 U	11 U	10 U
2-Butanone	9,300,000		11 U	11 U	12 U	11 U	10 U
Trichloroethene	125,000		11 U	11 U	12 U	11 U	10 U
Tetrachloroethene	2,100,000		11 U	11 U	12 U	11 U	10 U
Toluene	250,000		11 U	11 U	12 U	11 U	1 J
Ethyl benzene	480		11 U	11 U	12 U	11 U	10 U
Styrene	NS		11 U	11 U	12 U	11 U	10 U
Total Xylenes	430,000,000		11 U	11 U	12 U	1 J	10 U
1,1,2-Trichlorotrifluoroethane	NS		11 U	11 U	12 U	11 U	10 U

Analyte	B87 4-8 000066 ug/kg	B87 8-12 000067 ug/kg	B39 0-2 000076 ug/kg	B75 0-4 000078 ug/kg	B58 0-3 000085 ug/kg	B84 0-4 000088 ug/kg	B84 4-8 000089 ug/kg
Chloromethane	10 U	12 U	11 U	11 U	11 U	10 U	12 U
Methylene Chloride	14 B	14 B	9 JB	8 JB	9 JB	7 JB	7 JB
Acetone	22 B	18 B	29	18	31	10 U	15
Carbon Disulfide	10 U	12 U	11 U	11 U	11 U	10 U	11 U
1,2-Dichloroethene	10 U	12 U	11 U	11 U	11 U	10 U	12 U
2-Butanone	10 U	12 U	11 U	11 U	11 U	10 U	12 U
Trichloroethene	1 J	12 U	11 U	11 U	11 U	10 U	6 J
Tetrachloroethene	10 U	12 U	11 U	11 U	11 U	10 U	12 U
Toluene	1 J	12 U	11 U	11 U	11 U	10 U	12 U
Ethyl benzene	10 U	12 U	11 U	1 J	11 U	10 U	12 U
Styrene	10 U	12 U	11 U	11 U	11 U	10 U	12 U
Total Xylenes	10 U	12 U	11 U	8 J	11 U	10 U	12 U
1,1,2-Trichlorotrifluoroethane	10 U	12 U	11 U	11 U	11 U	10 U	12 U

Table 1 - Detected VOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B81 4-8 000095 ug/kg	B81 8-10 000096 ug/kg	B85 0-4 000097 ug/kg	B85 4-8 000099 ug/kg	B85 8-10 000100 ug/kg
Chloromethane	NS		11 U	12 U	11 U	12 U	12 U
Methylene Chloride	NS		8 JB	9 JB	7 JB	8 JB	10 JB
Acetone	21,000,000		11 U	25	11 U	17	61
Carbon Disulfide	280,000		11 U	12 U	11 U	12 U	12 U
1,2-Dichloroethene	4,300,000		11 U	12 U	11 U	12 U	12 U
2-Butanone	9,300,000		11 U	12 U	11 U	12 U	12 U
Trichloroethene	125,000		11 U	12 U	11 U	12 U	12 U
Tetrachloroethene	2,100,000		11 U	12 U	11 U	12 U	12 U
Toluene	250,000		11 U	12 U	11 U	12 U	12 U
Ethyl benzene	480		11 U	12 U	11 U	12 U	1 J
Styrene	NS		11 U	12 U	11 U	2 J	2 J
Total Xylenes	430,000,000		11 U	12 U	11 U	12 U	12 U
1,1,2-Trichlorotrifluoroethane	NS		11 U	12 U	11 U	12 U	12 U

Analyte	B01 0-3 000106 ug/kg	B87 0-4 000108 ug/kg	B89 4-8 000109 ug/kg	B86 0-4 000111 ug/kg	B86 4-8 000112 ug/kg	B86 4-8 000113 ug/kg	B86 8-10 000114 ug/kg
Chloromethane	12 U	6 JB	1 JB	13 U	11 U	12 U	12 U
Methylene Chloride	8 JB	12 JB	11 JB	9 JB	14 B	8 JB	8 JB
Acetone	12 U	45 B	20 B	22 B	17 B	22 B	58 B
Carbon Disulfide	12 U	13 U	11 U	13 U	11 U	12 U	12 U
1,2-Dichloroethene	12 U	13 U	11 U	13 U	11 U	12 U	12 U
2-Butanone	12 U	4 J	11 U	13 U	3 J	12 U	9 J
Trichloroethene	12 U	13 U	11 U	13 U	11 U	12 U	12 U
Tetrachloroethene	13	13 U	11 U	13 U	11 U	12 U	12 U
Toluene	12 U	13 U	11 U	13 U	11 U	12 U	12 U
Ethyl benzene	12 U	13 U	11 U	13 U	2 J	12 U	12 U
Styrene	12 U	13 U	11 U	13 U	11 U	12 U	12 U
Total Xylenes	12 U	13 U	11 U	13 U	9 J	5 J	12 U
1,1,2-Trichlorotrifluoroethane	12 U	13 U	11 U	13 U	11 U	12 U	12 U

Table 1 - Detected VOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B90 0-4 000115 ug/kg	B90 4-8 000117 ug/kg	B90 4-8 000118 ug/kg	B90 8-12 000119 ug/kg	B90 12-16 000121 ug/kg
Chloromethane	NS		12 U	13 U	12 U	12 U	13 U
Methylene Chloride	NS		7 JB	15 B	10 JB	9 JB	8 JB
Acetone	21,000,000		11 JB	28 B	52 B	41 B	72 B
Carbon Disulfide	280,000		12 U	13 U	12 U	2 J	5 J
1,2-Dichloroethene	4,300,000		12 U	13 U	12 U	12 U	13 U
2-Butanone	9,300,000		12 U	13 U	12 U	8 J	8 J
Trichloroethene	125,000		12 U	13 U	12 U	12 U	13 U
Tetrachloroethene	2,100,000		12 U	13 U	12 U	12 U	13 U
Toluene	250,000		12 U	13 U	12 U	12 U	2 J
Ethyl benzene	480		12 U	13 U	12 U	12 U	3 J
Styrene	NS		12 U	13 U	12 U	12 U	13 U
Total Xylenes	430,000,000		12 U	13 U	12 U	12 U	2 J
1,1,2-Trichlorotrifluoroethane	NS		12 U	13 U	12 U	12 U	13 U

Analyte	B91 0-4 000122 ug/kg	B91 4-8 000123 ug/kg	B91 4-8 000124 ug/kg	B91 8-10 000125 ug/kg	B80 0-4 000126 ug/kg
Chloromethane	12 U	11 U	11 U	11 U	13 U
Methylene Chloride	14 B	15 B	14 B	18 B	16 B
Acetone	12 JB	10 JB	12 B	17 B	30 B
Carbon Disulfide	12 U	11 U	11 U	11 U	13 U
1,2-Dichloroethene	12 U	3 J	6 J	11 U	13 U
2-Butanone	12 U	11 U	11 U	11 U	6 J
Trichloroethene	12 U	16	24	11 U	13 U
Tetrachloroethene	1 J	39	58	3 J	13 U
Toluene	12 U	11 U	11 U	11 U	2 J
Ethyl benzene	12 U	11 U	11 U	11 U	2 J
Styrene	12 U	11 U	11 U	11 U	13 U
Total Xylenes	12 U	11 U	11 U	11 U	11 J
1,1,2-Trichlorotrifluoroethane	12 U	11 U	11 U	11 U	13 U

Note: NS-None Set
 U-Compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit
 J-Estimated value
 B-Analyte found in the associated blank.
 D-Analyzed at a secondary dilution factor

**M Building Soils Characterization
Results Exceeding Comparison Criteria (ug/Kg)**

Semivolatiles

Contaminant	Mound Background ug/kg	Mound Risk-Based Cleanup GV ug/kg	Sample Location and Depth ug/kg
Naphthalene	NS	NS	BGV
2-Methylnaphthalene	NS	NS	BGV
Acenaphthylene	NS	NS	BGV
Dibenzofuran	NS	NS	BGV
Diethylphthalate	NS	NS	BGV
Fluorene	NS	NS	BGV
Phenanthrene	NS	NS	BGV
Anthracene	NS	64,000,000	BGV
Carbazole	NS	Ns	BGV
Di-n-butylphthalate	NS	21,000,000	BGV
Fluoranthene	NS	8,500,000	BGV
Pyrene	NS	6,400,000	BGV
Butylbenzylphthalate	NS	43,000,000	BGV
Benzo (a) anthracene	NS	4,100	BGV
Chrysene	NS	410,000	BGV
Bis (2-rthylhexl) phthalate	NS	215,000	BGV
Di-n-octyl phthalate	NS	43,000,000	BGV
Benzo (b) fluoranthene	NS	4,100	BGV
Benzo (k) fluoranthene	NS	41,000	BGV
Benzo (a) pyrene	NS	410	B91(0-4): 890
Indeno (1,2,3-cd) pyrene	NS	4,100	BGV
Dibenz (a,h) anthracene	NS	410	BGV
Benzo (g,h,l) perylene	NS	NS	BGV

NS - Not Set

BGV - Below Guideline Value

2. SVOC Analytical Results

Table 2 - Detected SVOCs

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B73 0-1 000001 ug/kg	B82 0-4 000002 ug/kg	B82 4-8 000003 ug/kg	B82 8-12 000004 ug/kg	B82 12-16 000005 ug/kg
Naphthalene	NS		360 U	350 U	390 U	400 U	390 U
2-Methylnaphthalene	NS		360 U	350 U	390 U	400 U	390 U
Acenaphthene	NS		360 U	350 U	390 U	400 U	390 U
Dibenzofuran	NS		360 U	350 U	390 U	400 U	390 U
Diethylphthalate	NS		360 U	350 U	390 U	400 U	390 U
Fluorene	NS		360 U	350 U	390 U	400 U	390 U
Phenanthrene	NS		23 J	350 U	57 J	400 U	390 U
Anthracene	64,000,000		360 U	350 U	390 U	400 U	390 U
Carbazole	NS		360 U	350 U	390 U	400 U	390 U
Di-n-butylphthalate	21,000,000		360 U	350 U	390 U	400 U	390 U
Fluoranthene	8,500,000		48 J	350 U	79 J	400 U	390 U
Pyrene	6,400,000		48 J	350 U	61 J	400 U	390 U
Butylbenzylphthalate	43,000,000		360 U	350 U	44 J	400 U	390 U
Benzo (a) anthracene	4,100		27 J	350 U	29 J	400 U	390 U
Chrysene	410,000		32 J	350 U	53 J	400 U	390 U
Bis (2-ethylhexyl) phthalate	215,000		93 J	49 J	56 J	400 U	110 J
Di-n-octyl phthalate	4,300,000		360 U	33 J	390 U	21 J	160 J
Benzo (b) fluoranthene	4,100		360 U	350 U	39 J	400 U	390 U
Benzo (k) fluoranthene	41,000		360 U	350 U	34 J	400 U	390 U
Benzo (a) pyrene	410		31 J	350 U	31 J	400 U	390 U
Indeno (1,2,3-cd) pyrene	4,100		25 J	350 U	26 J	400 U	390 U
Dibenz (a,h) anthracene	410		360 U	350 U	390 U	400 U	390 U
Benzo (g,h,i) perylene	NS		31 J	350 U	30 J	400 U	390 U

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B92 0-4 000018 ug/kg	B92 0-4 000019 ug/kg	B92 4-8 000020 ug/kg	B18 0-4 000023 ug/kg	B18 4-8 000024 ug/kg
Naphthalene	NS		380 U	380 U	390 U	370 U	400 U
2-Methylnaphthalene	NS		380 U	380 U	21 J	370 U	400 U
Acenaphthene	NS		380 U	380 U	390 U	370 U	400 U
Dibenzofuran	NS		380 U	380 U	390 U	370 U	400 U
Diethylphthalate	NS		380 U	380 U	390 U	370 U	400 U
Fluorene	NS		380 U	380 U	390 U	370 U	400 U
Phenanthrene	NS		380 U	380 U	390 U	370 U	400 U
Anthracene	64,000,000		380 U	380 U	390 U	370 U	400 U
Carbazole	NS		380 U	380 U	390 U	370 U	400 U
Di-n-butylphthalate	21,000,000		380 U	380 U	390 U	370 U	400 U
Fluoranthene	8,500,000		380 U	380 U	390 U	370 U	400 U
Pyrene	6,400,000		380 U	380 U	390 U	370 U	400 U
Butylbenzylphthalate	43,000,000		380 U	380 U	390 U	370 U	400 U
Benzo (a) anthracene	4,100		380 U	380 U	390 U	370 U	400 U
Chrysene	410,000		380 U	380 U	390 U	370 U	400 U
Bis (2-ethylhexl) phthalate	215,000		380 U	39 J	53 J	370 U	710
Di-n-octyl phthalate	4,300,000		57 J	380 U	29 J	41 J	130 J
Benzo (b) fluoranthene	4,100		380 U	380 U	390 U	370 U	400 U
Benzo (k) fluoranthene	41,000		380 U	380 U	390 U	370 U	400 U
Benzo (a) pyrene	410		380 U	380 U	390 U	370 U	400 U
Indeno (1,2,3-cd) pyrene	4,100		380 U	380 U	390 U	370 U	400 U
Dibenz (a,h) anthracene	410		380 U	380 U	390 U	370 U	400 U
Benzo (g,h,i) perylene	NS		380 U	380 U	390 U	370 U	400 U

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B09 0-4 000025 ug/kg	B93 0-4 000027 ug/kg	B93 4-8 000029 ug/kg	B15 0-3 000034 ug/kg	B16 0-3 000044 ug/kg
Naphthalene	NS		370 U	370 U	390 U	380 U	370 U
2-Methylnaphthalene	NS		370 U	370 U	390 U	380 U	370 U
Acenaphthene	NS		370 U	370 U	390 U	380 U	24 J
Dibenzofuran	NS		370 U	370 U	390 U	380 U	370 U
Diethylphthalate	NS		370 U	370 U	390 U	380 U	370 U
Fluorene	NS		370 U	370 U	390 U	44 J	23 J
Phenanthrene	NS		370 U	370 U	390 U	790	300 J
Anthracene	64,000,000		370 U	370 U	390 U	170 J	43 J
Carbazole	NS		370 U	370 U	390 U	81 J	35 J
Di-n-butylphthalate	21,000,000		230 J	370 U	390 U	380 U	40 J
Fluoranthene	8,500,000		370 U	24 J	390 U	870	430
Pyrene	6,400,000		370 U	19 J	390 U	1000	290 J
Butylbenzylphthalate	43,000,000		370 U	370 U	390 U	380 U	300 J
Benzo (a) anthracene	4,100		370 U	370 U	390 U	470	130 J
Chrysene	410,000		370 U	370 U	390 U	550	180 J
Bis (2-ethylhexl) phtalate	215,000		370 U	370 U	390 U	380 U	480
Di-n-octyl phtalate	4,300,000		60 J	64 J	76 J	27 J	270 J
Benzo (b) fluoranthene	4,100		370 U	370 U	390 U	370 J	150 J
Benzo (k) fluoranthene	41,000		370 U	370 U	390 U	340 J	150 J
Benzo (a) pyrene	410		370 U	370 U	390 U	400	130 J
Indeno (1,2,3-cd) pyrene	4,100		370 U	370 U	390 U	280 J	82 J
Dibenz (a,h) anthracene	410		370 U	370 U	390 U	100 J	24 J
Benzo (g,h,i) perylene	NS		370 U	370 U	390 U	270 J	96 J

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B88 0-4 000055 ug/kg	B88 4-7 000056 ug/kg	B88 4-7 000057 ug/kg	B87 0-4 000064 ug/kg	B87 8-12 000067 ug/kg
Naphthalene	NS		360 U	350 U	370 U	350 U	380 U
2-Methylnaphthalene	NS		360 U	350 U	370 U	350 U	380 U
Acenaphthene	NS		360 U	350 U	370 U	350 U	20 J
Dibenzofuran	NS		360 U	350 U	370 U	350 U	380 U
Diethylphthalate	NS		360 U	350 U	370 U	350 U	380 U
Fluorene	NS		360 U	350 U	370 U	350 U	380 U
Phenanthrene	NS		22 J	76 J	38 J	350 U	130 J
Anthracene	64,000,000		360 U	18 J	370 U	350 U	32 J
Carbazole	NS		360 U	350 U	370 U	350 U	380 U
Di-n-butylphthalate	21,000,000		19 J	23 J	370 U	350 U	380 U
Fluoranthene	8,500,000		39 J	130 J	56 J	350 U	200 J
Pyrene	6,400,000		39 J	110 J	56 J	350 U	180 J
Butylbenzylphthalate	43,000,000		360 U	350 U	370 U	350 U	380 U
Benzo (a) anthracene	4,100		20 J	52 J	26 J	350 U	75 J
Chrysene	410,000		26 J	58 J	31 J	350 U	80 J
Bis (2-ethylhexyl) phthalate	215,000		72 J	400	370 U	91 J	380 U
Di-n-octyl phthalate	4,300,000		80 J	490	360 J	110 J	390
Benzo (b) fluoranthene	4,100		23 J	51 J	27 J	350 U	61 J
Benzo (k) fluoranthene	41,000		20 J	48 J	27 J	350 U	58 J
Benzo (a) pyrene	410		360 U	56 J	30 J	350 U	70 J
Indeno (1,2,3-cd) pyrene	4,100		360 U	29 J	20 J	350 U	34 J
Dibenz (a,h) anthracene	410		360 U	350 U	370 U	350 U	380 U
Benzo (g,h,i) perylene	NS		20 J	40 J	23 J	350 U	45 J

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B75 0-4 000078 ug/kg	B84 0-4 000088 ug/kg	B84 4-8 000089 ug/kg	B81 4-8 000095 ug/kg	B81 8-10 000096 ug/kg
Naphthalene	NS		340 U	350 U	400 U	380 U	400 U
2-Methylnaphthalene	NS		340 U	350 U	400 U	380 U	400 U
Acenaphthene	NS		340 U	350 U	400 U	43 J	47 J
Dibenzofuran	NS		340 U	350 U	400 U	380 U	400 U
Diethylphthalate	NS		340 U	350 U	400 U	380 U	400 U
Fluorene	NS		340 U	350 U	400 U	380 U	28 J
Phenanthrene	NS		74 J	350 U	400 U	200 J	230 J
Anthracene	64,000,000		340 U	350 U	400 U	54 J	56 J
Carbazole	NS		340 U	350 U	400 U	21 J	32 J
Di-n-butylphthalate	21,000,000		59 J	78 J	70 J	380 U	85 J
Fluoranthene	8,500,000		97 J	22 J	400 U	170 J	250 J
Pyrene	6,400,000		84 J	21 J	400 U	170 J	230 J
Butylbenzylphthalate	43,000,000		460	350 U	400 U	380 U	400 U
Benzo (a) anthracene	4,100		38 J	350 U	400 U	80 J	99 J
Chrysene	410,000		51 J	350 U	400 U	92 J	100 J
Bis (2-ethylhexl) phthalate	215,000		340 U	350 U	400 U	380 U	390 J
Di-n-octyl phthalate	4,300,000		140 J	350	240 J	62 J	340 J
Benzo (b) fluoranthene	4,100		39 J	350 U	400 U	67 J	86 J
Benzo (k) fluoranthene	41,000		36 J	350 U	400 U	79 J	81 J
Benzo (a) pyrene	410		36 J	350 U	400 U	85 J	93 J
Indeno (1,2,3-cd) pyrene	4,100		22 J	350 U	400 U	51 J	54 J
Dibenz (a,h) anthracene	410		340 U	350 U	400 U	380 U	400 U
Benzo (g,h,i) perylene	NS		24 J	350 U	400 U	380 U	59 J

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B85 0-4 000097 ug/kg	B85 0-4 000098 ug/kg	B85 4-8 000099 ug/kg	B85 8-10 000100 ug/kg	B01 0-3 000106 ug/kg
Naphthalene	NS		150 J	380 U	360 U	370 U	390 U
2-Methylnaphthalene	NS		30 J	380 U	360 U	370 U	390 U
Acenaphthene	NS		140 J	380 U	360 U	370 U	390 U
Dibenzofuran	NS		380 U	380 U	360 U	370 U	390 U
Diethylphthalate	NS		24 J	380 U	360 U	370 U	390 U
Fluorene	NS		120 J	380 U	360 U	370 U	390 U
Phenanthrene	NS		1100	41 J	43 J	59 J	36 J
Anthracene	64,000,000		240 J	380 U	360 U	370 U	390 U
Carbazole	NS		140 J	380 U	360 U	370 U	390 U
Di-n-butylphthalate	21,000,000		60 J	50 J	160 J	49 J	390 U
Fluoranthene	8,500,000		1100	61 J	83 J	75 J	60 J
Pyrene	6,400,000		890	53 J	70 J	65 J	60 J
Butylbenzylphthalate	43,000,000		380 U	380 U	360 U	370 U	390 U
Benzo (a) anthracene	4,100		420	29 J	49 J	33 J	32 J
Chrysene	410,000		420	33 J	58 J	35 J	39 J
Bis (2-ethylhexyl) phthalate	215,000		380 U	380 U	360 U	33 J	390 U
Di-n-octyl phthalate	4,300,000		47 J	66 J	120 J	81 J	170 J
Benzo (b) fluoranthene	4,100		360 J	27 J	51 J	24 J	390 U
Benzo (k) fluoranthene	41,000		310 J	25 J	49 J	27 J	390 U
Benzo (a) pyrene	410		360 J	30 J	56 J	370 U	390 U
Indeno (1,2,3-cd) pyrene	4,100		230 J	380 U	36 J	370 U	390 U
Dibenz (a,h) anthracene	410		380 U	380 U	360 U	370 U	390 U
Benzo (g,h,i) perylene	NS		230 J	20 J	38 J	370 U	390 U

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B87 0-4 000108 ug/kg	B89 4-8 000109 ug/kg	B86 0-4 000111 ug/kg	B86 4-8 000112 ug/kg	B86 8-10 000114 ug/kg
Naphthalene	NS		410 U	370 U	380 U	380 U	400 U
2-Methylnaphthalene	NS		410 U	370 U	380 U	380 U	400 U
Acenaphthene	NS		410 U	370 U	380 U	380 U	400 U
Dibenzofuran	NS		410 U	370 U	380 U	380 U	400 U
Diethylphthalate	NS		410 U	370 U	380 U	380 U	400 U
Fluorene	NS		410 U	370 U	380 U	380 U	400 U
Phenanthrene	NS		99 J	110 J	80 J	87 J	400 U
Anthracene	64,000,000		24 J	25 J	24 J	35 J	400 U
Carbazole	NS		410 U	370 U	380 U	380 U	400 U
Di-n-butylphthalate	21,000,000		410 U	370 U	380 U	380 U	400 U
Fluoranthene	8,500,000		220 J	190 J	110 J	110 J	400 U
Pyrene	6,400,000		190 J	140 J	89 J	93 J	400 U
Butylbenzylphthalate	43,000,000		410 U	110 J	380 U	380 U	400 U
Benzo (a) anthracene	4,100		96 J	70 J	44 J	46 J	400 U
Chrysene	410,000		110 J	81 J	46 J	55 J	400 U
Bis (2-ethylhexyl) phthalate	215,000		48 JB	370 U	38 JB	380 U	400 U
Di-n-octyl phthalate	4,300,000		410 U	170 J	39 J	34 J	400 U
Benzo (b) fluoranthene	4,100		98 J	68 J	32 J	40 J	400 U
Benzo (k) fluoranthene	41,000		92 J	61 J	36 J	40 J	400 U
Benzo (a) pyrene	410		100 J	68 J	35 J	48 J	400 U
Indeno (1,2,3-cd) pyrene	4,100		59 J	41 J	380 U	37 J	400 U
Dibenz (a,h) anthracene	410		410 U	370 U	380 U	380 U	400 U
Benzo (g,h,i) perylene	NS		71 J	50 J	380 U	40 J	400 U

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B90 0-4 000115 ug/kg	B90 0-4 000116 ug/kg	B90 4-8 000117 ug/kg	B90 8-12 000119 ug/kg	B90 8-12 000120 ug/kg
Naphthalene	NS		380 U	370 U	400 U	380 U	350 U
2-Methylnaphthalene	NS		380 U	370 U	400 U	380 U	350 U
Acenaphthene	NS		380 U	370 U	400 U	380 U	350 U
Dibenzofuran	NS		380 U	370 U	400 U	380 U	350 U
Diethylphthalate	NS		380 U	370 U	400 U	380 U	350 U
Fluorene	NS		380 U	370 U	400 U	380 U	350 U
Phenanthrene	NS		380 U	370 U	73 J	380 U	30 J
Anthracene	64,000,000		380 U	370 U	20 J	380 U	350 U
Carbazole	NS		380 U	370 U	400 U	380 U	350 U
Di-n-butylphthalate	21,000,000		380 U	370 U	400 U	380 U	19 J
Fluoranthene	8,500,000		37 J	31 J	160 J	380 U	50 J
Pyrene	6,400,000		34 J	25 J	130 J	380 U	49 J
Butylbenzylphthalate	43,000,000		380 U	370 U	400 U	380 U	350 U
Benzo (a) anthracene	4,100		380 U	370 U	53 J	380 U	26 J
Chrysene	410,000		380 U	370 U	64 J	380 U	31 J
Bis (2-ethylhexyl) phthalate	215,000		380 U	370 U	400 U	270 JB	350 U
Di-n-octyl phthalate	4,300,000		240 J	83 J	100 J	72 J	140 J
Benzo (b) fluoranthene	4,100		380 U	370 U	46 J	380 U	20 J
Benzo (k) fluoranthene	41,000		380 U	370 U	51 J	380 U	25 J
Benzo (a) pyrene	410		380 U	370 U	48 J	380 U	23 J
Indeno (1,2,3-cd) pyrene	4,100		380 U	370 U	28 J	380 U	350 U
Dibenz (a,h) anthracene	410		380 U	370 U	400 U	380 U	350 U
Benzo (g,h,i) perylene	NS		380 U	370 U	31 J	380 U	350 U

Table 2 - Detected SVOCs (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values ug/kg	Boring: Depth: Sample ID: Units:	B90 12-16 000121 ug/kg	B91 0-4 000122 ug/kg	B91 4-8 000123 ug/kg	B91 8-10 000125 ug/kg	B80 0-4 000126 ug/kg
Naphthalene	NS		400 U	71 J	390 U	410 U	410 U
2-Methylnaphthalene	NS		400 U	78 J	390 U	410 U	410 U
Acenaphthene	NS		400 U	400	390 U	410 U	410 U
Dibenzofuran	NS		400U	180 J	390 U	410 U	410 U
Diethylphthalate	NS		400 U	380 U	390 U	410 U	410 U
Fluorene	NS		400 U	320 J	390 U	410 U	410 U
Phenanthrene	NS		400 U	1900	81 J	22 J	32 J
Anthracene	64,000,000		400 U	520	27 J	410 U	410 U
Carbazole	NS		400 U	180 J	390 U	410 U	410 U
Di-n-butylphthalate	21,000,000		400 U	21 J	390 U	410 U	23 J
Fluoranthene	8,500,000		400 U	2400	120 J	410 U	76 J
Pyrene	6,400,000		400 U	1600	91 J	410 U	65 J
Butylbenzylphthalate	43,000,000		400 U	380 U	390 U	410 U	410 U
Benzo (a) anthracene	4,100		400 U	1100	57 J	410 U	34 J
Chrysene	410,000		400 U	1100	63 J	410 U	42 J
Bis (2-ethylhexyl) phthalate	215,000		400 U	68 JB	390 U	410 U	410 U
Di-n-octyl phthalate	4,300,000		96 J	75 J	47 J	56 J	76 J
Benzo (b) fluoranthene	4,100		400 U	750	40 J	410 U	29 J
Benzo (k) fluoranthene	41,000		400 U	830	50 J	410 U	28 J
Benzo (a) pyrene	410		400 U	890	51 J	410 U	35 J
Indeno (1,2,3-cd) pyrene	4,100		400 U	480	390 U	410 U	410 U
Dibenz (a,h) anthracene	410		400 U	180 J	390 U	410 U	410 U
Benzo (g,h,i) perylene	NS		400 U	470	390 U	410 U	26 J

Note: NS-None Set

U-Compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit.

J-Estimated value

B- Analyte found in the associated blank.

*Sample 000034 was re-analyzed. Re-analyzed data used in table.

**M Building Soils Characterization
Results Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B01 (0-3) mg/kg	B08 (0-4) mg/kg	B08 (4-7) mg/kg	B09 (0-4) mg/kg	B18 (4-8) mg/kg	B34 (0-4) mg/kg	B39 (0-2) mg/kg	B57 (0-2) mg/kg
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210								
Calcium	310,000	NS								
Chromium	20	0.7								
Cobalt	19	NS								
Copper	26	NS								
Iron	35,000	NS								
Lead	48	NS								
Magnesium	40,000	NS		53,500	48,600			56,700	92,100	
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300								
Potassium	1,900	NS		3,850		2,480				
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS	707 B						355 B	255 B
Thallium	0.46	NS							0.95	
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS								
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide (Cont.)

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B73 (0-1) mg/kg	B75 (0-4) mg/kg	B80 (0-4) mg/kg	B08 (4-7) mg/kg	B81 (4-8) mg/kg	B81 (8-10) mg/kg	B82 (0-4) mg/kg	B82 (4-8) mg/kg
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210								
Calcium	310,000	NS								
Chromium	20	0.7				87.9				
Cobalt	19	NS								
Copper	26	NS			39.5					
Iron	35,000	NS								
Lead	48	NS								
Magnesium	40,000	NS		43,400	41,200				53,800	
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300								
Potassium	1,900	NS			2,340		3,810	2,590		3,360
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS	321 B	254 B	784 B	279 B	665 B			625 B
Thallium	0.46	NS			0.79 B					
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS					28.1			
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide (Cont.)

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B82 (8-12) mg/kg	B82 (12-16) mg/kg	B84 (0-4) mg/kg	B84 (4-8) mg/kg	B85 (0-4) mg/kg	B85 (4-8) mg/kg	B85 (8-10) mg/kg	B86 (0-4) mg/kg
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210								
Calcium	310,000	NS								
Chromium	20	0.7								
Cobalt	19	NS								
Copper	26	NS								
Iron	35,000	NS								
Lead	48	NS								
Magnesium	40,000	NS								
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300								
Potassium	1,900	NS	4,390	4,490		4,430	2,110	2,210	2,090	2,140
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS	438 B	314 B		265 B				337 B
Thallium	0.46	NS								
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS	34.4	36.4	29.5	34.7				
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide (Cont.)

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B86 (4-8) mg/kg	B86 (8-10) mg/kg	B87 (0-4) mg/kg	B87 (8-12) mg/kg	B88 (0-4) mg/kg	B88 (4-7) mg/kg	B89 (4-8) mg/kg	B90 (0-4) mg/kg
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210								
Calcium	310,000	NS								
Chromium	20	0.7								
Cobalt	19	NS								
Copper	26	NS								
Iron	35,000	NS						118,000		
Lead	48	NS								
Magnesium	40,000	NS			48,000			58,300		
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300								
Potassium	1,900	NS	2,930	2,250					2,120	2,670
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS	308 B	242 B	322 B	259 B	342 B	300 B	290 B	850 B
Thallium	0.46	NS				1.6 B	0.96 B	0.67 B		
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS	33.4							29.6
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide (Cont.)

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B90 (4-8) mg/kg	B90 (8-12) mg/kg	B90 (12-16) mg/kg	B91 (0-4) mg/kg	B91 (4-8) mg/kg	B91 (8-10) mg/kg	B92 (0-4) mg/kg	B92 (4-8) mg/kg
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210								
Calcium	310,000	NS								
Chromium	20	0.7								
Cobalt	19	NS								
Copper	26	NS								358
Iron	35,000	NS								
Lead	48	NS								
Magnesium	40,000	NS							40,000	42,200
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300								56
Potassium	1,900	NS	2,900	2,060	3,020	2,970	3,660	3,320		
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS					768 B	479 B	241 B	324 B
Thallium	0.46	NS					0.94 B	0.99 B		
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS	33		27.9	30	37.3	32.5		
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

**M Building Soils Characterization
Result Exceeding Comparison Criteria (mg/kg)**

Metals/Cyanide (Cont.)

Contaminant	Mound Background mg/kg	Mound Risk-Based Cleanup GV mg/kg	B93 (0-4) mg/kg	B93 (4-8) mg/kg						
Aluminium	19,000	NS								
Antimony	Data Rejected	85								
Arsenic	8.6	64								
Barium	180	15,000								
Beryllium	1.3	1,100								
Cadmium	2.1	210		19.1						
Calcium	310,000	NS								
Chromium	20	0.7		25.9						
Cobalt	19	NS								
Copper	26	NS		35						
Iron	35,000	NS								
Lead	48	NS								
Magnesium	40,000	NS	44,600	42,300						
Manganese	1,400	27,000								
Mercury	NC	64								
Nickel	32	4,300		217						
Potassium	1,900	NS								
Selenium	NC	NS								
Silver	1.7	1,100								
Sodium	240	NS	251 B	318 B						
Thallium	0.46	NS								
Vanadium	25	1,500								
Zinc	140	64,000								
Lithium	26	NS								
Cyanide	NC	4,300								

BGV - Below Guideline Value

NC - Not computed due to the large number of non-detects in the sample set

B - Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit

3. Metal Analytical Results

Table 3 – Detected Metals

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B73 0-1 000001 mg/kg	B82 0-4 000002 mg/kg	B82 4-8 000003 mg/kg	B82 8-12 000004 mg/kg	B82 12-16 000005 mg/kg
Aluminum	19,000	NS		1,880	2,600	9,470	15,100	14,000
Antimony	Data Rejected	85		0.37 U	0.34 U	0.35 U	0.42 U	0.41 U
Arsenic	8.6	64		3.8	4.3	3.5	3.5	2.8
Barium	180	15,000		21.3 B	20.1 B	23.1 B	40.8 B	39.4 B
Beryllium	1.3	1,100		0.18 B	0.21	0.57	0.82	0.80
Cadmium	2.1	210		0.08 B	0.08	0.19 B	0.17 B	0.08 B
Calcium	310,000	NS		181,000	160,000	170,000	101,000	124,000
Chromium	20	0.70		4.3	5.1	12.1	17.7	16.9
Cobalt	19	NS		2.1 B	3.3 B	7.7 B	10.6 B	10.4 B
Copper	26	NS		7.0	10.5	45.0	21.6	13.8
Iron	35,000	NS		5,860	7190	17100	24,300	24,300
Lead	48	NS		4.4	4.4	5.5	607	6.5
Magnesium	40,000	NS		41,200	53,800	20,200	13,900	14,500
Manganese	1,400	27,000		258	257	434	566	590
Mercury	NC	64		0.02 U	0.02 U	0.02 U	0.02 B	0.02 U
Nickel	32	4,300		5.9 B	6.3 B	21.7	23.5	22.4
Potassium	1,900	NS		667 B	841 B	3,360	4,390	4490
Selenium	NC	NS		0.90 U	0.83 U	0.86 U	1.0 U	1.0 U
Silver	1.7	1,100		0.18 U	0.17 U	0.18 U	0.21 U	0.20 U
Sodium	240	NS		321 B	277 B	625 B	438 B	314 B
Thallium	0.46	NS		0.76 U	0.69 U	0.73 U	0.86 U	0.84 U
Vanadium	25	1,500		6.1	6.9	12.7	19.9	17.7
Zinc	140	64,000		20.8	20.9	39.2	53.1	51.8
Lithium	26	NS		5.1 B	7.3 B	25.7	34.4	36.4

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B92 0-4 000018 mg/kg	B92 0-4 000019 mg/kg	B92 4-8 000020 mg/kg	B18 0-4 000023 mg/kg	B18 4-8 000024 mg/kg
Aluminum	19,000	NS		2,030	2,030	2,390	5,200	2,100
Antimony	Data Rejected	85		0.31 U	0.37 U	0.35 U	0.36 U	0.43 U
Arsenic	8.6	64		3.9	5.5	4.6	2.6	4.3
Barium	180	15,000		22.7 B	30.7 B	38.4 B	35.9 B	16.3 B
Beryllium	1.3	1,100		0.24	0.22	0.28	0.41	0.29
Cadmium	2.1	210		0.09 B	0.06 U	0.93 B	0.06 U	0.07 U
Calcium	310,000	NS		112,000	112,000	127,000	139,000	114,000
Chromium	20	0.70		4.3	4.3	15.9	6.9	4.3
Cobalt	19	NS		2.8 B	2.3 B	2.8 B	4.0 B	1.9 B
Copper	26	NS		8.6	7.3	358	8.5	6.8
Iron	35,000	NS		6,320	6,560	6,780	11,600	5,840
Lead	48	NS		4.2	4.2	4.5	5.4	4.1
Magnesium	40,000	NS		38,200	40,000	42,400	29,200	35,900
Manganese	1,400	27,000		210	195	196	298	162
Mercury	NC	64		0.08	0.02 U	0.02 B	0.02 U	0.02 B
Nickel	32	4,300		9.6	8.4	55.9	10.4	6.5 B
Potassium	1,900	NS		648 B	693 B	793 B	1,780	638 B
Selenium	NC	NS		0.75 U	0.89 U	0.85 U	0.87 U	1.1 U
Silver	1.7	1,100		0.15 U	0.18 U	0.64 B	0.18 U	0.22 U
Sodium	240	NS		223 B	241 B	324 B	234 B	307 B
Thallium	0.46	NS		0.63 U	0.75 U	0.72 U	0.74 U	0.89 U
Vanadium	25	1,500		6.5	6.8	6.7	8.3	5.4
Zinc	140	64,000		25.4	26.5	29.8	33.2	22.6
Lithium	26	NS		5.3 B	5.3 B	6.4 B	13.7 B	6.2 B

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B09 0-4 000025 mg/kg	B93 0-4 000027 mg/kg	B93 4-8 000029 mg/kg	B15 0-3 000034 mg/kg	B08 0-4 000041 mg/kg
Aluminum	19,000	NS		6,230	2,600	1,820	2,460	2,850
Antimony	Data Rejected	85		0.36 U	0.36 U	0.39 U	0.40 U	0.35 U
Arsenic	8.6	64		4.1	4.9	3.2	5.6	5.0
Barium	180	15,000		21.9 B	21.0 B	16.8 B	11.8 B	18.5 B
Beryllium	1.3	1,100		0.46	0.26	0.23	0.27	0.26
Cadmium	2.1	210		0.08 B	1.5	19.1	0.08 B	0.06 B
Calcium	310,000	NS		171,000	131,000	120,000	112,000	131,000
Chromium	20	0.70		8.4	5.0	25.9	4.5	6.0
Cobalt	19	NS		4.8 B	3.1 B	7.7 B	2.4 B	2.8 B
Copper	26	NS		10.1	48.9	35.0	9.2	6.9
Iron	35,000	NS		13,600	7,230	5,410	7,370	7,030
Lead	48	NS		6.4	5.1	4.1	4.6	5.0
Magnesium	40,000	NS		33,000	44,600	42,300	38,400	53,500
Manganese	1,400	27,000		321	231	169	206	338
Mercury	NC	64		0.02 U	0.02 B	0.04 B	0.02 U	0.02 U
Nickel	32	4,300		12.4	11.3	217	7.9 B	7.3 B
Potassium	1,900	NS		2,480	961 B	649 B	664 B	640 B
Selenium	NC	NS		0.87 U	0.89 U	0.96 U	0.98 U	0.87 U
Silver	1.7	1,100		0.18 U	0.18 U	1.3 B	0.20 U	0.18 U
Sodium	240	NS		305 B	251 B	318 B	208 B	242 B
Thallium	0.46	NS		0.73 U	0.75 U	0.80 U	0.83 U	0.73 U
Vanadium	25	1,500		10	7.2	5.7	7.2	8.7
Zinc	140	64,000		31.7	26.7	30.5	27.5	19.8
Lithium	26	NS		19.1 B	7.2 B	5.2 B	5.5 B	6.1 B

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B08 4-7 000042 mg/kg	B16 0-3 000044 mg/kg	B34 0-4 000048 mg/kg	B88 0-4 000055 mg/kg	B88 4-7 000056 mg/kg
Aluminum	19,000	NS		2,620	4,350	2,040	7,760	5,730
Antimony	Data Rejected	85		0.39 U	0.35 U	0.31 U	0.39 U	0.37 B
Arsenic	8.6	64		6.6	5.3	3.6	7.6	5.6
Barium	180	15,000		29.9 B	21.6 B	15.8 B	44.1	32.9 B
Beryllium	1.3	1,100		0.30	0.28	0.16 B	0.48	0.36
Cadmium	2.1	210		0.10 B	0.18 B	0.09 B	0.22 B	0.18 B
Calcium	310,000	NS		145,000	133,000	153,000	86,100	128,000
Chromium	20	0.70		87.9	5.0	6.2	11.1	8.4
Cobalt	19	NS		3.1 B	6.7 B	2.1 B	5.7 B	4.7 B
Copper	26	NS		9.0	12.6	7.0	13.6	11.3
Iron	35,000	NS		8,560	12,100	4,660	15,200	118,00
Lead	48	NS		8.0	6.2	5.0	11.5	6.6
Magnesium	40,000	NS		48,600	35,000	56,700	32,000	44,800
Manganese	1,400	27,000		487	323	232	486	269
Mercury	NC	64		0.02 U				
Nickel	32	4,300		9.8	8.4	5.0 B	13.6	12.3
Potassium	1,900	NS		893 B	963 B	489 B	1,640	1,570
Selenium	NC	NS		0.96 U	0.86 U	0.77 U	0.96 U	0.84 U
Silver	1.7	1,100		0.20 U	0.18 U	0.16 U	0.20 U	0.17 U
Sodium	240	NS		279 B	190 B	231 B	342 B	292 B
Thallium	0.46	NS		0.81 U	0.73 U	0.65 U	0.96 B	1.3 B
Vanadium	25	1,500		7.7	12.8	5.9	16.6	12.6
Zinc	140	64,000		24.5	31.4	17.3	41.4	30.9
Lithium	26	NS		7.2 B	9.0 B	4.8 B	11.3 B	12.0 B

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B88 4-7 000057 mg/kg	B87 0-4 000064 mg/kg	B87 8-12 000067 mg/kg	B57 0-2 000074 mg/kg	B39 0-2 000076 mg/kg
Aluminum	19,000	NS		5,270	1,690	8,230	3,390	1,550
Antimony	Data Rejected	85		0.31 U	0.33 U	0.39 U	0.38 U	0.39 U
Arsenic	8.6	64		4.0	4.6	6.6	2.6	3.6
Barium	180	15,000		31.7 B	28.0 B	48.5	20.8 B	19.8 B
Beryllium	1.3	1,100		0.35	0.17 B	0.48	0.22	0.14 B
Cadmium	2.1	210		0.15 B	0.15 B	0.19 B	0.19 B	0.18 B
Calcium	310,000	NS		142,000	109,000	105,000	154,000	187,000
Chromium	20	0.70		8.3	3.7	10.8	6.3	3.7
Cobalt	19	NS		4.0 B	1.9 B	7.2 B	2.5 B	1.5 B
Copper	26	NS		8.9	5.5	13.9	6.4	5.1 B
Iron	35,000	NS		10,300	5,260	17,400	6,470	4,920
Lead	48	NS		5.3	4.3	12.6	5.7	2.8
Magnesium	40,000	NS		58,300	48,000	30,500	38,100	92,100
Manganese	1,400	27,000		236	176	335	207	249
Mercury	NC	64		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	32	4,300		10.2	4.9 B	16.9	5.7 B	3.4 B
Potassium	1,900	NS		1,750	532 B	2,380	880 B	536 B
Selenium	NC	NS		0.75 U	0.82 U	0.97 U	0.93 U	0.95 U
Silver	1.7	1,100		0.15 U	0.17 U	0.20 U	0.19 U	0.19 U
Sodium	240	NS		300 B	213 B	259 B	255 B	355 B
Thallium	0.46	NS		0.67 B	0.69 U	1.6 B	0.79 U	0.95 B
Vanadium	25	1,500		10.5	5.9	13.1	7.1	6.2
Zinc	140	64,000		26.0	19.9	41.9	21.1	12.3
Lithium	26	NS		13.1 B	4.5 B	18.8 B	7.9 B	7.3 B

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B75 0-4 000078 mg/kg	B21 0-1 000080 mg/kg	B84 0-4 000088 mg/kg	B84 4-8 000089 mg/kg	B81 4-8 000095 mg/kg
Aluminum	19,000	NS		2,550	7,360	13,200	15,800	12,200
Antimony	Data Rejected	85		0.38 B	0.39 U	0.37 U	0.41 U	0.40 U
Arsenic	8.6	64		3.0	5.7	3.1	2.6	3.9
Barium	180	15,000		16.8 B	46.9	30.3 B	21.6 B	48.5
Beryllium	1.3	1,100		0.16 B	0.39	0.65	0.76	0.77
Cadmium	2.1	210		0.11 B	0.20 B	0.13 B	0.16 B	0.07 U
Calcium	310,000	NS		150,000	86,700	50,600	46,800	126,000
Chromium	20	0.70		4.4	9.2	15.3	19.0	14.2
Cobalt	19	NS		1.7 B	5.8 B	10.9	10.1 B	8.0 B
Copper	26	NS		4.8	9.0	10.9	15.0	13.1
Iron	35,000	NS		5,510	12,400	21,800	24,100	19,800
Lead	48	NS		3.5	10.2	3.8	4.9	8.1
Magnesium	40,000	NS		43,400	23,500	12,600	12,000	21,100
Manganese	1,400	27,000		184	644	429	348	418
Mercury	NC	64		0.02 U	0.02 U	0.02 U	0.02	0.02 U
Nickel	32	4,300		5.0 B	9.6	21.6	25.5	18.1
Potassium	1,900	NS		869 B	1,260	3,850	4,430	3,810
Selenium	NC	NS		0.81 U	0.96 U	0.89 U	1.00 U	0.98 U
Silver	1.7	1,100		0.17 U	0.20 U	0.18 U	0.20 U	0.20 U
Sodium	240	NS		254 B	173 B	209 B	265 B	665 B
Thallium	0.46	NS		0.68 U	0.81 U	0.75 U	0.84 U	0.82 U
Vanadium	25	1,500		6.2	14.7	15.0	17.6	16.7
Zinc	140	64,000		14.5	31.7	46.6	56.4	43.8
Lithium	26	NS		6.2 B	10.7 B	29.5	34.7	28.1

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B81 8-10 000096 mg/kg	B85 0-4 000097 mg/kg	B85 0-4 000098 mg/kg	B85 4-8 000099 mg/kg	B85 8-10 000100 mg/kg
Aluminum	19,000	NS		10,500	6,140	6,070	7,490	8,020
Antimony	Data Rejected	85		0.49 B	0.41 U	0.36 U	0.35 U	0.62 B
Arsenic	8.6	64		2.5	2.7	7.3	4.0	3.2
Barium	180	15,000		45.1 B	29.5 B	32.2 B	36.2 B	38.3 B
Beryllium	1.3	1,100		0.52	0.35	0.34	0.39	0.42
Cadmium	2.1	210		0.20 B	0.17 B	0.21 B	0.16 B	0.12 B
Calcium	310,000	NS		165,000	165,000	144,000	120,000	161,000
Chromium	20	0.70		11.0	7.8	9.0	9.6	9.1
Cobalt	19	NS		6.7 B	4.8 B	5.3 B	5.1 B	5.3 B
Copper	26	NS		10.9	8.5	9.6	8.9	10.6
Iron	35,000	NS		17,400	13,400	13,200	13,100	14,200
Lead	48	NS		7.9	8.1	6.4	5.5	7.1
Magnesium	40,000	NS		12,500	27,400	32,400	30,900	16,300
Manganese	1,400	27,000		370	311	323	276	337
Mercury	NC	64		0.03 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	32	4,300		14.5	10.8	11.1	12.3	12.1
Potassium	1,900	NS		2,590	2,110	1,750	2210	2,090
Selenium	NC	NS		1.1 U	0.99 U	0.89 U	0.86 U	0.96 U
Silver	1.7	1,100		0.22 U	0.20 U	0.18 U	0.18 U	0.20 U
Sodium	240	NS		322 B	296 B	278 B	326 B	227 B
Thallium	0.46	NS		0.88 U	0.84 U	0.75 U	0.90 B	0.80 U
Vanadium	25	1,500		13.6	8.0	9.7	10.6	11.3
Zinc	140	64,000		36.4	27.3	29.4	32.2	41.6
Lithium	26	NS		20.8 B	17.8 B	14.8 B	16.9 B	16.0 B

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B01 0-3 000106 mg/kg	B87 0-4 000108 mg/kg	B89 4-8 000109 mg/kg	B86 0-4 000111 mg/kg	B86 4-8 000112 mg/kg
Aluminum	19,000	NS		5,580	9,120	7,500	6,640	11,000
Antimony	Data Rejected	85		0.39 U	0.42 U	0.38 U	0.42 U	0.35 U
Arsenic	8.6	64		2.8	8.5	2.5	2.9	2.5
Barium	180	15,000		15.7 B	69.7	46.8	48.4	45.8
Beryllium	1.3	1,100		0.32	0.61	0.46	0.38	0.56
Cadmium	2.1	210		0.07 U	0.32 B	0.06 U	0.07 U	0.06 U
Calcium	310,000	NS		210,000	31,300	182,000	177,000	71,400
Chromium	20	0.70		7.6	12.9	9.6	8.9	14.4
Cobalt	19	NS		4.8 B	7.8 B	5.7 B	5.1 B	9.5 B
Copper	26	NS		10.6	18.3	10.2	10.0	16.9
Iron	35,000	NS		14,900	19,000	14,400	14,600	22,500
Lead	48	NS		9.0	18.7	5.8	8.2	6.7
Magnesium	40,000	NS		12,600	11,400	14,900	23,100	15,800
Manganese	1,400	27,000		411	423	387	369	415
Mercury	NC	64		0.02 U	0.02 B	0.02 U	0.03B	0.02 U
Nickel	32	4,300		11.6	18.2	12.8	12.1	21.4
Potassium	1,900	NS		1,640	1,830	2,120	2,140	2,930
Selenium	NC	NS		0.96 U	1.0 U	0.93 U	1.0 U	0.90 B
Silver	1.7	1,100		0.20 U	0.21 U	0.19 U	0.21 U	0.17 U
Sodium	240	NS		707 B	322 B	290 B	337 B	308 B
Thallium	0.46	NS		0.81 U	0.86 U	0.78 U	0.85 U	0.71 U
Vanadium	25	1,500		7.3	20.6	10.1	9.3	13.7
Zinc	140	64,000		27.1	60.5	34.6	43.9	58.6
Lithium	26	NS		18.5 U	11.1 B	19.7 B	18.3 B	33.4

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B86 8-10 000114 mg/kg	B90 0-4 000115 mg/kg	B90 4-8 000117 mg/kg	B90 4-8 000118 mg/kg	B90 8-12 000119 mg/kg
Aluminum	19,000	NS		10,100	10,300	11,200	12,500	9,780
Antimony	Data Rejected	85		0.41 U	0.40 U	0.43 U	0.40 U	0.35 U
Arsenic	8.6	64		3.3	3.0	3.3	2.6	3.6
Barium	180	15,000		32.3 B	25.4 B	23.7 B	25.9 B	46.4
Beryllium	1.3	1,100		0.52	0.51	0.60	0.67	0.50
Cadmium	2.1	210		0.11 B	0.07 U	0.07 U	0.07 U	0.06 U
Calcium	310,000	NS		140,000	95,900	92,900	81,300	110,000
Chromium	20	0.70		12.7	13.3	14.6	16.2	11.9
Cobalt	19	NS		8.8 B	9.3 B	10.2 B	10.3 B	7.9 B
Copper	26	NS		13.8	13.9	16.7	15.7	12.6
Iron	35,000	NS		19,700	20,400	22,000	22,100	20,100
Lead	48	NS		9.0	5.6	6.9	6.1	9.3
Magnesium	40,000	NS		12,400	11,900	15,300	11,200	10,500
Manganese	1,400	27,000		520	437	476	426	422
Mercury	NC	64		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	32	4,300		17.8	20.2	21.3	22.1	16.7
Potassium	1,900	NS		2,520	2,670	2,850	2,900	1870
Selenium	NC	NS		1.0 U	0.97 U	1.1 U	0.98 U	0.86 U
Silver	1.7	1,100		0.21 U	0.20 U	0.22 U	0.20 U	0.18 U
Sodium	240	NS		242 B	850 B	663 B	655 B	217 B
Thallium	0.46	NS		0.85 U	0.81 U	0.89 U	0.83 U	0.72 U
Vanadium	25	1,500		14.3	12.9	14.8	15.8	14.6
Zinc	140	64,000		57.8	44.5	49.4	48.4	43.9
Lithium	26	NS		24.5	29.6	30.1	33.0	20.1

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B90 8-12 000120 mg/kg	B90 12-16 000121 mg/kg	B91 0-4 000122 mg/kg	B91 4-8 000123 mg/kg	B91 4-8 000124 mg/kg
Aluminum	19,000	NS		8,040	11,900	11,800	10,200	12,700
Antimony	Data Rejected	85		0.43 B	0.40 U	0.33 U	0.40 U	0.41 U
Arsenic	8.6	64		3.4	3.2	2.5	3.6	2.3
Barium	180	15,000		50.1	59.8	31.0 B	36.3 B	19.3 B
Beryllium	1.3	1,100		0.42	0.64	0.61	0.53	0.66
Cadmium	2.1	210		0.09 B	0.07 B	0.07 B	0.07 U	0.08 B
Calcium	310,000	NS		131,000	96,900	82,800	88,300	69100
Chromium	20	0.70		9.9	14.8	14.6	13.2	16.3
Cobalt	19	NS		6.3 B	10.5 B	12.1	8.9 B	11.1 B
Copper	26	NS		10.4	15.2	18.3	16.0	19.5
Iron	35,000	NS		15,600	24,300	21,200	21,200	23,100
Lead	48	NS		7.0	7.4	6.8	9.4	8.3
Magnesium	40,000	NS		12,900	12,400	11,100	16,600	15,200
Manganese	1,400	27,000		402	598	495	477	503
Mercury	NC	64		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	32	4,300		13.3	21.4	21.0	19.4	23.2
Potassium	1,900	NS		2,060	3,020	2,970	2,650	3,660
Selenium	NC	NS		0.90 U	0.98 U	0.82 U	0.98 U	1.0 U
Silver	1.7	1,100		0.18 U	0.20 U	0.17 U	0.20 U	0.21 U
Sodium	240	NS		278 B	169 B	569 B	768 B	684 B
Thallium	0.46	NS		0.75 U	0.83 U	0.69 U	0.82 U	0.94 B
Vanadium	25	1,500		11.5	16.3	14.8	14.5	15.7
Zinc	140	64,000		42.0	45.5	48.9	48.1	55.7
Lithium	26	NS		19.0 B	27.9	30.0	28.2	37.3

Table 3 - Detected Metals (Continued)

Analyte	Mound Background Values mg/kg	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B91 8-10 000125 mg/kg	B80 0-4 000126 mg/kg
Aluminum	19,000	NS		12,900	11,100
Antimony	Data Rejected	85		0.40 U	0.38 U
Arsenic	8.6	64		3.0	5.4
Barium	180	15,000		34.3 B	70.7
Beryllium	1.3	1,100		0.68	0.63
Cadmium	2.1	210		0.14 B	0.11 B
Calcium	310,000	NS		82,500	143,000
Chromium	20	0.70		16.3	13.0
Cobalt	19	NS		11.0 B	8.0 B
Copper	26	NS		19.0	39.5
Iron	35,000	NS		23,600	22,500
Lead	48	NS		8.9	10
Magnesium	40,000	NS		9,260	12,800
Manganese	1,400	27,000		469	594
Mercury	NC	64		0.03 U	0.03 U
Nickel	32	4,300		23.2	19.1
Potassium	1,900	NS		3,320	2,340
Selenium	NC	NS		0.97 U	0.94 U
Silver	1.7	1,100		0.20 U	0.19 U
Sodium	240	NS		479 B	784 B
Thallium	0.46	NS		0.99 B	0.79 U
Vanadium	25	1,500		16.1	16.2
Zinc	140	64,000		54.7	43.2
Lithium	26	NS		32.5	20.2 B

Note: U-Compound was analyzed for but not detected. The associated numerical value is the sample reporting limit.

B-Indicates that the parameter was between the Instrument Detection Limit and the Contract Required Detection limit.

NC-Not computed due to the large number of non-detects in the sample set

4. Cyanide Analytical Results

Table 4 – Cyanide Results

Analyte	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B73 0-1 000001 mg/kg	B82 0-4 000002 mg/kg	B82 4-8 000003 mg/kg	B82 8-12 000004 mg/kg	B82 12-16 000005 mg/kg	B92 0-4 000018 mg/kg
Cyanide	4,300		0.54 U	0.53 U	0.59 U	0.61	0.58 U	0.57 U

Analyte	B92 0-4 000019 mg/kg	B92 4-8 000020 mg/kg	B18 0-4 000023 mg/kg	B18 4-8 000024 mg/kg	B09 0-4 000025 mg/kg	B93 0-4 000027 mg/kg	B93 4-8 000029 mg/kg	B15 0-3 000034 mg/kg
Cyanide	0.57 U	0.61	0.55 U	0.61 U	0.55 U	0.55 U	0.59 U	0.56 U

Analyte	B08 0-4 000041 mg/kg	B08 4-7 000042 mg/kg	B16 0-3 000044 mg/kg	B34 0-4 000048 mg/kg	B88 0-4 000055 mg/kg	B88 4-7 000056 mg/kg	B88 4-7 000057 mg/kg	B87 0-4 000064 mg/kg
Cyanide	0.53 U	0.55 U	0.56 U	0.53 U	0.55 U	0.53 U	0.56 U	0.53 U

Analyte	B87 8-12 000067 mg/kg	B57 0-2 000074 mg/kg	B39 0-2 000076 mg/kg	B75 0-4 000078 mg/kg	B21 0-1 000080 mg/kg	B84 0-4 000088 mg/kg	B84 4-8 000089 mg/kg	B81 4-8 000095 mg/kg
Cyanide	0.58 U	0.55 U	0.58 U	0.51 U	0.58 U	0.53 U	0.59 U	0.57 U

Analyte	B81 8-10 000096 mg/kg	B85 0-4 000097 mg/kg	B85 0-4 000098 mg/kg	B85 4-8 000099 mg/kg	B85 8-10 000100 mg/kg	B01 0-3 000106 mg/kg	B87 0-4 000108 mg/kg	B89 4-8 000109 mg/kg
Cyanide	0.60 U	0.57 U	0.57 U	0.54 U	0.55 U	0.58 U	0.61 U	0.56 U

Analyte	B86 0-4 000111 mg/kg	B86 4-8 000112 mg/kg	B86 8-10 000114 mg/kg	B90 0-4 000115 mg/kg	B90 4-8 000117 mg/kg	B90 4-8 000118 mg/kg	B90 8-12 000119 mg/kg	B90 8-12 000120 mg/kg
Cyanide	0.58 U	0.58 U	0.60 U	0.57 U	0.61 U	0.59 U	0.57 U	0.53 U

Table 4 – Cyanide Results (Continued)

Analyte	Mound Risk-Based Cleanup Guideline Values mg/kg	Boring: Depth: Sample ID: Units:	B90 12-16 000121 mg/kg	B91 0-4 000122 mg/kg	B91 4-8 000123 mg/kg	B91 4-8 000124 mg/kg	B91 8-10 000125 mg/kg	B80 0-4 000126 mg/kg
Cyanide	4,300		0.60 U	0.57 U	0.58 U	0.57 U	0.61 U	0.61 U

Note: U-Compound was analyzed for but not detected. The associated numerical value is the sample reporting limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (pCi/g)**

Rad (10% analyzed off site)

Contaminant	Mound Background pCi/g	Mound Risk-Based Cleanup GV pCi/g	Sample Location and Depth pCi/g
Tritium	1.6	23,500	BGV
PU-238	0.13	55	BGV
TH-228	1.5	3	BGV
TH-230	1.9	44	BGV
TH-232	1.4	3	BGV
U-234	1.1	37.5	BGV
U-235	0.11	3.35	BGV
U-238	1.2	11	BGV

BGV - Below Guideline Value

5. Radiological Analytical Results

Table 5 - Detected Radionuclides

Analyte	Mound Risk-Based Cleanup Guideline Values piC/g	Boring: Depth: Sample ID: Units:	B82 12-16 000005 piC/g	B92 4-8 000020 piC/g	B92 4-8 000021 piC/g	B38 0-4 000036 piC/g	B66 0-4 000070 piC/g
Tritium	23,500		0.478 J	1.04 J	0.816 J	0.178 J	0.491 J
Plutonium-238	55		0.0458 U	0.0212 U	0.0176 U	0.00667 U	0.0118 U
Thorium-228	3.0		0.752	0.151 J	0.164 J	0.326 J	0.302 J
Thorium-230	44		0.447 J	0.493 J	0.443 J	0.327 J	0.339 J
Thorium-232	3.0		0.702	0.151 J	0.206 J	0.228 J	0.299 J
Uranium-234	37.5		0.350	0.258	0.251	0.264	0.336
Uranium-235	3.35		0.0348 U	0.0277 J	0.0196 U	0.0274	0.0310 U
Uranium-238	11		0.144	0.284	0.267	0.303	0.327

Analyte	B76 0-3 000093 piC/g	B85 4-8 000099 piC/g	B01 0-3 000106 piC/g	B03 0-2 000107 piC/g	B89 0-4 000108 piC/g	B91 4-8 000123 piC/g
Tritium	0.121 J	0.156 J	0.370 J	0.187 J	0.143 J	0.409 J
Plutonium-238	0.00577 U	0.0205 U	0.0380	0.0124	0.0116	0.0391 U
Thorium-228	0.231 J	0.397 J	0.494 J	0.281 J	0.421 J	0.875
Thorium-230	0.362 J	0.435 J	0.328 J	0.345 J	0.527 J	0.413 J
Thorium-232	0.117 J	0.349 J	0.400 J	0.221 J	0.418 J	0.620
Uranium-234	0.274	0.348	0.231	0.308	0.306	0.277
Uranium-235	0.0181 U	0.0199 U	0.0301 U	0.0250 U	0.0265 U	0.0190 U
Uranium-238	0.308	0.330	0.232	0.259	0.259	0.206

Note: U-Compound was analyzed for but not detected at or above the MDA. The associated numeric value is the MDA.
J-The result is estimated at an activity below the Reporting Limit

**M Building Soils Characterization
Results Exceeding Comparison Criteria (pCi/g)**

Radionuclide	Detected Levels Exceeding Comparison Criteria (pCi/g)	MDA (pCi/g)	Location-Depth	10 ⁻⁶ Risk Based Guideline Value (pCi/g)	Mound Background (pCi/g)
Ac-227	N/A	N/A	N/A	1.0	N/A
Am-241	N/A	N/A	N/A	4.95	N/A
Cs137	N/A	N/A	N/A	.46	.42
Co-60	.11	.04	B-80-05	.1	N/A
Pu-238	.94	.7	B-38-04	5.5	.13
Pu-238	.28	.2	B-08-07	5.5	.13
Pu-238	.28	.2	B-57-02	5.5	.13
Pu-239/240	N/A	N/A	N/A	5.5	N/A
Ra-226	3.05	2.1	B-80-04	.14	2
Ra-226	2.09	.63	B-39-02	.14	2
Ra-226	2.06	.28	B-12-01	.14	2
Th-228	N/A	N/A	N/A	.85	1.5
Th-230	13.03	9.45	B-01-03	44/3	1.9
Th-230	5.23	5.11	B-86-03	44/3	1.9
Th-232	N/A	N/A	N/A	50	1.4
U-234	N/A	N/A	N/A	3.75	1.1
U-235	N/A	N/A	N/A	3.35	.11
U-238	1.68	.56	B-03-02	1.1	1.2
U-238	1.52	.79	B-91-08	1.1	1.2
U-238	1.45	.56	B-85-08	1.1	1.2
U-238	1.39	.81	B-91-10	1.1	1.2
U-238	1.32	.65	B-89-04	1.1	1.2
U-238	1.15	.57	B-92-08	1.1	1.2
U-238	1.12	.56	B-82-16	1.1	1.2
U-238	1.12	.67	B-82-04	1.1	1.2
Tritium	N/A	N/A	N/A	23,500	1.6

Notes: 1.00 exceeds Guideline Value

1.00 exceeds Background Value

1.00 Background Value exceeds Guideline Value

M Building Soils Locations and Sample Depths

Grid Location	Sample Depth (feet)
1	03,04
2	02
3	02
4	Missing
5	01
6	No Recovery
7	No Recovery
8	04,07
9	04,08
10	02
11	No Recovery
12	01
13	01
14	No Recovery
15	03
16	03
17	No Recovery
18	04,08
19	No Recovery
20	No Recovery
21	01
22	02
23	No Recovery
24	No Recovery
25	04,07
26	No Recovery
27	01
28	No Recovery
29	01
30	01
31	No Recovery
32	No Recovery
33	01
34	04,06
35	Missing
36	01
37	No Recovery
38	04
39	02
40	01
41	No Recovery
42	01
43	01
44	Missing
45	02
46	No Recovery
47	03
48	02

Grid Location	Sample Depth (feet)
49	01
50	01
51	01
52	01
53	No Recovery
54	02
55	01
56	No Recovery
57	02
58	03
59	01
60	No Recovery
61	01
62	Missing
63	02
64	02
65	04,05
66	04,05
67	02
68	No Recovery
69	01
70	01
71	02
72	01
73	01
74	No Recovery
75	04,05
76	03
77	03
78	04
79	01
80	04,05
81	04,08,10
82	04,08,12,16
83	04,05
84	04,08
85	04,08,10
86	04,08,10
87	04,08,12
88	04,07
89	04,08
90	04,08,12,16
91	04,08,10
92	04,08
93	04,08

Depth of Refusal
M Building Soils Characterization Locations
3/21/00

B-01	2.5 feet
B-02	2.0
B-03	2.0
B-04	Eliminated due to utilities
B-05	2.5
B-06	0.0
B-07	0.0
B-08	7.0
B-09	8.0
B-10	1.5
B-11	3.0
B-12	1.0
B-13	1.0
B-14	0.0
B-15	2.5
B-16	3.5
B-17	Eliminated due to utilities
B-18	8.5
B-19	0.0
B-20	0.5
B-21	1.5
B-22	1.0
B-23	0.5
B-24	0.6
B-25	9.0 moist
B-26	1.5
B-27	0.5
B-28	0.0
B-29	1.0
B-30	1.5
B-31	1.0
B-32	0.0
B-33	0.7
B-34	6.0
B-35	Eliminated due to utilities
B-36	0.75

M Building Location Depth of Refusal (cont.)

B-37	0.0 feet
B-38	3.5
B-39	1.5
B-40	2.0
B-41	0.0
B-42	0.5
B-43	2.0
B-44	Eliminated due to utilities
B-45	1.5
B-46	0.0
B-47	2.0
B-48	2.0
B-49	3.0
B-50	0.5
B-51	0.5
B-52	0.5
B-53	2.0
B-54	2.0
B-55	0.5
B-56	0.0
B-57	2.0
B-58	3.0
B-59	1.0
B-60	1.0
B-61	0.5
B-62	Eliminated due to utilities
B-63	3.0
B-64	3.0
B-65	5.0
B-66	6.0
B-67	2.0
B-68	1.0
B-69	1.0
B-70	1.0
B-71	2.0
B-72	1.0
B-73	5.0
B-74	0.0

M Building Location Depth of Refusal (cont.)

B-75	4.5 feet	
B-76	3.0	
B-77	3.0	
B-78	4.0	
B-79	0.3	
B-80	5.0	
B-81	9.5	
B-82	15.0	
B-83	4.5	
B-84	8.0	
B-85	10.5	
B-86	9.5	
B-87	12.5	
B-88	9.0	
B-89	10.0	
B-90	17.5	
B-91	9.5	
B-92	7.5	saturated
B-93	7.5	saturated

APPENDIX C

ADDITIONAL SAMPLING INFORMATION - RESOLUTION OF POTENTIAL
RELEASE SITES

Building M

The map below shows location of M Building and surrounding PRSs.

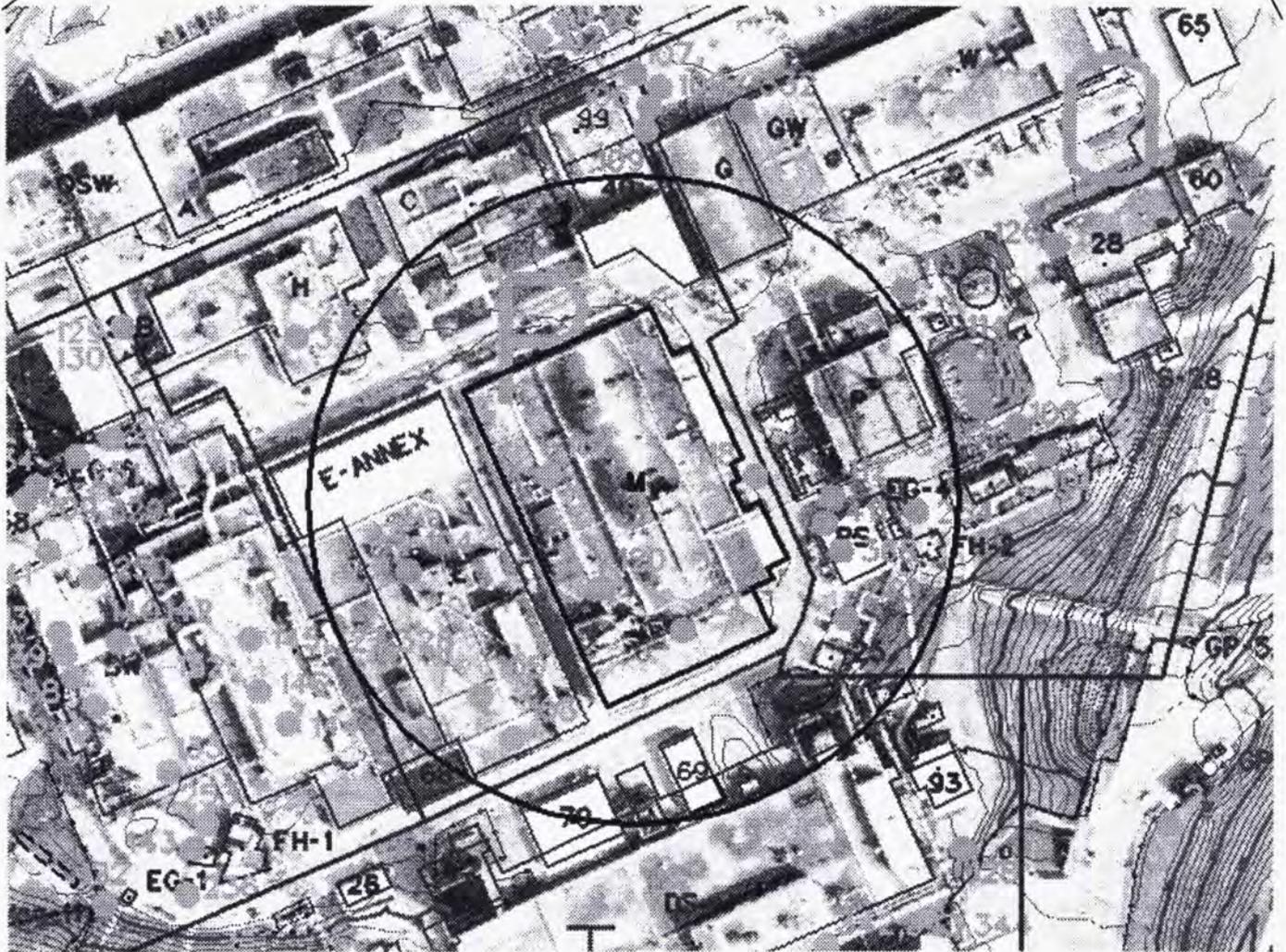
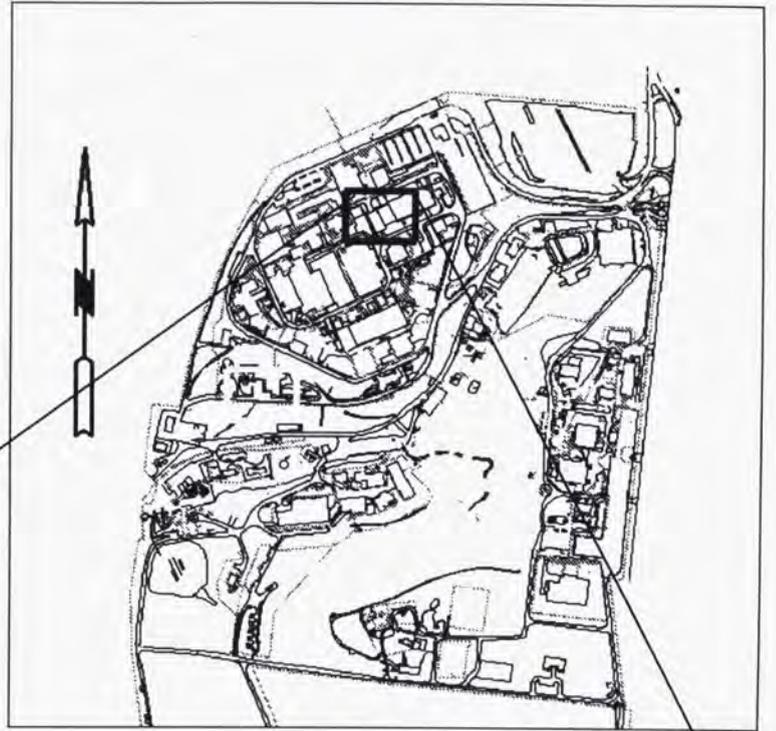


Table 1 of this appendix is paragraph 5 taken from the document, *Mound Plant Building Data Package, M Building (M Building BDP)*. It identifies the subject building related Potential Release Sites (PRSs), and is modified to include an additional column stating pre-demolition planned corrective resolution. Figure 1 of this appendix gives a graphic depiction of PRS locations as found in the BDP and supporting literature. The information following Figure 1, also found in the BDP, as referenced from Phase 1 Environmental Site Assessment of DOE Mound, M Building, DOE Mound, Miamisburg, Ohio (HOK/K), serves to illuminate concerns supporting assignment of PRS status.

Table 1. M Building Associated Potential Release Sites

PRS #	CERCLA or Building Related	Binning Status	Comments	Resolution
118	M Building related.	TBD	M Building Soils	Soils will be characterized and disposed of accordingly.
119	M Building related.	TBD	Room M-38 Metal Plating Rinse Water Sump (Tank 225)	Tank will be removed and surrounding areas will be characterized and handled accordingly.
120	M Building related.	TBD	Room M-108 Metal Plating Rinse Water Tank (Tank 119)	Tank will be removed and surrounding areas will be characterized and handled accordingly.
121	M Building related.	TBD	Vapor Degreaser	Degreasers cleaned. Will be removed and surrounding areas will be characterized and handled accordingly.

PRS "Resolutions" as noted in Table 1 were accomplished as appropriate. Post M Building demolition sampling results presented in Appendix B are, again, presented in Tables 3, 4, and 5 of this appendix, as applicable, to PRSs 118, 119, and 120, respectively. Table 2 of this appendix is taken from Appendix N of the M Building Data Package. Table 6 addresses sampling at a non-PRS sump.

PRS 118 - M Building Soils

Elevated VOCs were detected in soils (plotted on the east side of Building M) in soil gas surveys conducted in 1993. Potential hazardous substances for this PRS were listed as copper cyanide, silver cyanide, machine oils, and solvents. The Site Summary report did not provide a rationale or confirmation as to why the M Building soils were shown to be outside an exit door on the east side of the building. The original document detailing the soil gas surveys was not readily available during our research of the DOE documents. It was also not explained as to why the cyanides were listed when these were not generally considered to be volatile compounds detectable in soil gas surveys.

PRS 119 - Room M-38 Metal Plating Rinse Water Sump Tank (Tank 225)

Rinse water from cascade rinse steps of the old plating operations in M Building were directed in the sanitary sewer system by first passing through this sump tank. It is little more than a deep manhole, measuring approximately 15 feet in depth, according to Mr. George Jones, and 350 gallons in volume. The tank is apparently still connected to the sanitary sewer line leading north of the building to a main sanitary trunk line passing east-west on the north side of M Building. However, the tank is now inactive. DOE/EG&G have indicated in the Site Summary report that there is no evidence of release associated with this tank and that no further action is required. Tank data from the Active Underground Storage Tank Plan (November, 1994) is provided.

PRS 120 - Room M-108 Metal Plating Rinse Water Tank (Tank 119)

This sump tank is very similar to Tank 225, except that it is reportedly only 10 feet deep and is 250 gallons capacity. Cascade rinse water from the new plating operations at the south end of the building is directed first to this sump and from there to the sanitary sewer lines. The tank is currently in service, although plating operations in the southern part of the site building are terminated. Mr. Jones reported that the effluent from this monthly pursuant to the Mound Plant NPDES permit. Mr. Jones recalls that the only sampling and analysis violations of the permit of which he was aware were elevated levels of copper. OEPA suspected that this result indicated that Mound was plating with copper cyanide, according to Mr. Jones. However, Mr. Jones and Mr. Koeller indicated that this was not the case, that copper cyanide solution has not been used at M Building, but speculated that the acidic solutions were leaching out from the copper from piping installed in the building.

PRS 121 - Vapor Degreasers

Two vapor degreasers were installed for parts cleaning in the new plating shop. One is located in Room 108, and a much older one (dating from the 1950s) is located adjacent to Room 47. Both apparently used tetrachloroethylene (Perclene-D) as a solvent. Vapor from the degreasers are routed to ventilation hoods which are exhausted to air emission stacks on the roof. A 1993 OEPA air permit for these vapor degreasers was tacked to the wall of the plating shop during HOK/K's site visit; however, EG&G did not include such a permit in the package of current regulatory permits requested by HOK/K for this assessment. Presumably this is because the plating shop is no longer in operation.

NOTE:

HOK/K did not include the fourth PRS, the vapor degreasers, as RECs since these units have been drained, cleaned, and are currently out-of-service, and since there is no evidence of spills or leakage related to these units.

M Building Contamination Issues

DESCRIPTION	CONTAMINANT(S) OF CONCERN	CURRENT INFORMATION	COMPARISON VALUE
PRS-118 M Building Soils	Copper Cyanide, Silver Cyanide, Machine Oils, Solvents	No analysis results exceeding comparison values for Organics or Radionuclides	
PRS-119 M-38 Metal Plating Rinse Water Tank (Tank 225)	Nickel, Cadmium, Silver, Gold, Manganese, Cyanide, Aluminum, Sodium Hydroxide, Potassium Permanganate	Aluminum = 21,300 MG/KG Beryllium = 0.74 MG/KG Cadmium = 1490 MG/KG Chromium = 5970 MG/KG Cobalt = 146 MG/KG Copper = 28,400 MG/KG Iron = 127,000 MG/KG Lead = 21,100 MG/KG Nickel = 22,500 MG/KG Silver = 306 MG/KG Sodium = 4370 MG/KG Molybdenum = 121 MG/KG Tin = 963 MG/KG	Aluminum = 19,000 MG/KG; BG Beryllium = 0.7 MG/KG; BG Cadmium = 210 MG/KG; HI Chromium = 1100 MG/KG; HI Cobalt = 19 MG/KG; BG Copper = 26 MG/KG; BG Iron = 35,000 MG/KG; BG Lead = 400 MG/KG; OC Nickel = 4,300 MG/KG; HI Silver = 1.7 MG/KG; BG Sodium = 240 MG/KG; BG Molybdenum = 27 MG/KG; BG Tin = 20 MG/KG; BG
PRS-120 M-108 Metal Plating Rinse Water Tank (Tank 119)	Copper, Gold, Nickel, Aluminum, Uranium	No analysis results exceeding comparison values for Metals, Cyanide or Radionuclides with the exception of Thallium of 2.2 MG/KG	Thallium Background = 0.46 MG/KG
PRS-121 Vapor Degreasers	Perclene D (perchloroethylene)	The Vapor Degreasers are out of service. They have been drained and cleaned	

Table 2. M Building Contamination Issues

BUILDING M TANK DATA

Tank No. 119			
Proposed Program AUSTP	Bldg M	Location M-108	Owner U.S.DOE
Status in service	Installation Date 1980	Estimated Capacity (gallons) 250	
Purpose of Tank metal plating rinse tank			
Tank Material Concrete		Tank Cathodic Protection Internal Epoxy Lining	
Inlet of Tank Metal Plating Rinse water from M-Bldg		Outlet of Tank Bldg 57, New Sewage Disposal Area	
Evidence of Release No		Spill/Overfill Prevention None	
Substance Current/Last Stored Industrial Wastewater		Tank Site Description Indoor	
Calibration/Maintenance None		Tank Release Detection None	
Piping Release Detection None		Closure	
OU9 Reference No 120		Date Last Used	N/A
		FFA OU	N/A
Primary Regulatory Jurisdiction CWA		Spill Jurisdiction AEA	
Regulatory Status In compliance			
Documents Provided NUS, 1989; DOE, 1992a; DOE, 1993			
Comments None			

Tank No. 120			
Proposed Program AUSTP	Bldg R	Location Corridor 2	Owner U.S.DOE
Status in service	Installation Date Unknown	Estimated Capacity (gallons) 500	
Purpose of Tank sanitary waste tank			
Tank Material Stainless Steel		Tank Cathodic Protection None	
Inlet of Tank Sanitary Waste from R Bldg		Outlet of Tank Bldg 57, New Sewage Disposal Area	
Evidence of Release No		Spill/Overfill Prevention On/Off Level Float Switch: High Level Alarm	
Substance Current/Last Stored Sanitary Wastewater		Tank Site Description Indoor	
Calibration/Maintenance Qtr Lubrication/Inspection & High Level Alarm C		Tank Release Detection None	
Piping Release Detection None		Closure	
OU9 Reference No 144		Date Last Used	N/A
		FFA OU	N/A
Primary Regulatory Jurisdiction CWA		Spill Jurisdiction AEA	
Regulatory Status In compliance			
Documents Provided DOE, 1992a; DOE, 1993; UST Inspection Sheet			
Comments Sanitary Waste Tank			

CLIENT EG&G Mound Applied Technologies		JOB NUMBER 10805-794	DATE 4/9/94	
JOB TITLE Active Underground Storage Tank Program		D&M TEAM Giattelli & DiSpirito		
TANK NO. 119	BLDG LOCATION M, Room M-108	EG&G SPONSOR Operations	OWNER U.S. DOE	
TANK STATUS In Use	TANK CAPACITY (gallons) 250	INSTALLATION DATE 1980	INTERVIEWED WITH LaPole & Cloud	INTERVIEW DATE 2/21/94

TANK DESCRIPTION, Purpose of Tank *Used to collect metal plating rinse water prior to discharge to sanitary waste treatment at Bldg 57.*

Tank Material <input type="checkbox"/> Bare Steel (unprotected) <input type="checkbox"/> Composite (steel & FRP) <input type="checkbox"/> Fiberglass Reinforced Plastic <input type="checkbox"/> Stainless Steel Lined Concrete <input type="checkbox"/> Steel Lined Concrete <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown	Tank Cathodic Protection <input checked="" type="checkbox"/> Internal Lining - Specify <input type="checkbox"/> Sacrificial Anodes <input type="checkbox"/> Impressed Current <input type="checkbox"/> Composite (Steel & FRP) <input type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown <input type="checkbox"/> None <i>Epoxy</i>	Inlet of Tank <i>Collects metal plating rinse water from M-Bldg</i> Outlet of Tank <i>to Sanitary Waste Treatment Bldg 57</i>	History of Spills No Spill/Overfill Prevention <input type="checkbox"/> Float Vent Valve <input type="checkbox"/> High Level Alarm <input type="checkbox"/> Auto Shutoff <input checked="" type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None
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Piping Material <input type="checkbox"/> Cathodically Protected Steel <input checked="" type="checkbox"/> Bare Steel (unprotected) <input type="checkbox"/> Fiberglass Reinforced Plastic <input type="checkbox"/> Double Walled or Jacketed <input type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown	Substance Currently/Last Stored <input type="checkbox"/> Gasoline <input type="checkbox"/> Diesel <input type="checkbox"/> Kerosene <input type="checkbox"/> Used Oil <input type="checkbox"/> Hazardous Substances - Specify <input checked="" type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown <i>Industrial Wastewater</i>	Tank Site Description <input checked="" type="checkbox"/> Indoor <input type="checkbox"/> Outdoor <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt/Concrete <input type="checkbox"/> Storm Drains, Potential Surface water runoff <input type="checkbox"/> Soil Staining	DOE / AEC / PM No: <i>None found</i> Calibration Records Maintenance Records
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Tank Release Detection Method <input type="checkbox"/> Inventory Control <input type="checkbox"/> Manual Tank Gauging <input type="checkbox"/> Tank Tightness Testing <input type="checkbox"/> Automatic In-Tank Monitor & Inventory Control <input type="checkbox"/> Vapor Monitoring <input type="checkbox"/> Groundwater Monitoring <input type="checkbox"/> Secondary Containment with Interstitial Monitoring <input checked="" type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None	Piping Release Detection Method <input type="checkbox"/> Pressure Piping Automatic Line Flow Restrictor <input type="checkbox"/> Pressure Piping Automatic Line Shutoff Device <input type="checkbox"/> Line Tightness Test (Pressure Annual, Suction Every 3 yrs) <input type="checkbox"/> Vapor Monitoring <input type="checkbox"/> Groundwater Monitoring <input type="checkbox"/> Approved Suction Piping <input type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None	Closure Date of Last use <i>na</i> Intended Replacement Closure Plan Part of Operable Unit	Primary Regulatory Jurisdiction <i>CWA</i> Spill Jurisdiction Regulated Units
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DOCUMENTS, REFERENCES USED: *MUS, 1989; DOE, 1992a; UST Inspection Sheet*

COMMENTS:

Tank considered to be a wastewater treatment unit and part of a wastewater treatment system that discharges subject to CWA §402 (NPDES) (C.X. 3755-33) Regulations.

SIGNATURE *R.L. Giattelli*

Tank No	Proposed Program	Bldg	Location	Status	Date Installed	Estimated Total Capacity (gallons)	Purpose	FFA OU	Primary Regulatory Jurisdiction	Spill Jurisdiction
1	AUSTP	62		in service	1979	900	stack deluge	N/A	AEA	AEA
2	D&D-Proposed	H	Rm 131	inactive	1947	500	laundry (radioactive) water sump	Not assigned	AEA	AEA
3	AUSTP	WD	Deck	in service	1947	30,000	alpha influent (D) storage	N/A	AEA	AEA
4	AUSTP	WD	Deck	in service	1947	30,000	alpha influent (C) storage	N/A	AEA	AEA
5	AUSTP	WD	Deck	in service	1947	30,000	alpha influent (B) storage	N/A	AEA	AEA
6	AUSTP	WD	Deck	in service	1947	30,000	alpha influent (A) storage	N/A	AEA	AEA
7	AUSTP	WD	Dock 2	in service	1947	30,000	alpha effluent (D) storage	N/A	CWA	AEA
8	AUSTP	WD	Dock 2	in service	1947	30,000	alpha effluent (C) storage	N/A	CWA	AEA
9	AUSTP	WD	Dock 2	in service	1947	30,000	alpha effluent (B) storage	N/A	CWA	AEA
10	AUSTP	WD	Dock 2	in service	1947	30,000	alpha effluent (A) storage	N/A	CWA	AEA
11	AUSTP	WD	Annex	in service	1966	600	"bot sump"	N/A	AEA	AEA
12	AUSTP	WD	Rm 1, Basement	in service	1947	600	alpha wastewater sump	N/A	AEA	AEA
13	AUSTP	WD	Annex	in service	1966	3,750	beta influent storage	N/A	AEA	AEA
14	AUSTP	WD	Annex	in service	1966	3,750	beta influent storage	N/A	AEA	AEA
15	AUSTP	WD	Annex	in service	1966	3,750	alpha influent storage	N/A	AEA	AEA
16	AUSTP	WD	Annex	in service	1966	3,750	alpha influent storage	N/A	AEA	AEA
17	AUSTP	WD	Rm 1, Sub-basmt	in service	1947	500	alpha wastewater sump	N/A	CWA	AEA
18	AUSTP	WD	Rm 8	in service	1947	450	alpha wastewater sump	N/A	CWA	AEA
19	AUSTP	R	R-128	in service	1981	500	alpha wastewater tank	N/A	AEA	AEA
20	AUSTP	SW	SW-6	in service	1950	200	beta wastewater collection	N/A	AEA	AEA
21	AUSTP	SW	SW-125	in service	1965	100	beta wastewater collect	N/A	AEA	AEA
22	AUSTP	SW	SW-143	in service	1965	100	beta wastewater collect	N/A	AEA	AEA
23	D&D	SW	SW-137	inactive	1950	200	alpha wastewater tank	OU6	AEA	AEA
24	AUSTP	HH	HH-21	in service	1974	200	beta wastewater sump	N/A	AEA	AEA
25	AUSTP	38	West Dock	in service	1966	2,000	West dock sump	N/A	AEA	AEA
26	AUSTP	38	6 East, 10K	in service	1965	300	alpha wastewater sump	N/A	CWA	AEA
27	AUSTP	38	6 East, 10K	in service	1965	300	alpha wastewater sump	N/A	CWA	AEA
28	AUSTP	A		in service	1968	400	Medical decon shower collection tank	N/A	AEA	AEA
29	AUSTP	A		in service	1968	400	Medical decon shower collection tank	N/A	AEA	AEA
100	AUSTP	37		in service	1968	500	sanitary waste tank	N/A	CWA	AEA
101	AUSTP	57		in service	1974	7,500	gnt chamber	N/A	CWA	AEA
102	AUSTP	57		in service	1974	1,870	comminutor	N/A	CWA	AEA
103	AUSTP	57		in service	1974	10,770	equalization basin	N/A	CWA	AEA
104	AUSTP	57		in service	1974	10,770	equalization basin	N/A	CWA	AEA
105	AUSTP	57		in service	1985	10,770	equalization basin	N/A	CWA	AEA
106	AUSTP	57		in service	1985	10,770	equalization basin	N/A	CWA	AEA
7	AUSTP	57		in service	1975	65,000	aeration basin	N/A	CWA	AEA
8	AUSTP	57		in service	1975	65,000	aeration basin	N/A	CWA	AEA
109	AUSTP	57		in service	1975	14,960	clarifier	N/A	CWA	AEA
110	AUSTP	57		in service	1975	14,960	clarifier	N/A	CWA	AEA
111	AUSTP	57		in service	1975	673	chlorine contact chamber	N/A	CWA	AEA
112	AUSTP	57		in service	1975	673	chlorine contact chamber	N/A	CWA	AEA
113	AUSTP	P		in service	1947	25,000	fuel oil storage (tank 1)	OU2	AEA	CWA
114	AUSTP	P		in service	1947	25,000	fuel oil storage (tank 2)	OU2	AEA	CWA
115	AUSTP	P		in service	1965	25,000	fuel oil storage (tank 3)	OU2	AEA	CWA
116	AUSTP	P		in service	1965	25,000	fuel oil storage (tank 4)	OU2	AEA	CWA
117	AUSTP	RSW/T Stack		in service	1971	5,000	diesel fuel storage	N/A	BUSTR	BUSTR
118	AUSTP	57		in service	1974	850	diesel fuel storage	N/A	BUSTR	BUSTR
119	AUSTP	M	M-108	in service	1980	250	metal plating rinse tank	N/A	CWA	AEA
120	AUSTP	R	Corridor 2	in service	Unknown	500	sanitary waste tank	N/A	CWA	AEA
121	AUSTP	38		in service	1971	4,000	diesel fuel storage tank	N/A	BUSTR	BUSTR
124	AUSTP	T	T-1	in service	1947	350	cooling water sump	N/A	CWA	AEA
125	AUSTP	T	Corridor 2	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
126	AUSTP	T	T-11F	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
127	AUSTP	T	T-15A	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
128	AUSTP	T	Stair 3	in service	1947	350	cooling water sump	N/A	CWA	AEA
129	AUSTP	T	T-78	in service	1947	350	condensate sump	N/A	CWA	AEA
130	AUSTP	T	Corridor 8	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
131	AUSTP	T	T-78B	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
132	AUSTP	T	T-90	in service	1947	350	cooling sys condensate sump	N/A	CWA	AEA
133	AUSTP	T	T-99	in service	1947	350	sanitary waste sump	N/A	CWA	AEA
134	AUSTP	WD	Rm 01	in service	1947	400	sanitary waste sump	N/A	CWA	AEA
135	AUSTP	WD	Annex, Rm 9	in service	1967	400	sanitary waste sump	N/A	CWA	AEA
136	ER	85		inactive	Unknown	450	waste solvent tank	OU5	FFA	FFA
200	ER	1		inactive	1956	500	explosives wastewater settling basin	OU5	FFA	FFA
201	ER	43		inactive	1969	500	explosives wastewater settling basin	OU5	FFA	FFA
202	ER	G		removed	1947	4,000	leaded gasoline storage	OU2	FFA	FFA
203	ER	G		removed	1964	4,000	leaded gasoline storage	OU2	FFA	FFA
204	ER	G		removed	1975	5,000	unleaded gasoline storage	OU2	FFA	FFA
205	D&D	WD	Old SD Plant	inactive	1947	7,500	sanitary waste treatment	OU6	AEA	AEA
206	D&D	WD	Old SD Plant	inactive	1947	30,000	sanitary waste treatment	OU6	AEA	AEA
207	D&D	WD	Old SD Plant	inactive	1947	7,500	sanitary waste treatment	OU6	AEA	AEA
208	D&D	41		removed	1968	3,466	alpha wastewater pump station	OU6	AEA	AEA
209	D&D	41		removed	1968	3,466	alpha wastewater pump station	OU6	AEA	AEA

Tank No. 225			
Proposed Program ER	Bldg M	Location M-38	Owner U.S.DOE
Status inactive	Installation Date 1969	Estimated Capacity (gallons) 350	
Purpose of Tank metal plating rinse sump			
Tank Material Concrete		Tank Cathodic Protection None	
Inlet of Tank M-Bldg metal rinse water drains		Outlet of Tank Bldg 57, New Sewage Disposal Area	
Evidence of Release No		Spill/Overfill Prevention None	
Substance Current/Last Stored Industrial Wastewater		Tank Site Description Indoor	
Calibration/Maintenance None		Tank Release Detection None	
Piping Release Detection None		Closure Date Last Used 1984	
OU9 Reference No 119		FFA OU	OU2
Primary Regulatory Jurisdiction FFA		Spill Jurisdiction FFA	
Regulatory Status In compliance			
Documents Provided DOE, 1992a; DOE, 1993			
Comments None			

Tank No. 238			
Proposed Program ER	Bldg 19	Location	Owner U.S.DOE
Status removed	Installation Date 1947	Estimated Capacity (gallons) Unknown	
Purpose of Tank historic gasoline storage tank			
Tank Material Unknown		Tank Cathodic Protection Unknown	
Inlet of Tank Unknown		Outlet of Tank Two gasoline pumps	
Evidence of Release No		Spill/Overfill Prevention N/A	
Substance Current/Last Stored Gasoline		Tank Site Description Outdoor	
Calibration/Maintenance N/A		Tank Release Detection N/A	
Piping Release Detection N/A		Closure Date Last Used Unknown	
OU9 Reference No 64		FFA OU	OU5
Primary Regulatory Jurisdiction FFA		Spill Jurisdiction FFA	
Regulatory Status In compliance			
Documents Provided DOE, 1992a; DOE, 1993; UST Inspection Sheet			
Comments Tank is believed to have been removed and the location has been included in the ER Program OU5			

DAMES & MOORE - INSPECTION & DOCUMENT REVIEW NOTES

CLIENT EG&G Mound Applied Technologies		JOB NUMBER 10805-794		DATE 4/19/94	
JOB TITLE Active Underground Storage Tank Program			D&M TEAM Giantelli & Dispirito		
TANK NO. 225	BLDG LOCATION M, Room M-3B	EG&G SPONSOR ER		OWNER U.S. DOE	
TANK STATUS Not In Use	TANK CAPACITY (gallons) 350	INSTALLATION DATE 1965	INTERVIEWED WITH Cloud	INTERVIEW DATE 2/21/94	
TANK DESCRIPTION, Purpose of Tank <i>Concrete sump formerly used to collect rinse water from metal plating operation prior to discharge to sanitary waste treatment at S Bldg 57</i>					
Tank Material <input type="checkbox"/> Bare Steel (unprotected) <input type="checkbox"/> Composite (steel & FRP) <input type="checkbox"/> Fiberglass Reinforced Plastic <input type="checkbox"/> Stainless Steel Lined Concrete <input type="checkbox"/> Steel Lined Concrete <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown		Tank Cathodic Protection <input type="checkbox"/> Internal Lining - Specify <input type="checkbox"/> Sacrificial Anodes <input type="checkbox"/> Impressed Current <input type="checkbox"/> Composite (Steel & FRP) <input type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None		Inlet of Tank <i>M-Building metal rinse water drains</i> Outlet of Tank S Bldg 57 <i>Sanitary Waste Treatment</i>	
Piping Material <input checked="" type="checkbox"/> Cathodically Protected Steel <input type="checkbox"/> Bare Steel (unprotected) <input type="checkbox"/> Fiberglass Reinforced Plastic <input type="checkbox"/> Double Walled or Jacketed <input type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown		Substance Currently/Last Stored <input type="checkbox"/> Gasoline <input type="checkbox"/> Diesel <input type="checkbox"/> Kerosene <input type="checkbox"/> Used Oil <input type="checkbox"/> Hazardous Substances - Specify <input checked="" type="checkbox"/> Other - Specify <input type="checkbox"/> Unknown <i>Industrial wastewater</i>		Tank Site Description <input checked="" type="checkbox"/> Indoor <input type="checkbox"/> Outdoor <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt/Concrete <input type="checkbox"/> Storm Drains, Potential Surface water runoff <input type="checkbox"/> Soil Staining	
Tank Release Detection Method <input type="checkbox"/> Inventory Control <input type="checkbox"/> Manual Tank Gauging <input type="checkbox"/> Tank Tightness Testing <input type="checkbox"/> Automatic In-Tank Monitor & Inventory Control <input type="checkbox"/> Vapor Monitoring <input type="checkbox"/> Groundwater Monitoring <input type="checkbox"/> Secondary Containment with Interstitial Monitoring <input checked="" type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None		Piping Release Detection Method <input type="checkbox"/> Pressure Piping Automatic Line Flow Restrictor <input type="checkbox"/> Pressure Piping Automatic Line Shutoff Device <input type="checkbox"/> Line Tightness Test (Pressure Annual, Suction Every 3 yrs) <input type="checkbox"/> Vapor Monitoring <input type="checkbox"/> Groundwater Monitoring <input type="checkbox"/> Approved Suction Piping <input checked="" type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None		Closure Date of Last use 1984 Intended Replacement Closure Plan none Part of Operable Unit 042	
History of Spills No Spill/Overfill Prevention <input type="checkbox"/> Float Vent Valve <input type="checkbox"/> High Level Alarm <input type="checkbox"/> Auto Shutoff <input type="checkbox"/> Other - Specify <input checked="" type="checkbox"/> None					
DOE / AEC / PM No: None Calibration Records Maintenance Records					
Primary Regulatory Jurisdiction CWA FFA Spill Jurisdiction AEA FFA Regulated Units					

DOCUMENTS, REFERENCES USED: DOE, 1992a; DOE, 1993

COMMENTS:

 Tank considered part of ^a waste water treatment ~~and~~ system that discharges subject to CWA 342 (NPDES) (OAC 3745-33) 1220.

SIGNATURE
Adelardo Giantelli

Tank No	Proposed Program	Bldg	Location	Status	Date Installed	Estimated Total Capacity (gallons)	Purpose	FFA OU	Primary Regulatory Jurisdiction	Spill Jurisdiction
213	D&D	SM		removed	1959	1,000	alpha wastewater collect tank	OU6	AEA	AEA
214	D&D	WD	Annex	inactive	1968	3,750	alpha effluent storage	OU6	AEA	AEA
215	D&D	WD	Annex	inactive	1968	3,750	alpha effluent storage	OU6	AEA	AEA
216	D&D	WD	Annex	inactive	1968	3,750	alpha effluent storage	OU5	AEA	AEA
217	ER	27		inactive	1966	100	waste flume sump	OU5	FFA	FFA
218	ER	27		inactive	1966	500	explosives settling sump	OU5	FFA	FFA
219	ER	34		removed	1965	5,000	aviation fuel storage	OU5	FFA	FFA
220	ER	51		removed	1972	1,000	waste storage tank	OU5	FFA	FFA
222	ER	58		removed	1973	3,000	diesel fuel storage	OU2	FFA	FFA
223	ER	56		removed	1972	825	diesel fuel storage	OU2	FFA	FFA
224	ER	29	East side	closed in place	1947	1,500	historic septic tank	OU5	FFA	FFA
225	ER	M	M-38	inactive	1969	350	metal plating rinse sump	OU2	FFA	FFA
226	D&D	SW	SW-10	inactive	1967	100	beta wastewater sump	Not assigned	AEA	AEA
227	D&D	T	T-23	closed in place	1947	350	beta wastewater sump	Not assigned	AEA	AEA
228	D&D	T	T-3	closed in place	1947	350	floor drain sump	Not assigned	AEA	AEA
229	D&D	T	T-40	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
230	D&D	T	T-41	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
231	D&D	T	T-50	closed in place	1947	60	alpha wastewater sump	Not assigned	AEA	AEA
232	D&D	T	T-50	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
233	D&D	T	Corridor 8	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
234	D&D	T	Corridor 7	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
235	D&D	T	T-63	closed in place	1947	350	alpha wastewater sump	Not assigned	AEA	AEA
236	D&D	HH	HH-15	inactive	1967	100	beta wastewater sump	Not assigned	AEA	AEA
237	D&D	HH	HH-6	closed in place	1947	100	alpha wastewater sump	Not assigned	AEA	AEA
238	ER	19		removed	1947	Unknown	historic gasoline storage tank	OU5	FFA	FFA
239	ER	36		removed	1948	Unknown	historic gasoline storage tanks	OU5	FFA	FFA
240	ER	36		removed	1948	Unknown	historic gasoline storage tanks	OU5	FFA	FFA
241	D&D-Proposed	SM		removed	1959	3,000	historic septic tank	OU6	AEA	AEA
250	D&D-Proposed	T	T-44	closed in place	1947	350	wastewater sump	Not assigned	AEA	AEA
251	D&D-Proposed	T	T-16B	closed in place	1947	350	wastewater sump	Not assigned	AEA	AEA
254	AUSTP	38	Room 4	in service	1965	350	sanitary sump	N/A	CWA	AEA
255	D&D-Proposed	R	R-111	inactive	1967	55	calorimeter bath	Not assigned	AEA	AEA
258	AUSTP	62		in service	1973	350	hot waste sump	N/A	AEA	AEA
260	ER-Proposed	2		removed	1956	1,000	fuel oil storage	OU5	FFA	FFA
261	ER-Proposed	2		closed in place	1956	450	septic tank	Not assigned	AEA	AEA
262	ER-Proposed	G		inactive	1947	550	waste oil storage	Not assigned	AEA	AEA
263	AUSTP	87		in service	1984	51,700	explosive surge tank	N/A	CAA	RCRA/AEA
264	AUSTP	87		in service	1984	51,700	explosive surge tank	N/A	CAA	RCRA/AEA
265	AUSTP	87		in service	1984	51,700	explosive surge tank	N/A	CAA	RCRA/AEA
266	D&D-Proposed	R	R-111	inactive	1967	55	calorimeter bath	Not assigned	AEA	AEA
267	D&D-Proposed	37		inactive	1966	500	low risk waste tank	Not assigned	AEA	AEA
268	AUSTP	H		in service	1947	350	condensate sump	N/A	CWA	AEA
269	AUSTP	T	T-90	in service	1947	350	condensate sump	N/A	CWA	AEA
270	ER-Proposed	29	East Side	inactive	1965	1,000	historic septic tank	Not assigned	AEA	AEA
271	AUSTP	T	T-1	in service	1947	10,000	hot side fire water tanks	N/A	AEA	AEA
272	AUSTP	T	T-20	in service	1947	200	fire water sump	N/A	AEA	AEA
273	AUSTP	T	T-37	in service	1947	200	fire water sump	N/A	AEA	AEA

Table 3. Sampling Information - PRS 118 - M Building Soils

Contaminant	Maximum Concentration Detected	Guideline Criteria (10 ⁻⁶)	Background Value
Benzo(a)pyrene	890 ug/kg	410 ug/kg	NA
Magnesium	92,100 mg/kg	NA	40,000 mg/kg
Potassium	4,430 mg/kg	NA	1,900 mg/kg
Sodium	850 mg/kg	NA	240 mg/kg
Thallium	1.6 mg/kg	NA	.46 mg/kg
Lithium	37.3 mg/kg	NA	26 mg/kg
Ra-226 + D	3.05 pCi/g	.14 pCi/g	2 pCi/g
Th-230 + D	13.03 pCi/g	0.13 pCi/g	1.9 pCi/g
U-238 + D	1.68 pCi/g	0.12 pCi/g	1.2 pCi/g

Table 4. Sampling Information - PRS 119
Room M-38 Metal Plating Rinse Water Sump (Tank 225)

Contaminant	Maximum Concentration Detected	Guideline Criteria (10 ⁻⁶)	Background Value
Copper	358 mg/kg	NA	26 mg/kg
Magnesium	44,600 mg/kg	NA	40,000 mg/kg
Sodium	324 mg/kg	NA	240 mg/kg
Chromium	25.9 mg/kg	7500 mg/kg	20 mg/kg

Table 5. Sampling Information PRS 120
Room M-108, Metal Plating Rinse Waster Sump (Tank 119)

Contaminant	Maximum Concentration Detected	Guideline Criteria (10 ⁻⁶)	Background Value
Magnesium	53,800 mg/kg	NA	40,000 mg/kg
Potassium	4,490 mg/kg	NA	1,900 mg/kg
Sodium	625 mg/kg	NA	240 mg/kg
Lithium	36.4 mg/kg	NA	26 mg/kg

Table 6. Sampling Information
Room M-47, Plating Shop Sump

Contaminant	Maximum Concentration Detected	Guideline Criteria (10 ⁻⁶)	Background Value
Sodium	321 mg/kg	NA	240 mg/kg

Additional sampling within the PRS 119 sump (sediment/water/soil) yields the following results.

The following tables present PRS 119 (M-38) sump sediment analysis, biased soil sampling analysis around the PRS 119 sump (samples B-92 & B-93) and analysis of soil and groundwater after the PRS 119 sump was removed. Also included is correspondence with the Ohio EPA concerning this PRS.



BWX Technologies, Inc.

a McDermott company

BWXT of Ohio, Inc.

1 Mound Road
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Miamisburg, Ohio 45343-3030
(937) 865-4020

MHP-006/00
July 27, 2000

00-TC/07-27

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

ATTENTION: Frank G. Schmaltz

SUBJECT: Contract No. DE-AC24-97OH20044
**M BUILDING: SOIL SAMPLE ANALYSIS AND
PRS CLOSURE**

Dear Mr. Provencher:

This memo is to document the results of sampling and actions taken relating to the M slab removal. This memo will facilitate the closure of the associated Potential Release Sites (PRS).

The non-CERCLA demolition of M Building and the subsequent slab and foundation removal included four building related PRSs: 118 (M Building Soils), 119 (M-38 Sump), 120 (M-108 Sump), and 121 (Vapor Degreasers). Prior to removal of the M slab, soil samples were taken through the slab and samples of the M-38 and M-108 sump sediment were taken. The attached table summarizes sample analyses which exceed either Mound background and/or Mound risk-based guideline values. B92 and B93 soil samples were taken immediately adjacent to M-38 sump.

The only area of concern is the M-38 sump sediment, which served a former plating shop area and shows elevated levels of several metals. Metals that exceed risk-based guideline values are Antimony, Cadmium, and Nickel. Beryllium slightly exceeds the risk-based guideline value at 5 locations, but is still below background. Review of the soil sample boring depths (see attached map) helps confirm that the M-38 sump (locations B-92 and B-93) was cut into the rock. The sump is approximately 8 feet deep while it is surrounded by sample locations no more than 2 feet deep at refusal. The M-38 sump and associated

Page 2 M BUILDING: SOIL SAMPLE ANALYSIS AND PRS CLOSURE

sump sediment is currently being removed and disposed of as hazardous waste.

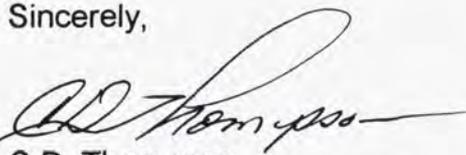
PRS 118, 119, and 120 were addressed through the sampling and removal of the slab and sumps. PRS 121 involved vapor degreasers employing chemicals such as perchloroethylene, which would have been released through roof vents. In addition, these degreasers utilized a secondary containment to contain accidental spills, which explains the lack of reported spills involving these units.

In previous Core Team meetings, the conclusion was reached that these chemicals would have volatilized before hitting the ground. Therefore, PRS 121 was considered a non-issue.

After sampling was completed, the M slab was broken up and removed to the spoils area. The on-site rock crusher crushed the concrete, and the resulting gravel was used to backfill where the slab was removed.

Attached is the full set of radiological and chemical analyses for your information. Please advise of any additional questions you may have concerning this matter.

Sincerely,



C.D. Thompson
Project Manager, Main Hill Project

CDT/rcr/mlm

Attachments:

Chemicals Exceeding Background and/or Risk-Based Guideline Values
Comprehensive Tabulation of Potential release Sites
Weston Analysis of M-38 and M-108 Sump Sediment (PRS 119/120)
Radiological Survey Data Sheets 99-M-30 and 00-M-060
Report – M Building Soils (Weston Analysis of M Building Soils)
Boring Locations Map

cc: Tim Fischer, USEPA
Art Kleinrath, DOE/MEMP
Brian Nickel, OEPA
Dave Rakel, BWXTO
Frank Schmaltz, DOE/MEMP
DCC
MHP File – M Building

**CHEMICALS EXCEEDING BACKGROUND AND/OR RISK-BASED GUIDELINE VALUES
ANALYTES OF CONCERN**

Sample Location	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Nickel	Silver	Vanadium	Zinc
Back-ground Value	NS	8.6	180	1.3	2.1	20	19	26	35000	48	32	1.7	25	140
Mound Risk-Based Value	85	64	15000	0.7	210	7500	NS	NS	NS	NS	4300	1100	1500	64000
M-38 Sump Sediment	135	16.3	5380	0.74	1490	5970	146	28400	127000	21100	22500	306	47.8	4710
B82 (4-8)								45						
B82 (8-12)				0.84						607				
B82 (12-16)				0.8										
B92 (4-8)								358			55.9			
B93 (0-4)								48.9						
B93 (4-8)					19.1	25.9		35			217			
B84 (4-8)				0.76										
B81 (4-8)				0.77										
B80 (0-4)								39.5						

Blue - Exceeds Background Values

Red - Exceeds Risk-Based Guideline and Background Values

Green - Exceeds Risk-Based Guideline Value, but not Background Value



State of Ohio Environmental Protection Agency

Southwest District Office

401 East Fifth Street
Dayton, Ohio 45402-2911

TELE: (937) 285-6357 FAX: (937) 285-6249

Bob Taft, Governor
Maureen O'Connor, Lt. Governor
Christopher Jones, Director

September 12, 2000

Mr. Arthur Kleinrath
U.S. DOE MEMP
P.O. Box 66
Miamisburg, Ohio 45343-0066

Review of M-Building Data Report, Draft (June 2000) & The M-38 Sump Removal Test Results Memo

Dear Mr. Kleinrath

The Ohio Environmental Protection Agency and Ohio Department of Health has completed our reviewed of the *M-Building Data Report; Draft : Revision 0 (Date: June 2000) & M-38 Sump Removal Test Results Memo (Date: August 25, 2000)*. We have no comments over the M-Building Data Report.

The review of the *M-38 Sump Removal Test Results Memo* showed that the water sample taken from M-38 sump presented a concern, as to whether MMCIC could start construction on the new parking lot, due to elevated levels of nickel and total chromium. During the September 7, 2000 meeting between DOE, USEPA, MMCIC, BWXTO and Ohio EPA, it was agreed to re-excavate and re-sample the pit water. If elevated metals appears in either the filtered or unfiltered samples, then a monitoring well(s) will be installed. This well(s) will then be used to determined the significance of the levels of metals. During this period, MMCIC will be constructing the parking lot. The soil in this area has been determined to be protective.

Should there be any question concerning the above, please feel free to contact or Mr. Anthony Campbell at (937) 285-6460 or me at (937) 285-6468.

Sincerely,

Mr. Brian Nickel
Mound Project Manager
Office of Federal Facilities Oversight

cc: Tim Fischer, USEPA Region V
Dave Rakel, BWXT of Ohio

Ruth Vandegrift, ODH
Frank Schmaltz, DOE



BWX Technologies, Inc.

a McDermott company

BWXT of Ohio, Inc.

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(937) 865-4020

MHP-008/00
September 27, 2000

00-TC/09-27

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

ATTENTION: Frank G. Schmaltz

SUBJECT: Contract No. DE-AC24-97OH20044
**M BUILDING: M-38 GROUNDWATER
SAMPLE ANALYSIS**

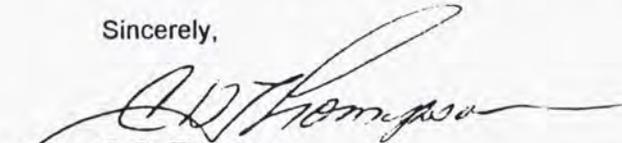
REFERENCE: Letter from Brian Nickel to Arthur Kleinrath, Review of M Building
Data Report, Draft (June 2000), dated September 12, 2000 (Attached)

Dear Mr. Provencher:

Attached please find a copy of the soil and groundwater analytical results from the original July 27, 2000 sampling of the M-38 sump and the September 12, 2000 resampling of the same. The resample groundwater results show that concentrations of Chromium and Nickel, for both the filtered and non-filtered samples, are below their respective MCLs. We believe that these sample results resolve the issues in the referenced letter.

If you have any questions concerning the results, please contact me at Ext. 4071 or Bob Ransbottom at Ext. 4220.

Sincerely,



C. D. Thompson
Project Manager, Main Hill Project

CDT/rcr/mlm
Attachments – as stated

cc: Tim Fischer, USEPA
Art Kleinrath, DOE/MEMP
Brian Nickel, OEPA
Dave Rakel, BWXTO
Bob Ransbottom, BWXTO
Rob Rothman, DOE/MEMP
Frank Schmaltz, DOE/MEMP
DCC
File

ANALYSIS RESULTS FROM M-38 SUMP SOIL AND WATER															
Analyte	Background Conc. Mg/kg	Guideline Value ⁽¹⁾ , mg/kg	Drinking Water (MCL ⁽²⁾) Value, mg/l	M Building Sump Pit for old plating shop - Sampled 7/27/00							M Building Sump Pit for old plating shop - Sampled 9/12/00				
				SOIL				WATER			Analyte mg/L	WATER			
				MSUMP1 mg/kg	MSUMP2 mg/kg	MSUMP3 mg/kg	MSUMP4 mg/kg	MSUMP5 mg/kg	MSUMP6 mg/kg	MSUMP-GW mg/L		M Sump Pit Unfilter 1	M Sump Pit Unfilter 2	M Sump Pit Filtered 1	M Sump Pit Filtered 2
Aluminum	19000			4,340	5,840	5,750	1,710	5,450	2,740	0.36	Aluminum	0.59	0.54	<0.10	0.15
Antimony		85	0.006	<9.6	<9.7	<9.9	<6.6	<9.8	<6.6	<0.10	Antimony	<0.10	<0.10	<0.10	<0.10
Arsenic	8.6	64	0.05	<13	11.8	<13	<6.6	14.3	7.8	<0.10	Arsenic	<0.10	<0.10	<0.10	<0.10
Barium	180	15,000	2.0	29.9	30.7	24.0	17.8	19.3	31.2	0.049	Barium	0.058	0.063	0.057	0.057
Beryllium	1.3	0.70	0.004	<0.5	<0.5	<0.5	<0.3	<0.5	<0.3	<0.005	Beryllium	<0.005	<0.005	<0.005	<0.005
Boron				20.7	52.5	19.5	6.9	17.7	10.1	0.311	Boron	0.101	0.107	0.116	0.109
Cadmium	2.1	210	0.005	9.9	<2.9	6.0	27.7	7	4.6	<0.030	Cadmium	<0.030	<0.030	<0.030	<0.030
Calcium				132,000	133,000	137,000	95,800	143,000	99,400	357	Calcium	243	251	248	247
Chromium	20	1,100	0.10	105	234	89.8	70.7	72.0	36.0	0.693	Chromium	<0.040	<0.040	<0.040	<0.040
Cobalt	19			7.1	4.3	5.8	5.4	13.6	3.2	<0.020	Cobalt	<0.020	<0.020	<0.020	<0.020
Copper	26		1.3	487	100	160	102	300	1,100	0.119	Copper	0.047	0.049	0.034	0.034
Iron	35000			10,300	8,150	11,500	4,740	12,100	5,430	0.80	Iron	0.62	0.83	<0.10	<0.10
Lead	48		0.015	207	34	50	47.8	59	21.6	<0.080	Lead	<0.080	<0.080	<0.080	<0.080
Magnesium				23,000	33,500	21,100	25,400	19,400	36,100	101	Magnesium	39.2	40.5	40.8	40.7
Manganese	1400	27,000		222	234	260	111	258	202	0.291	Manganese	0.095	0.1	0.072	0.074
Mercury		64	0.002	0.197	0.075	0.090	0.102	0.083	0.029	<0.0002	Mercury	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum				<1.9	<1.9	<2.0	<1.3	<2.0	<1.3	<0.020	Molybdenum	<0.020	<0.020	<0.020	0.02
Nickel	32	4,300	0.1	289	121	227	445	592	138	0.149	Nickel	0.026	0.027	0.018	0.019
Potassium				1,000	839	1420	380	1280	486	44.1	Potassium	56.9	59.1	60.2	60
Selenium			0.05	<13	<9.7	<13	<6.6	<13	<9.9	<0.10	Selenium	<0.10	<0.10	<0.10	<0.10
Silicon				625	477	1,520	309	675	485	5.59	Silicon	4.75	5.71	4.02	4.08
Silver	1.7	1,100		41.4	9	11	14.9	22.9	7.6	<0.040	Silver	<0.040	<0.040	<0.040	<0.040
Sodium				184	235	229	141	200	172	212	Sodium	230	238	244	243
Strontium				98	74	99	68.7	112	53.2	1.06	Strontium	1.02	1.05	1.07	1.07
Thallium	0.46		0.002	<48	<48	<50	<33	<49	<33	<0.50	Thallium	<0.50	<0.50	<0.50	<0.50
Tin				<190	<190	<200	<130	<200	<130	<2.0	Tin	<2.0	<2.0	<2.0	<2.0
Titanium				31	138	37	36.2	28.2	60.1	<0.020	Titanium	<0.020	0.037	<0.020	<0.020
Vanadium	25	1,500		<4.8	7.1	5.2	3.4	5.1	4.7	<0.050	Vanadium	<0.050	<0.050	<0.050	<0.050
Zinc	140	64,000		73.5	37.1	46	51	51.2	32.1	<0.050	Zinc	<0.050	<0.050	<0.050	<0.050
											Alkalinity, Total	38	36	40	48
											Chloride	279	281	276	284
											Sulfate	945	964	1030	882

(1) Most conservative value of either Hazard Index = 1 or 10⁻⁶ risk based guideline value of each contaminant reported for two possible scenarios:
On-Site Construction Worker or Commercial Office Worker as presented in Risk-Based Guideline Values, Mound Plant, DOE 1997.

(2) Maximum Contaminant Levels (MCLs) applicable to public water systems for inorganic contaminants per OAC 3745-81-11.

MSUMP 1 - Sample taken from last soil placed in LSA box
MSUMP 2 - Sample taken from bottom of excavation
MSUMP 3 to 6 - Samples taken from the 4 sides at the bottom of the excavation
MSUMP-GW from 7/27 was only tested unfiltered



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

Mr. Mike Grauwelman
President
Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Bldg. 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Grauwelman:

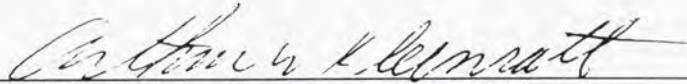
The M Building demolition and slab removal are complete. The Mound 2000 Core Team has reviewed the Building Data Package (BDP) for M Building, and the post-demolition sampling results which will be incorporated into the final Close Out (CO) report for M Building. The M Building BDP and Close Out report address four associated Potential Release Sites (PRSs) as follows:

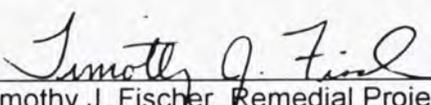
PRS 118 - M Building Soils
PRS 119 - Room M-38 Metal Plating Rinse Water Sump Tank (Tank 225)
PRS 120 - Room M-108 Metal Plating Rinse Water Tank (Tank 119)
PRS 121 - Vapor Degreaser

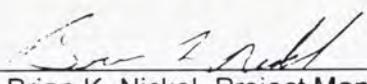
The Core Team understands that the M Building demolition was accomplished as a "construction" or non-CERCLA event, and the subject PRSs are classified as "D&D" or "Building Related" PRSs. The Core Team has determined that the PRSs have been adequately addressed through the demolition process. In addition, after reviewing the post-demolition soil sampling results, the Core Team has determined that the soil in the M Building area is protective of human health and the environment for an industrial use.

DOE reserves the right to install monitoring wells on the Main Hill, including the M Building area, for any future ground water investigation. If you have any questions, please contact Robert S. Rothman at (937) 865-3823.

Sincerely,

DOE/MEMP:  Sept 14 2000
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:  9/19/00
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:  9/19/00
Brian K. Nickel, Project Manager (date)

For BWXT Of Ohio internal use only.

Hierarchy For: Close Out Report for M Building

Document that directed this document be produced: *Work Plan For Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach, February 1999, Final.*

LEVEL 1
LAWS/REGULATIONS
(Imposed by Outside Authority)

LEVEL 2
AGREEMENTS

LEVEL 3
MOUND SITE-WIDE DOCUMENTS
(POLICY & GUIDANCE FROM BWXT Of Ohio)

LEVEL 4
ORGANIZATIONAL/OPERATIONS
DOCUMENTS

LEVEL 5
PROCEDURAL/INSTRUCTIONAL DOCUMENTS

LEVEL 6
REPORTS AND PERFORMANCE INDICATORS

Close Out Report