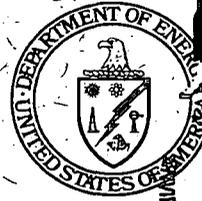


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**MOUND**



**Environmental  
Restoration  
Program**



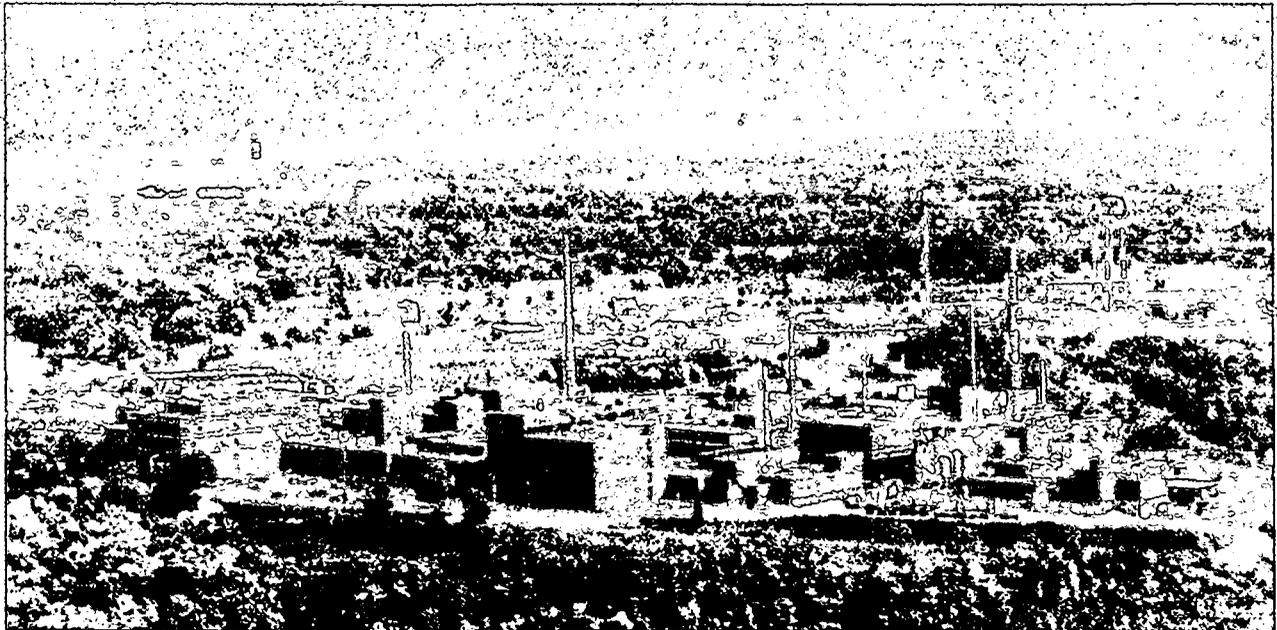
**OhioEPA**

# MIAMISBURG CLOSURE PROJECT

## Potential Release Site Package

### PRSS 31-36, 125, & 270

Public Review Draft  
November 2002



**MOUND**



Environmental  
Restoration  
Program

**MOUND PLANT  
POTENTIAL RELEASE  
SITE PACKAGE**

*Notice of Public Review Period*



The following Potential Release Site (PRS) package is available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Public comment on this document will be accepted 4 December 2002 through 3 January 2003.

**PRS 31-36, 125, and 270 : Underground Sanitary Sewer Lines**

Questions can be referred to Paul Lucas at (937) 865-4578.

### PRS 31-36, 125, & 270 Package Tracking Sheet

| REVISION               | DESCRIPTION  | DATE           |
|------------------------|--|----------------|
| Working Draft (to DOE) |  | August 2002    |
| Draft (to Core Team)   | No comments from USEPA. OEPA comment related to one B(a)P result exceeding $10^{-6}$ RBGV was addressed in the text. The PRSs were binned NFA on 18 November 2002. | September 2002 |
| Draft Proposed Final   | Revised text and recommendation page sent to Core Team on 19 November 2002. No USEPA or OEPA comments.   | November 2002  |
| Public Review Draft    |  | November 2002  |
| Final                  |  |                |

## **PRSs 31-36, 125, & 270**

### **Underground Sanitary Sewer Lines**

Lines G5, G12, G14 East, G14 West, (G19 & G14), G15, G24 & (G6 & 7)

#### **PRS HISTORY:**

Potential Release Sites (PRSs) 31-36, 125, and 270 were identified as PRSs as result of **breaks and/or separations** in Mound's **sanitary sewer lines** identified during a 1982 **video survey** of the lines. The concern was the potential release of contaminants into the environment from the identified breaks in the lines. Contaminants of concern for PRS 31-36, 125, and 270 identified in OU9 Volume 12 –Site Scoping Report (Reference 1) were plating shop solutions, laboratory chemicals, nitric acid, hydrochloric acid, methylene chloride, and strong acids and bases. A subsequent project **repaired these lines** by replacing them or by extruding a liner at the point of the breaks.

#### **CONTAMINATION:**

**Soil** (except PRS 125, see note below) around the former breaks in the sanitary sewer lines **was sampled** as part of the 1993 OU3 Miscellaneous Sites Limited Field Investigation (LFI Reference 2). Other than for benzo(a)pyrene, this investigation revealed no chemical contamination above  $10^{-6}$  Risk-Based Guideline Values (RBGVs). One benzo(a)pyrene result of 1.7 mg/kg ( $10^{-6}$  RBGV = 0.41 mg/kg) was reported at PRS 270. Radionuclides were not considered COCs in the investigation; however, soil screening was performed. The radiological data was not included in the report. The OU3 Miscellaneous Sites LFI Report recommended no further action involving site characterization or soil remediation at all of the underground sewer line grid locations listed as part of these PRSs.

PRSs 31 and 35 are located within a larger PRS (PRS 41) being further assessed for thorium-232 contamination. Soil in the vicinity of PRS 31 and PRS 35 contains thorium-232 above the screening level, but is attributed to PRS 41 (former thorium drum area) operations and not the sanitary lines. Other than data associated with PRS 41 activities, only one result above screening level was identified in a VistaMap/MEIMS query of subsurface soil in the vicinity of PRSs 31-36, 125, and 270. The result was of thorium-232 at 2.1 pCi/g (screening level of 1.47 pCi/g) that exists in the vicinity of PRS 270. All other data for the PRSs described herein are below applicable screening levels.

**Note about PRS 125:** Due to auger and split spoon refusal, the steepness of the topography, and the location of the underground utilities, no samples could be collected at the site of PRS 125. The recommendation of the OU3 Miscellaneous Sites LFI Report was that since the sewer lines contain or have contained materials similar to or identical to other OU3 LFI sewer lines, and the nature of the structural deficiencies in the sewer line was similar to other OU3 LFI sewer lines, it is reasonable to assume that soil has not been impacted by site activities and that further investigative activities would not be necessary.

**REFERENCES:**

- (1) Operable Unit 9 Site Scoping Report: Volume 12 – Site Summary Report, Final, December 1994
- (2) Operable Unit 3 – Miscellaneous Sites Limited Field Investigation Report, Final (Rev. 0), July 1993

Note: the following table of PAH screening levels is presented such that data provided in Reference 2 may be evaluated.

|                             | <b>Analyte</b>         | <b>10-6 RBGV<br/>or HI=1</b> |
|-----------------------------|------------------------|------------------------------|
| <b>PAH<br/>constituents</b> | Benzo(a)anthracene     | 4.1 mg/kg                    |
|                             | Benzo(a)pyrene         | 0.41 mg/kg                   |
|                             | Benzo(b)fluoranthene   | 4.1 mg/kg                    |
|                             | Benzo(k)fluoranthene   | 41.0 mg/kg                   |
|                             | Chrysene               | 410 mg/kg                    |
|                             | Dibenz(a,h)anthracene  | 0.41 mg/kg                   |
|                             | Indeno(1,2,3-cd)pyrene | 4.1 mg/kg                    |
|                             | Napthalene             | Not listed                   |

- (3) Figures

**PREPARED BY:**

Dennis Gault, BWXTO Soils Project Engineer  
Karen Arthur, BWXTO ER QA

# RECOMMENDATION

## PRS 31-36, 125, & 270 Package

Potential Release Sites (PRSs) 31-36, 125, and 270 were identified as PRSs as a result of breaks and/or separations in Mound's sanitary sewer lines, identified during a 1982 video survey of the lines. Radionuclides were not considered contaminants of concern. The concern was the potential release of non-radioactive contaminants into the environment from the identified breaks in the lines. A subsequent project repaired these lines by replacing them or by extruding a liner at the point of the breaks. Soil sampling was performed and results for all non-radioactive analytes were below  $10^{-5}$  Risk-Based Guideline Values.

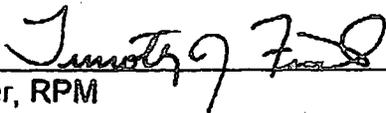
Therefore, the Core Team recommends No Further Assessment for PRSs 31-36, 125, and 270.



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Rob Rothman, OSC  
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11-27-02



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Environmental Restoration Program

**OPERABLE UNIT 9 SITE SCOPING REPORT:  
VOLUME 12 – SITE SUMMARY REPORT**

**MOUND PLANT  
MIAMISBURG, OHIO**

**December 1994**

**Final**

**U.S. Department of Energy  
Ohio Field Office**



**EG&G Mound Applied Technologies**

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| Description of History and Nature of Waste Handling |  |            |            |   |             | Hazardous Conditions and Incidents     |       |       | Environmental Data             |  |       |
|---|--|------------|------------|---|-------------|--|-------|-------|--------------------------------|--|-------|
| No.   | Site Name  | Location   | Status     | Potential Hazardous Substances  | Ref         | Releases                               | Media | Ref   | Analytes*                      | Results  | Ref   |
| 30  | Building 27 Diesel Fuel Storage Tank (Tank 123) (AKA Building 27 Propane Tank) | G-6        | Inactive   | Tank is actually above ground   | 3           |  |       |       | Not Applicable                 |  |       |
| 31  | Underground Sanitary Sewer Line G5   | H-5        | In service | Organic solvents  | 5, 18       |  |       | 7, 18 | 3, 4, 5, 6, 10, 11, 12, 14, 16 | Tables B.6, B.7, and B.8   | 7     |
| 32  | Underground Sanitary Sewer Line G12  | F-8<br>G-8 |            | Plating solutions, Laboratory chemicals<br><br>Nitric acid, Hydrochloric acid<br><br>Methylene chloride<br><br>Strong acids and bases |             | Suspected, not confirmed               | S     | 2, 7  | 3, 4, 5, 6, 10, 11, 12, 14, 16 | Tables B.6, B.7, B.8, and B.9  | 7     |
| 33  | Underground Sanitary Sewer Line G14 EAST                                       | H-5<br>H-6 |            |   |             |  |       |       |                                |  |       |
| 34  | Underground Sanitary Sewer Line G14 WEST                                       | H-5<br>H-6 |            |   |             |  |       |       |                                |  |       |
| 35  | Underground Sanitary Sewer Lines G19 & G14                                     | G-5        |            |   |             |  |       |       |                                |  |       |
| 36  | Underground Sanitary Sewer Line G15  | E-9        |            |   |             |  |       |       |                                |  |       |
| 37  | Building 51 Waste Solvent Storage Tank (Tank 220)                              | F-8        | Historical | Organic solvents, Paints, Waste oils  | 3, 4, 5, 18 | Tank Removed 1991, VOC residuals       | S     | 4, 23 | 3, 4, 5, 6, 8                  | Tables B.6, B.7 and B.8  | 7, 23 |
| 38  | Building 51 Waste Incinerator  | F-8        | Historical | Contaminants listed under Bldg. 51 Waste Solvent Storage Tank (Tank 220)  | 4, 5        |  | A     | 4     | No Data                        |  |       |
| 39  | Building 51 Waste Incinerator Scrubber   | F-8        | Historical | Combustion products from Bldg. 51 Waste Incinerator   | 4, 5        | Water released to plant drainage ditch | SW    | 4     | No Data                        |  |       |
| 40  | Building 66 Lot  | F-8        | Grounds    | Plutonium-238 from unknown source   | 6           | Plutonium-238                          | S     | 6     | 13                             | Table B.1<br>RSS <sup>c</sup> Location S0323<br>(Appendix E in Ref. 6) | 6     |

| Description of History and Nature of Waste Handling |  |            |            |   |             | Hazardous Conditions and Incidents   |       |       | Environmental Data    |   |             |
|---|--|------------|------------|---|-------------|--------------------------------------|-------|-------|-----------------------|---|-------------|
| No.   | Site Name  | Location   | Status     | Potential Hazardous Substances  | Ref         | Releases                             | Media | Ref   | Analytes <sup>a</sup> | Results   | Ref         |
| 118   | M Building Soils                                     | E-7        | Grounds    | Copper cyanide, Silver cyanide<br><br>Machine oils, Solvents  | 4           | Oils, Copper cyanide, Silver cyanide | S     | 10    | 1<br><br>14           | SGS <sup>b</sup><br>Table B.4 Locations 1050, 1051, 1062<br><br>Table B.9<br>RSS <sup>c</sup> Locations S0162, S0163, S0252<br>(Appendix E in Ref. 6) | 12<br><br>6 |
| 119   | Room M-38 Metal Plating Rinse Water Sump (Tank 225)  | E-7        | Surplus    | Rinse waters from metal plating operations. Possible contaminants include nickel, cadmium, silver, gold, manganese, cyanide, and aluminum.<br><br>Sodium hydroxide solution<br>Potassium permanganate | 3, 4        | None Suspected                       |       |       | No Data               |   |             |
| 120   | Room M-108 Metal Plating Rinse Water Tank (Tank 119) | E-7        | In service | Rinse waters from metal plating operations. copper, gold, silver, nickel, aluminum, and uranium   | 3, 4        | Silver cyanide                       | SW    | 10    | No Data               |   |             |
| 121   | Vapor Degreasers                                     | E-7        | In service | Perclene D (perchloroethylene)  | 4, 5, 18    | None Suspected                       |       |       | No Data               |   |             |
| 122   | Underground Radioactive Waste Lines (Main Hill)      | E-6<br>F-6 | Inactive   | Alpha wastes from SW Bldg., R Bldg., and H Bldg.<br><br>Wastewater from B Building<br>Plutonium-238, Cobalt-60  | 4, 18       | Suspected                            | S     | 4, 10 | No Data               |   |             |
| 123   | Area 5, Radioactive Waste Line Break                 | F-6<br>F-7 | Grounds    | Cobalt-60, Cesium-137, Plutonium-238  | 1, 5, 18    | Cobalt-60                            | S     | 1, 18 | 2, 14, 16             | Table B.1<br>(Table III.3 in Ref. 6)  | 6           |
| 124   | Building 48 Hillside                                 | F-6        | Inactive   | Plutonium-238   |             | Plutonium-238                        | S     | 6     | 14                    | Table B.1   | 6           |
| 125   | Underground Sanitary Sewer Line G24                  | F-6        | In service | Organic solvents, Plating Solutions, Laboratory chemicals, Nitric acid, Hydrochloric acid, Methylene chloride, Strong acids and bases   |             | Suspected                            | S     | 5, 18 | 3, 4, 5, 6, 14, 16    | Tables B.6, B.7, and B.8  | 7           |
| 126   | Building 28 Solvent Storage Area                     | E-8        | Grounds    | Organic solvents (including alcohol, methylene chloride, and acetone)   | 4, 5, 9, 18 | Suspected                            | S     | 4     | 1                     | SGS <sup>b</sup><br>Table B.4 Location 1054   | 12          |

| Description of History and Nature of Waste Handling |   |            |            |  |             | Hazardous Conditions and Incidents        |       |       | Environmental Data                |                                 |     |
|---|---|------------|------------|--|-------------|---|-------|-------|-----------------------------------|---------------------------------|-----|
| No.   | Site Name   | Location   | Status     | Potential Hazardous Substances   | Ref         | Releases                                  | Media | Ref   | Analytes <sup>a</sup>             | Results                         | Ref |
| 264   | Explosive Waste Storage Bunker (Magazine 53)            | I-7        | In service | Classified, non-explosive wastes<br><br>Explosion residuals (primarily aluminum residuals)<br><br>Contaminants listed under Explosive Waste Storage Bunker (Magazine 53)<br><br>Detonators, Detonating cord, Thermite, Pyrotechnic powders, Primary explosives<br><br>High explosive powder, PETN, PBX, RDX, HMX, HNS, CP<br><br>HNS (hexanitrostilbene) | 4, 5, 18    | None Suspected                            |       |       | No Data                           |                                 |     |
| 265   | Biodegradation Unit                                     | I-7        | Inactive   | Soapy wastewater containing explosives constituents  | 4, 5, 18    | Suspected                                 | S     | 7, 18 | See Pyrotechnic Waste Shed        |                                 | 4   |
| 266   | Area 8, Thorium-Contaminated Soils from Areas 1 and 9   | F-9        | Grounds    | Thorium-232, Plutonium-238   | 1, 4, 5, 18 | Thorium                                   | S     | 4, 6  | 14, 15, 16                        | Table B.1 (Table V.3 in Ref. 6) | 6   |
| 267   | Area 9, Thorium Storage and Redrumming Area             | F-9<br>G-9 | Grounds    | Plutonium-238, Thorium<br><br>Thorium sludge constituents (c)  | 1, 4, 5, 18 | Thorium                                   | S     | 4, 6  | 14                                | Table B.1 (Table V.4 in Ref. 6) | 6   |
| 268   | Building 31, Contaminated Material Storage Building     | F-9        | In service | Plutonium-238<br><br>Thorium<br><br>Tritium  | 4<br><br>3  | None Suspected                            |       |       | See Area 9                        | Table B.9                       | 6   |
| 269   | Building 36 Historic Gasoline Tanks (Tanks 239 and 240) | G-10       | Historical | Gasoline   | 3           | No information on when tanks were removed |       |       | No Data                           |                                 |     |
| 270   | Underground Sanitary Sewer Lines G6 & G7                | G-10       | In Service | Organic solvents, plating solutions, laboratory chemicals, nitric acid, hydrochloric acid, methylene chloride, strong acids and bases  | 4           | Suspected VOCs                            | S     | 4     | 3, 4, 5, 6, 9, 10, 11, 12, 13, 16 | Tables B.6, B.7, B.8, and B.9   | 7   |
| 271   | Building 37 Sanitary Waste Tank (Tank 100)              | F-10       | In service | Sanitary wastes  | 3, 4        | None Suspected                            |       |       | No Data                           |                                 |     |

- 1 - Soil Gas Survey - Freon 11, Freon 113, Trans-1,2-Dichloroethylene, Cis-1,2-Dichloroethylene, 1,1,1-Trichloroethane, Perchloroethylene, Trichloroethylene, Toluene
- 2 - Gamma Spectroscopy - Thorium-228, -230, Cobalt-60, Cesium-137, Radium-224, -226, -228, Americium-241, Actinium-227, Bismuth-207, Bismuth-210m, Potassium-40
- 3 - Target Analyte List
- 4 - Target Compound List (VOC)
- 5 - Target Compound List (SVOC)
- 6 - Target Compound List (Pesticides/Polychlorinated Biphenyl)
- 7 - Dioxins/Furans
- 8 - Extractable Petroleum Hydrocarbons (EPH)/Total Petroleum Hydrocarbons (TPH)
- 9 - Lithium
- 10 - Nitrate/Nitrite
- 11 - Chloride
- 12 - Explosives
- 13 - Plutonium-239
- 14 - Plutonium-238, Thorium-232
- 15 - Cobalt-60, Cesium-137, Radium-226, Americium-241
- 16 - Tritium

#### Reference List

1. DOE 1986
2. DOE 1992a
3. DOE 1992c
4. DOE 1993a
5. EPA 1988a
6. DOE 1993d
7. DOE 1993c
8. DOE 1992d
9. Fentiman 1990
10. DOE 1992f
11. Styron and Meyer 1981
12. DOE 1993b
13. DOE 1993d
14. DOE 1991b
15. Halford 1990
16. DOE 1993e
17. DOE 1990
18. DOE 1992a
19. Rogers 1975
20. DOE 1992h
21. Dames and Moore 1976a, b
22. DOE 1992i
23. DOE 1992j
24. DOE 1994
25. EG&G 1994

| No. | Site Name  | Location | Status             | Operational Jurisdiction                       |                      |                | SWMU | Historic Activities |                    | Further Action Recommended | FFA OU |
|-----|--|----------|--------------------|--|----------------------|----------------|------|---------------------|--------------------|----------------------------|--------|
|     |  |          |                    | Regulated Units                                | Regulatory Authority | Spill Response |      | Evidence Of Release | Response Authority |                            |        |
| 17  | Oil Burn Structure   | H-6      | Inactive           |  | NA                   |                | SWMU | Yes                 | CERCLA             | Yes                        | 5      |
| 18  | Building 34, Fire Fighting Training Facility Pits                                  | H-5      | Inactive           | Permit for open burn by RAPCA                  | CAA                  |                | SWMU | Yes                 | CERCLA             | Yes                        | 5      |
| 19  | Building 34, Historical Firefighting Training Pit                                  | H-5      | Historical         |  | NA                   |                | SWMU | Yes                 | CERCLA             | Yes                        | 5      |
| 20  | Building 34 Aviation Fuel Storage Tank (Tank 219)                                  | H-5      | Historical         |  |                      | FFA            | SWMU | Yes <sup>b</sup>    | CERCLA             | No                         | 5      |
| 21  | Building 1 Leach Pit (Area I)  | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 22  | Building 1 Explosives Wastewater Settling Basin (AKA Building 1 Sump) (Tank 200)   | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 23  | Building 43 Explosives Wastewater Settling Basin (AKA Building 43 Sump) (Tank 201) | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 24  | Building 43 Solvent Storage Tank (Tank 221)  | G-6      | Never Used removed |  | NA                   |                |      | No                  | NA                 | No                         |        |
| 25  | Building 27 Leach Pit (Area I)   | H-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 26  | Building 27 Concrete Flume (Tank 217)  | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 27  | Building 27 Settling Sump (Tank 218)   | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 28  | Building 27 Solvent/Drum Storage Area  | G-6      | Surplus            |  | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 29  | Building 27 Filtration System  | G-6      | Inactive           | Included in RCRA Part B permit application     | RCRA                 | RCRA           | SWMU | No                  | NA                 | OM                         |        |
| 30  | Building 27 Diesel Fuel Storage Tank (Tank 123) (actually a propane tank)          | G-6      | Inactive           |  | NA                   |                |      | No                  | NA                 | No                         |        |
| 31  | Underground Sanitary Sewer Line G5   | H-5      | In service         | Effluent to wastewater treatment (Building 57) | CWA                  | AEA            | SWMU | No                  | NA                 | OM                         |        |
| 32  | Underground Sanitary Sewer Line G12  | F-8      |                    |  |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 33  | Underground Sanitary Sewer Line G14 EAST   | H-5 H-6  |                    |  |                      |                | SWMU | No                  | NA                 | OM                         |        |

| No. | Site Name  | Location   | Status     | Operational Jurisdiction                          |                      |                | SWMU | Historic Activities |                    | Further Action Recommended | FFA OU |
|-----|--|------------|------------|---|----------------------|----------------|------|---------------------|--------------------|----------------------------|--------|
|     |  |            |            | Regulated Units                                   | Regulatory Authority | Spill Response |      | Evidence Of Release | Response Authority |                            |        |
| 34  | Underground Sanitary Sewer Line<br>G14 WEST                          | H-5 H-6    | (Cont.)    | (Cont.)   | (Cont.)              | (Cont.)        | SWMU | No                  | NA                 | OM                         |        |
| 35  | Underground Sanitary Sewer Lines<br>G19 & G14                        | G-5        |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 36  | Underground Sanitary Sewer Line<br>G15                               | E-9        |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 37  | Building 51 Waste Solvent<br>Storage Tank (Tank 220)                 | F-8        | Historical |   | NA                   |                | SWMU | Yes                 | CERCLA             | Yes                        | 5      |
| 38  | Building 51 Waste Incinerator  | F-8        | Historical |   | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 39  | Building 51 Waste Incinerator<br>Scrubber                            | F-8        | Historical |   | NA                   |                | SWMU | No                  | CERCLA             | No                         | 5      |
| 40  | Building 66 Lot  | F-8        | Grounds    |   | AEA                  | AEA            |      | Yes                 | AEA                | D&D                        |        |
| 41  | Area 3, Thorium Drum Storage<br>and Redrumming Area                  | G-5<br>H-5 | Grounds    |   | AEA                  | AEA            |      | Yes                 | CERCLA             | Yes                        | 5      |
| 42  | Area A, Construction Soils from T<br>Building                        | H-5        | Grounds    |   | AEA                  | AEA            |      | Yes <sup>c</sup>    | CERCLA             | No                         | 5      |
| 43  | Wastewater Treatment plant<br>Building 57<br>Grit Chamber (Tank 101) |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 44  | Building 57 Grit Conveyor  |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 45  | Building 57 Comminuter (Tank<br>102)                                 |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 46  | Building 57 Equalization Basin<br>(Tank 103)                         | H-5        | In service | Effluent permitted<br>to discharge under<br>NPDES | CWA                  | AEA            | SWMU | No                  | NA                 | OM                         |        |
| 47  | Building 57 Equalization Basin<br>(Tank 104)                         |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 48  | Building 57 Equalization Basin<br>(Tank 105)                         |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 49  | Building 57 Equalization Basin<br>(Tank 106)                         |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |
| 50  | Building 57 Aeration Basin (Tank<br>107)                             |            |            |   |                      |                | SWMU | No                  | NA                 | OM                         |        |

| No. | Site Name   | Location | Status     | Operational Jurisdiction                       |                      |                | SWMU | Historic Activities |                    | Further Action Recommended | FFA OU |
|-----|---|----------|------------|--|----------------------|----------------|------|---------------------|--------------------|----------------------------|--------|
|     |   |          |            | Regulated Units                                | Regulatory Authority | Spill Response |      | Evidence Of Release | Response Authority |                            |        |
| 336 | Building 37 Waste Tank (AKA Low Risk Waste Tank (Tank 267)) | F-10     | In Service | effluent to wastewater treatment (Building 57) | CWA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 337 | Building H Condensate Sump (Tank 268)                       | E-6      | In Service |  | CWA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 338 | Building 29 Septic Tank (Tank 270)                          | E-9      | Inactive   |  | AEA                  | AEA            |      | No                  | CERCLA             | No                         | 5      |
| 339 | T-44 Wastewater Sump (Tank 250)                             | F-7      | Historical |  | NA                   | NA             |      | No                  | AEA                | D&D                        |        |
| 340 | T-16b Wastewater Sump (Tank 251)                            | F-7      | Historical |  | NA                   | NA             |      | No                  | AEA                | D&D                        |        |
| 341 | T-90 Condensate Sump (Tank 269)                             | F-7      | In Service |  | CWA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 342 | T-1 Hot Side Fire Water Tank (Tank 271)                     | F-7      | In Service |  | AEA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 343 | T-20 Fire Water Sump (Tank 272)                             | F-7      | In Service |  | AEA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 344 | T-37 Fire Water Sump (Tank 273)                             | F-7      | In Service |  | AEA                  | AEA            |      | No                  | NA                 | OM                         |        |
| 345 | Area C, Former Equipment Storage Area                       | H-6      | Historical |  | NA                   |                |      | No                  | CERCLA             | No                         | 5      |

AEA - Atomic Energy Act of 1954

AKA - Also known as

BUSTR - Bureau of underground storage tank regulation

CAA - Clean Air Act

CWA - Clean Water Act

D&D - Action to be taken by Mound Plant Decommission and Decontamination Program

FUSRAP - Formerly Utilized Sites Remedial Action Program

HWMU - Hazardous waste management unit

NA - Not applicable

<sup>a</sup> - Highest plutonium-238 concentration 31.4 pCi/g.

<sup>b</sup> - Tank closed August 1992 (DOE 1992i).

<sup>c</sup> - To be included as part of Area 3 (#41) investigation.

<sup>d</sup> - Actual location unknown, maintained non-public water supply source under SDWA.

<sup>e</sup> - Five gallon release less than reportable quantity. (RQ)

NESHAP - National Emission Standard for Hazardous Air Pollutants

NPDES - Nation Pollution Discharge Elimination System

OM - Action to be taken by Mound Plant operations and maintenance

PBR - permit by rule

RAPCA - Regional Air Pollution Control Authority

RCRA - Resources Conservation and Recovery Act

SDWA - Safe Drinking Water Act

SWMU - Solid waste Management unit



**Table B.6 - Target Compound List - VOC (a,b)**

| SITE NAME   | Acetone | 2-Butanone | Toluene | Benzene | Ethyl Benzene | Xylenes | 1,2-Dichloroethane | Methylene Chloride | Perchloroethylene | 2-Hexanone | 4-Methyl-2-Pentanone | Trichloroethene | 1,1,2-Trichloroethane | Carbon Disulfide | 1,1,1-Trichloroethane | Chloroform | Freon 11 | Freon 113 | 1,1-Dichloroethane | Bromo-dichloromethane | Bromoform | Reference |   |
|---|---------|------------|---------|---------|---------------|---------|--------------------|--------------------|-------------------|------------|----------------------|-----------------|-----------------------|------------------|-----------------------|------------|----------|-----------|--------------------|-----------------------|-----------|-----------|---|
| 283. Area 1. Bulk Transfer of Thorium Drums (AKA Plutonium Recoverable Waste Storage) | 98      |            | 10      |         |               |         |                    |                    |                   |            |                      |                 |                       |                  |                       | 24         |          |           |                    |                       |           |           | 8 |
| 285. Area 11, Contamination from SM Building Operations                               | 23      | ND         | ND      | ND      | ND            | 6       | ND                 | ND                 | ND                | ND         | ND                   | ND              | ND                    | ND               | 41                    | ND         | ND       | ND        | ND                 | ND                    | ND        |           | 8 |
| 286. Area 16, SM Building Sanitary Sewers Septic Tank/Leach Basin                     |         |            |         |         |               |         |                    | 38                 |                   |            |                      |                 |                       |                  | 6                     | 11         |          |           |                    |                       |           |           | 8 |
| 288. Area 17, SM Building Soils   |         |            |         |         |               |         |                    |                    |                   |            |                      | 21              |                       |                  | 19                    | 10         |          |           |                    |                       |           |           | 8 |
| 300. Area 19, Underground Waste Transfer Line   |         | 13         |         |         |               |         |                    |                    |                   |            |                      |                 |                       |                  |                       |            |          |           |                    |                       |           |           | 8 |
| 302. Area 19, Acid Leach Field  | ND      | ND         | ND      | ND      | ND            | ND      | ND                 | ND                 | ND                | ND         | ND                   | ND              | ND                    | ND               | ND                    | ND         | ND       | ND        | ND                 | ND                    | ND        | ND        | 8 |
| 314. Farm Trash Area  | ND      | ND         | ND      | ND      | ND            | ND      | ND                 | ND                 | ND                | ND         | ND                   | ND              | ND                    | ND               | ND                    | ND         | ND       | ND        | ND                 | ND                    | ND        | ND        | 7 |

- (a) - All units reported in mg/Kg unless noted otherwise.
- (b) - No soil gas data results are presented.
- (c) - Unit of measure is ug/Kg.
- (d) - No volatile organic constituents were detected in the canal. See reference 16.
- (e) - Note deleted in revision.
- (f) - This site is the same as Site #19.
- (g) - Unit of measure in g/kg
- ND - Not detected.
- Blank - Not analyzed for.

- References:
- 7) DOE 1993c
  - 8) DOE 1992d
  - 15) Halford 1990
  - 16) DOE 1993e
  - 18) DOE 1992a
  - 22) DOE 1992i
  - 24) DOE 1994



**Table B.7. Target Compound List - SVOC, P/PCB, PAH, and EPH (a)**

| SITE NAME   | SVOC | Polycyclic Aromatic Hydrocarbons (PAH) |              |            |              |        |              |             |                      |                    |                        |          | Pesticides, Polychlorinated Biphenyls |       |           |        |                                 |          | EPH & TPH          |                                  |                            |           |
|---|------|--|--------------|------------|--------------|--------|--------------|-------------|----------------------|--------------------|------------------------|----------|---------------------------------------|-------|-----------|--------|---------------------------------|----------|--------------------|----------------------------------|----------------------------|-----------|
|   |      | Bis(2-ethylhexyl)phthalate             | Acenaphthene | Anthracene | Phenanthrene | Pyrene | Fluoranthene | Benzopyrene | Benzo(a)fluoranthene | Benzo(a)anthracene | Indeno(1,2,3-CD)pyrene | Chrysene | Benzo(g,h,i)perylene                  | PCBs  | Chlordane | Endrin | Alpha,Beta,Delta, BHC (Lindane) | Dieldrin | 4,4'-DDT, 4,4'-DDE | Extractable Petrol. Hydrocarbons | Total Petrol. Hydrocarbons | Reference |
| 261. Trash Burner   | ND   | ND                                     | ND           | ND         | ND           | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 7         |
| 270. Underground Sewer Lines G6 and G7  | 0.89 | ND                                     | ND           | 3.0        | 3.2          | 5.2    | 1.7          | 1.5         | 1.9                  | 1.3                | 2.2                    | 1.3      | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 7         |
| 279. Old Firing Range Drum Storage Area   | 4.2  | 6.8                                    | 15           | 73         | 83           | 98     | 35           | 59          | 43                   | 23                 | 55                     | 19       | 0.56                                  | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 7         |
| 280. Waste Oil Drum Field Area  | 6.5  | ND                                     | 2.8          | 11         | 9.7          | 11     | 3.6          | 2.8         | 4.2                  | 1.9                | ND                     | 2.1      | 1.15                                  | 0.098 | 0.023     | ND     | ND                              | ND       | ND                 | ND                               | 1500                       | 7         |
| 283. Area 1, Bulk transfer of Thorium drums (AKA Plutonium recoverable waste storage) | ND   | ND                                     | ND           | ND         | ND           | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 285. Area 11, Contamination from SM Building Operations                               | 4700 | ND                                     | ND           | ND         | 5000         | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | 39        | 50     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 286. Area 16, SM Building sanitary sewage septic tank/leach field                     | ND   | ND                                     | ND           | ND         | ND           | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 288. Area 17, SM Building soils   | ND   | ND                                     | ND           | ND         | ND           | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 300. Area 19, underground waste transfer line   |      |  | 900          | 790        | 900          | 1,000  |              |             |                      |                    |                        |          |                                       |       |           |        |                                 |          |                    |                                  |                            | 8         |
| 302. Area D, Acid Leach Field   |      |  |              |            |              |        |              |             |                      |                    |                        |          |                                       |       | 20        | 12     |                                 |          |                    |                                  |                            | 8         |
| 314. Farm Trash Area  | ND   | ND                                     | ND           | ND         | ND           | ND     | ND           | ND          | ND                   | ND                 | ND                     | ND       | ND                                    | ND    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 7         |

(a) - All units are reported in mg/Kg unless noted otherwise.  
 (b) - Additional data on other analytes are available in reference 16.  
 (c) - This site is the same as Site #19.  
 (d) - Groundwater data. Unit of measure is mg/L.  
 (e) - Unit of measure is g/Kg

References:  
 7) DOE 1933c -  
 8) DOE 1992d  
 15) Halford 1990  
 16) DOE 1993e  
 18) DOE 1992a  
 24) DOE 1994



**Table B.8. Target Analyte List (TAL) - Inorganics<sup>(a)</sup>**

| SITE NAME                                     | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chloride | Chromium | Cobalt | Copper | Lead | Manganese | Nickel | Nitrate | Nitrite | Silver | Thallium | Zinc | Cyanide | Lithium | Mercury | Vanadium | Reference |
|---|----------|---------|--------|-----------|---------|----------|----------|--------|--------|------|-----------|--------|---------|---------|--------|----------|------|---------|---------|---------|----------|-----------|
| 300: Area 19, Underground Waste Transfer Line |          | 10.3    | 521    | 1.1       | 4.3     |          | 19.8     | 18.6   | 17.2   | 15.1 | 1,500     | 43.0   |         |         | 4.2    |          | 349  |         |         |         | 20.7     | 8         |
| 302: Area D, Acid Leach Field                 |          | 11.7    | 564    | 1.8       | 5.5     |          | 21       | 20.1   | 20.4   | 25.7 | 545       | 41.1   |         |         | 3.9    |          | 342  |         |         | 0.79    | 26.3     | 8         |
| 314: Farm Trash Area                          | 42.4     | 5.9     | 32.4   | 0.71      | 7.7     |          | 30.5     | 8.5    | 18     | 10.1 | 306       | 25.8   |         |         | 17     | ND       | 40.4 | 0.38    |         | ND      | 24.2     | 7         |

- (a) - All units are reported in mg/Kg unless otherwise noted.
- (b) - Additional data on other analytes are available in reference #19.
- (c) - this site is the same as Site #19.
- (d) - Groundwater data. Unit of measure is mg/L.

ND - Not detected.  
 NA - Not analyzed for.

- References:
- 7) DOE 1993c
  - 8) DOE 1992d
  - 15) Halford 1990
  - 16) DOE 1993e
  - 18) DOE 1992a
  - 24) DOE 1994



Table B.9. Summary of Radiological Data<sup>(a,b)</sup>

| Site Name  | Radiological Contaminants |               |               |            |               |         |             |           |                        |           |               |              |                         |              | Reference |             |
|--|---------------------------|---------------|---------------|------------|---------------|---------|-------------|-----------|------------------------|-----------|---------------|--------------|-------------------------|--------------|-----------|-------------|
|  | Potassium-40              | Plutonium-239 | Plutonium-238 | Cesium-137 | Thorium-Total | Tritium | Thorium-232 | Cobalt-60 | Radium-224, -226, -228 | Radon-222 | Americium-241 | Actinium-227 | Uranium-233, -234, -238 | Bismuth-210m |           | Bismuth-207 |
| 308. Site Survey Project Potential Hot Spot Location C0028 |                           |               | 11.4          |            | 109.          |         |             |           |                        |           |               |              |                         |              |           | 6           |
| 309. Site Survey Project Potential Hot Spot Location S0307 |                           |               | 5.36          |            | 6.46          |         |             |           |                        |           |               |              |                         |              |           | 6           |
| 310. Site Survey Project Potential Hot Spot Location S0647 |                           |               |               | 270        |               |         |             | 1.3       |                        |           |               |              |                         |              |           | 6           |
| 311. Site Survey Project Potential Hot Spot Location S0706 |                           |               | 28.9          |            |               |         |             |           |                        |           |               |              |                         |              |           | 6           |
| 312. Site Survey Project Potential Hot Spot Location S0971 |                           |               | 0.15          |            | 5.02          | 2       |             |           |                        |           |               |              |                         |              |           | 6           |
| 313. Site Survey Project Potential Hot Spot Location S0982 |                           |               | 0.43          |            | 14.94         |         |             |           |                        |           |               |              |                         |              |           | 6           |
| 314. Farm Trash Area                                       |                           |               | 0.02          |            |               |         | <2          |           |                        |           |               |              |                         |              |           | 7           |
| 319. Epoxy Resin Disposal                                  |                           |               |               |            |               |         |             |           |                        |           |               |              |                         |              |           | 7           |

(a) - All units are reported in pCi/g unless otherwise noted.

(b) - Blank spaces implies not sampled.

(c) - Additional data on other analytes are available in reference 16.

(d) - Groundwater data. Unit of measure is pCi/L.

(e) - This site is the same as Site #19.

(f) - Groundwater data. Unit of measure is nCi/L.

LDL - Lower Detection Limit.

ND<sub>x</sub> - Not detected.

NA - Not analyzed for.

NR - No result reported.

References:

6) DOE 1993d

7) DOE 1993c

11) Styron and Meyer 1981

13) DOE 1993d

18) DOE 1992a

24) DOE 1994



Table B.7. Target Compound List - SVOC, P/PCB, PAH, and EPH (a)

| SITE NAME   | SVOC                       | Polycyclic Aromatic Hydrocarbons (PAH) |            |              |        |              |             |                   |                 |                        |          |                      | Pesticides, Polychlorinated Biphenyls |           |        |                                   |          |                    | EPH & TPH                        |                            |           |    |
|---|----------------------------|--|------------|--------------|--------|--------------|-------------|-------------------|-----------------|------------------------|----------|----------------------|---------------------------------------|-----------|--------|-----------------------------------|----------|--------------------|----------------------------------|----------------------------|-----------|----|
|   | Bis(2-ethylhexyl)phthalate | Acenaphthene                           | Anthracene | Phenanthrene | Pyrene | Fluoranthene | Benzopyrene | Benzofluoranthene | Benzoanthracene | Indeno(1,2,3-CD)pyrene | Chrysene | Benzo(g,h,i)perylene | PCBs                                  | Chlordane | Endrin | Alpha, Beta, Delta, BHC (Lindane) | Dieldrin | 4,4'-DDT, 4,4'-DDE | Extractable Petrol. Hydrocarbons | Total Petrol. Hydrocarbons | Reference |    |
| 95. Main Hill Seep 0605 (d)                                       |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            | 18        |    |
| 97. Main Hill Seep 0607 (d)                                       |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            |           | 18 |
| 98. Main Hill Seep 0608 (d)                                       |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            |           | 18 |
| 112. Paint Shop Area  | 1.7                        | ND                                     | ND         | 0.83         | 1.3    | 1.3          | 0.35        | 0.75              | 0.51            | ND                     | 0.73     | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 |                                  |                            | 7         |    |
| 114-117. Powerhouse Area Fuel Tanks (Tanks 113, 114, 115, 116)    | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 | 48000                            |                            | 7         |    |
| 125. Underground Sanitary Sewer Line G24                          |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            | 7         |    |
| 159. Area 4A, Sewage Sludge Drying Pits                           |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            | 8         |    |
| 172. WDA Building Basement Wash Sump (AKA Glass Melter Room Sump) | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 | ND                               |                            | 7         |    |
| 174. WD Building Drum Staging Area                                | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 |                                  |                            | 7         |    |
| 175. Area 4, WD Building Influent Tank Overflow                   |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           |        |                                   |          |                    |                                  |                            | 8         |    |
| 176. Area 14, Radioactive Waste Line Break                        | 4,800                      |  |            |              | 2,800  |              |             |                   |                 |                        |          |                      |                                       |           |        | 13.0                              |          | 2754               |                                  |                            | 8         |    |
| 258. Area H Open Burn Pit (AKA Pyrotechnic Waste Disposal Area)   | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 |                                  |                            | 7         |    |
| 259. Pyrotechnic Waste Shed                                       | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 |                                  |                            | 7         |    |
| 260. Thermal Treatment Unit                                       | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                                | ND       | ND                 |                                  |                            | 7         |    |

**Table B.7. Target Compound List - SVOC, P/PCB, PAH, and EPH (a)**

| SITE NAME   | SVOC                       | Polycyclic Aromatic Hydrocarbons (PAH) |            |              |        |              |             |                   |                 |                        |          |                      | Pesticides, Polychlorinated Biphenyls |           |        |                                 |          |                    | EPH & TPH                        |                            |           |
|---|----------------------------|--|------------|--------------|--------|--------------|-------------|-------------------|-----------------|------------------------|----------|----------------------|---------------------------------------|-----------|--------|---------------------------------|----------|--------------------|----------------------------------|----------------------------|-----------|
|   | Bis(2-ethylhexyl)phthalate | Acenaphthene                           | Anthracene | Phenanthrene | Pyrene | Fluoranthene | Benzopyrene | Benzofluoranthene | Benzoanthracene | Indeno(1,2,3-CD)pyrene | Chrysene | Benzo(g,h,i)perylene | PCBs                                  | Chlordane | Endrin | Alpha,Beta,Delta, BHC (Lindane) | Dieldrin | 4,4'-DDT, 4,4'-DDE | Extractable Petrol. Hydrocarbons | Total Petrol. Hydrocarbons | Reference |
| 261. Trash Burner   | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                              | ND       | ND                 |                                  |                            | 7         |
| 270. Underground Sewer Lines G6 and G7  | 0.89                       | ND                                     | ND         | 3.0          | 3.2    | 5.2          | 1.7         | 1.5               | 1.9             | 1.3                    | 2.2      | 1.3                  | ND                                    | ND        | ND     | ND                              | ND       | ND                 |                                  |                            | 7         |
| 279. Old Firing Range Drum Storage Area   | 4.2                        | 6.8                                    | 15         | 73           | 83     | 98           | 35          | 59                | 43              | 23                     | 55       | 19                   | 0.56                                  | ND        | ND     | ND                              | ND       | ND                 |                                  |                            | 7         |
| 280. Waste Oil Drum Field Area  | 6.5                        | ND                                     | 2.8        | 11           | 9.7    | 11           | 3.6         | 2.8               | 4.2             | 1.9                    | ND       | 2.1                  | 1.15                                  | 0.098     | 0.023  | ND                              | ND       | ND                 | 1500                             | 7                          |           |
| 283. Area 1. Bulk transfer of Thorium drums (AKA Plutonium recoverable waste storage) | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 285. Area 11. Contamination from SM Building Operations                               | 4700                       | ND                                     | ND         | ND           | 5000   | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | 39     | 50                              | ND       | ND                 | ND                               | ND                         | 8         |
| 286. Area 16. SM Building sanitary sewage septic tank/leach field                     | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 288. Area 17. SM Building soils   | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                              | ND       | ND                 | ND                               | ND                         | 8         |
| 300. Area 19. underground waste transfer line   |                            |  | 900        | 790          | 900    | 1,000        |             |                   |                 |                        |          |                      |                                       |           |        |                                 |          |                    |                                  |                            | 8         |
| 302. Area D. Acid Leach Field   |                            |  |            |              |        |              |             |                   |                 |                        |          |                      |                                       |           | 20     | 12                              |          |                    |                                  |                            | 8         |
| 314. Farm Trash Area  | ND                         | ND                                     | ND         | ND           | ND     | ND           | ND          | ND                | ND              | ND                     | ND       | ND                   | ND                                    | ND        | ND     | ND                              | ND       | ND                 |                                  |                            | 7         |

- (a) - All units are reported in mg/Kg unless noted otherwise.
- (b) - Additional data on other analytes are available in reference 16.
- (c) - This site is the same as Site #19.
- (d) - Groundwater data. Unit of measure is mg/L.
- (e) - Unit of measure is g/Kg

- References:
- 7) DOE 1933c
  - 8) DOE 1992d
  - 15) Halford 1990
  - 16) DOE 1993e
  - 18) DOE 1992a
  - 24) DOE 1994



**Table B.8. Target Analyte List (TAL) - Inorganics<sup>(a)</sup>**

| SITE NAME   | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chloride | Chromium | Cobalt | Copper | Lead | Manganese | Nickel | Nitrate | Nitrite | Silver | Thallium | Zinc   | Cyanide | Lithium | Mercury | Vanadium | Reference |
|---|----------|---------|--------|-----------|---------|----------|----------|--------|--------|------|-----------|--------|---------|---------|--------|----------|--------|---------|---------|---------|----------|-----------|
| 159. Area A4 WD building sewage sludge drying pits                                    |          | 18.6    |        |           |         |          |          |        |        | 105  |           |        |         |         |        |          |        |         |         |         |          | 8         |
| 172. WDA Building Basement Wash Sump (Tank 11) (AKA Glass Melter Room Sump) (4)       | ND       | ND      | 0.0062 | ND        | ND      |          | ND       | ND     | 0.0157 | ND   | 0.0079    | ND     |         |         | ND     | ND       | 0.0757 | ND      |         | ND      | ND       | 7         |
| 174. WD Building Drum Staging Area  | 26.9     | 3.3     | 127    | 0.67      | 4.7     |          | 163      | 9.8    | 36.2   | 123  | 639       | 71.6   |         |         | 14.8   | ND       | 126    | ND      |         | ND      | 19.5     | 7         |
| 175. Area 4, WD building influent tank overflow                                       |          | 7.6     | 465    | 1.2       | 7.5     |          |          | 13.6   | 13.3   | 27.2 | 565       |        |         |         |        |          | 303    |         |         |         | 20.2     | 8         |
| 176. Area 14, radioactive waste line break  |          | 6.2     | 623    | 1.3       | 7.2     |          |          | 19.9   |        |      |           | 46.7   |         |         | 4.0    |          |        |         |         | 0.91    | 22.3     | 8         |
| 258. Area H Open Burn Pit (AKA Pyrotechnic Waste Disposal Area)                       | 44.5     | 9.1     | 13.9   | 1.8       | 11.7    | ND       | 31.3     | 15.2   | 38.7   | 23.7 | 982       | 44.1   | 54.8    | ND      | 20.4   | ND       | 91.2   | 0.32    |         | 1.4     | 35.7     | 7         |
| 259. Pyrotechnic Waste Shed   | 25.1     | 8.6     | 89.1   | 1.7       | 4       |          | 37       | 11.6   | 27.5   | 15   | 538       | 27.9   |         |         | 20.8   | ND       | 72.1   | 1.7     |         | 0.32    | 33.1     | 7         |
| 260. Thermal Treatment Unit   | 29.7     | 11.4    | 117    | 2.3       | 5.7     |          | 32.2     | 14     | 240    | 220  | 8,190     | 154    |         |         | 17.7   | 0.65     | 80.9   | 0.45    |         | 0.31    | 40       | 7         |
| 261. Trash Burner   | 5.7      | 19.5    | 82.7   | 2.2       | 1.1     |          | 15.3     | 11.4   | 1,100  | 15.4 | 290       | 14.8   |         |         | 3.7    | ND       | 463    | ND      |         | ND      | 31.9     | 7         |
| 270. Underground Sewer Lines G6 and G7  | 32.3     | 7.1     | 58.8   | 1.4       | 7.9     | 121.3    | 25.1     | 9      | 63.2   | 39.1 | 562       | 22.7   | 129     | 5.02    | 16.7   | ND       | 288    | ND      | ND      | ND      | 20.9     | 7         |
| 279. Old Firing Range Drum Storage Area   | 39.2     | 7.5     | 90.4   | 0.98      | 10.2    |          | 28.9     | 14.2   | 25.2   | 31.3 | 698       | 25.6   |         |         | 18.6   | ND       | 754    | 0.62    |         | 0.04    | 27       | 7         |
| 280. Waste Oil Drum Field Area  | 13.6     | 19.2    | 116    | 0.91      | 1.8     |          | 29.9     | 13.5   | 29.7   | 35.2 | 688       | 33.7   |         |         | 17     | ND       | 73.4   | 8.9     |         | 1.0     | 35       | 7         |
| 283. Area 1, Bulk Transfer of Thorium Drums (AKA Plutonium Recoverable Waste Storage) |          | 10.9    | 604    | 1.9       | 8.1     |          | 34.8     | 17.7   | 18.5   | 45.0 |           | 796    |         |         | 4.4    |          | 825    |         |         | 1.4     | 33.4     | 8         |
| 285. Area 11, Contamination from SM Building Operations                               |          | 5.3     | 481    | 1.3       | 8.0     |          | 17.8     | 13.8   | 12.9   | 15.7 |           | 39.9   |         |         |        |          |        |         |         |         | 26.1     | 8         |
| 286. Area 16, SM Building Sanitary Sewage Septic Tank/Leach Field                     |          | 6.5     | 491    | 1.6       | 5.0     |          |          | 16.6   | 14.5   | 41.7 | 440       | 39     |         |         | 2.8    |          | 327    |         |         | 0.24    | 22.2     | 8         |
| 288. Area 17, SM Building soils   |          | 9.6     |        | 1.1       | 9.6     |          | 19.0     | 16.8   | 18.1   | 27.0 |           | 31.7   |         |         | 3.2    |          |        |         |         |         |          | 8         |



## Reference 2

ENVIRONMENTAL RESTORATION PROGRAM

**OPERABLE UNIT 3 – MISCELLANEOUS SITES  
LIMITED FIELD INVESTIGATION REPORT  
VOLUME I  
SECTIONS 1-6**

**MOUND PLANT  
MIAMISBURG, OHIO**

July 1993

DEPARTMENT OF ENERGY

ENVIRONMENTAL RESTORATION PROGRAM  
EG&G MOUND APPLIED TECHNOLOGIES

**FINAL  
(REVISION 0)**

## 2. STUDY AREA INVESTIGATION

This section provides a summarized history of each investigation area, including potential area contaminants. Field investigation procedures are also summarized in this section for each investigation area and include sample specifications, figures showing each sample location, and a summary of deviations from the approved sampling protocol.

Field activities for the OU 3 LFI followed the approved protocol as documented in the OU 3 Work Plan and the Quality Assurance Project Plan (QAPP) and included the ER Program Standard Operating Procedures (SOPs). All soil, sediment, and surface water samples collected during the OU 3 LFI were field screened for VOCs and radioactivity. Surface water samples were field tested for a number of additional parameters as documented in the OU 3 Work Plan. Additional field parameters were collected at each sample area as detailed in the OU 3 Work Plan, QAPP, and Health and Safety Plan. The results of the field screening program were used to guide sampling activities and sample collection. Individual field screening results for each sample collected are not included in this report.

Prior environmental samples were collected for analysis from the Area H Thermal Treatment Unit, the Waste Oil Drum Field, and the Farm Trash Area during the 1987 DOE Environmental Survey. However, the results of this study were not available for inclusion into the OU 3 LFI report.

Three OU 3 investigation sites are included in the RCRA Part B Permit Application (DOE 1993). Additional activities may be performed as part of the RCRA work at the Area H Thermal Treatment Unit, the glass melter room thermal treatment unit, and the Building 27 filtration system. The details of the RCRA activities have not been incorporated into this report.

Sample designation for the OU 3 LFI involved five types of quality assurance/quality control (QA/QC) samples. The QA/QC sample type and nomenclature is presented below:

MND33 (OU 3 designation) - 0000 (sample location) - 0000 (sample ID number)

| <u>Sample Type</u>     | <u>Nomenclature</u> |
|------------------------|---------------------|
| Field Duplicates       | MND33-0000-1000     |
| Trip Blanks            | MND33-0000-2000     |
| Sample Bank Blanks     | MND33-0000-3000     |
| Equipment Blanks       | MND33-0000-4000     |
| Field (Ambient) Blanks | MND33-0000-5000     |

The sample locations are shown in Figure 2.24. The soils encountered during sampling ranged from a brown gravelly sandy to clayey silt, to a coarse angular gravel. Groundwater was not encountered during sampling activities. A summary of soil samples collected at each location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.23.

No known deviations from the approved project protocol occurred during soil sampling activities at the Farm Trash Area.

## **2.25. UNDERGROUND SEWER LINES GRID G5**

Mound Plant engineering drawings of sewer lines are organized by grid blocks. Therefore, the sampling of soils adjacent to lines at multiple locations was differentiated by the grid designations of the lines.

A TV-screening survey was performed by Mound Plant personnel in 1987 on all of the underground sewer lines to identify sections of sewer lines needing repair or replacement. If a sewer line was found to be damaged or broken and it was decided that the line would be repaired instead of replaced, a fiberglass-like material (insitu form) was used to repair the line. For each repair, a sleeve of the fiberglass-like material was driven into the pipe by adding pressurized water to the line. This forced the material to conform and adhere to the pipe side wall. Sampling locations were chosen adjacent to previously identified breaks, even if they have since been repaired.

### **2.25.1. Site History**

#### **2.25.1.1. Description of the Underground Sewer Lines Grid G5**

The underground sewer lines in Grid G5 are used to convey sanitary wastewater from the Plant sites to the sewage disposal building area (Building 57). The sewer lines in this grid area are constructed of 8-inch vitrified clay pipe and 8-inch ductile iron pipe.

#### **2.25.1.2 Potential Area Contaminants**

Sanitary wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines may include one or more of the following; restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents,

photographic solutions, acids, and bases. Based on the site history, it is not possible to determine if the system has received RCRA-regulated materials or to determine which listings are applicable.

Past releases from the underground sewer lines caused by leakage from broken pipes have been documented. In previous investigations of the sewer system, pipe and joint breaks, misalignments, cracks, sags, and obstructions were found.

### **2.25.2. Field Investigation Procedures**

The objective of sampling adjacent to the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. WESTON representatives conducted sampling activities at the Underground Sewer Lines Grid G5 area on 9 December 1991 and 14 February 1992. Soil samples were collected by hollow stem auger drilling techniques from one interval near two manhole locations. Power auger/hand auger borings were attempted at two locations but were unsuccessful at reaching the desired sampling interval and a laboratory sample was not collected. All samples were shipped to IT Laboratories for analysis.

Sample locations are shown on Figure 2.25. The soils encountered during drilling ranged from a dark gray-brown, coarse to fine sandy silt to a pale olive clayey silt with little to no sand. Groundwater was not encountered during drilling. A summary of soil samples collected at this location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.24.

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations is presented below:

- MND33-0080-0001 — Interval 1.5 to 3.5 ft BGS. Sample from two boreholes was necessary to obtain the required sample volume. One split spoon was obtained at the required interval from each borehole.
- MND33-0081-0001 — Interval 5.5 to 7.5 ft BGS. Sample from two boreholes was necessary to obtain the required sample. One split spoon was obtained at the required interval from each borehole.
- MND33-0137-0001 — Interval 5.5 to 7.5 ft BGS. No sample was taken because of the inability to reach the required sample depth.
- MND33-0138-0001 — Interval 5.5 to 7.5 ft BGS. No sample was taken because of the inability to reach the required sample depth.

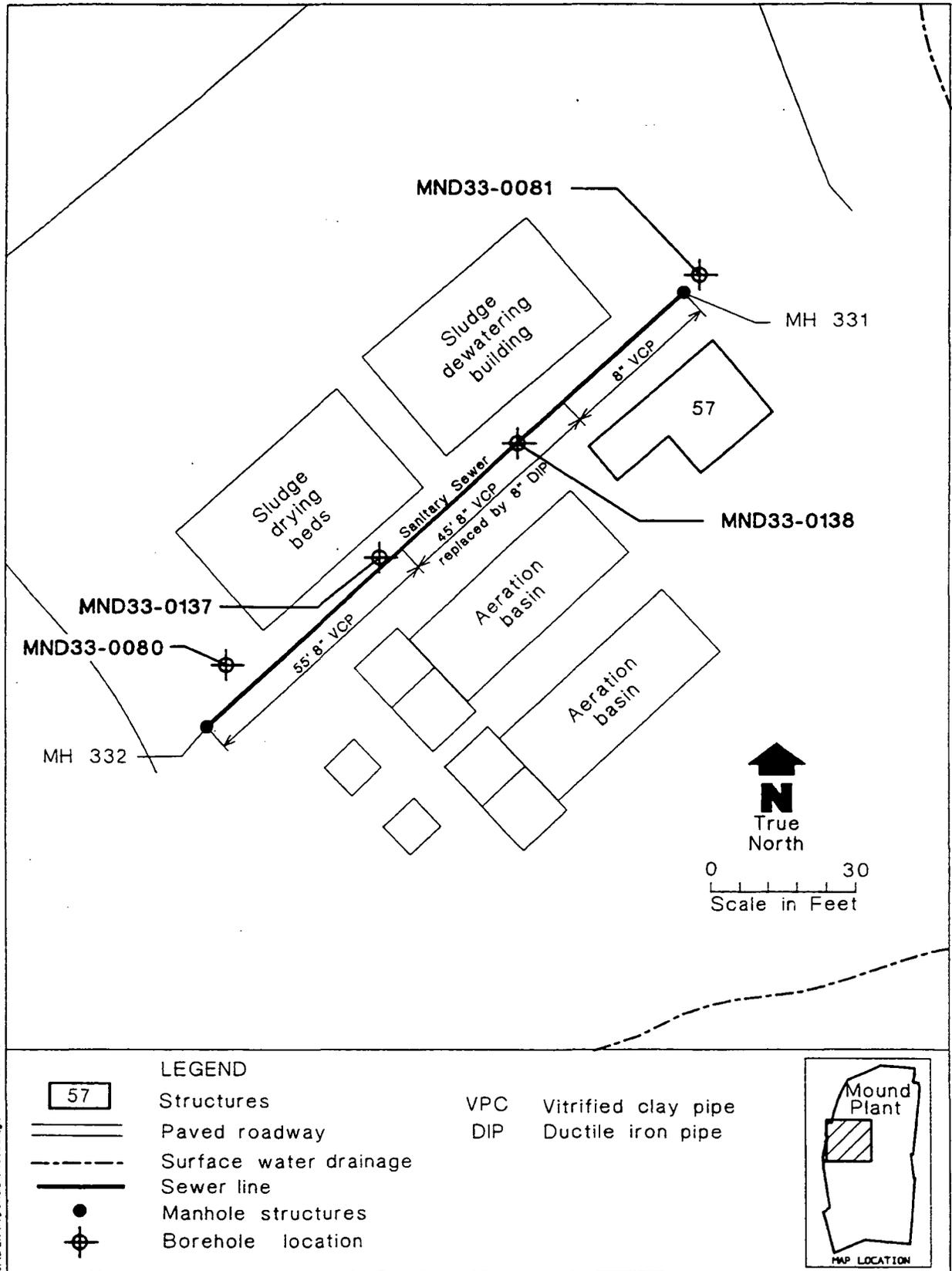


Figure 2.25. Underground Sewer Lines Grid G5 soil sample locations.

**Table II.24. Underground Sewer Lines Grid G5 Sample Summary**

| Sample Location | Sample Number             | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed   |
|-----------------|---------------------------|--------|--------------|--------------------------|---|
| MND33-0080      | MND33-0080-0001           | Soil   | 12/09/91     | 1.5-3.5                  | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates. |
| MND33-0081      | MND33-0081-0001           | Soil   | 12/09/91     | 5.5-7.5                  | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates. |
| MND33-0137      | No samples were collected |        |              |                          |   |
| MND33-0138      | No samples were collected |        |              |                          |   |

BGS – Below Ground Surface

ft – Feet

P/PCBs – Pesticides/Polychlorinated Biphenyls

SVOCs – Semivolatile Organic Compounds

TAL – Target Analyte List

TCL – Target Compound List

VOCs – Volatile Organic Compounds

## **2.26. UNDERGROUND SEWER LINES GRIDS G6 AND G7**

### **2.26.1. Site History**

#### **2.26.1.1. Description of the Underground Sewer Lines Grids G6 and G7**

The underground sewer lines in Grids G6 and G7 are used to convey sanitary wastewater from the Plant sites to the sewage disposal building area (Building 57). The sewer lines in these grids are constructed of either 6- or 8-inch vitrified clay pipe, as well as some sections of 8-inch PVC pipe.

#### **2.26.1.2. Potential Area Contaminants**

Sanitary wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines may include one or more of the following; restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on the site history, it is not possible to determine if the system has received RCRA-regulated materials or to determine which listings are applicable.

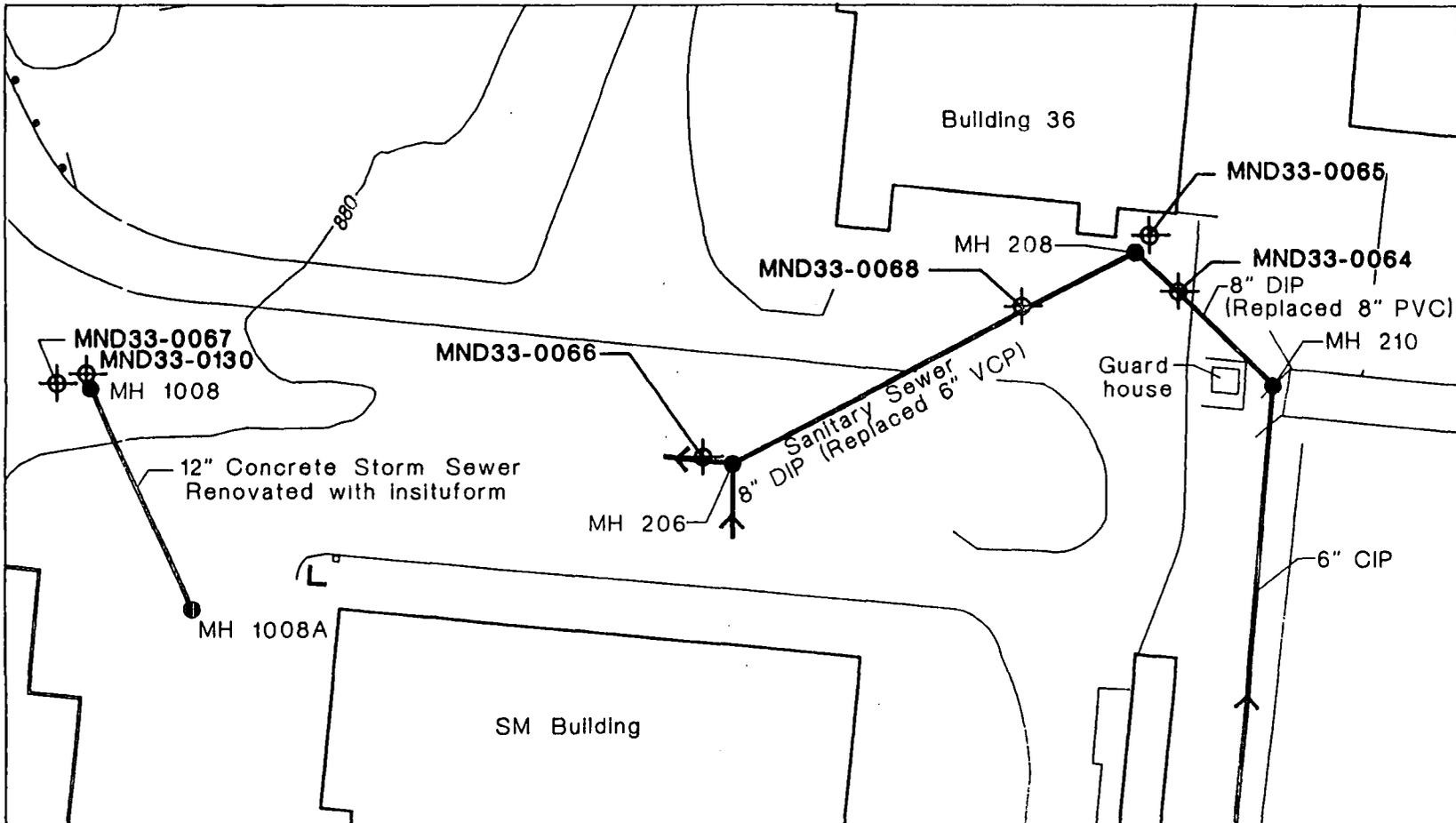
Past releases from the underground sewer lines caused by leakage from broken pipes have been documented. In previous investigations of the sewer system, pipe and joint breaks, misalignments, cracks, sags, and obstructions were found.

#### **2.26.2. Field Investigation Procedures**

The objective of sampling adjacent to the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. WESTON representatives conducted sampling activities at the Underground Sewer Lines Grids G6 and G7 area on 21 and 22 November 1991 and 5 February 1992. Soil samples were collected by hollow stem auger drilling techniques from one interval at four locations. A sediment sample was collected from inside the sewer line at manhole no. 1008 at Grid G7 using a stainless steel scoop. All samples were shipped to IT Laboratories for analysis.

The sample locations for Grids G6 and G7 are shown on Figure 2.26. The soils encountered during drilling consisted of a pale brown, coarse to fine gravelly sandy silt. Bedrock was encountered in some of the boreholes at depths ranging from 4.0 to 6.0 ft BGS, as determined by auger and split spoon refusal. Groundwater was not encountered during drilling. A summary of soil samples collected at this location

264123  
 457 15907\1501\0101\1501\1501



LEGEND

- |  |                    |     |                     |
|--|--------------------|-----|---------------------|
|  | Structures         | VCP | Vitrified clay pipe |
|  | Paved roadway      | DIP | Ductile Iron pipe   |
|  | Sewer line         | CIP | Cast Iron pipe      |
|  | Manhole structures |     |                     |
|  | Sample location    |     |                     |

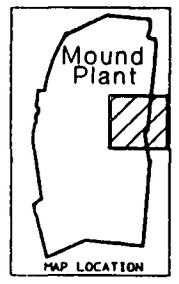
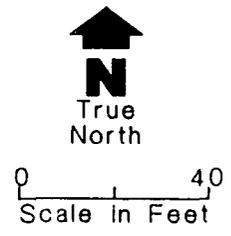


Figure 2.26. Underground sewer lines Grid G6 and Grid G7 soil sample locations.

listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.25.

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations is presented below:

- MND33-0064-0001 — Interval 4.0 to 8.0 ft BGS. Additional sample material from the 6.0- to 8.0-ft split spoon was necessary to obtain the required sample volume.
- MND33-0065-0001 — Interval 4.5 to 8.0 ft BGS. Additional sample material from the 6.0- to 8.0-ft split spoon was necessary to obtain the required sample volume for TCL VOCs only. Insufficient soil was recovered to collect soil for the remainder of the requested analytical parameters and insufficient area was available to place an additional borehole for additional recovery.
- MND33-0066-0001 — Interval 4.0 to 6.0 ft BGS. Two boreholes were attempted. No sample was collected because of insufficient recovery.
- MND33-0067-0001 — Interval 8.0 to 10.0 ft BGS. Two 8.0- to 10.0-ft split spoon samples, from two boreholes, were necessary to obtain the required volume for TCL VOCs only. There was insufficient recovery to collect remainder of sample.
- MND33-0068-0001 — Interval 4.5 to 8.5 ft BGS. Two 4.5- to 8.5-ft split spoon samples, from two boreholes, were necessary to obtain the required sample volume.

## **2.27. UNDERGROUND SEWER LINES GRID G12**

### **2.27.1. Site History**

#### **2.27.1.1. Description of the Underground Sewer Lines Grid G12**

The underground sewer line in Grid G12 is used to convey sanitary wastewater from the Plant sites to the sewage disposal building area (Building 57). The sewer lines in this grid are constructed of 8-inch-diameter vitrified clay pipe and 8-inch-diameter PVC pipe.

#### **2.27.1.2. Potential Area Contaminants**

Sanitary wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines may include one or more of the following; restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-

Table II.25. Underground Sewer Lines Grids G6 and G7 Sample Summary

| Sample Location | Sample Number   | Matrix   | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|----------|--------------|--------------------------|--|
| MND33-0064      | MND33-0064-0001 | Soil     | 11/21/91     | 4.0-8.0                  | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
| MND33-0065      | MND33-0065-0001 | Soil     | 11/21/91     | 4.5-8.0                  | TCL VOCs.  |
| MND33-0066      | MND33-0066-0001 | Soil     | 11/21/91     | 4.0-6.0                  | Insufficient recovery, no sample collected.  |
| MND33-0067      | MND33-0067-0001 | Soil     | 11/22/91     | 8.0-10.0                 | TCL VOCs.  |
| MND33-0068      | MND33-0068-0001 | Soil     | 11/22/91     | 4.5-8.5                  | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0068-5001 | Water    | 11/22/91     | ---                      | TCL VOCs.  |
| MND33-0130      | MND33-0130-0001 | Sediment | 02/05/92     | ---                      | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0130-1001 | Sediment | 02/05/92     | ---                      | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |

BGS - Below Ground Surface

ft - Feet

P/PCBs - Pesticides/Polychlorinated Biphenyls

SVOCs - Semivolatile Organic Compounds

TAL - Target Analyte List

TCL - Target Compound List

VOCs - Volatile Organic Compounds

refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on the site history, it is not possible to determine if the system has received RCRA-regulated materials or to determine which listings are applicable.

Past releases from the underground sewer lines caused by leakage from broken pipes have been documented. In previous investigations of the sewer system, pipe and joint breaks, misalignments, cracks, sags, and obstructions were found.

#### **2.27.2. Field Investigation Procedures**

The objective of sampling adjacent to the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. WESTON representatives conducted sampling activities at the Underground Sewer Lines Grid G12 area on 15 February 1992. Soil samples were collected using hollow stem auger drilling techniques from one interval at a single location near monitor well 0111. All samples collected by WESTON were shipped to IT Laboratories for analysis.

The sample location is shown on Figure 2.27. A summary of soil samples collected at this location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.26.

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations is presented below:

- MND33-0139-0001 — Interval 20.0 to 24.0 ft BGS. Additional sample material from the 22.0- to 24.0-ft BGS split spoon was necessary to obtain the required sample volume for the sample and duplicate.

### **2.28. UNDERGROUND SEWER LINES GRID G14 WEST**

#### **2.28.1. Site History**

##### **2.28.1.1. Description of the Underground Sewer Lines Grid G14 West**

The underground sewer lines in Grid G14 West are used to convey sanitary wastewater from the Plant sites to the sewage disposal building area (Building 57). The sewer lines in this grid are constructed of 6-inch and 8-inch-diameter vitrified clay pipe.

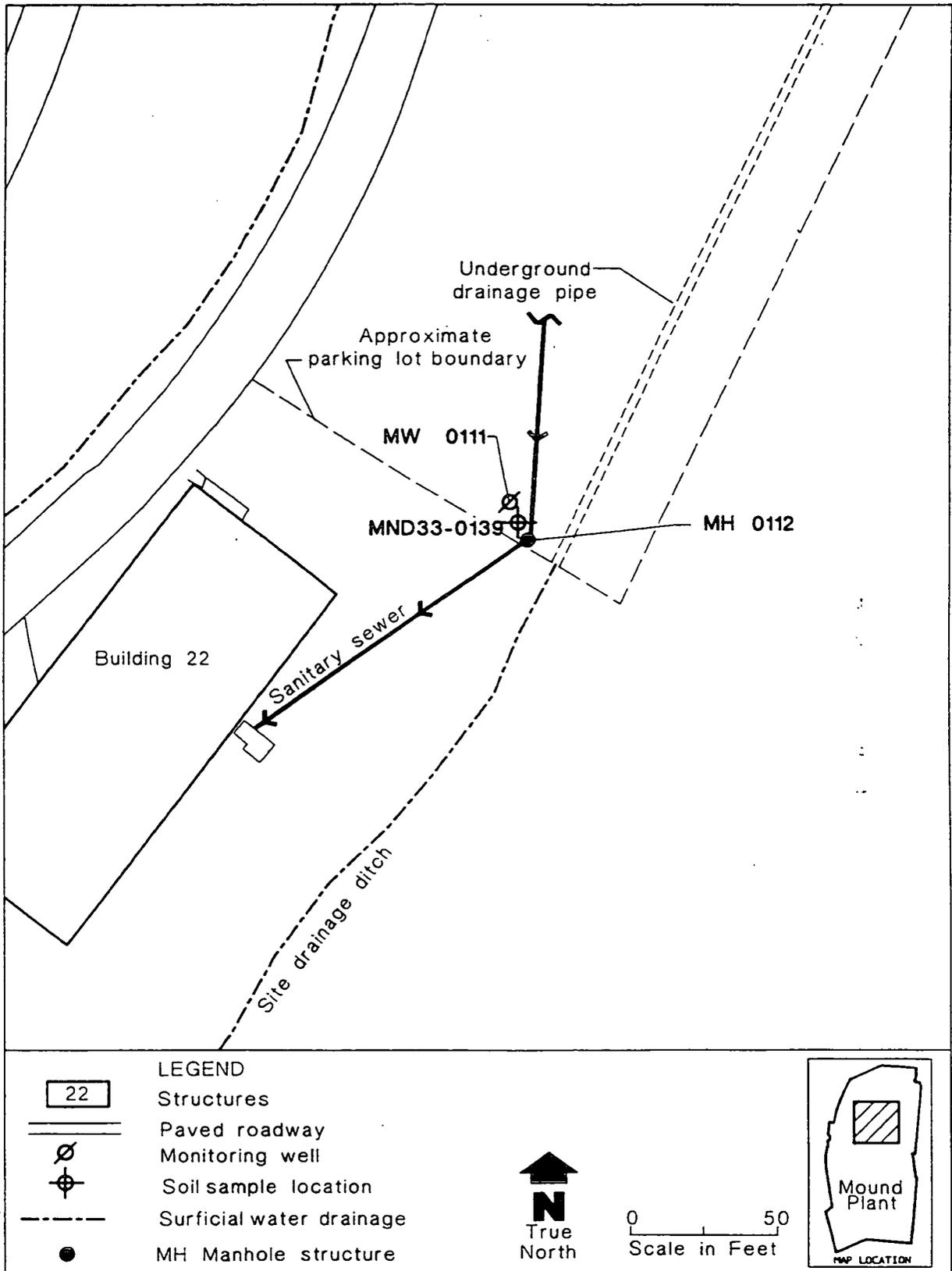


Figure 2.27. Underground sewer lines Grid G12 soil sample locations.

**Table II.26. Underground Sewer Lines Grid G12 Sample Summary**

| Sample Location | Sample Number   | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|--------|--------------|--------------------------|--|
| MND33-0139      | MND33-0139-0001 | Soil   | 02/15/92     | 20.0-24.0                | TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0139-1001 | Soil   | 02/15/92     | 20.0-24.0                | TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; explosives; chloride; nitrites/nitrates; tritium. |

BGS – Below Ground Surface

ft – Feet

P/PCBs – Pesticides/Polychlorinated Biphenyls

SVOCs – Semivolatile Organic Compounds

TAL – Target Analyte List

TCL – Target Compound List

VOCs – Volatile Organic Compounds

### **2.28.1.2. Potential Area Contaminants**

Sanitary wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines may include one or more of the following; restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-finishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on the site history, it is not possible to determine if the system has received RCRA-regulated materials or to determine which listings are applicable.

Past releases from the underground sewer lines caused by leakage from broken pipes have been documented. In previous investigations of the sewer system, pipe and joint breaks, misalignments, cracks, sags, and obstructions were found.

### **2.28.2. Field Investigation Procedures**

The objective of sampling adjacent to the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. WESTON representatives conducted sampling activities at the Underground Sewer Lines Grid G14 West area on 1 July 1991. Soil samples were collected by hollow stem auger drilling techniques from one interval at one location. All samples were shipped to IT Laboratories for analysis.

The Grid G14 West sample location is shown on Figure 2.28. The soils encountered during drilling consisted of a silty clay, with some sand and gravel. Groundwater was not encountered during drilling. A summary of soil samples collected at this location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.27.

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations is presented below:

- The boring location was moved from its original location approximately 2.0 ft southeast because of auger refusal at 7.0 ft BGS. Additional split spoons were collected from 12.0 to 15.0 ft BGS in order to obtain sufficient sample volume.

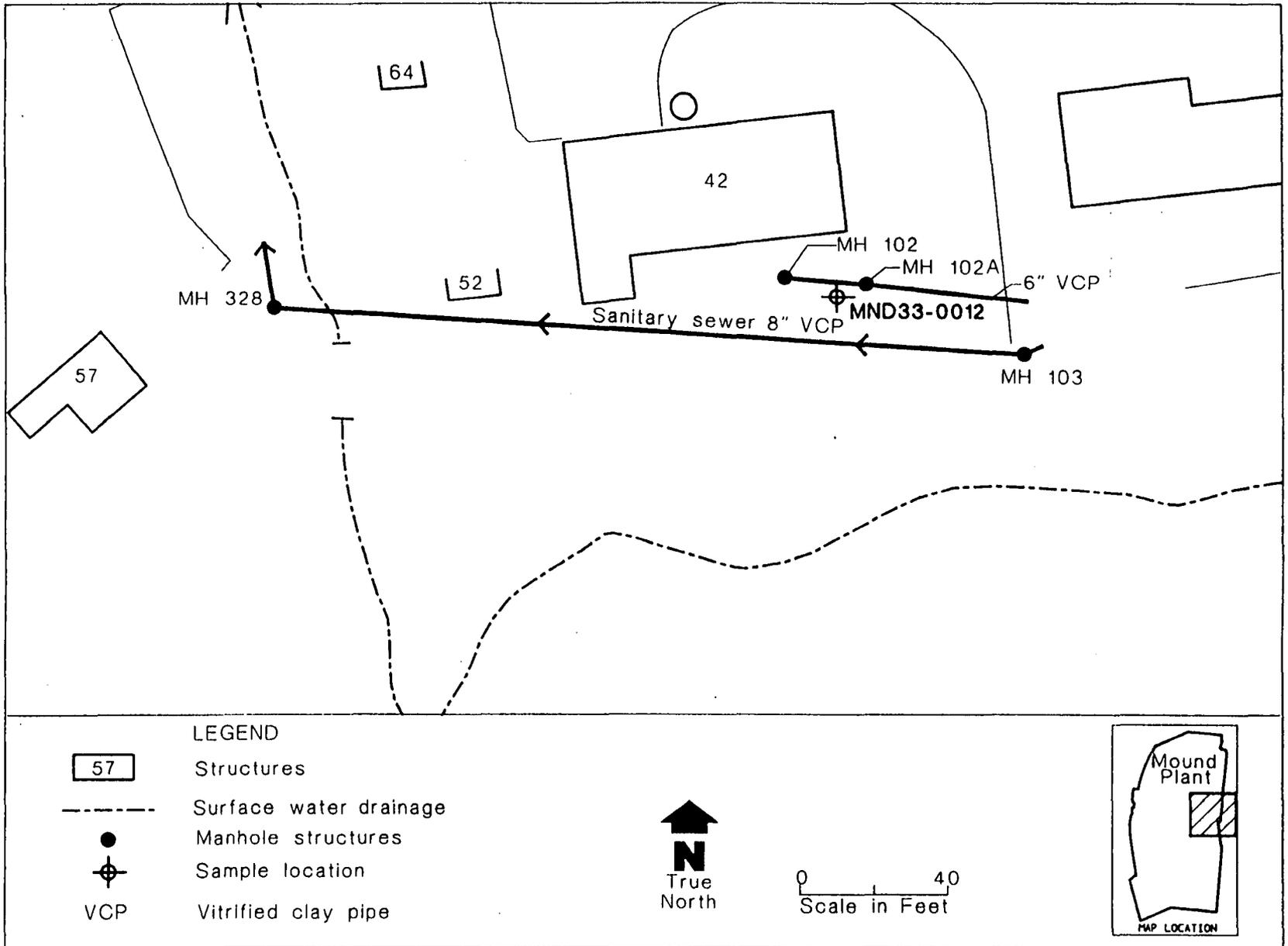


Figure 2.28. Underground sewer lines Grid G14 West soil sample locations.

**Table II.27. Underground Sewer Lines Grid G14 West Sample Summary**

| Sample Location | Sample Number   | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|--------|--------------|--------------------------|--|
| MND33-0012      | MND33-0012-0001 | Soil   | 07/01/91     | 10.0-15.0                | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |

BGS – Below Ground Surface

ft – Feet

P/PCBs – Pesticides/Polychlorinated Biphenyls

SVOCs – Semivolatile Organic Compounds

TAL – Target Analyte List

TCL – Target Compound List

VOCs – Volatile Organic Compounds

## **2.29. UNDERGROUND SEWER LINES GRID G14 EAST**

### **2.29.1. Site History**

#### **2.29.1.1. Description of the Underground Sewer Lines Grid G14 East**

The underground sewer lines in Grid G14 East are used to convey sanitary wastewater from the Plant sites to the sewage disposal building area (Building 57). The sewer lines in this grid area are constructed of 6-inch and 8-inch diameter vitrified clay pipe.

#### **2.29.1.2. Potential Area Contaminants**

Sanitary wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines may include one or more of the following; restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on the site history, it is not possible to determine if the system has received RCRA-regulated materials or which listings are applicable. Past releases from the underground sewer lines caused by leakage from broken pipes have been documented. In previous investigations of the sewer system, pipe and joint breaks, misalignments, cracks, sags, and obstructions were found.

### **2.29.2. Field Investigation Procedures**

The objective of sampling adjacent to the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. WESTON representatives conducted sampling activities at the Underground Sewer lines Grid G14 East area on 1 July 1991. Soil samples were collected by hollow-stem auger drilling techniques from one interval at one location. All samples were shipped to IT Laboratories for analysis.

The sample location is shown on Figure 2.29. The soils encountered during drilling consisted of a silty clay. Groundwater was not encountered during drilling. A summary of soil samples collected at this location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.28.

Every effort was made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations is presented below:

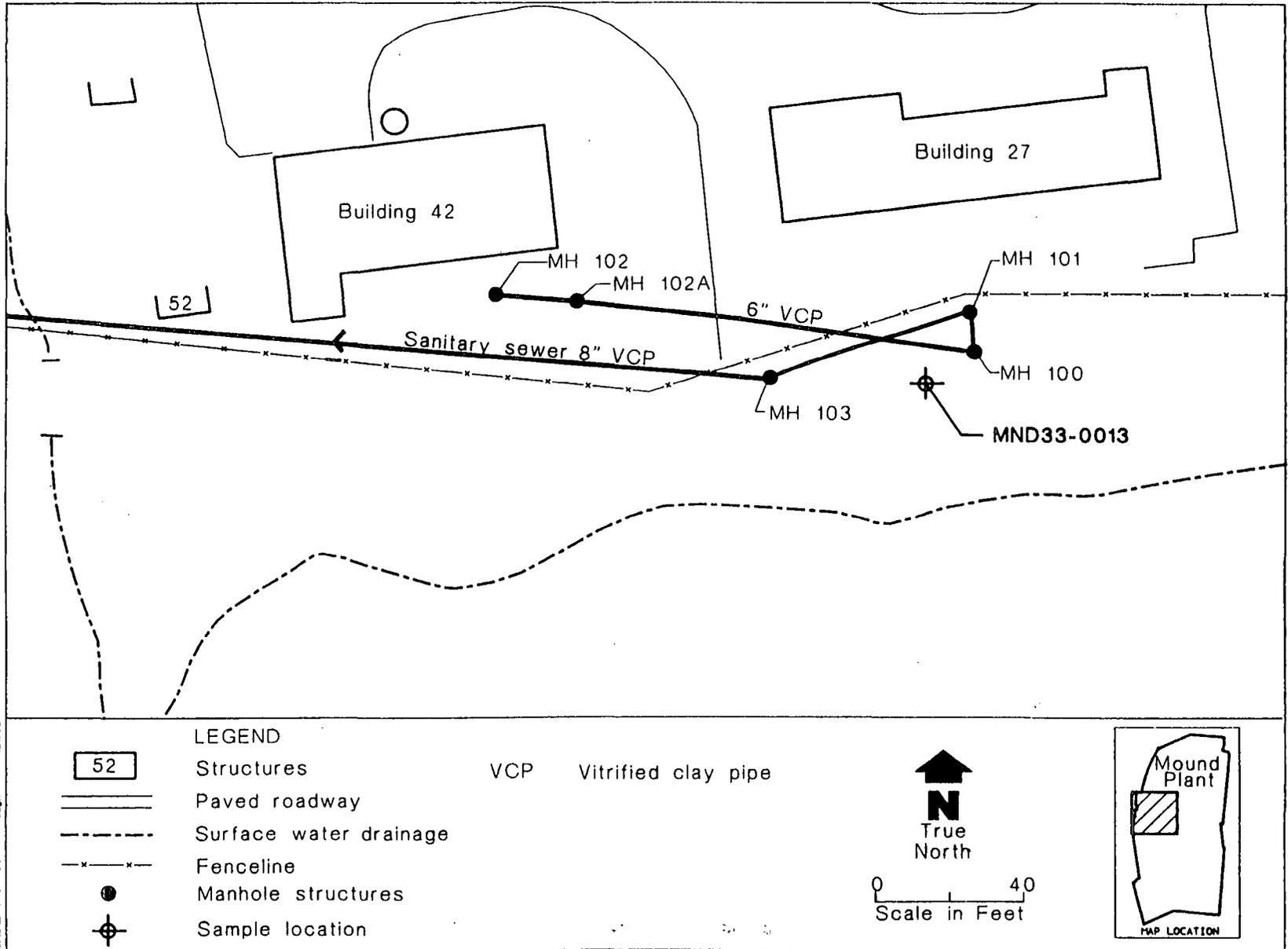


Figure 2.29. Underground sewer lines Grid G14 East soil sample locations.

**Table II.28. Underground Sewer Lines Grid G14 East Sample Summary**

| Sample Location | Sample Number   | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|--------|--------------|--------------------------|--|
| MND33-0013      | MND33-0013-0001 | Soil   | 07/01/91     | 7.0-12.5                 | TCL VOCs, SVOCs, P/PCBs; TAL Inorganics; explosives; chloride; nitrites/nitrates; tritium. |

BGS – Below Ground Surface

ft – Feet

P/PCBs – Pesticides/Polychlorinated Biphenyls

SVOCs – Semivolatile Organic Compounds

TAL – Target Analyte List

TCL – Target Compound List

VOCs – Volatile Organic Compounds

- Sample boring location was moved from its original location to a location approximately 5 ft southeast because of the presence of underground utilities. Additional split spoons were collected from 8.0 to 12.5 ft BGS in order to collect sufficient sample volume.

## **2.30. UNDERGROUND SEWER LINES GRID G15**

### **2.30.1. Site History**

#### **2.30.1.1. Description of the Underground Sewer Lines Grid G15 Area**

The underground sewer lines located throughout Mound Plant are used to convey sanitary and industrial wastewater and storm runoff from Plant sites to the sewage disposal building area (Building 57). The Grid G15 site contains 8-inch sanitary sewer pipes.

#### **2.30.1.2. Potential Area Contaminants**

Sanitary and industrial wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines include restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on this site history, it is not possible to determine if the system has received RCRA-regulated materials or which listings are applicable.

### **2.30.2. Field Investigation Procedures**

The objective of sampling adjacent to some of the underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. Figure 2.30 shows the sampling locations in relation to the vitrified clay sewer line in areas of known or suspected leaks at Grid G15. Two sampling locations were next to the sanitary sewer line southwest of manhole no. 122 at distances of 40 and 160 ft and the third location was adjacent to manhole no. 0122.

A summary of the soil samples collected at Grid G15 listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.29. A summary of deviations from the approved sampling protocol is presented below:

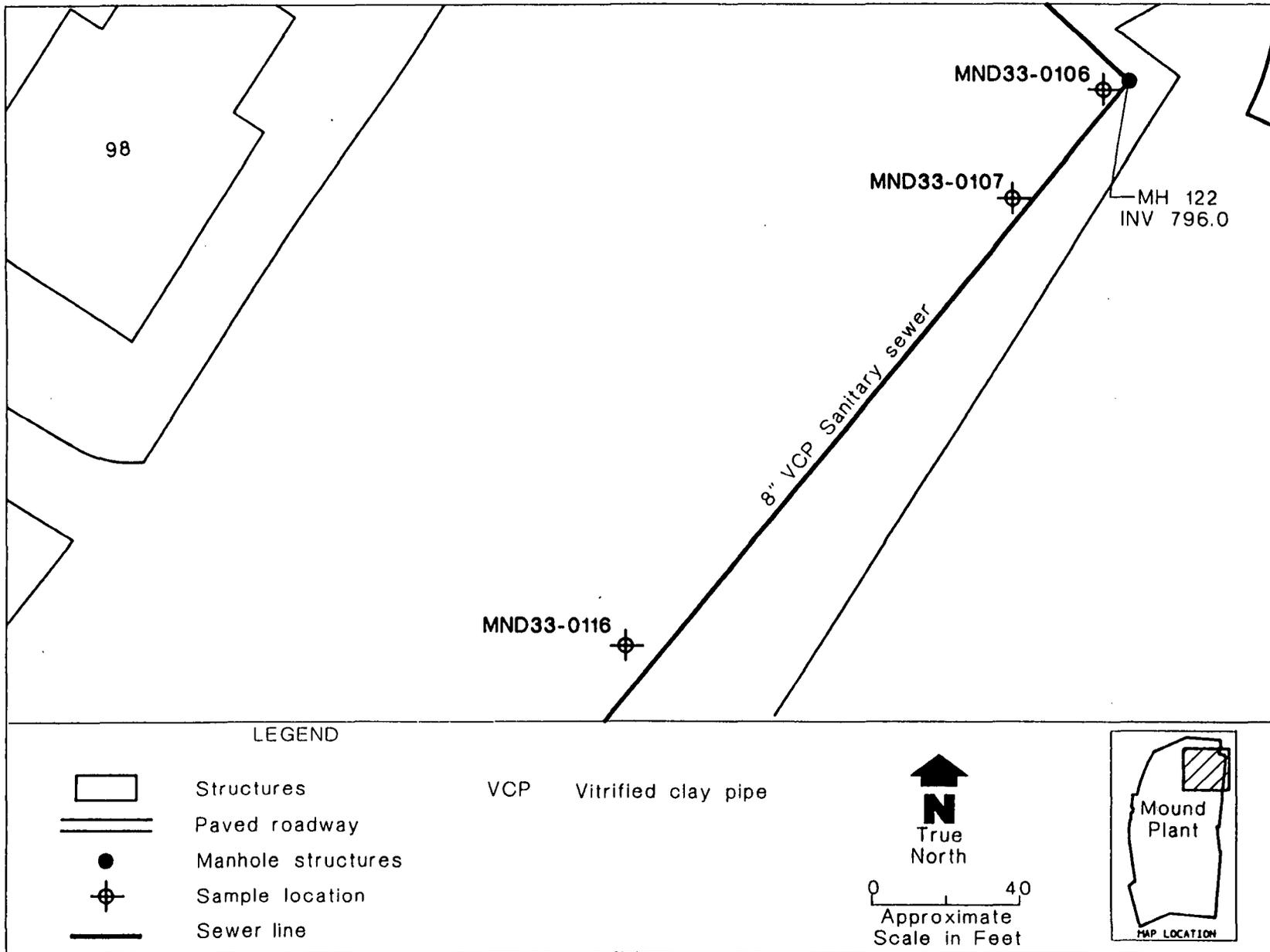


Figure 2.30. Underground sewer lines Grid G15 soil sample locations.

Table II.29. Underground Sewer Lines Grid G15 Sample Summary

| Sample Location | Sample Number   | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|--------|--------------|--------------------------|--|
| MND33-0106      | MND33-0106-0001 | Soil   | 1/18/92      | 13.5-15.5                | TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; explosives; tritium; chloride; nitrites/nitrates. |
|                 | MND33-0106-1001 | Soil   | 1/18/92      | 13.5-15.5                | TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; explosives; tritium; chloride; nitrites/nitrates. |
|                 | MND33-0106-0002 | Soil   | 1/18/92      | 17.5-19.5                | TCL VOCs.  |
| MND33-0107      | MND33-0107-0001 | Soil   | 1/18/92      | 12.5-14.5                | TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; explosives; tritium; chloride; nitrites/nitrates. |
|                 | MND33-0107-4001 | Water  | 1/19/92      | ---                      | TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; explosives; tritium; chloride; nitrites/nitrates. |
| MND33-0116      | MND33-0116-0001 | Soil   | 1/29/92      | 12.5-14.2                | TCL VOCs, SVOCs, and P/PCBs; TAL inorganics; explosives; tritium; chloride; nitrites/nitrates. |
|                 | MND33-0116-5001 | Water  | 1/29/92      | ---                      | TCL VOCs.  |

BGS -- Below Ground Surface

ft -- Feet

P/PCBs -- Pesticides/Polychlorinated Biphenyls

SVOCs -- Semivolatile Organic Compounds

TAL -- Target Analyte List

TCL -- Target Compound List

VOCs -- Volatile Organic Compounds

- Figure 16.7 Grid G15 in the OU 3 Work Plan indicates an abandoned 8-inch vitrified clay pipe sewer line and an 8-inch PVC sewer line. EG&G Mound representatives indicate that the vitrified clay pipe line is still in use and has not been abandoned and the 8-inch PVC line was not installed. Soil samples were collected from the locations specified in the OU 3 Work Plan.
- MND33-0106-0002 — An additional sample was collected at a depth interval of 17.5 to 19.5 ft BGS<sub>1</sub> because of the elevated OVA field screening instrument readings at the previous depth interval at location A.
- MND33-0116-0001 — The first attempt to collect a sample at this location was on 19 January 1992 (borehole 0108). Auger refusal met at 12.0 ft. Borehole was offset, where auger refusal was met at 2.5 ft. No samples were collected at this time. Sample collected on 29 January 1992 from offset borehole 0116.

## 2.31. UNDERGROUND SEWER LINES GRID G19/14

### 2.31.1. Site History

#### 2.31.1.1. Description of the Underground Sewer Lines Grid G19/14 Area

The underground sewer lines located throughout Mound Plant are used to convey sanitary and industrial wastewater and storm runoff from Plant sites to the sewage disposal building area (Building 57). The Grid G19/14 area contains 8-inch vitrified clay pipe used to convey sanitary wastewater.

According to the Work Plan Figure for Grid G19/14, certain construction work was conducted which resulted in an abandoned line and a newly constructed line to take its place. According to EG&G Mound representatives, the construction work was never conducted and the abandoned lines are still in use. In some instances, insitu form work was accomplished instead of new construction.

#### 2.31.1.2. Potential Area Contaminants

Sanitary and industrial wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines include restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on this site history, it is not possible to determine if the system has received RCRA-regulated materials or which listings are applicable.

### **2.31.2. Field Investigation Procedures**

The objective of sampling adjacent to the grid G19/14 underground sewer lines was to identify releases of hazardous contaminants that may have resulted from leakage. Sampling activities were conducted on 29 January 1992 and 12 February 1992 by WESTON representatives. Activities included subsurface soil sampling by hollow stem auger drilling techniques. All samples were shipped to IT Laboratories for analysis.

Soil sample locations for grid G19/14 are shown on Figure 2.31 and are positioned along the vitrified clay pipe sanitary sewer line. A summary of soil samples collected at each location listing the sample identification number, sampling depth interval, date sampled, and requested analytical parameters is presented in Table II.30.

Every effort has been made to comply with approved sampling protocol; however, some deviations were necessary in order to obtain the required sample. A summary of deviations for each applicable sample is presented below:

- MND33-0117-0001 — Interval 9.0 to 13.0 ft BGS. Additional sample from the 11.0- to 13.0-ft BGS split spoon was necessary to obtain the required sample volume for the sample and duplicate. Groundwater was encountered at 13.0 ft BGS.
- MND33-0134-0001 — Interval 7.0 to 11.0 ft BGS. Additional sample from the 9.0- to 11.0-ft BGS split spoon was necessary to obtain the required sample volume.
- MND33-0134-0002 — Interval 11.0 to 15.0 ft BGS. Additional sample from the 13.0- to 15.0-ft BGS split spoon was necessary to obtain the required sample volume. Groundwater was encountered at 14.5 ft BGS.

## **2.32. UNDERGROUND SEWER LINES GRID G24**

### **2.32.1. Site History**

#### **2.32.1.1. Description of the Underground Sewer Lines Grid G24 Area**

The underground sewer lines located throughout Mound Plant are used to convey sanitary and industrial wastewater and storm runoff from Plant sites to the wastewater treatment sewage disposal building. The Grid G24 area contains abandoned 8-inch vitrified clay pipe and active 8-inch PVC pipe to transport sanitary sewage.

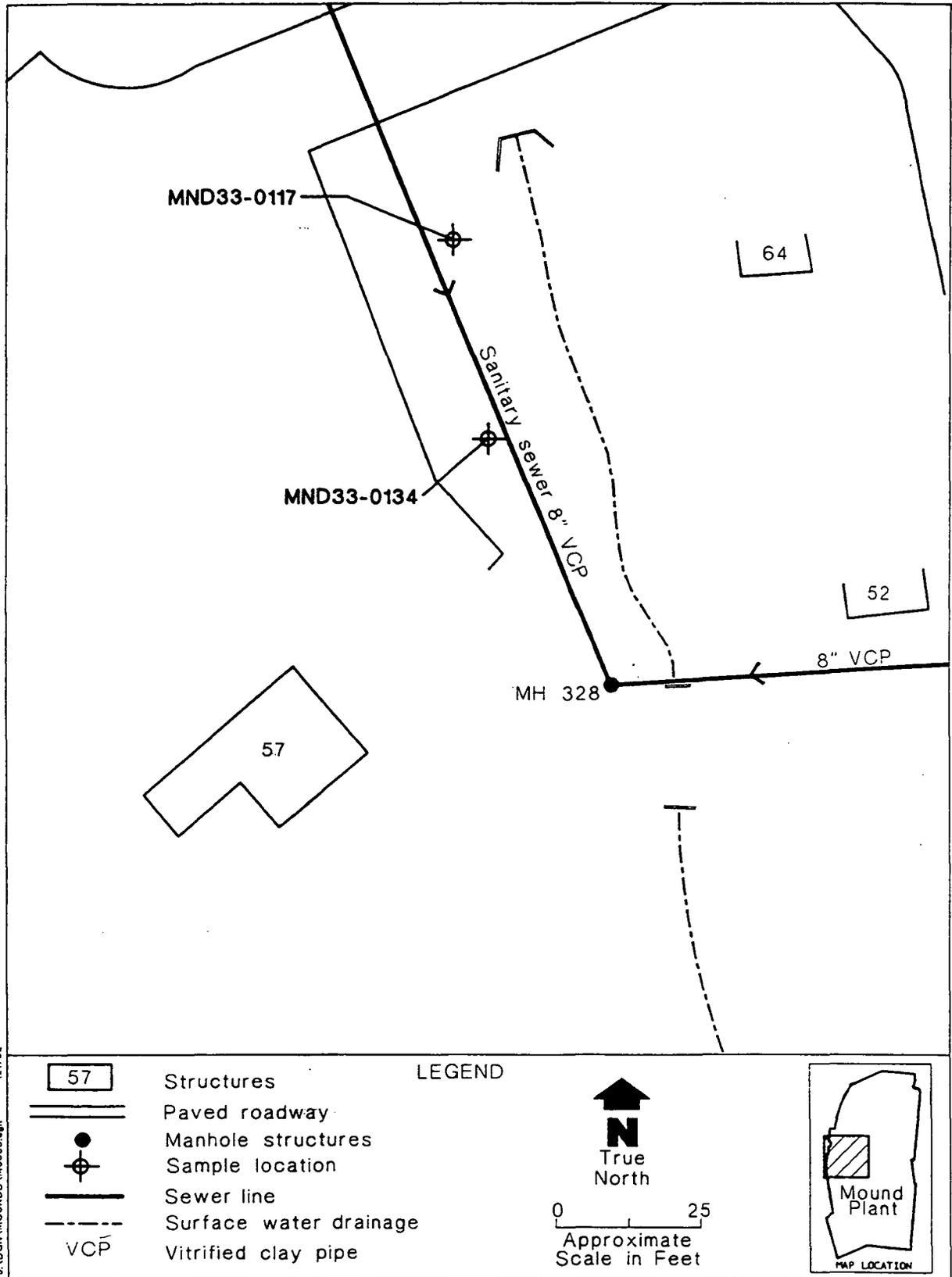


Figure 2.31. Underground sewer lines Grid G19/14 soil sample locations.

Table II.30. Underground Sewer Lines Grid G19/14 Sample Summary

| Sample Location | Sample Number   | Matrix | Date Sampled | Sample Interval (ft BGS) | Parameters Analyzed  |
|-----------------|-----------------|--------|--------------|--------------------------|--|
| MND33-0117      | MND33-0117-0001 | Soil   | 1/29/92      | 9.0-13.0                 | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0117-1001 | Soil   | 1/29/92      | 9.0-13.0                 | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
| MND33-0134      | MND33-0134-0001 | Soil   | 2/12/92      | 7.0-11.0                 | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0134-0002 | Soil   | 2/12/92      | 11.0-15.0                | TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; tritium. |
|                 | MND33-0134-5001 | Water  | 2/12/92      | ---                      | TCL VOCs.  |

BGS - Below Ground Surface

ft - Feet

P/PCBs - Pesticides/Polychlorinated Biphenyls

SVOCs - Semivolatile Organic Compounds

TAL - Target Analyte List

TCL - Target Compound List

VOCs - Volatile Organic Compounds

### **2.32.1.2. Potential Area Contaminants**

Sanitary and industrial wastewater is transported to the sanitary wastewater treatment plant through the underground sewer lines. Sources of wastewater conveyed through the underground sewer lines include restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal-refinishing operation. Some of the laboratory sinks have reportedly received small amounts of solvents, photographic solutions, acids, and bases. Based on this site history, it is not possible to determine if the system has received RCRA-regulated materials or to determine which listings are applicable.

### **2.32.2. Field Investigation Procedures**

The objective of sampling at the Grid G24 Underground Sewer Lines was to identify potential hazardous contaminants that may be present because of leaks in the sewer lines. WESTON representatives conducted sampling activities at the Grid G24 area on 19 December 1991 and 30 January 1992. Sampling was attempted near manhole no. 0002 (as indicated in the Work Plan) using hollow stem auger drilling techniques. No samples were collected at the location near manhole no. 0002 because of auger and split spoon refusal (Lawlor 1992). The sample locations are indicated on Figure 2.32.

Samples were not obtained in the area of manhole no. 0002 because of the shallow bedrock geology. Two boreholes were drilled; the first was closest to the sewer line, approximately 3 ft away, and the second was 5 ft from the line. Drill rig auger refusal was encountered at approximately 8.0 ft BGS at the first borehole and at 6.5 ft BGS at the second borehole. A soil sample could not be collected at the required depth interval of 9.5 to 11.5 ft BGS. In addition, auger rig drilling could not be conducted at the remaining three sample locations because of the steep slope.

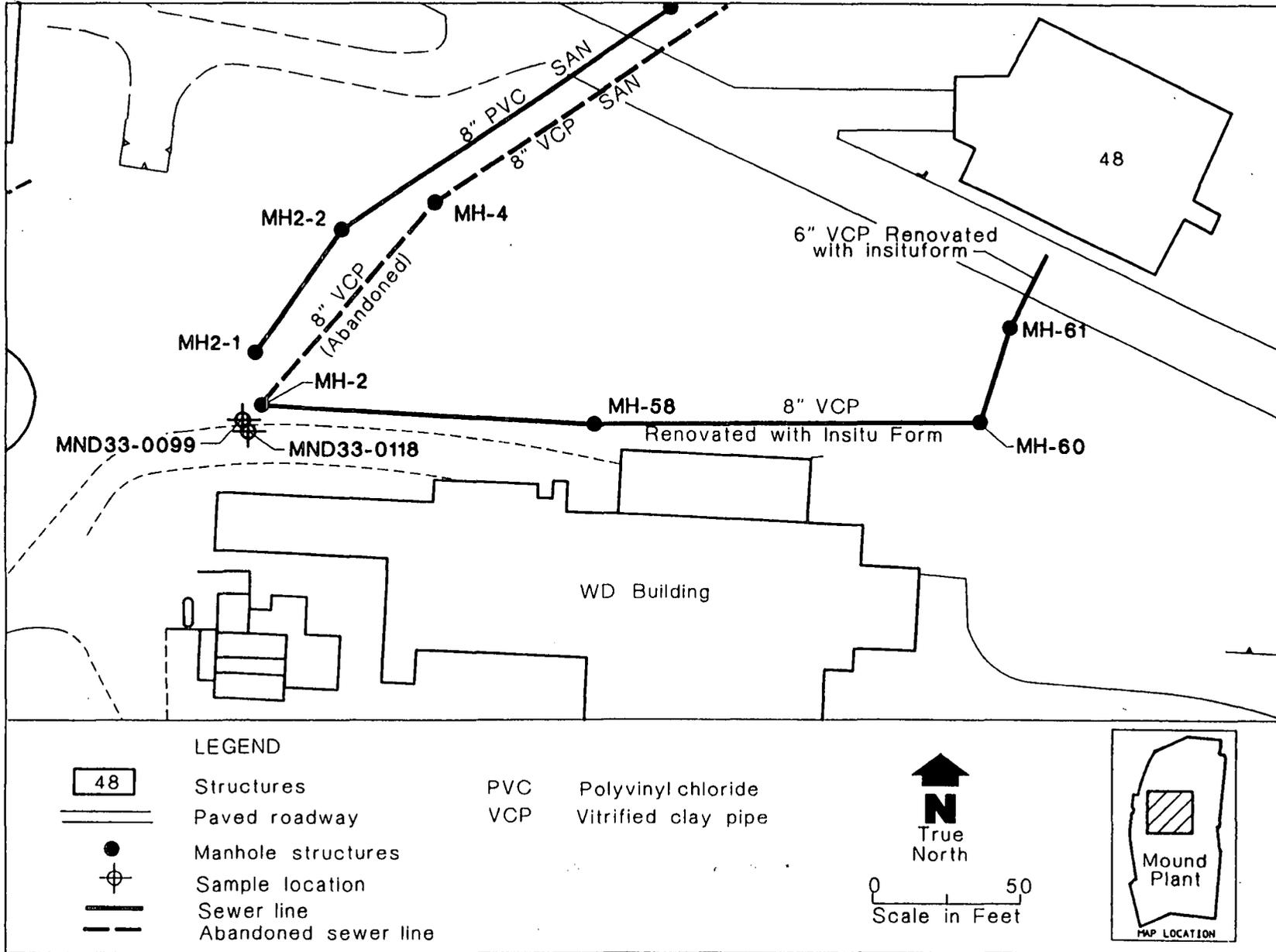


Figure 2.32. Underground sewer lines Grid G24 soil sample locations.

### 3.32 UNDERGROUND SEWER LINES GRID G24

Sewer lines in the Grid G24 area are located in a sharply sloped area north of the WD building on the Mound Plant Main Hill. The lines are constructed of vitrified clay pipe and PVC. Soil sampling was to be conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines, but soil samples could not be collected at this site because of auger and split spoon refusal, the steepness of the topography, and the location of underground utility lines. A more detailed description of the Underground Sewer Lines Grid G24 site history and attempted field investigation procedures is presented in subsection 2.32. Further investigation of soil quality at the Grid G24 area may be accomplished using alternative investigative techniques. The Grid G24 sewer lines contain or have contained materials similar to or identical to other OU 3 LFI sewer lines, and the nature of reported structural deficiencies in the Grid G24 sewer line would be similar to other OU 3 LFI sewer lines. Investigative results indicate that soil quality has not been impacted at the OU 3 LFI sewer line grids as a result of previous activities. Based upon these conditions, it is reasonable to assume that soils have not been impacted by site activities at the Grid G24 sewer lines and that further investigative activities would not be necessary.

### **3.25. UNDERGROUND SEWER LINES GRID G5**

Sources of water conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases. The Grid 5 sewer line is located next to Building 57 and the sewage treatment plant. The line is constructed of 8-inch vitrified clay pipe with a section of ductile iron pipe.

Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils at this site. A more detailed description of the Underground Sewer Lines Grid G5 site history and field investigation procedures is presented in subsection 2.25.

One soil sample collected from location MND33-0080 and one soil sample collected from location MND33-0081 were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; and nitrate/nitrite. The validated analytical results for all analytes detected above laboratory reporting limits are presented in Table III.28.

#### **3.25.1. Volatile Organic Compounds**

VOCs were not detected above laboratory reporting limits in any of the samples analyzed.

#### **3.25.2. Semivolatile Organic Compounds**

The only SVOC detected above laboratory reporting limits, bis (2-ethylhexyl) phthalate, was detected in sample MND33-0081 slightly above the laboratory reporting limit and significantly below the PRG. Bis (2-ethylhexyl) phthalate is a common analytical laboratory contaminant and is not considered to be a significant soil contaminant in the Underground Sewer Lines Grid G5 area.

#### **3.25.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected above laboratory reporting limits in any of the samples analyzed.

#### **3.25.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the Underground Sewer Lines Grid G5 area at concentrations above PRGs or proposed action levels.

### **3.25.5. Explosives, Chloride, Nitrates, and Nitrites**

Explosives were not detected above laboratory reporting limits in soil samples from the Underground Sewer Lines Grid G5 area. Chloride was detected in both samples, but is not considered to be an analyte of concern. Nitrate and nitrite were present in both samples at levels above the laboratory reporting limits, but below the PRGs and are not considered to be of concern at these concentrations.

### **3.25.6. Summary**

The results of the laboratory analyses for samples collected at the Underground Sewer Lines Grid G5 area indicate sewer line operations in this area have not adversely impacted soil quality in the vicinity of the site. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grid G5 area is recommended.

TABLE III.28  
 UNDERGROUND SEWER LINES GRID G5  
 Location: MND33-0080  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter           | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|---------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL     | 0001      | S      | mG/Kg            | 6.                         | 10300.               |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL     | 0001      | S      | mG/Kg            | 3.                         | 8.5                  | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL      | 0001      | S      | mG/Kg            | .2                         | 3.7                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL       | 0001      | S      | mG/Kg            | .2                         | 42.9                 |                           | 1.9E+04 | I        |
| BERYLLIUM           | 0001      | S      | mG/Kg            | .2                         | .82                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL      | 0001      | S      | mG/Kg            | .2                         | 1.5                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL      | 0001      | S      | mG/Kg            | 2.                         | 72900.               |                           | NA      | I        |
| CHLORIDE            | 0001      | S      | mG/Kg            | 10.                        | 29.5                 | J                         | NA      | I        |
| CHROMIUM, TOTAL     | 0001      | S      | mG/Kg            | 1.                         | 27.                  | J                         | 1.4E+03 | I        |
| COBALT, TOTAL       | 0001      | S      | mG/Kg            | 1.                         | 12.7                 | J                         | 3.9E+01 | I        |
| COPPER, TOTAL       | 0001      | S      | mG/Kg            | 1.                         | 20.5                 | J                         | 1.0E+04 | I        |
| IRON, TOTAL         | 0001      | S      | mG/Kg            | 1.                         | 20300.               |                           | NA      | I        |
| LEAD, TOTAL         | 0001      | S      | mG/Kg            | .2                         | 8.8                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL    | 0001      | S      | mG/Kg            | 5.                         | 10900.               |                           | NA      | I        |
| MANGANESE, TOTAL    | 0001      | S      | mG/Kg            | .2                         | 608.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL       | 0001      | S      | mG/Kg            | 2.                         | 23.7                 |                           | 5.4E+03 | I        |
| NITRATE             | 0001      | S      | mG/Kg            | 2.                         | 20.7                 |                           | 4.3E+05 | I        |
| NITRITE AS NITROGEN | 0001      | S      | mG/Kg            | 2.                         | 3.89                 |                           | 2.7E+04 | I        |
| POTASSIUM, TOTAL    | 0001      | S      | mG/Kg            | 10.                        | 1320.                |                           | NA      | I        |
| SILVER, TOTAL       | 0001      | S      | mG/Kg            | 1.                         | 12.4                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL       | 0001      | S      | mG/Kg            | 10.                        | 259.                 |                           | NA      | I        |
| THALLIUM, TOTAL     | 0001      | S      | mG/Kg            | .2                         | .56                  |                           | NA      | I        |
| VANADIUM, TOTAL     | 0001      | S      | mG/Kg            | 1.                         | 25.6                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL         | 0001      | S      | mG/Kg            | .5                         | 43.                  | J                         | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.28  
 UNDERGROUND SEWER LINES GRID G5  
 Location: MND33-0081  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter                  | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|----------------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL            | 0001      | S      | mg/Kg            | 6.                         | 10100.               |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL            | 0001      | S      | mg/Kg            | 3.                         | 13.8                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL             | 0001      | S      | mg/Kg            | .2                         | .84                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL              | 0001      | S      | mg/Kg            | .2                         | 19.7                 |                           | 1.9E+04 | I        |
| BERYLLIUM                  | 0001      | S      | mg/Kg            | .2                         | .76                  |                           | 1.5E-01 | I        |
| BIS(2-ETHYLHEXYL)PHTHALATE | 0001      | S      | mg/Kg            | 0.81                       | 1.5                  | J                         | 4.6E+01 | I        |
| CADMIUM, TOTAL             | 0001      | S      | mg/Kg            | .2                         | 2.4                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL             | 0001      | S      | mg/Kg            | 2.                         | 71100.               |                           | NA      | I        |
| CHLORIDE                   | 0001      | S      | mg/Kg            | 10.                        | 122.7                | J                         | NA      | I        |
| CHROMIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 28.9                 | J                         | 1.4E+03 | I        |
| COBALT, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 14.7                 | J                         | 3.9E+01 | I        |
| COPPER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 22.4                 | J                         | 1.0E+04 | I        |
| IRON, TOTAL                | 0001      | S      | mg/Kg            | 1.                         | 21800.               |                           | NA      | I        |
| LEAD, TOTAL                | 0001      | S      | mg/Kg            | .2                         | 2.9                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL           | 0001      | S      | mg/Kg            | 5.                         | 18100.               |                           | NA      | I        |
| MANGANESE, TOTAL           | 0001      | S      | mg/Kg            | .2                         | 529.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL              | 0001      | S      | mg/Kg            | 2.                         | 28.9                 |                           | 5.4E+03 | I        |
| NITRATE                    | 0001      | S      | mg/Kg            | 2.                         | 2.54                 |                           | 4.3E+05 | I        |
| NITRITE AS NITROGEN        | 0001      | S      | mg/Kg            | 2.                         | 2.39                 |                           | 2.7E+04 | I        |
| POTASSIUM, TOTAL           | 0001      | S      | mg/Kg            | 10.                        | 1750.                |                           | NA      | I        |
| SILVER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 12.6                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL              | 0001      | S      | mg/Kg            | 10.                        | 443.                 |                           | NA      | I        |
| VANADIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 24.3                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL                | 0001      | S      | mg/Kg            | .5                         | 46.6                 | J                         | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.26. UNDERGROUND SEWER LINES GRIDS G6 AND G7**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

The sewer lines in Grids G6 and G7 are located near Building 36 and the SM building. The sewers in this area are constructed of concrete, vitrified clay pipe, or polyvinyl chloride. Soil and sediment sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils and sediments in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grids G6 and G7 site history and field investigation procedures is presented in subsection 2.26.

Four soil samples and two sediment samples were collected from the Grids G6 and G7 area. Two soil samples, from locations MND33-0065 and 0067, were only analyzed for TCL VOCs. The remaining soil and sediment samples were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrites/nitrates; and tritium. Sample MND33-0068 was also analyzed for lithium. The validated analytical results for all analytes detected above laboratory reporting limits in each sample are presented in Table III.29.

#### **3.26.1. Volatile Organic Compounds**

Tetrachloroethene (PCE) was detected at sediment sample MND33-0130-0001 and duplicate sample -1001 at concentrations above the laboratory reporting limit but below the PRG. No other VOCs were detected in soil or sediment samples from Grids G6 and G7 at concentrations above the laboratory reporting limits. Because VOCs were not detected above laboratory reporting limits, the analytical results for sample locations MND33-0065 and -0067, which were analyzed for VOCs only, are not included in Table III.29.

#### **3.26.2. Semivolatile Organic Compounds**

Bis (2-ethylhexyl) phthalate was detected above laboratory reporting limits, but below the PRG in samples MND33-0064 and -0068. Ten PAH compounds were detected in the sediment sample from location MND33-0130. The PAH compounds benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, benzo(k) fluoranthene, indeno (1,2,3-CD) pyrene, and pyrene were detected at concentrations above the laboratory reporting limits and PRGs. The PAH compounds benzo(g,h,i) perylene, chrysene, fluoranthene, and phenanthrene were detected at concentrations above laboratory reporting limits but below PRGs. No other SVOCs were detected in soil and sediment samples from Grids G6 and G7. The occurrence of SVOCs at concentrations above laboratory reporting limits in the Grid G6 and G7 sediment sample does not reflect

an impact to sediment quality. The occurrence of PAH compounds in the sediment may be due to surface runoff from nearby asphalt surfaces. The occurrence of bis(2-ethylhexyl) phthalate in two soil samples at concentrations below the PRG does not reflect an impact to site soil quality.

### **3.26.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed.

### **3.26.4. TAL Inorganics**

Inorganic compounds were not detected in soil or sediment samples from the Underground Sewer Lines Grids G6 and G7 area at concentrations above PRGs or proposed action levels.

### **3.26.5. Explosives, Chloride, Nitrates, Nitrites, Tritium, and Lithium**

Explosives were not detected at concentrations above laboratory reporting limits in any soil or sediment samples collected in the Underground Sewer Lines Grids G6 and G7 area. Chloride was detected in soil and sediment samples. A PRG for chloride has not been established. However, the detected concentrations do not reflect an impact to site soil and sediment quality. Nitrate and nitrite were detected in soil and sediment samples at concentrations above laboratory reporting limits but below respective PRGs. Tritium and lithium were not detected in soil or sediment samples at concentrations above laboratory reporting limits.

### **3.26.6. Summary**

The analytical results for samples collected from the Underground Sewer Lines Grids G6 and G7 area indicate that sewer line operations in this area have not adversely impacted soil quality. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grids G6 and G7 area is recommended.

TABLE III.29  
 UNDERGROUND SEWER LINES GRIDS G6 AND G7  
 Location: MND33-0064  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter                  | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|----------------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL            | 0001      | S      | mg/Kg            | 6.                         | 2910.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL            | 0001      | S      | mg/Kg            | 3.                         | 32.3                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL             | 0001      | S      | mg/Kg            | .2                         | 7.1                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL              | 0001      | S      | mg/Kg            | .2                         | 56.                  |                           | 1.9E+04 | I        |
| BERYLLIUM                  | 0001      | S      | mg/Kg            | .2                         | .66                  | J                         | 1.5E-01 | I        |
| BIS(2-ETHYLHEXYL)PHTHALATE | 0001      | S      | mg/Kg            | 0.36                       | 0.89                 | J                         | 4.6E+01 | I        |
| CADMIUM, TOTAL             | 0001      | S      | mg/Kg            | .2                         | 7.3                  |                           | 1.4E+02 | I        |
| CALCIUM, TOTAL             | 0001      | S      | mg/Kg            | 2.                         | 154000.              |                           | NA      | I        |
| CHLORIDE                   | 0001      | S      | mg/Kg            | 10.                        | 15.4                 | J                         | NA      | I        |
| CHROMIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 23.9                 | J                         | 1.4E+03 | I        |
| COBALT, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 7.9                  | J                         | 3.9E+01 | I        |
| COPPER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 13.7                 | J                         | 1.0E+04 | I        |
| IRON, TOTAL                | 0001      | S      | mg/Kg            | 1.                         | 8470.                |                           | NA      | I        |
| LEAD, TOTAL                | 0001      | S      | mg/Kg            | .2                         | 5.6                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL           | 0001      | S      | mg/Kg            | 5.                         | 51000.               | J                         | NA      | I        |
| MANGANESE, TOTAL           | 0001      | S      | mg/Kg            | .2                         | 224.                 | J                         | 2.7E+04 | I        |
| NICKEL, TOTAL              | 0001      | S      | mg/Kg            | 2.                         | 18.1                 | J                         | 5.4E+03 | I        |
| NITRATE                    | 0001      | S      | mg/Kg            | 2.                         | 129.                 |                           | 4.3E+05 | I        |
| NITRITE AS NITROGEN        | 0001      | S      | mg/Kg            | 2.                         | 5.02                 |                           | 2.7E+04 | I        |
| POTASSIUM, TOTAL           | 0001      | S      | mg/Kg            | 10.                        | 506.                 |                           | NA      | I        |
| SILVER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 16.7                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL              | 0001      | S      | mg/Kg            | 10.                        | 163.                 |                           | NA      | I        |
| VANADIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 20.5                 | J                         | 1.9E+03 | I        |
| ZINC, TOTAL                | 0001      | S      | mg/Kg            | .5                         | 23.                  | J                         | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.29  
 UNDERGROUND SEWER LINES GRIDS G6 AND G7  
 Location: MND33-0068  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter                  | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|----------------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINIUM, TOTAL           | 0001      | S      | mg/Kg            | 6.                         | 4040.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL            | 0001      | S      | mg/Kg            | 3.                         | 28.2                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL             | 0001      | S      | mg/Kg            | .2                         | 2.9                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL              | 0001      | S      | mg/Kg            | .2                         | 30.4                 |                           | 1.9E+04 | I        |
| BERYLLIUM                  | 0001      | S      | mg/Kg            | .2                         | .7                   |                           | 1.5E-01 | I        |
| BIS(2-ETHYLHEXYL)PHTHALATE | 0001      | S      | mg/Kg            | 0.37                       | 0.41                 | J                         | 4.6E+01 | I        |
| CADMIUM, TOTAL             | 0001      | S      | mg/Kg            | .2                         | 4.6                  |                           | 1.4E+02 | I        |
| CALCIUM, TOTAL             | 0001      | S      | mg/Kg            | 2.                         | 128000.              |                           | NA      | I        |
| CHLORIDE                   | 0001      | S      | mg/Kg            | 10.                        | 10.65                | J                         | NA      | I        |
| CHROMIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 25.1                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 9.                   |                           | 3.9E+01 | I        |
| COPPER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 17.4                 |                           | 1.0E+04 | I        |
| IRON, TOTAL                | 0001      | S      | mg/Kg            | 1.                         | 12200.               |                           | NA      | I        |
| LEAD, TOTAL                | 0001      | S      | mg/Kg            | .2                         | 4.5                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL           | 0001      | S      | mg/Kg            | 5.                         | 39100.               | J                         | NA      | I        |
| MANGANESE, TOTAL           | 0001      | S      | mg/Kg            | .2                         | 262.                 | J                         | 2.7E+04 | I        |
| NICKEL, TOTAL              | 0001      | S      | mg/Kg            | 2.                         | 22.7                 |                           | 5.4E+03 | I        |
| NITRATE                    | 0001      | S      | mg/Kg            | 2.                         | 95.66                | J                         | 4.3E+05 | I        |
| NITRITE AS NITROGEN        | 0001      | S      | mg/Kg            | 2.                         | 3.07                 | J                         | 2.7E+04 | I        |
| POTASSIUM, TOTAL           | 0001      | S      | mg/Kg            | 10.                        | 644.                 |                           | NA      | I        |
| SILVER, TOTAL              | 0001      | S      | mg/Kg            | 1.                         | 15.5                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL              | 0001      | S      | mg/Kg            | 10.                        | 173.                 |                           | NA      | I        |
| VANADIUM, TOTAL            | 0001      | S      | mg/Kg            | 1.                         | 20.9                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL                | 0001      | S      | mg/Kg            | .5                         | 30.5                 | J                         | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.29  
 UNDERGROUND SEWER LINES GRIDS G6 AND G7  
 Location: MND33-0130  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter              | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL        | 0001      | SE     | mg/Kg            | 6.                         | 5260.                |                           | 7.8E+05 | I        |
| ALUMINUM, TOTAL        | 1001      | SE     | mg/Kg            | 6.                         | 4540.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL        | 0001      | SE     | mg/Kg            | 3.                         | 26.1                 | J                         | 1.1E+02 | I        |
| ANTIMONY, TOTAL        | 1001      | SE     | mg/Kg            | 3.                         | 18.6                 | J                         | 1.1E+02 | I        |
| BARIUM, TOTAL          | 0001      | SE     | mg/Kg            | .2                         | 47.0                 | J                         | 1.9E+04 | I        |
| BARIUM, TOTAL          | 1001      | SE     | mg/Kg            | .2                         | 58.8                 | J                         | 1.9E+04 | I        |
| BENZO(A)ANTHRACENE     | 0001      | SE     | mg/Kg            | 0.84                       | 1.9                  | J                         | 6.0E-01 | I        |
| BENZO(A)ANTHRACENE     | 1001      | SE     | mg/Kg            | 0.82                       | 0.93                 | J                         | 6.0E-01 | I        |
| BENZO(A)PYRENE         | 0001      | SE     | mg/Kg            | 0.84                       | 1.7                  | J                         | 8.8E-02 | I        |
| BENZO(A)PYRENE         | 1001      | SE     | mg/Kg            | 0.82                       | 0.91                 | J                         | 8.8E-02 | I        |
| BENZO(B)FLUORANTHENE   | 0001      | SE     | mg/Kg            | 0.84                       | 1.4                  | J                         | 6.4E-01 | I        |
| BENZO(B)FLUORANTHENE   | 1001      | SE     | mg/Kg            | 0.82                       | 1.1                  | J                         | 6.4E-01 | I        |
| BENZO(G,H,I)PERYLENE   | 0001      | SE     | mg/Kg            | 0.84                       | 1.3                  | J                         | 4.0E+00 | I        |
| BENZO(K)FLUORANTHENE   | 0001      | SE     | mg/Kg            | 0.84                       | 1.5                  | J                         | 1.3E+00 | I        |
| BERYLLIUM              | 0001      | SE     | mg/Kg            | .2                         | 1.4                  |                           | 1.5E-01 | I        |
| BERYLLIUM              | 1001      | SE     | mg/Kg            | .2                         | 1.3                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL         | 0001      | SE     | mg/Kg            | .2                         | 7.9                  | J                         | 1.4E+02 | I        |
| CADMIUM, TOTAL         | 1001      | SE     | mg/Kg            | .2                         | 6.4                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL         | 0001      | SE     | mg/Kg            | 2.                         | 128000.              |                           | NA      | I        |
| CALCIUM, TOTAL         | 1001      | SE     | mg/Kg            | 2.                         | 122000.              |                           | NA      | I        |
| CHLORIDE               | 0001      | SE     | mg/Kg            | .5                         | 121.28               |                           | NA      | I        |
| CHLORIDE               | 1001      | SE     | mg/Kg            | .5                         | 104.41               |                           | NA      | I        |
| CHROMIUM, TOTAL        | 0001      | SE     | mg/Kg            | 1.                         | 23.3                 |                           | 1.4E+03 | I        |
| CHROMIUM, TOTAL        | 1001      | SE     | mg/Kg            | 1.                         | 22.8                 |                           | 1.4E+03 | I        |
| CHRYSENE               | 0001      | SE     | mg/Kg            | 0.84                       | 2.2                  | J                         | 2.0E+01 | I        |
| CHRYSENE               | 1001      | SE     | mg/Kg            | 0.82                       | 1.2                  | J                         | 2.0E+01 | I        |
| COBALT, TOTAL          | 0001      | SE     | mg/Kg            | 1.                         | 6.2                  |                           | 3.9E+01 | I        |
| COBALT, TOTAL          | 1001      | SE     | mg/Kg            | 1.                         | 4.5                  |                           | 3.9E+01 | I        |
| COPPER, TOTAL          | 0001      | SE     | mg/Kg            | 1.                         | 63.2                 | J                         | 1.0E+04 | I        |
| COPPER, TOTAL          | 1001      | SE     | mg/Kg            | 1.                         | 35.8                 | J                         | 1.0E+04 | I        |
| FLUORANTHENE           | 0001      | SE     | mg/Kg            | 0.84                       | 5.2                  | J                         | 1.1E+04 | I        |
| FLUORANTHENE           | 1001      | SE     | mg/Kg            | 0.82                       | 2.9                  | J                         | 1.1E+04 | I        |
| INDENO(1,2,3-CD)PYRENE | 0001      | SE     | mg/Kg            | 0.84                       | 1.3                  | J                         | 3.8E-01 | I        |
| IRON, TOTAL            | 0001      | SE     | mg/Kg            | 1.                         | 11000.               | J                         | NA      | I        |
| IRON, TOTAL            | 1001      | SE     | mg/Kg            | 1.                         | 5120.                | J                         | NA      | I        |
| LEAD, TOTAL            | 0001      | SE     | mg/Kg            | .2                         | 39.1                 |                           | 5.3E+01 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 SE - Sediment  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.29  
 UNDERGROUND SEWER LINES GRIDS G6 AND G7  
 Location: MND33-0130  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter         | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|-------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| LEAD, TOTAL       | 1001      | SE     | mG/Kg            | .2                         | 28.6                 |                           | 5.3E+01 | I        |
| MAGNESIUM, TOTAL  | 0001      | SE     | mG/Kg            | 5.                         | 42500.               |                           | NA      | I        |
| MAGNESIUM, TOTAL  | 1001      | SE     | mG/Kg            | 5.                         | 34500.               |                           | NA      | I        |
| MANGANESE, TOTAL  | 0001      | SE     | mG/Kg            | .2                         | 562.                 |                           | 2.7E+04 | I        |
| MANGANESE, TOTAL  | 1001      | SE     | mG/Kg            | .2                         | 504.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL     | 0001      | SE     | mG/Kg            | 2.                         | 16.4                 |                           | 5.4E+03 | I        |
| NICKEL, TOTAL     | 1001      | SE     | mG/Kg            | 2.                         | 13.                  |                           | 5.4E+03 | I        |
| NITRATE           | 1001      | SE     | mG/Kg            | .1                         | 2.69                 |                           | 4.3E+05 | I        |
| PHENANTHRENE      | 0001      | SE     | mG/Kg            | 0.84                       | 3.                   | J                         | 7.8E+03 | I        |
| PHENANTHRENE      | 1001      | SE     | mG/Kg            | 0.82                       | 1.5                  | J                         | 7.8E+03 | I        |
| POTASSIUM, TOTAL  | 0001      | SE     | mG/Kg            | 10.                        | 402.                 |                           | NA      | I        |
| POTASSIUM, TOTAL  | 1001      | SE     | mG/Kg            | 10.                        | 402.                 |                           | NA      | I        |
| PYRENE            | 0001      | SE     | mG/Kg            | 0.84                       | 3.2                  | J                         | 1.1E+00 | I        |
| PYRENE            | 1001      | SE     | mG/Kg            | 0.82                       | 1.7                  | J                         | 1.1E+00 | I        |
| SILVER, TOTAL     | 0001      | SE     | mG/Kg            | 1.                         | 12.5                 |                           | 1.4E+03 | I        |
| SILVER, TOTAL     | 1001      | SE     | mG/Kg            | 1.                         | 11.7                 |                           | 1.4E+03 | I        |
| SODIUM, TOTAL     | 0001      | SE     | mG/Kg            | 10.                        | 554.                 |                           | NA      | I        |
| SODIUM, TOTAL     | 1001      | SE     | mG/Kg            | 10.                        | 538.                 |                           | NA      | I        |
| TETRACHLOROETHENE | 0001      | SE     | mG/Kg            | 0.006                      | 0.047                |                           | 1.3E+01 | I        |
| TETRACHLOROETHENE | 1001      | SE     | mG/Kg            | 0.006                      | 0.11                 |                           | 1.3E+01 | I        |
| VANADIUM, TOTAL   | 0001      | SE     | mG/Kg            | 1.                         | 18.1                 |                           | 1.9E+03 | I        |
| VANADIUM, TOTAL   | 1001      | SE     | mG/Kg            | 1.                         | 15.3                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL       | 0001      | SE     | mG/Kg            | .5                         | 288.                 | J                         | 5.4E+04 | I        |
| ZINC, TOTAL       | 1001      | SE     | mG/Kg            | .5                         | 159.                 | J                         | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 SE - Sediment  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.27. UNDERGROUND SEWER LINES GRID G12**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

The OU 3 Work Plan details an underground sewer line in the Grid G12 area. Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grid G12 site history and field investigation procedures may be found in subsection 2.27.

Two soil samples were collected from a single location near monitor well 0112 and were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrates/nitrites; and tritium. The validated analytical results for all analytes detected above laboratory reporting limits in these samples is presented in Table III.30.

#### **3.27.1. Volatile Organic Compounds**

VOCs were not present in concentrations above laboratory reporting limits in any of the samples analyzed from the Grid G12 area.

#### **3.27.2. Semivolatile Organic Compounds**

SVOCs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed from the Grid G12 area.

#### **3.27.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed from the Grid G12 area.

#### **3.27.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the Grid G12 area at concentrations above PRGs or proposed action levels.

### **3.27.5. Explosives, Chloride, Nitrates, Nitrites, and Tritium**

Explosives were not detected in either sample. Chloride was detected at estimated concentrations less than 10.0 mG/Kg in both samples. Nitrates, nitrites, and tritium were not detected in either sample from the Grid G12 area.

### **3.27.6. Summary**

The analytical results for samples collected from the Underground Sewer Lines Grid G12 area indicate that sewer line operations in the vicinity have not impacted soil quality. As a result of these findings, no further action involving site characterization of soil remediation at the Underground Sewer Lines Grid G12 area is recommended.

TABLE III.30  
 UNDERGROUND SEWER LINES GRID G12  
 Location: MND33-0139  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mG/Kg            | 6.                         | 3200.                |                           | 7.8E+05 | I        |
| ALUMINUM, TOTAL  | 1001      | S      | mG/Kg            | 6.                         | 2650.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mG/Kg            | 3.                         | 33.7                 | J                         | 1.1E+02 | I        |
| ANTIMONY, TOTAL  | 1001      | S      | mG/Kg            | 3.                         | 35.7                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 0001      | S      | mG/Kg            | .2                         | 3.8                  | J                         | 2.1E+03 | I        |
| ARSENIC, TOTAL   | 1001      | S      | mG/Kg            | .2                         | 2.9                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL    | 0001      | S      | mG/Kg            | .2                         | 17.4                 |                           | 1.9E+04 | I        |
| BARIUM, TOTAL    | 1001      | S      | mG/Kg            | .2                         | 15.9                 |                           | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mG/Kg            | .2                         | .68                  |                           | 1.5E-01 | I        |
| BERYLLIUM        | 1001      | S      | mG/Kg            | .2                         | .68                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mG/Kg            | .2                         | 7.                   |                           | 1.4E+02 | I        |
| CADMIUM, TOTAL   | 1001      | S      | mG/Kg            | .2                         | 7.8                  |                           | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mG/Kg            | 2.                         | 143000.              |                           | NA      | I        |
| CALCIUM, TOTAL   | 1001      | S      | mG/Kg            | 2.                         | 141000.              |                           | NA      | I        |
| CHLORIDE         | 0001      | S      | mG/Kg            | .5                         | 5.6                  | J                         | NA      | I        |
| CHLORIDE         | 1001      | S      | mG/Kg            | .5                         | 8.3                  | J                         | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mG/Kg            | 1.                         | 27.5                 |                           | 1.4E+03 | I        |
| CHROMIUM, TOTAL  | 1001      | S      | mG/Kg            | 1.                         | 26.7                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 8.2                  |                           | 3.9E+01 | I        |
| COBALT, TOTAL    | 1001      | S      | mG/Kg            | 1.                         | 7.7                  |                           | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 18.2                 |                           | 1.0E+04 | I        |
| COPPER, TOTAL    | 1001      | S      | mG/Kg            | 1.                         | 17.8                 |                           | 1.0E+04 | I        |
| IRON, TOTAL      | 0001      | S      | mG/Kg            | 1.                         | 9120.                |                           | NA      | I        |
| IRON, TOTAL      | 1001      | S      | mG/Kg            | 1.                         | 9190.                |                           | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mG/Kg            | .2                         | 5.                   |                           | 5.3E+01 | I        |
| LEAD, TOTAL      | 1001      | S      | mG/Kg            | .2                         | 4.8                  |                           | 5.3E+01 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mG/Kg            | 5.                         | 44600.               |                           | NA      | I        |
| MAGNESIUM, TOTAL | 1001      | S      | mG/Kg            | 5.                         | 50000.               |                           | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mG/Kg            | .2                         | 252.                 |                           | 2.7E+04 | I        |
| MANGANESE, TOTAL | 1001      | S      | mG/Kg            | .2                         | 267.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mG/Kg            | 2.                         | 26.9                 |                           | 5.4E+03 | I        |
| NICKEL, TOTAL    | 1001      | S      | mG/Kg            | 2.                         | 25.4                 |                           | 5.4E+03 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mG/Kg            | 10.                        | 648.                 |                           | NA      | I        |
| POTASSIUM, TOTAL | 1001      | S      | mG/Kg            | 10.                        | 538.                 |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 18.5                 | J                         | 1.4E+03 | I        |
| SILVER, TOTAL    | 1001      | S      | mG/Kg            | 1.                         | 18.7                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL    | 0001      | S      | mG/Kg            | 10.                        | 180.                 |                           | NA      | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.30  
 UNDERGROUND SEWER LINES GRID G12  
 Location: MND33-0139  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter       | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|-----------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| SODIUM, TOTAL   | 1001      | S      | mg/Kg            | 10.                        | 174.                 |                           | NA      | I        |
| VANADIUM, TOTAL | 0001      | S      | mg/Kg            | 1.                         | 23.1                 |                           | 1.9E+03 | I        |
| VANADIUM, TOTAL | 1001      | S      | mg/Kg            | 1.                         | 23.1                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL     | 0001      | S      | mg/Kg            | .5                         | 30.2                 |                           | 5.4E+04 | I        |
| ZINC, TOTAL     | 1001      | S      | mg/Kg            | .5                         | 34.9                 |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.28. UNDERGROUND SEWER LINES GRID G14 WEST**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

The Grid G14 West sewer lines are located south of Building 42, and are constructed of vitrified clay pipe and PVC. Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grid G14 West site history and field investigation procedures is presented in subsection 2.28.

Soil samples were collected from one interval at a single location in the Grid G14 West area and were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrates/nitrites; and tritium. The validated analytical results for all analytes detected above laboratory reporting limits are presented in Table III.31.

#### **3.28.1. Volatile Organic Compounds**

VOCs were not present in concentrations above laboratory reporting limits.

#### **3.28.2. Semivolatile Organic Compounds**

SVOCs were not detected in concentrations above laboratory reporting limits.

#### **3.28.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits.

#### **3.28.4. TAL Inorganics**

Inorganic compounds were not detected in soils from the Underground Sewer Lines Grid G14 West area at concentrations above the PRGs or proposed action levels.

#### **3.28.5. Explosives, Chloride, Nitrates, Nitrites, and Tritium**

Explosives, chloride, nitrates, nitrites, and tritium were not detected above laboratory reporting limits in this sample.

### 3.28.6. Summary

The analytical results for the sample collected at Underground Sewer Lines Grid G14 West indicate that sewer line operations in this area have not adversely impacted soil quality. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grid G14 West Area is recommended.

TABLE III.31  
 UNDERGROUND SEWER LINES GRID G14 WEST  
 Location: MND33-0012  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mG/Kg            | .06                        | 12700.               | J                         | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mG/Kg            | .03                        | 11.9                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 0001      | S      | mG/Kg            | .002                       | 1.5                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL    | 0001      | S      | mG/Kg            | .002                       | 22.1                 |                           | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mG/Kg            | .002                       | .83                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mG/Kg            | .002                       | 2.0                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mG/Kg            | .02                        | 57200.               |                           | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mG/Kg            | .01                        | 34.5                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mG/Kg            | .01                        | 16.9                 |                           | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mG/Kg            | .01                        | 22.3                 |                           | 1.0E+04 | I        |
| IRON, TOTAL      | 0001      | S      | mG/Kg            | .01                        | 29200.               |                           | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mG/Kg            | .002                       | 3.4                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mG/Kg            | .05                        | 13800.               | J                         | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mG/Kg            | .002                       | 591.                 | J                         | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mG/Kg            | .02                        | 35.                  |                           | 5.4E+03 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mG/Kg            | .1                         | 2460.                |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mG/Kg            | .01                        | 11.2                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL    | 0001      | S      | mG/Kg            | .1                         | 263.                 |                           | NA      | I        |
| VANADIUM, TOTAL  | 0001      | S      | mG/Kg            | .01                        | 25.2                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL      | 0001      | S      | mG/Kg            | .005                       | 68.                  |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.29. UNDERGROUND SEWER LINES GRID G14 EAST**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

Sewer lines in the Grid G14 East area are located south of Building 27. Lines in this area are constructed of either vitrified clay pipe or PVC. Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grid G14 East site history and field investigation procedures is presented in subsection 2.29.

Soil samples were collected from one interval at a single location in the Grid G14 East area and were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrates/nitrites; and tritium. The validated analytical results for all analytes detected above laboratory reporting limits are presented in Table III.32.

#### **3.29.1. Volatile Organic Compounds**

Dichloromethane and 4-methyl-2-pentanone were detected at concentrations of 0.015 mG/Kg and 0.044 mG/Kg, respectively. The concentrations of these constituents are significantly less than the respective PRGs for these compounds. Because of the low concentrations of these compounds, they are not considered to reflect a significant impact to site soil quality.

#### **3.29.2. Semivolatile Organic Compounds**

SVOCs were not detected in concentrations above laboratory reporting limits.

#### **3.29.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits.

#### **3.29.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the Underground Sewer Lines Grid G14 East area at concentrations above PRGs or proposed action levels.

### **3.29.5. Explosives, Chloride, Nitrates, Nitrites, and Tritium**

Explosives, chloride, nitrates, nitrites, and tritium were not detected above laboratory reporting limits in this sample.

### **3.29.6. Summary**

The analytical results for the sample collected at Underground Sewer Lines Grid G14 East indicate that breaks in sewer line operations in this area have not adversely impacted soil quality. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grid G14 East area is recommended.

TABLE III.32  
 UNDERGROUND SEWER LINES GRID G14 EAST  
 Location: MND33-0013  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter                          | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| 4-METHYL-2-PENTANONE               | 0001      | S      | mG/Kg            | 0.011                      | 0.015                |                           | 1.4E+04 | I        |
| ALUMINUM, TOTAL                    | 0001      | S      | mG/Kg            | .06                        | 11600.               | J                         | 7.8E+05 | I        |
| ANTIMONY, TOTAL                    | 0001      | S      | mG/Kg            | .03                        | 15.9                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL                     | 0001      | S      | mG/Kg            | .002                       | 1.5                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL                      | 0001      | S      | mG/Kg            | .002                       | 18.7                 |                           | 1.9E+04 | I        |
| BERYLLIUM                          | 0001      | S      | mG/Kg            | .002                       | .83                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL                     | 0001      | S      | mG/Kg            | .002                       | 2.5                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL                     | 0001      | S      | mG/Kg            | .02                        | 74200.               |                           | NA      | I        |
| CHROMIUM, TOTAL                    | 0001      | S      | mG/Kg            | .01                        | 30.2                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL                      | 0001      | S      | mG/Kg            | .01                        | 16.8                 |                           | 3.9E+01 | I        |
| COPPER, TOTAL                      | 0001      | S      | mG/Kg            | .01                        | 18.8                 |                           | 1.0E+04 | I        |
| DICHLOROMETHANE-METHYLENE CHLORIDE | 0001      | S      | mG/Kg            | 0.005                      | 0.044                |                           | 8.5E+01 | I        |
| IRON, TOTAL                        | 0001      | S      | mG/Kg            | .01                        | 27700.               |                           | NA      | I        |
| LEAD, TOTAL                        | 0001      | S      | mG/Kg            | .002                       | 4.5                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL                   | 0001      | S      | mG/Kg            | .05                        | 17000.               | J                         | NA      | I        |
| MANGANESE, TOTAL                   | 0001      | S      | mG/Kg            | .002                       | 534.                 | J                         | 2.7E+04 | I        |
| NICKEL, TOTAL                      | 0001      | S      | mG/Kg            | .02                        | 32.8                 |                           | 5.4E+03 | I        |
| POTASSIUM, TOTAL                   | 0001      | S      | mG/Kg            | .1                         | 2230.                |                           | NA      | I        |
| SILVER, TOTAL                      | 0001      | S      | mG/Kg            | .01                        | 12.7                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL                      | 0001      | S      | mG/Kg            | .1                         | 200.                 |                           | NA      | I        |
| VANADIUM, TOTAL                    | 0001      | S      | mG/Kg            | .01                        | 25.6                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL                        | 0001      | S      | mG/Kg            | .005                       | 64.                  |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.30. UNDERGROUND SEWER LINES GRID G15**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

The sewer line in the Grid G15 area is located east of Building 98 and is constructed of vitrified clay pipe. Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grid G15 site history and field investigation is presented in subsection 2.30.

Five soil samples were collected from three locations in the Grid G15 area. One sample from location MND33-0106 was only analyzed for TCL VOCs. The remaining four samples were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrates/nitrites; and tritium. The validated analytical results for all analytes detected above laboratory reporting limits are presented in Table III.33.

#### **3.30.1. Volatile Organic Compounds**

VOCs were not present in concentrations above laboratory reporting limits in any of the samples analyzed from Grid G15.

#### **3.30.2 Semivolatile Organic Compounds**

SVOCs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed from Grid G15.

#### **3.30.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed.

#### **3.30.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the Underground Sewer Lines Grid G15 area at concentrations above PRGs or proposed action levels.

### **3.30.5. Explosives, Chloride, Nitrates, Nitrites, and Tritium**

Explosives were not detected in any soil samples collected from the Grid G15 area. Nitrate was detected above the laboratory reporting limit in samples MND33-0106-0001 and MND33-0116-0001 but was below the PRG. Low concentrations of chloride were present in each of the four samples analyzed for this parameter. There is not a PRG for chloride, but the low concentrations of chloride observed in some samples from the Grid G15 area are not considered to represent an impact to site soil quality. Tritium was not found in any of the soil samples analyzed at concentrations above laboratory reporting limits.

### **3.30.6. Summary**

The analytical results for samples collected from the Underground Sewer Lines Grid G15 area indicate that sewer line operations in this area have not adversely impacted soil quality. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grid G15 area is recommended.

TABLE III.33  
 UNDERGROUND SEWER LINES GRID G15  
 Location: MND33-0106  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mG/Kg            | 6.                         | 4640.                |                           | 7.8E+05 | I        |
| ALUMINUM, TOTAL  | 1001      | S      | mG/Kg            | 6.                         | 4420.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mG/Kg            | 3.                         | 33.                  | J                         | 1.1E+02 | I        |
| ANTIMONY, TOTAL  | 1001      | S      | mG/Kg            | 3.                         | 32.4                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 1001      | S      | mG/Kg            | .2                         | 3.7                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL    | 0001      | S      | mG/Kg            | .2                         | 22.6                 |                           | 1.9E+04 | I        |
| BARIUM, TOTAL    | 1001      | S      | mG/Kg            | .2                         | 24.3                 |                           | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mG/Kg            | .2                         | .67                  | J                         | 1.5E-01 | I        |
| BERYLLIUM        | 1001      | S      | mG/Kg            | .2                         | .65                  | J                         | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mG/Kg            | .2                         | 6.1                  | J                         | 1.4E+02 | I        |
| CADMIUM, TOTAL   | 1001      | S      | mG/Kg            | .2                         | 5.9                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mG/Kg            | 2.                         | 108000.              |                           | NA      | I        |
| CALCIUM, TOTAL   | 1001      | S      | mG/Kg            | 2.                         | 106000.              |                           | NA      | I        |
| CHLORIDE         | 0001      | S      | mG/Kg            | .5                         | 15.6                 |                           | NA      | I        |
| CHLORIDE         | 1001      | S      | mG/Kg            | .5                         | 15.1                 |                           | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mG/Kg            | 1.                         | 26.1                 | J                         | 1.4E+03 | I        |
| CHROMIUM, TOTAL  | 1001      | S      | mG/Kg            | 1.                         | 25.4                 | J                         | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 8.6                  | J                         | 3.9E+01 | I        |
| COBALT, TOTAL    | 1001      | S      | mG/Kg            | 1.                         | 9.5                  | J                         | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 15.5                 | J                         | 1.0E+04 | I        |
| COPPER, TOTAL    | 1001      | S      | mG/Kg            | 1.                         | 16.5                 | J                         | 1.0E+04 | I        |
| CYANIDE          | 0001      | S      | mG/Kg            | .2                         | .31                  | J                         | 5.4E+03 | I        |
| CYANIDE          | 1001      | S      | mG/Kg            | .2                         | .29                  | J                         | 5.4E+03 | I        |
| IRON, TOTAL      | 0001      | S      | mG/Kg            | 1.                         | 10400.               |                           | NA      | I        |
| IRON, TOTAL      | 1001      | S      | mG/Kg            | 1.                         | 10600.               |                           | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mG/Kg            | .2                         | 6.                   | J                         | 5.3E+01 | I        |
| LEAD, TOTAL      | 1001      | S      | mG/Kg            | .2                         | 5.2                  | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mG/Kg            | 5.                         | 47000.               |                           | NA      | I        |
| MAGNESIUM, TOTAL | 1001      | S      | mG/Kg            | 5.                         | 45000.               |                           | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mG/Kg            | .2                         | 195.                 |                           | 2.7E+04 | I        |
| MANGANESE, TOTAL | 1001      | S      | mG/Kg            | .2                         | 227.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mG/Kg            | 2.                         | 23.8                 | J                         | 5.4E+03 | I        |
| NICKEL, TOTAL    | 1001      | S      | mG/Kg            | 2.                         | 24.6                 | J                         | 5.4E+03 | I        |
| NITRATE          | 0001      | S      | mG/Kg            | .1                         | 1.07                 |                           | 4.3E+05 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mG/Kg            | 10.                        | 765.                 |                           | NA      | I        |
| POTASSIUM, TOTAL | 1001      | S      | mG/Kg            | 10.                        | 755.                 |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mG/Kg            | 1.                         | 16.6                 | J                         | 1.4E+03 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mG/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.33  
 UNDERGROUND SEWER LINES GRID G15  
 Location: MND33-0106  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter       | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|-----------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| SILVER, TOTAL   | 1001      | S      | mg/Kg            | 1.                         | 16.2                 | J                         | 1.4E+03 | I        |
| SODIUM, TOTAL   | 0001      | S      | mg/Kg            | 10.                        | 187.                 | J                         | NA      | I        |
| SODIUM, TOTAL   | 1001      | S      | mg/Kg            | 10.                        | 198.                 | J                         | NA      | I        |
| VANADIUM, TOTAL | 0001      | S      | mg/Kg            | 1.                         | 25.2                 | J                         | 1.9E+03 | I        |
| VANADIUM, TOTAL | 1001      | S      | mg/Kg            | 1.                         | 24.4                 | J                         | 1.9E+03 | I        |
| ZINC, TOTAL     | 0001      | S      | mg/Kg            | .5                         | 37.9                 | J                         | 5.4E+04 | I        |
| ZINC, TOTAL     | 1001      | S      | mg/Kg            | .5                         | 34.                  | J                         | 5.4E+04 | I        |

- PRG - Preliminary Remediation Goals (Risk Based)
- J - The associated value is an estimated quantity
- I - Initial Analysis
- S - Soil
- mg/Kg - Milligrams per Kilogram
- (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.33  
 UNDERGROUND SEWER LINES GRID G15  
 Location: MND33-0107  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mg/Kg            | 6.                         | 6540.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mg/Kg            | 3.                         | 19.1                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 0001      | S      | mg/Kg            | .2                         | 1.                   | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL    | 0001      | S      | mg/Kg            | .2                         | 31.9                 |                           | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mg/Kg            | .2                         | .7                   |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mg/Kg            | .2                         | 2.6                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mg/Kg            | 2.                         | 78900.               |                           | NA      | I        |
| CHLORIDE         | 0001      | S      | mg/Kg            | .5                         | 7.9                  |                           | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mg/Kg            | 1.                         | 26.2                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 11.2                 |                           | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 17.3                 |                           | 1.0E+04 | I        |
| IRON, TOTAL      | 0001      | S      | mg/Kg            | 1.                         | 16100.               | J                         | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mg/Kg            | .2                         | 6.                   | J                         | 5.3E+01 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mg/Kg            | 5.                         | 19500.               |                           | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mg/Kg            | .2                         | 377.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mg/Kg            | 2.                         | 25.1                 |                           | 5.4E+03 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mg/Kg            | 10.                        | 691.                 |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 13.9                 |                           | 1.4E+03 | I        |
| SODIUM, TOTAL    | 0001      | S      | mg/Kg            | 10.                        | 123.                 |                           | NA      | I        |
| VANADIUM, TOTAL  | 0001      | S      | mg/Kg            | 1.                         | 24.2                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL      | 0001      | S      | mg/Kg            | .5                         | 40.4                 |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE 111.33  
 UNDERGROUND SEWER LINES GRID G15  
 Location: MND33-0116  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mg/Kg            | 6.                         | 9820.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mg/Kg            | 3.                         | 12.8                 | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 0001      | S      | mg/Kg            | .2                         | 3.2                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL    | 0001      | S      | mg/Kg            | .2                         | 15.7                 | J                         | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mg/Kg            | .2                         | .86                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mg/Kg            | .2                         | 3.                   | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mg/Kg            | 2.                         | 130000.              |                           | NA      | I        |
| CHLORIDE         | 0001      | S      | mg/Kg            | .5                         | 12.53                |                           | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mg/Kg            | 1.                         | 32.1                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 14.                  |                           | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 23.6                 |                           | 1.0E+04 | I        |
| IRON, TOTAL      | 0001      | S      | mg/Kg            | 1.                         | 22100.               |                           | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mg/Kg            | .2                         | 4.                   |                           | 5.3E+01 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mg/Kg            | 5.                         | 10900.               |                           | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mg/Kg            | .2                         | 864.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mg/Kg            | 2.                         | 26.4                 |                           | 5.4E+03 | I        |
| NITRATE          | 0001      | S      | mg/Kg            | .1                         | 3.86                 | J                         | 4.3E+05 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mg/Kg            | 10.                        | 1720.                |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 17.1                 |                           | 1.4E+03 | I        |
| SODIUM, TOTAL    | 0001      | S      | mg/Kg            | 10.                        | 184.                 |                           | NA      | I        |
| VANADIUM, TOTAL  | 0001      | S      | mg/Kg            | 1.                         | 25.9                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL      | 0001      | S      | mg/Kg            | .5                         | 43.3                 |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### **3.31. UNDERGROUND SEWER LINES GRID G19/14**

Sources of wastewater conveyed through the underground sewer lines included restrooms, showers, laundry facilities, laboratory sinks, and rinses from a small metal finishing operation. Some of the laboratory sinks reportedly received small amounts of solvents, photographic solutions, acids, and bases.

The sewer lines in the Grid G19/14 area are located between the sewage disposal building (Building 57) and the bunkers to the northeast. The lines are constructed of vitrified clay pipe. Soil sampling was conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines. A more detailed description of the Underground Sewer Lines Grid G19/14 site history and field investigation procedures is presented in subsection 2.31.

Four soil samples were collected from two locations and were analyzed for TCL VOCs, SVOCs, P/PCBs; TAL inorganics; explosives; chloride; nitrite/nitrate; and tritium. The validated analytical results for all analytes detected above the laboratory reporting limits are presented in Table III.34.

#### **3.31.1. Volatile Organic Compounds**

One soil sample, MND33-0117-0001, contained detectable concentrations of 2-butanone and 4-methyl-2-pentanone at concentrations of 0.021 mG/Kg and 0.013 mG/Kg, respectively. The concentrations of these compounds are substantially less than the respective PRGs. Because of the low concentrations, these compounds are not considered to reflect a significant impact to site soil quality.

#### **3.31.2. Semivolatile Organic Compounds**

SVOCs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed.

#### **3.31.3. Pesticides and Polychlorinated Biphenyls**

P/PCBs were not detected in concentrations above laboratory reporting limits in any of the samples analyzed.

#### **3.31.4. TAL Inorganics**

Inorganic compounds were not detected in soil samples from the Underground Sewer Lines Grid G19/14 area at concentrations above PRGs or proposed action levels.

### **3.31.5. Explosives, Chloride, Nitrates, Nitrites, Lithium, and Tritium**

Explosives were not detected in any sample analyzed at concentrations above laboratory reporting limits. Chloride was detected at concentrations slightly above the laboratory reporting limit. Nitrate was detected in both samples from location MND33-0117 at levels below the PRG. Lithium was present at a concentration above the laboratory reporting limit in samples from location MND33-0134 but was below the PRG. Tritium was not detected in any soil sample at concentrations above laboratory reporting limits.

### **3.31.6. Summary**

The analytical results for the samples collected from the Underground Sewer Lines Grid G19/14 area indicate that sewer line operations have not adversely impacted soil quality in the site vicinity. As a result of these findings, no further action involving site characterization or soil remediation at the Underground Sewer Lines Grid G19/14 area is recommended.

TABLE III.34  
 UNDERGROUND SEWER LINES GRID G19/14  
 Location: MND33-0117  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter            | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|----------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| 2-BUTANONE           | 0001      | S      | mg/Kg            | 0.012                      | 0.021                |                           | 1.4E+04 | I        |
| 4-METHYL-2-PENTANONE | 0001      | S      | mg/Kg            | 0.012                      | 0.013                |                           | 1.4E+04 | I        |
| ALUMINUM, TOTAL      | 0001      | S      | mg/Kg            | 6.                         | 8730.                |                           | 7.8E+05 | I        |
| ALUMINUM, TOTAL      | 1001      | S      | mg/Kg            | 6.                         | 7360.                |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL      | 0001      | S      | mg/Kg            | 3.                         | 14.7                 | J                         | 1.1E+02 | I        |
| ANTIMONY, TOTAL      | 1001      | S      | mg/Kg            | 3.                         | 21.                  | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL       | 0001      | S      | mg/Kg            | .2                         | 6.                   | J                         | 2.1E+03 | I        |
| ARSENIC, TOTAL       | 1001      | S      | mg/Kg            | .2                         | 6.2                  | J                         | 2.1E+03 | I        |
| BARIUM, TOTAL        | 0001      | S      | mg/Kg            | .2                         | 64.                  | J                         | 1.9E+04 | I        |
| BARIUM, TOTAL        | 1001      | S      | mg/Kg            | .2                         | 55.4                 | J                         | 1.9E+04 | I        |
| BERYLLIUM            | 0001      | S      | mg/Kg            | .2                         | .77                  |                           | 1.5E-01 | I        |
| BERYLLIUM            | 1001      | S      | mg/Kg            | .2                         | .77                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL       | 0001      | S      | mg/Kg            | .2                         | 3.7                  | J                         | 1.4E+02 | I        |
| CADMIUM, TOTAL       | 1001      | S      | mg/Kg            | .2                         | 5.6                  | J                         | 1.4E+02 | I        |
| CALCIUM, TOTAL       | 0001      | S      | mg/Kg            | 2.                         | 40000.               |                           | NA      | I        |
| CALCIUM, TOTAL       | 1001      | S      | mg/Kg            | 2.                         | 69300.               |                           | NA      | I        |
| CHLORIDE             | 0001      | S      | mg/Kg            | .5                         | 109.7                |                           | NA      | I        |
| CHLORIDE             | 1001      | S      | mg/Kg            | .5                         | 106.09               |                           | NA      | I        |
| CHROMIUM, TOTAL      | 0001      | S      | mg/Kg            | 1.                         | 22.7                 |                           | 1.4E+03 | I        |
| CHROMIUM, TOTAL      | 1001      | S      | mg/Kg            | 1.                         | 24.7                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL        | 0001      | S      | mg/Kg            | 1.                         | 12.1                 |                           | 3.9E+01 | I        |
| COBALT, TOTAL        | 1001      | S      | mg/Kg            | 1.                         | 9.7                  |                           | 3.9E+01 | I        |
| COPPER, TOTAL        | 0001      | S      | mg/Kg            | 1.                         | 20.8                 |                           | 1.0E+04 | I        |
| COPPER, TOTAL        | 1001      | S      | mg/Kg            | 1.                         | 19.1                 |                           | 1.0E+04 | I        |
| IRON, TOTAL          | 0001      | S      | mg/Kg            | 1.                         | 18200.               |                           | NA      | I        |
| IRON, TOTAL          | 1001      | S      | mg/Kg            | 1.                         | 14000.               |                           | NA      | I        |
| LEAD, TOTAL          | 0001      | S      | mg/Kg            | .2                         | 11.4                 |                           | 5.3E+01 | I        |
| LEAD, TOTAL          | 1001      | S      | mg/Kg            | .2                         | 12.3                 |                           | 5.3E+01 | I        |
| MAGNESIUM, TOTAL     | 0001      | S      | mg/Kg            | 5.                         | 19100.               |                           | NA      | I        |
| MAGNESIUM, TOTAL     | 1001      | S      | mg/Kg            | 5.                         | 35400.               |                           | NA      | I        |
| MANGANESE, TOTAL     | 0001      | S      | mg/Kg            | .2                         | 441.                 |                           | 2.7E+04 | I        |
| MANGANESE, TOTAL     | 1001      | S      | mg/Kg            | .2                         | 358.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL        | 0001      | S      | mg/Kg            | 2.                         | 26.9                 |                           | 5.4E+03 | I        |
| NICKEL, TOTAL        | 1001      | S      | mg/Kg            | 2.                         | 25.2                 |                           | 5.4E+03 | I        |
| NITRATE              | 0001      | S      | mg/Kg            | .1                         | 4.20                 | J                         | 4.3E+05 | I        |
| NITRATE              | 1001      | S      | mg/Kg            | .1                         | 3.35                 | J                         | 4.3E+05 | I        |
| POTASSIUM, TOTAL     | 0001      | S      | mg/Kg            | 10.                        | 892.                 |                           | NA      | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.34  
 UNDERGROUND SEWER LINES GRID G19/14  
 Location: MND33-0117  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| POTASSIUM, TOTAL | 1001      | S      | mg/Kg            | 10.                        | 837.                 |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mg/Kg            | 1.                         | 9.6                  |                           | 1.4E+03 | I        |
| SILVER, TOTAL    | 1001      | S      | mg/Kg            | 1.                         | 13.3                 |                           | 1.4E+03 | I        |
| SODIUM, TOTAL    | 0001      | S      | mg/Kg            | 10.                        | 345.                 |                           | NA      | I        |
| SODIUM, TOTAL    | 1001      | S      | mg/Kg            | 10.                        | 333.                 |                           | NA      | I        |
| THALLIUM, TOTAL  | 0001      | S      | mg/Kg            | .2                         | .55                  | J                         | NA      | I        |
| THALLIUM, TOTAL  | 1001      | S      | mg/Kg            | .2                         | .6                   | J                         | NA      | I        |
| VANADIUM, TOTAL  | 0001      | S      | mg/Kg            | 1.                         | 27.9                 |                           | 1.9E+03 | I        |
| VANADIUM, TOTAL  | 1001      | S      | mg/Kg            | 1.                         | 27.5                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL      | 0001      | S      | mg/Kg            | .5                         | 50.                  |                           | 5.4E+04 | I        |
| ZINC, TOTAL      | 1001      | S      | mg/Kg            | .5                         | 40.5                 |                           | 5.4E+04 | I        |

- PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.34  
 UNDERGROUND SEWER LINES GRID G19/14  
 Location: MND33-0134  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter        | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|------------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| ALUMINUM, TOTAL  | 0001      | S      | mg/Kg            | 6.                         | 8780.                |                           | 7.8E+05 | I        |
| ALUMINUM, TOTAL  | 0002      | S      | mg/Kg            | 12.                        | 13200.               |                           | 7.8E+05 | I        |
| ANTIMONY, TOTAL  | 0001      | S      | mg/Kg            | 6.                         | 11.7                 | J                         | 1.1E+02 | I        |
| ANTIMONY, TOTAL  | 0002      | S      | mg/Kg            | 6.                         | 8.0                  | J                         | 1.1E+02 | I        |
| ARSENIC, TOTAL   | 0001      | S      | mg/Kg            | .4                         | 11.8                 |                           | 2.1E+03 | I        |
| ARSENIC, TOTAL   | 0002      | S      | mg/Kg            | .4                         | 10.7                 |                           | 2.1E+03 | I        |
| BARIIUM, TOTAL   | 0001      | S      | mg/Kg            | .4                         | 65.8                 |                           | 1.9E+04 | I        |
| BARIIUM, TOTAL   | 0002      | S      | mg/Kg            | .4                         | 106.                 |                           | 1.9E+04 | I        |
| BERYLLIUM        | 0001      | S      | mg/Kg            | .4                         | .75                  |                           | 1.5E-01 | I        |
| BERYLLIUM        | 0002      | S      | mg/Kg            | .4                         | .84                  |                           | 1.5E-01 | I        |
| CADMIUM, TOTAL   | 0001      | S      | mg/Kg            | .4                         | 3.6                  |                           | 1.4E+02 | I        |
| CADMIUM, TOTAL   | 0002      | S      | mg/Kg            | .4                         | 3.6                  |                           | 1.4E+02 | I        |
| CALCIUM, TOTAL   | 0001      | S      | mg/Kg            | 4.                         | 20400.               |                           | NA      | I        |
| CALCIUM, TOTAL   | 0002      | S      | mg/Kg            | 4.                         | 4990.                |                           | NA      | I        |
| CHLORIDE         | 0001      | S      | mg/Kg            | .5                         | 71.66                |                           | NA      | I        |
| CHLORIDE         | 0002      | S      | mg/Kg            | .5                         | 27.27                |                           | NA      | I        |
| CHROMIUM, TOTAL  | 0001      | S      | mg/Kg            | 2.                         | 20.3                 |                           | 1.4E+03 | I        |
| CHROMIUM, TOTAL  | 0002      | S      | mg/Kg            | 2.                         | 21.2                 |                           | 1.4E+03 | I        |
| COBALT, TOTAL    | 0001      | S      | mg/Kg            | 2.                         | 11.5                 |                           | 3.9E+01 | I        |
| COBALT, TOTAL    | 0002      | S      | mg/Kg            | 2.                         | 15.7                 |                           | 3.9E+01 | I        |
| COPPER, TOTAL    | 0001      | S      | mg/Kg            | 2.                         | 20.6                 |                           | 1.0E+04 | I        |
| COPPER, TOTAL    | 0002      | S      | mg/Kg            | 2.                         | 18.6                 |                           | 1.0E+04 | I        |
| IRON, TOTAL      | 0001      | S      | mg/Kg            | 2.                         | 16500.               |                           | NA      | I        |
| IRON, TOTAL      | 0002      | S      | mg/Kg            | 2.                         | 24300.               |                           | NA      | I        |
| LEAD, TOTAL      | 0001      | S      | mg/Kg            | .4                         | 22.7                 |                           | 5.3E+01 | I        |
| LEAD, TOTAL      | 0002      | S      | mg/Kg            | .4                         | 14.1                 |                           | 5.3E+01 | I        |
| LITHIUM, TOTAL   | 0001      | S      | mg/Kg            | .2                         | 10.7                 |                           | 5.4E+03 | I        |
| LITHIUM, TOTAL   | 0002      | S      | mg/Kg            | .2                         | 12.7                 |                           | 5.4E+03 | I        |
| MAGNESIUM, TOTAL | 0001      | S      | mg/Kg            | 10.                        | 10400.               |                           | NA      | I        |
| MAGNESIUM, TOTAL | 0002      | S      | mg/Kg            | 10.                        | 4830.                |                           | NA      | I        |
| MANGANESE, TOTAL | 0001      | S      | mg/Kg            | .4                         | 520.                 |                           | 2.7E+04 | I        |
| MANGANESE, TOTAL | 0002      | S      | mg/Kg            | .4                         | 333.                 |                           | 2.7E+04 | I        |
| NICKEL, TOTAL    | 0001      | S      | mg/Kg            | 4.                         | 31.1                 |                           | 5.4E+03 | I        |
| NICKEL, TOTAL    | 0002      | S      | mg/Kg            | 4.                         | 41.1                 |                           | 5.4E+03 | I        |
| POTASSIUM, TOTAL | 0001      | S      | mg/Kg            | 20.                        | 1290.                |                           | NA      | I        |
| POTASSIUM, TOTAL | 0002      | S      | mg/Kg            | 20.                        | 978.                 |                           | NA      | I        |
| SILVER, TOTAL    | 0001      | S      | mg/Kg            | 2.                         | 6.4                  | J                         | 1.4E+03 | I        |

PRG - Preliminary Remediation Goals (Risk Based)  
 J - The associated value is an estimated quantity  
 I - Initial Analysis  
 S - Soil  
 mg/Kg - Milligrams per Kilogram  
 (1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

TABLE III.34  
 UNDERGROUND SEWER LINES GRID G19/14  
 Location: MND33-0134  
 Summary of analytical data  
 for analyte concentrations  
 above reporting limits  
 Report Date: 03/05/93

| Parameter       | Sample Id | Matrix | Units of Measure | Laboratory Reporting Limit | Validated Result (1) | Data Validation Qualifier | PRG     | Run Type |
|-----------------|-----------|--------|------------------|----------------------------|----------------------|---------------------------|---------|----------|
| SODIUM, TOTAL   | 0001      | S      | mg/Kg            | 20.                        | 128.                 |                           | NA      | I        |
| SODIUM, TOTAL   | 0002      | S      | mg/Kg            | 20.                        | 354.                 |                           | NA      | I        |
| VANADIUM, TOTAL | 0001      | S      | mg/Kg            | 2.                         | 26.4                 |                           | 1.9E+03 | I        |
| VANADIUM, TOTAL | 0002      | S      | mg/Kg            | 2.                         | 34.7                 |                           | 1.9E+03 | I        |
| ZINC, TOTAL     | 0001      | S      | mg/Kg            | 1.                         | 68.                  |                           | 5.4E+04 | I        |
| ZINC, TOTAL     | 0002      | S      | mg/Kg            | 1.                         | 69.9                 |                           | 5.4E+04 | I        |

PRG - Preliminary Remediation Goals (Risk Based)

I - Initial Analysis

S - Soil

mg/Kg - Milligrams per Kilogram

(1) - This includes laboratory results that were not qualified from data validation, but were accepted by data validators

### 3.32 UNDERGROUND SEWER LINES GRID G24

Sewer lines in the Grid G24 area are located in a sharply sloped area north of the WD building on the Mound Plant Main Hill. The lines are constructed of vitrified clay pipe and PVC. Soil sampling was to be conducted in this area to assess whether breaks in the sewer lines have impacted soils in the vicinity of the sewer lines, but soil samples could not be collected at this site because of auger and split spoon refusal, the steepness of the topography, and the location of underground utility lines. A more detailed description of the *Underground Sewer Lines Grid G24* site history and attempted field investigation procedures is presented in subsection 2.32. Further investigation of soil quality at the Grid G24 area may be accomplished using alternative investigative techniques. The Grid G24 sewer lines contain or have contained materials similar to or identical to other OU 3 LFI sewer lines, and the nature of reported structural deficiencies in the Grid G24 sewer line would be similar to other OU 3 LFI sewer lines. Investigative results indicate that soil quality has not been impacted at the OU 3 LFI sewer line grids as a result of previous activities. Based upon these conditions, it is reasonable to assume that soils have not been impacted by site activities at the Grid G24 sewer lines and that further investigative activities would not be necessary.

## Reference 3

415

113

57

4

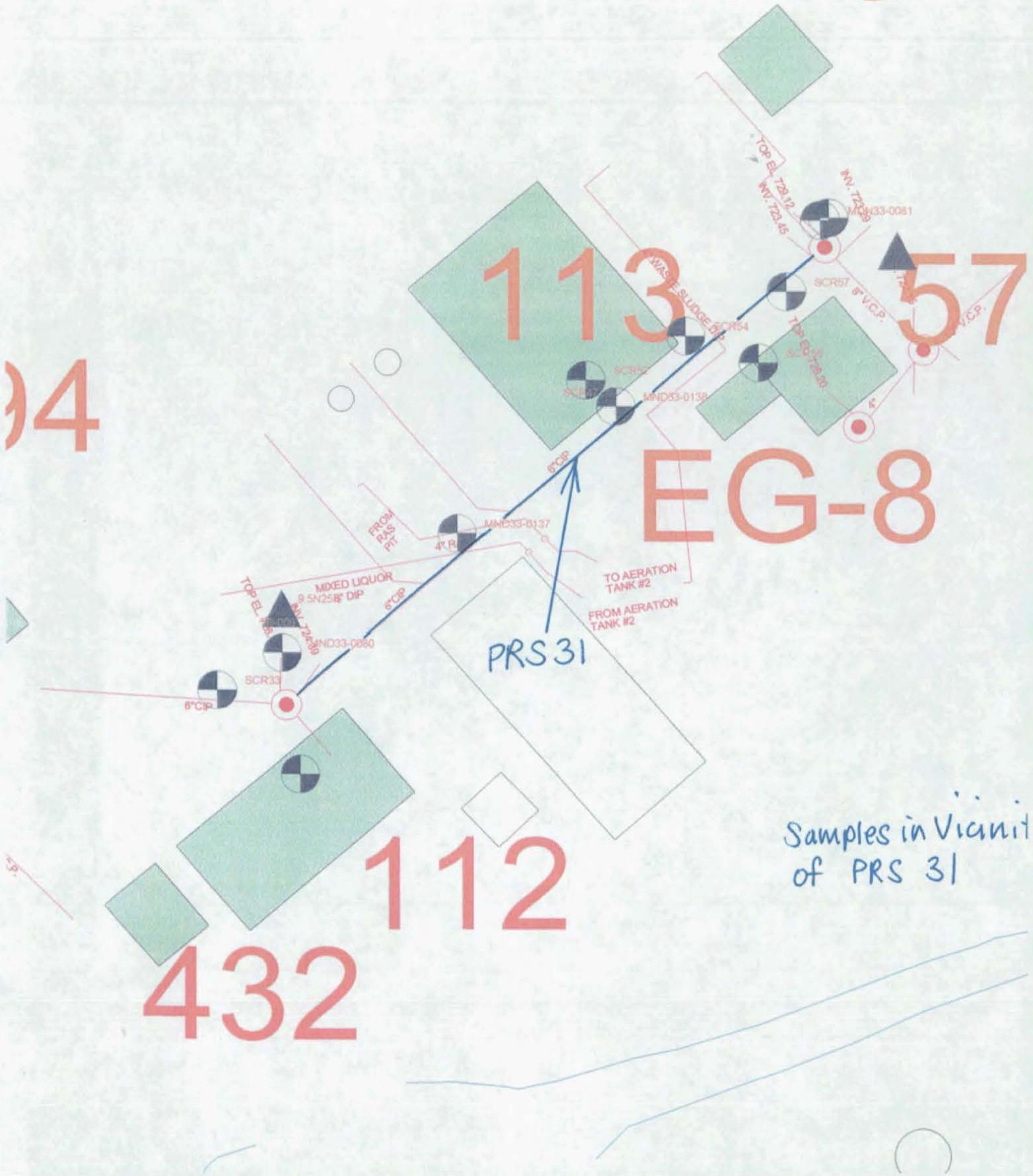
EG-8

PRS 31

112

432

Samples in Vicinity  
of PRS 31





Samples in Vicinity  
of PRS 32





Samples in Vicinity  
of PRS 34

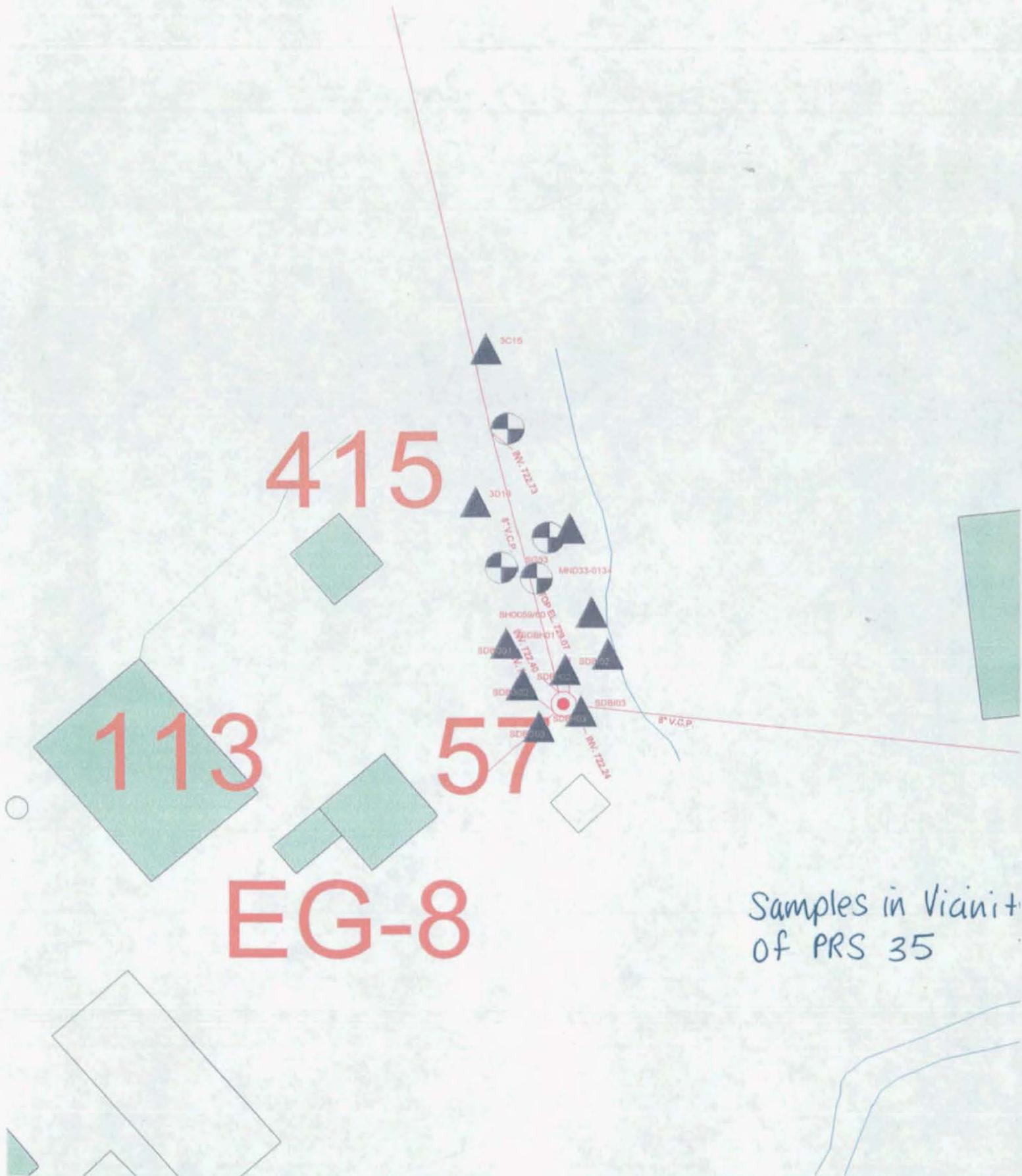
415

113

57

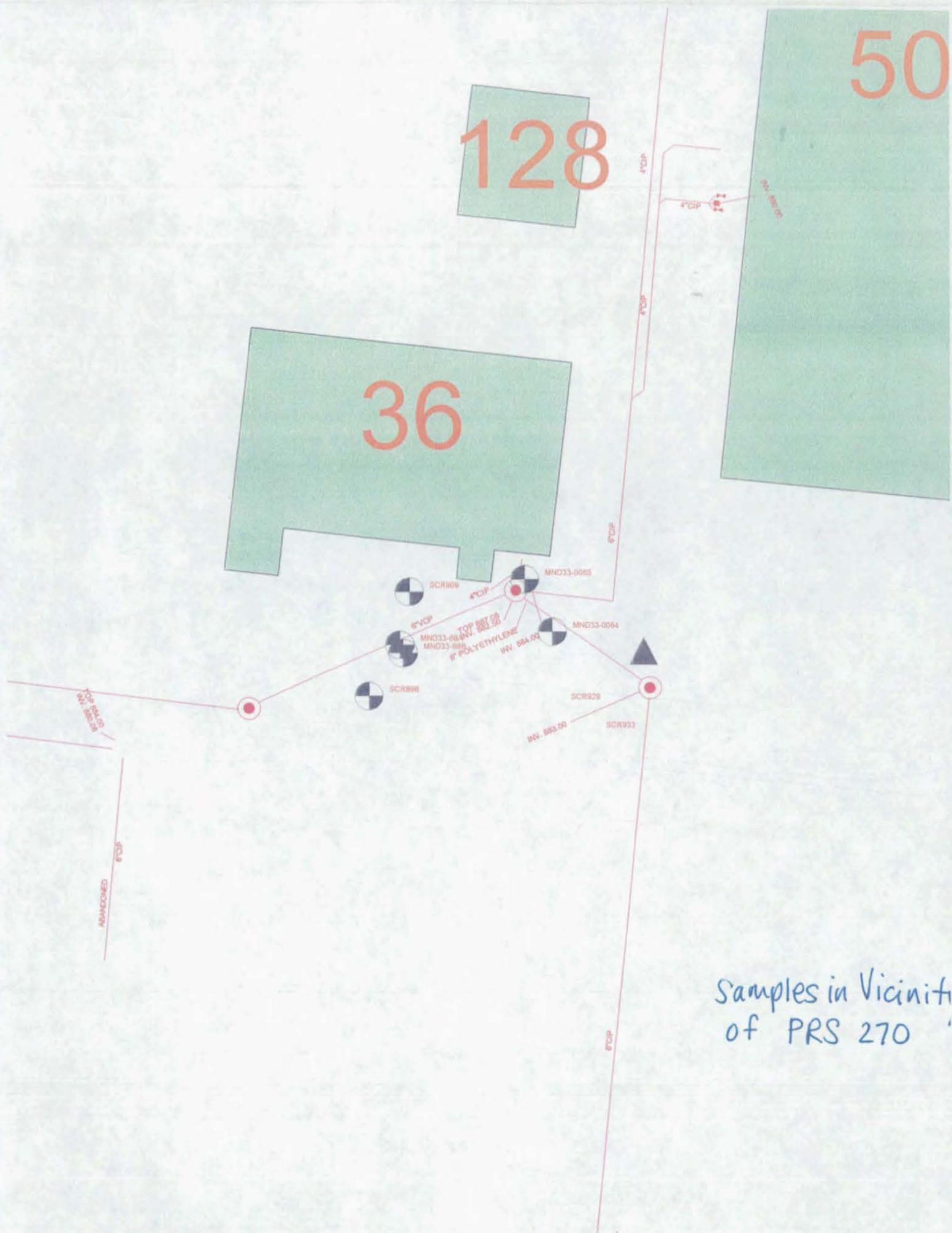
EG-8

Samples in Vicinity  
of PRS 35





Samples in Vicinity  
of PRS 36



Samples in Vicinity  
of PRS 270

