

LINDEN ROAD LANDFILL

County: Genesee

Project Manager: Eric Van Riper

MERA #250016

Purpose of Presentation: RAP for a "Limited Land use based" and "Generic Commercial" Closure

Site Location/History

The Linden Road Landfill Site is a 40 acre parcel located in a mixed residential, commercial, and agricultural setting characteristic of a developing suburban community. The site is bounded by Linden Road and agricultural land to the east, office complexes to the north, single family residents to the south, and the "Dye Road Dump" site to the west. Much of the area is serviced by municipal water and sewer, however, a few residential water well supplies remain. The site is presently heavily vegetated, with mixed open fields, scrub-shrub, and wooded habitat. The topography is varied with small hills, depressions, and seasonally wet and ponded areas. A fence was installed around the site in 1983 to restrict access.

The site is the location of a former sand and gravel operation prior to 1931. The depth of the gravel pit reportedly was excavated to a depth of 40 feet. From 1931 until 1969 it was subsequently used by General Motors (GM) as an industrial landfill.

The "Dye Road Dump" site located to the west is the location where the caretaker of the Linden Road Landfill site, who also previously mined sand and gravel from the "Dye Road Dump," would collect and relocate items from the Linden Road Landfill to his property. The current conditions of the "Dye Road Dump" are unknown.

Remedial Investigation

In 1979, 17 monitoring wells (11 deep and 6 shallow) were installed around the perimeter of the site. Previous testing of the wells revealed elevated pH, phenols, sulfides, metals and some solvents. These wells were abandoned in 1993 due to questionable construction, (i.e. installed by hollow stem augers with no sand packs). In addition, groundwater sampling from the deep wells that previously had shown contamination continued to show decreased values over five sampling events.

In 1983 forty-six test pits were conducted across the site to characterize the fill material at the site. The results of the test pits revealed foundry sand, brick, slag, metal strapping, wood blocks, broken glass, sludges, drums, hydraulic hoses, and concrete.

Beginning in 1991, a detailed site investigation and an Interim Remedial Measures Evaluation (IRME) and Remedial Investigation (RI) was conducted to identify the environmental conditions of the site. The IRME included sampling of Red Baron Areas devoid of vegetation, Wood block areas, drum sampling, surface sludge sampling, and sampling of an oil disposal area. All IRME sampling was for waste characterization purposes. The RI included: a geophysical survey, a soil gas survey, test pits, auger borings, soil borings, monitoring well installations, ground water sampling, and surface water sampling.

The results of the IRME and RI have shown VOCs, semi-VOCs, PCBs, pesticides, phenols and metals in the soil. Several areas were also identified as containing hazardous waste. Figure 2-2 shows a general features map. See figure 3-2 and tables 5-1 through 5-6 for a summary of the waste characterization samples. See figure 4-4 and tables 5-7 through 5-10 for test pit locations and analytical data. See figure 4-5 and tables 5-11 through 5-14 for auger boring and soil boring locations and results. No samples were collected from the auger borings.

Seven shallow and three deep monitoring wells were installed along with 2 piezometers to characterize the groundwater at the site. The locations and results of the groundwater sample are shown in figure 4-6 and analytical summarized in 5-15 through 5-21. Groundwater flow direction is generally in a east/northeasterly direction, however, some southeasterly flow is present. Based on the data submitted and groundwater flow direction, it appears that the Dye Road Dump may be an upgradient source of some contamination.

Interim Response Actions

Based on the results of the sampling of the Interim Remedial Measures Evaluation (IRME), an Interim Remedial was conducted in December, 1992. This action focused on removing material which was classified as hazardous during the IRME. Specifically, approximately 60 cubic yards of waste material was removed from an oil disposal area, a specific surface waste area with elevated PCBs, and two areas with miscellaneous waste material associated with drums.

Site Geology:

The site generally consists of up to 2 feet of topsoil followed by up to 15 feet of waste material. A water bearing glacial sand and gravel unit ranging in thickness from 0 to 6 feet exists beneath the landfilled material. Underlying this perched layer is 8 to 13 feet of silty clay considered to be a confining unit, followed by up to 80 feet of silty clay with thin lenses (0.5 to 2.5) layers of fine-grained sand. The Saginaw bedrock formation exists in the area between 62 and 145 feet. Groundwater flow direction in the uppermost water bearing zone generally flows in a northeasterly direction, however, some easterly and southeasterly flow is evident.

RAP Proposal:

GM has proposed a limited land/resource cleanup for the site pursuant to Section 120a(1)(f through I) of Part 201. Restrictions include restricting subsurface excavation and exposure and prohibiting the use of the shallow water table zone for drinking purposes. No specific end use has been proposed, however the end use will be consistent with the limited industrial/commercial/residential/recreational cleanup criteria. The end use will also be consistent with the zoning designation for the property.

A 300 foot wide zone along Linden Road may be cleaned up to Commercial Subcategory III direct contact cleanup criteria and contaminated material relocated over other parts of the site. Documentation verifying cleanup of this 300 foot zone will be conducted according the VSR document.

The remaining portion of the site will be capped with a 2.5 ft soil cover across the surface of the site. Soil cover may consist of a combination of general fill material and a 6-inch layer of topsoil. The area will be seeded and mulched. Upon approval of the RAP, GM proposes to submit design specification for the soil cover, including an O&M plan and a method for remediation of the 300 foot zone along Linden Road.

GM has proposed to submit a separate O&M plan which includes quarterly soil cover inspections/maintenance, access control inspection/maintenance, and drainage system maintenance for the first year, semi-annual for years 2 through 4, and then annually thereafter. Groundwater monitoring is proposed annually for years 1-5 and then every 2 years thereafter, until monitoring has met the criteria for "groundwater not in a aquifer" for two consecutive sampling events..

District Recommendations/Concerns

District staff recommends denial of the RAP for the following reasons:

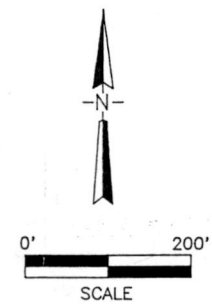
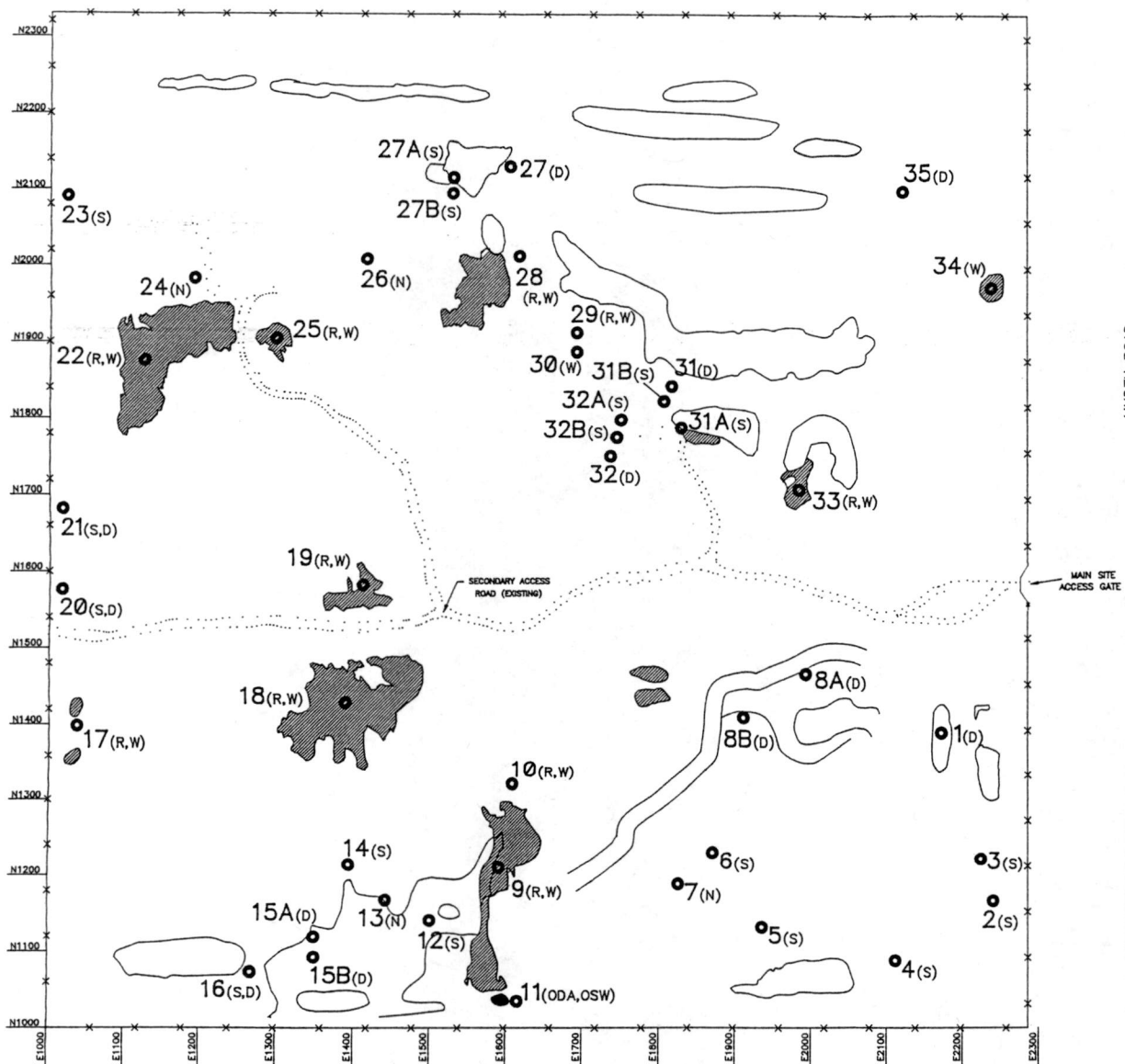
1. The RI is not complete. No monitoring wells and no groundwater samples have been collected from the interior of the landfill to characterize groundwater quality within the landfill. In addition, there is an insufficient number of monitoring wells downgradient of groundwater flow direction.
2. The proposed O&M plan is inadequate. Once the RI is complete, monitoring should be quarterly for the first year and then annually thereafter. Groundwater sampling should include VOCs, semi-VOCs, metals, PCB's, phenols, and pH. In addition, groundwater flow direction should be calculated as part of monitoring requirements.
3. Further information is needed regarding the statement in the Phase 1 report prepared by Weston that indicates that the historical gravel pit extended 40 below ground level. Is this a potential avenue for contamination migration into the deeper aquifer(s)?

4. District staff are not comfortable with providing a limited closure for a site when the end use for the property is undecided.

5. Documentation needs to be submitted showing zoning of the property and any change in zoning as the result of remediating the 300 foot zone along Linden Road.

6. Tables should be provided as part of the RAP that compares all analytical data to the applicable MDEQ current cleanup criteria.

* Also attached are comments provided by MDEQ-ERD toxicologist Linda Larson.



LEGEND

- WOODBLOCK/RED BARREN AREAS
- 3(s)** SAMPLE LOCATIONS (SAMPLE TYPES)
- S = SURFACE SLUDGES
- D = DRUM CONTENTS
- W = WOOD BLOCKS
- R = RED BARREN AREA SURFACE MATERIALS
- ODA = OIL DISPOSAL AREA CONTENTS
- OSW = OIL DISPOSAL SIDE WALL SOILS
- N = NO SAMPLE COLLECTED

NOTE: SITE FEATURES TEXT REMOVED FOR CLARITY.

WESTON
MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

IRME SAMPLING LOCATIONS MAP
LINDEN ROAD LANDFILL
Flint, Michigan

FIGURE 3-2

Table 5-1

Summary of Detected Parameters
 Red Barren Area Samples
 Interim Remedial Measures Evaluation
 Linden Road Landfill
 Flint, Michigan

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-RBA-01 Comp.	11/28/90	9011G902-002	RCRA Metals TCLP	Barium, TCLP Leachate	3.38		0.059	100	mg/L
	11/28/90	9011G902-002	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.023	J	0.005	1	mg/L
	11/28/90	9011G902-002	RCRA Metals TCLP	Chromium, TCLP Leachate	0.716	J	0.024	5	mg/L
	11/28/90	9011G902-002	RCRA Metals TCLP	Lead, TCLP Leachate	0.796	J	0.062	5	mg/L
	11/28/90	9011G902-001	Pesticides/PCBs, Total	Aroclor-1254	12		10		mg/KG
GM1-RBA-02 Comp.	11/28/90	9011G903-002	RCRA Metals TCLP	Barium, TCLP Leachate	2.01		0.588	100	mg/L
	11/28/90	9011G903-002	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.058	J	0.048	1	mg/L
	11/28/90	9011G903-001	Pesticides/PCBs, Total	Aroclor-1254	7.9	J	9.9		mg/KG
GM1-RBA-02D Comp.	11/28/90	9011G903-005	RCRA Metals TCLP	Barium, TCLP Leachate	2.34		0.588	100	mg/L
	11/28/90	9011G903-004	Pesticides/PCBs, Total	Aroclor-1254	5.9	J	9.5		mg/KG
GM1-RBA-03 Comp.	11/28/90	9011G903-008	RCRA Metals TCLP	Barium, TCLP Leachate	2.56		0.588	100	mg/L
	11/28/90	9011G903-008	RCRA Metals TCLP	Chromium, TCLP Leachate	0.917	J	0.244	5	mg/L
	11/28/90	9011G903-007	Pesticides/PCBs, Total	Aroclor-1248	3.1		2.5		mg/KG
	11/28/90	9011G903-007	Pesticides/PCBs, Total	Aroclor-1254	4.4	J	4.9		mg/KG
GM1-RBA-04 Comp.	11/28/90	9011G903-011	RCRA Metals TCLP	Arsenic, TCLP Leachate	0.028		0.019	5	mg/L
	11/28/90	9011G903-011	RCRA Metals TCLP	Barium, TCLP Leachate	2.69		0.588	100	mg/L
	11/28/90	9011G903-011	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.054	J	0.048	1	mg/L

J = ESTIMATED VALUE

Table 5-1

Summary of Detected Parameters
Red Barren Area Samples
Interim Remedial Measures Evaluation
Linden Road Landfill
Flint, Michigan

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-RBA-04 Comp.	11/28/90	9011G903-011	RCRA Metals TCLP	Chromium, TCLP Leachate	3.6	J	0.244	5	mg/L
	11/28/90	9011G903-010	Pesticides/PCBs, Total	Aroclor-1254	1.7		0.97		mg/KG

5-5

J = ESTIMATED VALUE

TABLE 5-2

SUMMARY OF DETECTED PARAMETERS
 WOOD BLOCK AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-WBA-01 Comp.	11/28/90	9011G904-001	PCBs, Total	Aroclor-1254	5	J	16		mg/KG
GM1-WBA-02 Comp.	11/28/90	9011G905-001	PCBs, Total	Aroclor-1254	4.9	J	7.9		mg/KG
GM1-WBA-03 Comp.	11/28/90	9011G905-004	Pesticides/PCBs, Total	Aroclor-1254	13	J	40		mg/KG
	11/28/90	9011G905-004	PCBs, Total	Aroclor-1254	11		8		mg/KG

J = ESTIMATED VALUE

TABLE 5-3

SUMMARY OF DETECTED PARAMETERS
 DRUM AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-DRA-01 Comp.	11/30/90	9012G020-002	RCRA Metals TCLP	Barium, TCLP Leachate	0.509		0.056	100	mg/L
	11/30/90	9012G020-002	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.04		0.005	1	mg/L
	11/30/90	9012G020-002	RCRA Metals TCLP	Lead, TCLP Leachate	4.47	J	0.068	5	mg/L
	11/30/90	9012G020-001	Pesticides/PCBs, Total	Aroclor-1260	130		80		mg/KG
GM1-DRA-02 Comp.	11/30/90	9012G021-003	VOC-TCLP	2-Butanone	0.088	J	0.22		mg/L
	11/30/90	9012G021-003	VOC-TCLP	Benzene	0.085	J	0.091	0.5	mg/L
	11/30/90	9012G021-003	VOC-TCLP	Trichloroethene	0.15		0.056	0.5	mg/L
	11/30/90	9012G021-002	RCRA Metals TCLP	Barium, TCLP Leachate	0.135		0.056	100	mg/L
	11/30/90	9012G021-002	RCRA Metals TCLP	Lead, TCLP Leachate	0.172		0.068	5	mg/L
	11/30/90	9012G021-001	PCBs, Total	Aroclor-1248	12		12		mg/KG
	11/30/90	9012G021-001	PCBs, Total	Aroclor-1260	33		23		mg/KG
GM1-DRA-02D Comp.	11/30/90	9012G021-006	VOC-TCLP	Trichloroethene	0.076		0.056	0.5	mg/L
	11/30/90	9012G021-005	RCRA Metals TCLP	Barium, TCLP Leachate	0.11		0.056	100	mg/L
	11/30/90	9012G021-005	RCRA Metals TCLP	Lead, TCLP Leachate	0.173		0.068	5	mg/L
	11/30/90	9012G021-004	PCBs, Total	Aroclor-1248	14		11		mg/KG
	11/30/90	9012G021-004	PCBs, Total	Aroclor-1260	43		21		mg/KG
GM1-DRA-03 Comp.	11/30/90	9012G021-009	VOC-TCLP	2-Butanone	2.9	J	2.2	200	mg/L
	11/30/90	9012G021-009	VOC-TCLP	Chloroform	0.08	J	0.045	6	mg/L
	11/30/90	9012G021-009	VOC-TCLP	Trichloroethene	1.2	J	0.04	0.5	mg/L
	11/30/90	9012G021-008	Semivolatiles TCLP	meta & para-cresol	0.079		0.052	400	mg/L

J = ESTIMATED VALUE

TABLE 5-3

SUMMARY OF DETECTED PARAMETERS
 DRUM AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-DRA-03 Comp.	11/30/90	9012G021-008	Semivolatiles TCLP	ortho-cresol	0.087		0.048	200	mg/L
	11/30/90	9012G021-008	RCRA Metals TCLP	Barium, TCLP Leachate	0.26		0.056	100	mg/L
	11/30/90	9012G021-008	RCRA Metals TCLP	Chromium, TCLP Leachate	0.165		0.024	5	mg/L
	11/30/90	9012G021-008	RCRA Metals TCLP	Lead, TCLP Leachate	0.074		0.068	5	mg/L
GM1-DRA08A-01	11/30/90	9012G012-014	RCRA Metals TCLP	Barium, TCLP Leachate	2.57		0.056	100	mg/L
	11/30/90	9012G021-014	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.01		0.005	1	mg/L
	11/30/90	9012G021-014	RCRA Metals TCLP	Chromium, TCLP Leachate	2.09		0.024	5	mg/L
	11/30/90	9012G021-014	RCRA Metals TCLP	Lead, TCLP Leachate	1.95		0.068	5	mg/L
	11/30/90	9012G021-013	Pesticides/PCBs, Total	Aroclor-1254	2.2	J	7.9		mg/KG
	11/30/90	9012G021-013	Pesticides/PCBs, Total	Heptachlor epoxide	0.19	J	0.4		mg/KG
GM1-DRA08B-01	11/30/90	9012G021-011	RCRA Metals TCLP	Arsenic, TCLP Leachate	0.02		0.019	5	mg/L
	11/30/90	9012G021-011	RCRA Metals TCLP	Barium, TCLP Leachate	1.18		0.056	100	mg/L
	11/30/90	9012G021-011	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.008		0.005	1	mg/L
	11/30/90	9012G021-011	RCRA Metals TCLP	Chromium, TCLP Leachate	0.327		0.024	5	mg/L
	11/30/90	9012G021-011	RCRA Metals TCLP	Lead, TCLP Leachate	0.357		0.068	5	mg/L
	11/30/90	9012G021-011	RCRA Metals TCLP	Mercury, TCLP Leachate	0.0016		0.0005	0.2	mg/L
GM1-DRA15A-01	11/30/90	9012G021-017	RCRA Metals TCLP	Barium, TCLP Leachate	0.142		0.056	100	mg/L
	11/30/90	9012G021-017	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.024		0.005	1	mg/L
	11/30/90	9012G021-017	RCRA Metals TCLP	Lead, TCLP Leachate	0.072		0.068	5	mg/L
	11/30/90	9012G021-016	PCBs, Total	Aroclor-1242	25		7.9		mg/KG

J = ESTIMATED VALUE

TABLE 5-3

SUMMARY OF DETECTED PARAMETERS
 DRUM AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-DRA16-01	11/30/90	9012G021-020	RCRA Metals TCLP	Barium, TCLP Leachate	0.748		0.056	100	mg/L
	11/30/90	9012G021-020	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.024		0.0005	1	mg/L
	11/30/90	9012G021-020	RCRA Metals TCLP	Chromium, TCLP Leachate	0.054		0.024	5	mg/L
	11/30/90	9012G021-019	Pesticides/PCBs, Total	4,4'-DDT	0.073	J	0.08		mg/KG
GM1-DRA31-01	11/30/90	9012G021-024	VOC-TCLP	2-Butanone	0.12	J	0.2	200	mg/L
	11/30/90	9012G021-023	RCRA Metals TCLP	Barium, TCLP Leachate	0.531		0.052	100	mg/L
	11/30/90	9012G021-023	RCRA Metals TCLP	Chromium, TCLP Leachate	0.028		0.022	5	mg/L
	11/30/90	9012G021-023	RCRA Metals TCLP	Lead, TCLP Leachate	0.26		0.053	5	mg/L
GM1-DRA32-01	11/30/90	9012G021-026	RCRA Metals TCLP	Barium, TCLP Leachate	0.514		0.056	100	mg/L
	11/30/90	9012G021-026	RCRA Metals TCLP	Lead, TCLP Leachate	2.77		0.068	5	mg/L
	11/30/90	9012G021-025	Pesticides/PCBs, Total	Aroclor-1254	0.14	J	0.8		mg/KG

J = ESTIMATED VALUE

TABLE 5-5

SUMMARY OF DETECTED PARAMETERS
SURFACE SLUDGE AREA SAMPLES
INTERIM REMEDIAL MEASURES EVALUATION
LINDEN ROAD LANDFILL SITE
FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-SSA-01 Comp.	11/29/90	9012G022-002	RCRA Metals TCLP	Barium, TCLP Leachate	0.422		0.053	100	mg/L
GM1-SSA-02 Comp.	11/29/90	9012G023-002	RCRA Metals TCLP	Barium, TCLP Leachate	1.56		0.053	100	mg/L
	11/29/90	9012G023-002	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.016		0.005	1	mg/L
	11/29/90	9012G023-002	RCRA Metals TCLP	Chromium, TCLP Leachate	0.029		0.023	5	mg/L
	11/29/90	9012G023-001	Pesticides/PCBs, Total	Aroclor-1254	6.5		2.3		mg/KG
GM1-SSA-02D Comp.	11/29/90	9012G023-005	RCRA Metals TCLP	Barium, TCLP Leachate	1.43		0.053	100	mg/L
	11/29/90	9012G023-005	RCRA Metals TCLP	Chromium, TCLP Leachate	0.069		0.023	5	mg/L
	11/29/90	9012G023-004	Pesticides/PCBs, Total	Aroclor-1254	8.4		2.6		mg/KG
GM1-SSA-03-01	11/29/90	9012G023-008	RCRA Metals TCLP	Barium, TCLP Leachate	0.59		0.053	100	mg/L
GM1-SSA-14-01	11/29/90	9012G023-020	RCRA Metals TCLP	Arsenic, TCLP Leachate	0.052		0.02	5	mg/L
	11/29/90	9012G023-020	RCRA Metals TCLP	Barium, TCLP Leachate	0.195		0.053	100	mg/L
	11/29/90	9012G023-020	RCRA Metals TCLP	Lead, TCLP Leachate	0.233		0.059	5	mg/L
	11/29/90	9012G023-020	RCRA Metals TCLP	Mercury, TCLP Leachate	0.0004		0.0003	0.2	mg/L
	11/29/90	9012G023-019	PCBs, Total	Aroclor-1242	29		6		mg/KG
	11/29/90	9012G023-019	PCBs, Total	Aroclor-1260	7.9	J	12		mg/KG

J = ESTIMATED VALUE

TABLE 5-5

SUMMARY OF DETECTED PARAMETERS
 SURFACE SLUDGE AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-SSA-21-01	11/29/90	9012G023-023	RCRA Metals TCLP	Arsenic, TCLP Leachate	0.037		0.02	5	mg/L
	11/29/90	9012G023-023	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.121		0.005	1	mg/L
	11/29/90	9012G023-022	Pesticides/PCBs, Total	Aroclor-1260	9.3	J	9.4		mg/KG
GM1-SSA-23-01	11/29/90	9012G023-011	RCRA Metals TCLP	Barium, TCLP Leachate	1.1		0.053	100	mg/L
GM1-SSA-27B-01	11/30/90	9012G023-025	Pesticides/PCBs, Total	Aroclor-1260	0.67	J	0.88		mg/KG
GM1-SSA-31B-01	11/30/90	9012G023-017	RCRA Metals TCLP	Barium, TCLP Leachate	1.88		0.053	100	mg/L
	11/30/90	9012G023-017	RCRA Metals TCLP	Chromium, TCLP Leachate	0.91		0.023	5	mg/L
	11/30/90	9012G023-017	RCRA Metals TCLP	Lead, TCLP Leachate	0.783		0.059	5	mg/L
	11/30/90	9012G023-016	Pesticides/PCBs, Total	Aroclor-1254	2.4		1.1		mg/KG
GM1-SSA-32A-01	11/30/90	9012G023-029	RCRA Metals TCLP	Barium, TCLP Leachate	4.85		0.053	100	mg/L
	11/30/90	9012G023-029	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.203		0.005	1	mg/L
	11/30/90	9012G023-029	RCRA Metals TCLP	Chromium, TCLP Leachate	0.044		0.023	5	mg/L
	11/30/90	9012G023-029	RCRA Metals TCLP	Lead, TCLP Leachate	3.08		0.059	5	mg/L

J = ESTIMATED VALUE

TABLE 5-5

SUMMARY OF DETECTED PARAMETERS
 SURFACE SLUDGE AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-SSA-32B-01	11/30/90	9012G023-014	RCRA Metals TCLP	Arsenic, TCLP Leachate	0.029		0.02	5	mg/L
	11/30/90	9012G023-014	RCRA Metals TCLP	Barium, TCLP Leachate	0.104		0.053	100	mg/L
	11/30/90	9012G023-014	RCRA Metals TCLP	Cadmium, TCLP Leachate	0.011		0.005	1	mg/L
	11/30/90	9012G023-014	RCRA Metals TCLP	Chromium, TCLP Leachate	0.024		0.023	5	mg/L
	11/30/90	9012G023-014	RCRA Metals TCLP	Lead, TCLP Leachate	18.5		0.05	5	mg/L
	11/30/90	9012G023-013	Pesticides/PCBs, Total	Aroclor-1254	13000		4700		mg/KG

J = ESTIMATED VALUE

TABLE 5-6

SUMMARY OF DETECTED PARAMETERS
 OIL DISPOSAL AREA SAMPLES
 INTERIM REMEDIAL MEASURES EVALUATION
 LINDEN ROAD LANDFILL SITE
 FLINT, MICHIGAN

SAMPLE ID	SAMPLE DATE	LABORATORY ID	ANALYTICAL TYPE	PARAMETER NAME	PARAMETER VALUE	DATA FLAG	DETECTION LIMIT	RCRA HAZ CRITERIA	UNITS
GM1-OSPT-01 Comp.	11/28/90	9012G959-003	VOC-TCLP	Benzene	0.18		0.06	0.5	mg/L
	11/28/90	9012G959-003	VOC-TCLP	Trichloroethene	0.72		0.04	0.5	mg/L
	11/28/90	9012G959-002	Semivolatiles TCLP	meta- & para-cresol	0.027	J	0.047	400	mg/L
	11/28/90	9012G959-001	PCBs, Total	Aroclor-1242	3.1		0.99		mg/KG
	11/28/90	9012G959-001	PCBs, Total	Aroclor-1260	2.7		2		mg/KG
GM1-OSSW-01 Comp.	11/28/90	9012G960-002	Semivolatiles TCLP	meta- & para-cresol	0.052	J	0.13	400	mg/L
	11/28/90	9012G960-002	RCRA Metals TCLP	Barium, TCLP Leachate	0.659		0.057	100	mg/L
	11/28/90	9012G960-001	Pesticides/PCBs, Total	Aroclor-1248	15	J	20		mg/KG
	11/28/90	9012G960-001	Pesticides/PCBs, Total	Aroclor-1260	39	J	40		mg/KG

J = ESTIMATED VALUE

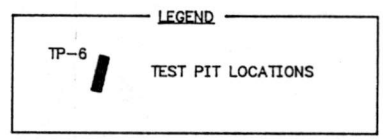
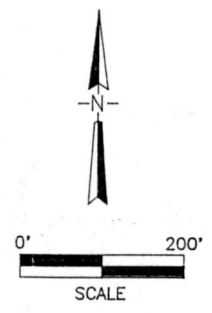
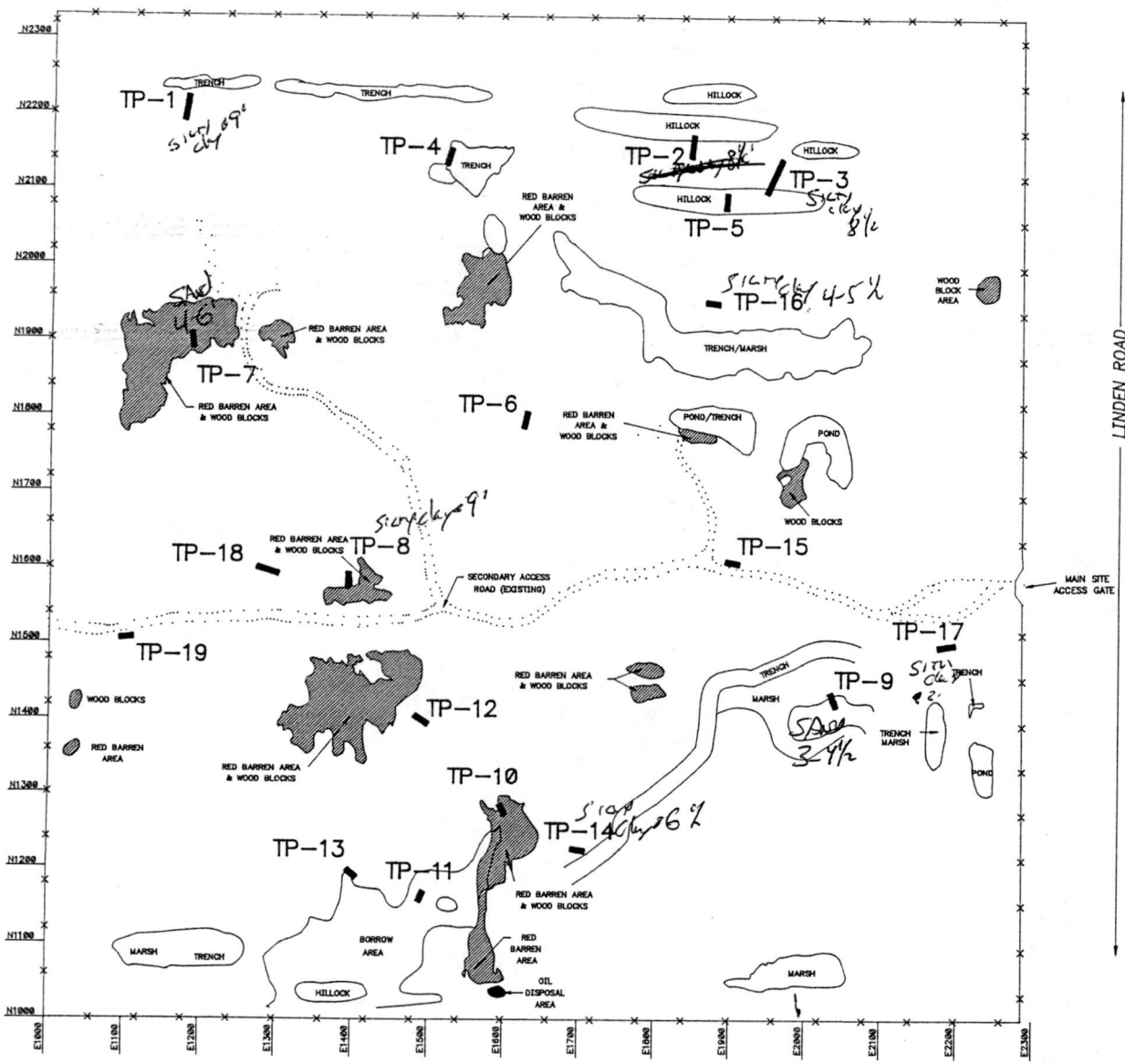


FIGURE 4-4

WESTON
MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

TEST PIT LOCATIONS
LINDEN ROAD LANDFILL
Flint, Michigan

Table 5-7
 Summary of Volatile Organic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No. Sample Depth (ft.) Date Collected	TP-1G 0-3 05/15/91	TP-1 0-9 05/15/91	TP-2G 0-2 05/14/91	TP-2 0-3 05/14/91	TP-3 1-9 05/14/91	TP-4 0-3 05/09/91	TP-5 1-14 05/09/91	TP-6 1-8 05/08/91	TP-7 1-6 05/08/91	TP-8G* 6-7 05/06/91	Detection Limit (Range)
Methylene chloride	0.053 BJ	0.110 BJ	0.057 BJ	0.490 BJ	0.530 BJ	0.021 BJ	0.780 BJ	0.820 J	(0.011) BJ	21 BJ	.006 - .009
Acetone	0.120 BJ	0.590 BJ	0.120 BJ	1 BJ	—	—	0.440 BJ	0.670 J	0.650 J	1.6 BJ	.012 - .018
Carbon disulfide	—	—	—	—	—	—	—	—	—	—	.006 - .009
1,1-Dichloroethane	—	0.005 J	—	—	—	—	—	—	—	—	.006 - .009
1,2-Dichloroethane (total)	—	—	—	—	—	0.009 J	—	—	—	15	.006 - .009
Chloroform	—	—	—	—	—	—	0.032 J	—	—	2.6	.006 - .009
2-Butanone	—	—	—	0.021 J	—	—	0.047 J	—	0.021 J	—	.014 - .018
1,1,1-Trichloroethane	—	—	—	—	—	(0.008) BJ	—	—	—	—	.006 - .016
Trichloroethene	—	—	—	0.044 J	0.028 J	0.016 J	0.071 J	0.044 J	—	13	.006 - .009
Benzene	—	—	—	0.004 J	—	—	0.003 J	—	—	40	.006 - .009
4-Methyl-2-pentanone	—	—	—	—	—	—	—	—	—	160 J	.012 - .018
Tetrachloroethene	0.007 J	—	—	0.066 J	0.025 J	0.008 J	0.011 J	0.056 J	—	—	.006 - .009
1,1,2,2-Tetrachloroethane	0.018 J	—	—	0.044 J	0.031 J	—	0.007 J	0.061 J	0.008 J	—	.006 - .009
Toluene	0.012 J	0.010 J	0.006 J	0.023 J	0.063 J	0.018 J	0.050 J	0.210 J	0.004 J	170 J	.006 - .009
Chlorobenzene	0.003 J	—	0.005 J	—	—	—	—	—	—	—	.006 - .009
Ethylbenzene	0.015 J	0.004 J	—	—	0.069 J	—	0.010 J	0.097 J	—	75 J	.006 - .009
Xylenes (total)	0.078 J	0.065 J	—	—	1.7 J	0.004 J	0.047 J	1 J	0.009 J	350 J	.006 - .009

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- () - Detection attributed to laboratory contamination.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.
- * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-7 (Cont.)

Summary of Volatile Organic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No. Sample Depth (ft.) Date Collected	TP-8 3-9 05/06/91	TP-9 0-5 05/14/91	TP-10 1-12 05/07/91	TP-11 1-4 05/07/91	TP-12 1-7 05/07/91	TP-12G* 8 05/07/91	TP-13 2-7 05/07/91	TP-13G* 4 05/07/91	TP-14 1-8 05/08/91	TP-14G* 1-2 05/08/91	Detection Limit (Range)
Methylene chloride	(0.054) BJ	0.089 BJ	0.610 BJ	0.290 BJ	0.740 J	0.310	(0.069) BJ	2.2 BJ	1.3 J	56,000 BJ	.007 - .058
Acetone	—	0.330 BJ	2 BJ	(0.025) BJ	0.800 BJ	5 BJ	—	—	0.100 BJ	130 BJ	.013 - .015
Carbon disulfide	—	—	—	—	—	0.064 J	—	—	—	—	.007 - .008
1,1-Dichloroethane	—	—	—	—	—	—	—	—	—	—	.007 - .008
1,2-Dichloroethene (total)	—	—	—	0.070 J	0.009 J	—	—	—	—	—	.007 - .008
Chloroform	—	—	—	—	—	—	—	—	—	100	.007 - .008
2-Butanone	—	—	0.078 J	—	—	—	—	—	—	1,900	.013 - .015
1,1,1-Trichloroethane	—	—	—	—	—	—	—	—	—	92	.007 - .008
Trichloroethene	0.015 J	0.026 J	0.083 J	0.180 J	0.340 J	0.160	0.012 J	—	0.020 J	47 J	.007 - .008
Benzene	0.006 J	—	—	—	0.009 J	—	0.016 J	6.6 J	—	—	.007 - .008
4-Methyl-2-pentanone	—	—	—	—	—	—	—	—	—	—	.013 - .015
Tetrachloroethene	—	0.026 J	—	0.031 J	—	—	—	—	0.023 J	—	.007 - .008
1,1,2,2-Tetrachloroethane	—	0.060 J	—	—	—	—	—	—	0.026 J	—	.007 - .008
Toluene	0.036 J	0.052 J	0.800 J*	0.160 J*	0.048 J	0.058	0.015 J	220 J	0.650 J	18,000 J	.007 - .008
Chlorobenzene	—	—	—	—	—	—	—	—	—	—	.007 - .008
Ethylbenzene	0.008 J	0.006 J	0.280 J	0.021 J	—	—	0.020 J	210 J	0.160 J	5,300 J	.007 - .008
Xylenes (total)	0.041 J	0.034 J	0.900 J*	0.110 J	—	0.190	0.250 J*	500 J	1.3 J	34,000 J	.007 - .008

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

() - Detection attributed to laboratory contamination.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-7 (Cont.)

Summary of Volatile Organic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No. Sample Depth (ft.) Date Collected	TP-15 2-6 05/08/91	TP-16 0-5 05/09/91	TP-16G 4 05/09/91	TP-17 0-4 05/14/91	TP-18G 10 05/15/91	TP-18 0-10 05/15/91	TP-19 0-7 05/15/91	TP-19G 5 05/15/91	Detection Limit (Range)
Methylene chloride	0.089 BJ	0.520 J	0.160 J	0.170 B	0.560 BJ	0.160 BJ	0.053 BJ	0.350 BJ	.006 - .008
Acetone	0.340 J	1.1 J	0.440 J	(0.100) BJ	1.5 BJ	0.520 J	(0.023) BJ	0.047 BJ	.011 - .016
Carbon disulfide	—	—	—	—	0.008 J	—	—	—	.006 - .008
1,1-Dichloroethane	—	—	—	—	—	—	—	—	.006 - .008
1,2-Dichloroethene (total)	—	0.190 J	0.080 J	—	0.032 J	—	—	—	.006 - .008
Chloroform	—	—	—	—	—	—	—	—	.006 - .008
2-Butanone	—	—	—	0.009 J	—	—	—	—	.011 - .016
1,1,1-Trichloroethane	—	—	—	—	—	—	—	—	.006 - .008
Trichloroethene	0.004 J	12 J*	3.3 J*	0.003 J	0.008 J	0.005 J	—	0.041 J	.006 - .008
Benzene	—	0.030 J	—	—	—	—	—	0.005 J	.006 - .008
4-Methyl-2-pentanone	—	—	—	—	—	—	—	—	.011 - .018
Tetrachloroethene	—	0.052 J	0.007 J	—	—	0.010 J	—	0.071 J	.006 - .008
1,1,2,2-Tetrachloroethane	—	—	—	—	—	—	0.037 J	0.017 J	.006 - .008
Toluene	0.010 J	0.260 J	0.021 J	0.240	0.029 J	0.009 J	0.004 J	0.110 J	.006 - .008
Chlorobenzene	—	—	—	0.005 J	—	—	—	—	.006 - .008
Ethylbenzene	0.012 J	—	—	0.290	—	—	—	0.017 J	.006 - .008
Xylenes (total)	0.029 J	—	0.010 J	6.4 *	—	—	—	0.059 J	.006 - .008

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

() - Detection attributed to laboratory contamination.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-8

Summary of Semivolatile Organic Compound Analyses

Test Pit Samples

Site Investigation

Linden Road Landfill

(All Values in mg/kg)

Sample No.	TP-1G	TP-1	TP-2G	TP-2	TP-3	TP-4	TP-5	TP-6	TP-7	TP-8G*	Detection
Sample Depth (ft.)	0-3	0-9	0-2	0-3	1-9	0-3	1-14	1-8	1-6	6-7	Limit
Date Collected	05/14/91	05/15/91	05/14/91	05/14/91	05/15/91	05/09/91	05-09/91	05/08/91	05/08/91	05/06/91	(Range)
Phenol	---	---	---	---	---	---	---	0.580 J	---	---	.4 - 5.2
bis(2-Chloroisopropyl)ether	---	---	---	---	0.460 J	---	---	---	---	---	.4 - 5.2
4-Methylphenol	4.3 J	---	---	---	---	---	---	---	---	---	.4 - 5.2
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	---	---	---	.4 - 5.2
Naphthalene	24 J	4.6	0.140 J	---	1.7 J	0.140 J	0.110 J	6.7 J	0.560 J	87 J	.4 - 5.2
2-Methylnaphthalene	16 J	3.6	---	---	0.620 J	0.091 J	0.140 J	13 J	0.540 J	280	.4 - 5.2
Acenaphthylene	---	---	---	---	0.160 J	---	---	---	---	41 J	.4 - 5.2
Acenaphthene	1.6 J	6.6	0.700 J	---	2.8 J	0.530 J	---	2.4 J	1.2 J	---	.4 - 5.2
Dibenzofuran	1.3 J	3.4	0.330 J	---	1.6 J	0.230 J	0.075 J	1.4 J	0.840 J	---	.4 - 5.2
Fluorene	1.3 J	5.3	0.570 J	---	2.5 J	0.420 J	---	3.3 J	1.3 J	---	.4 - 5.2
Phenanthrene	4 J	16	5.7 J	0.970	30 J	3.6 J	0.620 J	15 J	5.9	33 J	.4 - 5.2
Anthracene	0.560 J	1.8 J	1.2 J	---	4.6 J	0.750 J	---	---	0.810 J	---	.4 - 5.2
Di-n-butylphthalate	---	2.2 J	---	---	---	0.058 J	---	2.3 J	---	4,700	.4 - 5.2
Fluoranthene	1.6 J	7.3	6.3 J	1.5 J	15 J	4.3 J	0.810 J	8.4 J	5.6	17 J	.4 - 5.2
Pyrene	1.7 J	7.7	9.5 J	2 J	30 J	5.7 J	2.7 J	14 J	5.6	22 J	.4 - 5.2
Benzo(a)anthracene	---	1.5 J	5.7 J	---	15 J	2.4 J	0.270 J	---	3 J	---	.4 - 5.2
Chrysene	0.810 J	0.820 J	2.9 J	1.2 J	8.1 J	2 J	0.430 J	---	1.8 J	---	.4 - 5.2
bis(2-Ethylhexyl)phthalate	3.1 J	---	---	---	---	0.140 J	0.440 J	---	1.3 J	21 J	.4 - 5.2
Benzo(b)fluoranthene	---	---	3.8 J	---	8.7 J	2.3 J	---	---	2.9 J	---	.4 - 5.2
Benzo(k)fluoranthene	---	---	1.7 J	---	2.5 J	0.720 J	---	---	0.990 J	---	.4 - 5.2
Benzo(a)pyrene	---	---	2.8 J	---	8 J	1.6 J	---	---	---	---	.4 - 5.2
Indeno(1,2,3-cd)pyrene	---	---	5.9 J	---	7.7 J	0.750 J	---	---	---	---	.4 - 5.2
Dibenzo(a,h)anthracene	---	---	2.7 J	---	1.7 J	---	---	---	---	---	.4 - 5.2
Benzo(g,h,i)perylene	---	---	6.9 J	---	8.3 J	4.6 J	---	---	---	---	.4 - 5.2

NOTES:

--- - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G- - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-8 (Cont.)

Summary of Semivolatile Organic Compound Analyses

Test Pit Samples

Site Investigation

Linden Road Landfill

(All Values in mg/kg)

Sample No.	TP-8	TP-9	TP-10	TP-11	TP-12	TP-12G*	TP-13	TP-13G*	TP-14	TP-14G*	Detection
Sample Depth (ft.)	3-9	0-5	1-12	1-4	1-7	8	2-7	4	1-8	1-2	Limit
Date Collected	05/06/91	05/14/91	05/07/91	05/07/91	05/07/91	05/07/91	05/07/91	05/07/91	05/08/91	05/08/91	(Range)
Phenol	---	---	1.2 J	---	---	---	---	---	---	---	.49 - 4.9
bis(2-Chloroisopropyl)ether	---	---	---	---	---	---	---	---	---	---	.49 - 4.9
4-Methylphenol	---	---	---	---	---	---	---	---	---	---	.49 - 4.9
1,2,4-Trichlorobenzene	0.670 J	---	---	---	---	---	---	---	---	---	.49 - 4.9
Naphthalene	8.6	---	1.8 J	1.1 J	---	9.2 J	7.4 J	380	0.160 J	170 J	.49 - 4.9
2-Methylnaphthalene	2.4 J	---	1.5 J	0.600 J	---	20 J	3.2 J	71 J	0.120 J	---	.49 - 4.9
Acenaphthylene	---	---	---	0.530 J	---	---	---	---	---	---	.49 - 4.9
Acenaphthene	6.4	---	6.3 J	6.2 J	---	8 J	4.6 J	22 J	0.060 J	---	.49 - 4.9
Dibenzofuran	6	---	5.4 J	4.1 J	---	6.3 J	2.1 J	20 J	---	---	.49 - 4.9
Fluorene	10	---	7.6 J	6 J	---	11 J	4.4 J	25 J	0.093 J	---	.49 - 4.9
Phenanthrene	81 *	---	19 J	130 J*	2.4 J	55 J	12 J	75 J	0.540 J	---	.49 - 4.8
Anthracene	8.2	---	2.4 J	23 J	0.550 J	5.2 J	1.7 J	12 J	0.110 J	---	.49 - 4.9
Di-n-butylphthalate	30	---	0.770 J	11 J	---	---	95 *	110	0.093 J	---	.49 - 4.9
Fluoranthene	110 *	---	18 J	290 J*	4.1 J	36 J	16 J	37 J	0.470 J	---	.49 - 4.8
Pyrene	130 *	---	28 J	230 J*	4.4 J	59 J	22 J	32 J	1.4 J	---	.49 - 4.8
Benzo(a)anthracene	30	---	6.1 J	200 J*	2.2 J	22 J	6.5 J	---	0.340 J	---	.49 - 4.8
Chrysene	25	---	5 J	220 J*	2 J	21 J	5.9 J	---	0.400 J	---	.49 - 4.8
bis(2-Ethylhexyl)phthalate	---	0.098 J	2.4 J	---	---	---	31 J	35 J	0.380 J	---	.49 - 4.8
Benzo(b)fluoranthene	21	---	---	240 J*	---	16 J	---	---	---	---	.49 - 4.8
Benzo(k)fluoranthene	10	---	---	100 J*	---	10 J	---	---	---	---	.49 - 4.8
Benzo(a)pyrene	11	---	---	210 J*	---	12 J	---	---	---	---	.49 - 4.8
Indeno(1,2,3-cd)pyrene	9.8	---	---	170 J*	---	---	---	---	---	---	.49 - 4.8
Dibenzo(a,h)anthracene	---	---	---	75 J*	---	---	---	---	---	---	.49 - 4.8
Benzo(g,h,i)perylene	9.5	---	---	200 J*	---	16 J	---	---	---	---	.49 - 4.8

NOTES:

--- - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G- - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-8 (Cont.)
 Summary of Semivolatile Organic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	TP-15	TP-16	TP-16G	TP-17	TP-18G	TP-18	TP-19	TP-19G	Detection
Sample Depth (ft.)	2-6	0-5	4	0-4	10	0-10	0-7	5	Limit
Date Collected	05/08/91	05/09/91	05/09/91	05/14/91	05/15/91	05/15/91	05/15/91	05/15/91	(Range)
Phenol	---	---	---	---	---	---	---	---	
bis(2-Chloroisopropyl)ether	---	---	---	---	---	---	---	---	.38 - 5.1
4-Methylphenol	---	---	---	---	---	---	---	---	.38 - 5.1
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	---	.38 - 5.1
Naphthalene	---	---	0.049 J	3.5 J	0.680 J	---	---	---	.38 - 5.1
2-Methylnaphthalene	---	---	0.061 J	2.1 J	---	---	---	---	.38 - 5.1
Acenaphthylene	---	---	---	0.660 J	---	---	---	1.6 J	.38 - 5.1
Acenaphthene	---	---	---	6.5 J	0.800 J	---	---	---	.38 - 5.1
Dibenzofuran	---	---	---	5.2 J	0.570 J	---	---	6.3 J	.38 - 5.1
Fluorene	---	---	---	7.6 J	1.1 J	---	---	4.6 J	.38 - 5.1
Phenanthrene	---	---	---	44 J	11	1.6 J	---	9.8 J	.38 - 5.1
Anthracene	---	---	---	7.4 J	2 J	---	1.9 J	95 J	.38 - 5.1
Di-n-butylphthalate	---	0.230 J	0.064 J	---	0.510 J	---	---	5 J	.38 - 5.1
Fluoranthene	0.078 J	---	---	43 J	20	---	---	---	.38 - 5.1
Pyrene	0.140 J	0.062 J	---	63 J	25	2.8 J	2 J	43 J	.38 - 5.1
Benzo(a)anthracene	0.078 J	---	---	34 J	25	4	2.8 J	87 J	.38 - 5.1
Chrysene	0.090 J	---	---	24 J	21	2.8 J	1.5 J	20 J	.38 - 5.1
bis(2-Ethylhexyl)phthalate	0.140 J	0.170 J	0.120 J	---	---	2.5 J	0.940 J	23 J	.38 - 5.1
Benzo(b)fluoranthene	---	---	---	25 J	23	0.580 J	1.9 J	5.9 J	.38 - 5.1
Benzo(k)fluoranthene	---	---	---	5.7 J	9.3	---	---	---	.38 - 5.1
Benzo(a)pyrene	---	---	---	20 J	15	---	---	---	.38 - 5.1
Indeno(1,2,3-cd)pyrene	---	---	---	26 J	18	---	---	---	.38 - 5.1
Dibenzo(a,h)anthracene	---	---	---	13 J	5.1	---	---	13 J	.38 - 5.1
Benzo(g,h,i)perylene	---	---	---	36 J	18	---	---	---	.38 - 5.1
								16 J	.38 - 5.1

NOTES:
 --- Compound was analyzed for but not detected.
 J - Indicates an estimated value.
 B - Indicates the compound was found in the associated blank and the sample.
 DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
 G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

Table 5-9
 Summary of Pesticide/PCB Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill Site
 (All Values in mg/kg)

Sample No. Sample Depth (ft.) Date Collected	TP-1G 0-3 05/15/91	TP-1 0-9 05/15/91	TP-2G 0-2 05/14/91	TP-2 0-3 05/14/91	TP-3 1-9 05/14/91	TP-4 0-3 05/09/91	TP-5 1-14 05/09/91	TP-6 1-8 05/08/91	TP-7 1-6 05/08/91	TP-8G 6-7 05/06/91	Detection Limit (Range)
Alpha-BHC	---	---	0.033 J	0.210 J	---	---	---	---	---	---	.048 - 1.2
Delta-BHC	---	---	---	---	---	---	---	---	---	---	.048 - 1.2
4,4'-DDT	---	---	---	---	---	---	---	---	---	---	.096 - 2.5
Aroclor-1254	---	3.1	8.7	110 *	13	1.9	14 J	---	13	---	.96 - 9.2
Aroclor-1260	---	---	---	---	---	---	---	---	---	---	.96 - 9.2

Sample No. Sample Depth (ft.) Date Collected	TP-8 3-9 05/06/91	TP-9 0-5 05/14/91	TP-10 1-12 05/07/91	TP-11 1-4 05/07/91	TP-12 1-7 05/07/91	TP-12G 8 05/07/91	TP-13 2-7 05/07/91	TP-13G* 4 05/07/91	TP-14 1-8 05/08/91	TP-14G 1-2 05/08/91	Detection Limit (Range)
Alpha-BHC	---	---	---	---	---	---	---	---	---	---	.012 - 2.3
Delta-BHC	---	---	---	---	---	---	---	---	---	0.280 J	.012 - 2.3
4,4'-DDT	---	---	---	0.470 J	---	---	---	---	---	---	.024 - 4.7
Aroclor-1254	---	---	4.5	---	3.6	---	42	---	8.6	---	.24 - 9.3
Aroclor-1260	---	---	---	---	---	---	---	---	---	---	.24 - 9.3

Sample No. Sample Depth (ft.) Date Collected	TP-15 2-6 05/08/91	TP-16 0-5 05/09/91	TP-16G 4 05/09/91	TP-17 0-4 05/14/91	TP-18G 10 05/15/91	TP-18 0-10 05/15/91	TP-19 0-7 05/15/91	TP-19G 5 05/15/91	Detection Limit (Range)
Alpha-BHC	---	---	---	---	---	0.015 J	0.061	0.320 J	.009 - .53
Delta-BHC	---	---	---	---	---	0.023 J	---	0.830	.009 - .53
4,4'-DDT	---	---	---	---	---	0.073 J*	---	---	.018 - .2
Aroclor-1254	---	0.098 J	---	38 *	---	---	1.2 J	---	.18 - 1.2
Aroclor-1260	0.120 J	---	---	---	---	---	---	---	.18 - 1.2

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.
- * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-10

Summary of Inorganic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	TP-1G	TP-1	TP-2 G	TP-2	TP-3	TP-4	TP-5	TP-6*	TP-7	TP-8G	Detection
Sample Depth (ft.)	0-3	0-9	0-2	0-3	1-9	0-3	1-14	1-8	1-6	6-7	Limit
Date Collected	05/15/91	05/15/91	05/14/91	05/14/91	05/14/91	05/09/91	05/09/91	05/08/91	05/05/91	05/06/91	(Range)
Aluminum, total	403	5,790	117,000	5,660	7,670	6,260	8,010	7,510	4,650	4,160	45 - 61.9
Arsenic, total	1.7 J	23.2 J	11.3 J	27.6 J	29.5 J	13.4 J	37.8 J	33.7 J	15.5 J	130 J	.48 - 11.5
Barium, total	—	224 J	206 J	228 J	431 J	158	402	1,510	561	3,280 J	6 - 15.1
Beryllium, total	—	1.6	—	2.1	3.2	—	3.0	—	—	—	.6 - 1.5
Calcium, total	2,350 J	12,500 J	23,800 J	10,300 J	9,620 J	22,700 J	17,700 J	20,200 J	16,100 J	12,400 J	11.9 - 31
Cadmium, total	—	—	20.6 J	1.7 J	—	—	—	—	—	—	—
Cobalt, total	6.2	8.6	8.7	16.7	11.3	12.7	9.2	—	—	25.2 J	1 - 2.4
Chromium, total	34.5 J	28.3 J	133 J	948 J	75.9 J	958 J	49.8 J	687 J	253 J	1,930	2.4 - 6
Copper, total	9.6 J	96.7 J	6,680 J	105 J	342 J	86.7	77.7	1,470	322	253	2.4 - 6.2
Iron, total	9,270 J	35,400 J	29,300 J	95,200 J	32,800 J	33,900	29,400	414,000	110,000	95,200	6.8 - 33.9
Mercury, total	—	—	—	0.30	0.16	—	0.39	0.84	0.82	0.26 J	.085 - .14
Potassium, total	—	1,020 J	—	880 J	1,020 J	746 J	1,330 J	—	—	—	238 - 604
Magnesium, total	19,400	3,600	6,500	3,870	1,800	9,540 J	5,120 J	4,360 J	4,380 J	3,180 J	23.8 - 61.9
Manganese, total	77.7	682	7,510	1,110	1,300	1,460 J	293 J	3,020 J	1,860 J	1,710	1.2 - 3
Sodium, total	209 J	423 J	1,140 J	144 J	413 J	86.4	1,260	—	141	865 J	45 - 61.9
Nickel, total	126 J	207 J	409 J	321 J	1,310 J	319 J	55.9 J	939 J	172 J	217	2.4 - 6.2
Lead, total	19.5 J	55.1 J	353 J	95.4 J	182 J	388 J	102 J	1,350 J	469 J	13,500 J	2.1 - 15.5
Antimony, total	—	—	—	—	—	—	—	—	—	195 J	22.5 - 59.6
Selenium, total	—	3.9	—	2.7	4.8	0.81	4.6	0.43	0.42	40.2 J	.39 - .64
Thallium, total	—	—	—	—	1.1	—	—	—	—	—	.59 - .96
Vanadium, total	5.1 J	25.2 J	21.3 J	32.4 J	43.6 J	34.9	45.9	—	—	—	—
Zinc, total	9.3 J	69.6 J	1,480 J	81.8 J	120 J	106 J	308 J	1,550 J	317 J	1,890	1.2 - 3.1
Cyanide, total	—	—	—	0.88	3.3	—	0.86	—	—	14.6	.53 - .84

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-10 (Cont.)
 Summary of Inorganic Compound Analyses
 Test Pit Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	TP-8	TP-9	TP-10	TP-11	TP-12	TP-12G	TP-13	TP-13G	TP-14	TP-14G	Detection
Sample Depth (ft.)	3-9	0-5	1-12	1-4	1-7	8	2-7	4	1-8	1-2	Limit
Date Collected	05/06/91	05/14/91	05/07/91	05/07/91	05/07/91	05/07/91	05/07/91	05/07/91	05/08/91	05/08/91	(Range)
Aluminum, total	4,530	4,420	4,100	5,820	9,480	1,730	8,530	1,520	6,300	532	43.9 - 59.6
Arsenic, total	21.4 J	10.2 J	12.5 J	21.3 J	26.5 J	17.9 J	21.5 J	—	16.9 J	—	.5 - 2.9
Barium, total	231 J	43.4 J	338	723	1,770 J	2,240 J	178 J	4,840 J	216	140	11.0 - 14.9
Beryllium, total	—	—	—	—	1.3	—	1.4	—	2.4	—	1.1 - 1.5
Calcium, total	35,700 J	79,600 J	11,100 J	9,310 J	17,000 J	48,200 J	4,860 J	12,900 J	10,300 J	423 J	22 - 29.8
Cadmium, total	1.3 J	—	—	—	—	—	—	1.0 J	—	—	.96 - 9.3
Cobalt, total	—	—	11.0	10.9	16.8 J	39.0 J	9.7 J	16.2 J	9.3	79.1	4.4 - 6
Chromium, total	285	26.4 J	687 J	222 J	4,860	298	515	24,800 *	27.7 J	26.1 J	4.4 - 6
Copper, total	74	16.6 J	177	227	755	762	330	59	46.5	—	4.4 - 6
Iron, total	48,900	18,800 J	130,000	77,500	157,000	25,700	89,200	2,130	13,000	2,260	7.2 - 69.6
Mercury, total	0.16 J	—	0.63	0.14	0.33 J	0.99 J	0.39 J	—	0.39	—	.094 - .15
Potassium, total	—	818 J	497 J	—	895	521	574	—	—	—	439 - 596
Magnesium, total	8,380 J	17,400	2,600 J	3,240 J	3,470 J	12,200 J	1,400 J	1,300 J	1,620	3,890 J	43.9 - 59.6
Manganese, total	4,540	436	1,310 J	825 J	4,600	1,210	926	207	171 J	21.5 J	2.2 - 3.0
Sodium, total	178 J	119 J	138	179	371 J	414 J	229 J	164 J	886	294	43.9 - 59.8
Nickel, total	166	11.1 J	505 J	377 J	1,380	5,470	678	—	23.9 J	—	4.4 - 6.0
Lead, total	297 J	26.4 J	366 J	409 J	4,380 J	4,780 J	755 J	115,000 J*	40.6 J	100 J	2 - 14.9
Antimony, total	—	—	—	—	—	924 J	—	1,130 J	—	—	23.2 - 117
Selenium, total	2.0 J	—	0.97	1.7	—	—	0.86 J	—	2.9	—	.37 - .67
Thallium, total	0.77	—	—	—	—	—	1.1	—	—	—	.55 - 1
Vanadium, total	21.3	17.8 J	17.8	25.3	36.3	23.2	33.1	—	28.3	—	2.2 - 6.1
Zinc, total	213	43.0 J	329 J	296 J	1080	305	262	2,260	35.5 J	17.3 J	2.2 - 23.2
Cyanide, total	—	—	0.70	—	0.83	1.7	—	—	2.4	65.9	.55 - .72

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

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Table 5-10 (Cont.)

Summary of Inorganic Compound Analyses

Test Pit Samples

Site Investigation

Linden Road Landfill

(All Values in mg/kg)

Sample No. Sample Depth (ft.) Date Collected	TP-15 2-6 05/08/91	TP-16 0-5 05/09/91	TP-16G 4 05/09/91	TP-17 0-4 05/14/91	TP-18G 10 05/15/91	TP-18 0-10 05/15/91	TP-19 0-7 05/15/91	TP-19G 5 05/15/91	Detection Limit (Range)
Aluminum, total	490	7,230	8,580	7,290	8,400	4,780	5,960	11,500	29.1 - 63.8
Arsenic, total	22.8 J	27.3 J	7.9 J	11.4 J	24.7 J	18.0 J	22.3 J	14.2 J	.45 - 3.1
Barium, total	406	220	69.4	203 J	2,820 J	402 J	271 J	37.1 J	7.3 - 16
Beryllium, total	—	2.8	—	—	—	0.83	2.0	—	.73 - 1.6
Calcium, total	5,420 J	7,280 J	36,300 J	49,600 J	23,000 J	36,800 J	8,190 J	802 J	14.6 - 31.9
Cadmium, total	—	—	—	2.7 J	40.1 J	3.7 J	1.3 J	2.8 J	.58 - 1.3
Cobalt, total	21.3	6.4	8.3	25.8	99.9	11.4	13.8	11.4	2.9 - 6.4
Chromium, total	265 J	14.1 J	19.8 J	3,030 J	389 J	424 J	124 J	226 J	2.9 - 6.4
Copper, total	849	36.4	15.5	269 J	1,810 J	314 J	278 J	440 J	2.9 - 6.4
Iron, total	157,000	15,300	23,600	138,000 J	217,000 J	56,400 J	67,900 J	185,000 J	4.4 - 38.8
Mercury, total	0.43	0.22	—	1.2	0.81	1.5	0.28	—	.084 - .15
Potassium, total	—	1,180 J	1,210 J	—	919 J	562 J	722 J	—	291 - 638
Magnesium, total	646 J	2,580 J	14,900 J	4,820	5,410	9,070	1,360	183	29.1 - 63.8
Manganese, total	2,100 J	278 J	432 J	2,430	1,460	853	1,950	1,070	1.5 - 3.2
Sodium, total	120	301	119	327 J	518 J	142 J	268 J	94.4 J	29.1 - 63.8
Nickel, total	486 J	95.3 J	20.0 J	797 J	536 J	151 J	606 J	63.4 J	2.9 - 6.4
Lead, total	1,230 J	115 J	64.3 J	633 J	18,500 J	1,010 J	217 J	508 J	7.3 - 16
Antimony, total	—	—	—	—	80.8 J	56.0 J	—	28.6 J	14.6 - 116
Selenium, total	—	1.6	0.80	—	—	0.82	2.4	—	.45 - .62
Thallium, total	—	—	—	—	—	—	—	—	.67 - .94
Vanadium, total	41.8	34.0	22.7	7.0 J	103 J	20.7 J	34.7 J	—	1.5 - 3.2
Zinc, total	2,820 J	54.9 J	66.9 J	251 J	3,310 J	308 J	149 J	102 J	1.5 - 3.2
Cyanide, total	—	—	—	3.8	0.77 J	—	0.69 J	—	.51 - .77

NOTES:

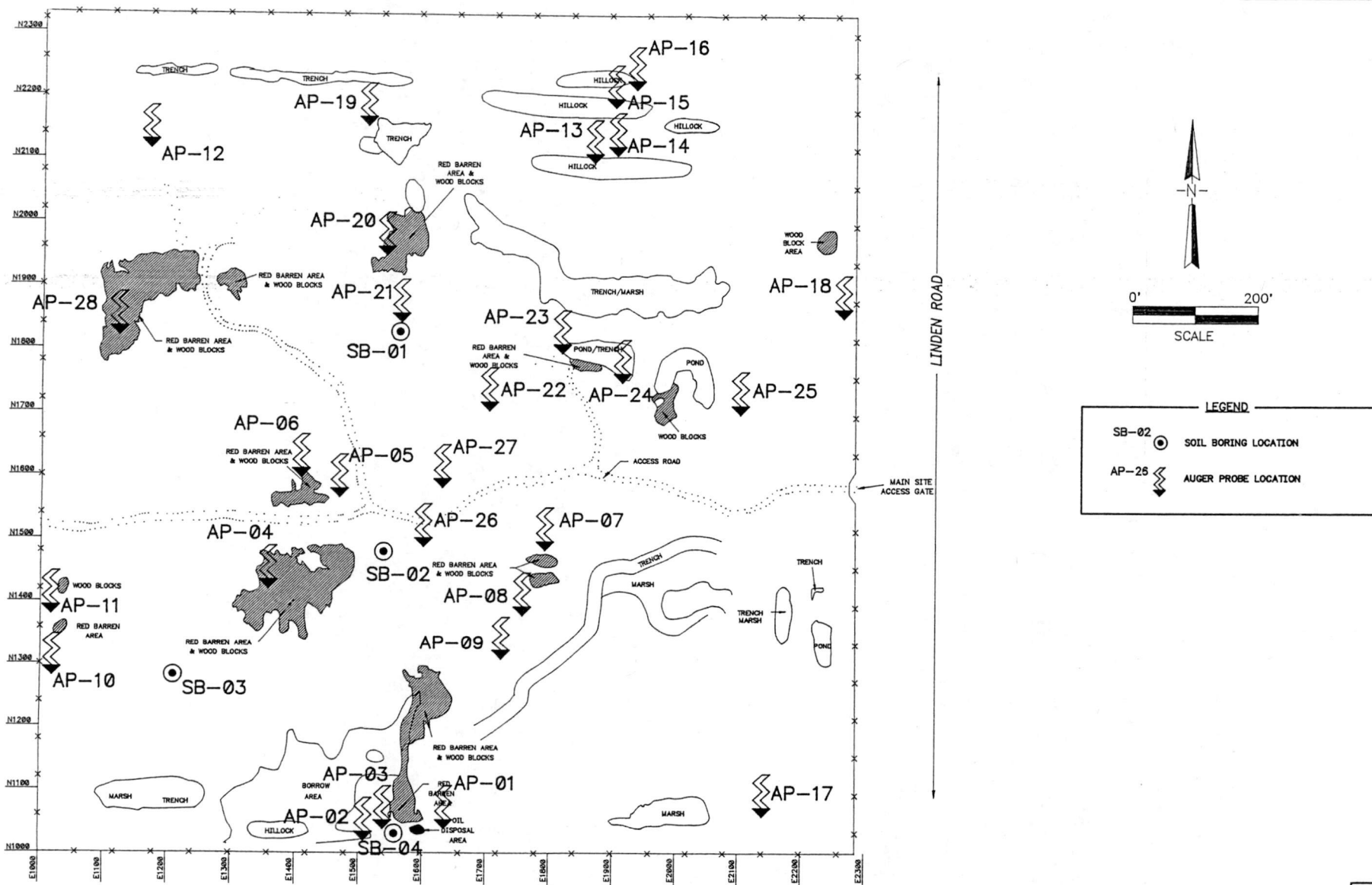
— - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

G - Grab sample collected at a specific depth. All other samples are composite samples that represent the entire test pit material.



NOTE: Soil boring SB-04 was not completed due to obstructions to drilling in the subsurface. A soil sample was collected at this location from shallow backhoe excavation.



Three Hawthorn Parkway
Vernon Hills, Illinois
60061

SOIL BORING & AUGER PROBE LOCATIONS

LINDEN ROAD LANDFILL
Flint, Michigan

FIGURE 4-5

Table 5-11

Summary of Volatile Organic Compound Analyses
Soil Boring Samples
Site Investigation
Linden Road Landfill
(All Values in mg/kg)

Sample No.	SB-01	SB-01	SB-02	SB-02	SB-02	SB-02DP	SB-03	SB-03	SB-04*	MW-01S	Detection Limit (Range)
Sample Depth (ft.)	10-12	22-24	5-6	8-9	14-16	14-16	3-4	11-12	0-3	6-8	
Date Collected	05/18/91	05/18/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	06/01/91	05/15/91	
Methylene chloride	(0.100) BJ	(0.028) BJ	(0.029) BJ	(0.027) BJ	(0.068) B	(0.079) BJ	(0.061) BJ	(0.048) BJ	0.450 BJ	(0.092) BJ	.006 - .009
Acetone	3.4 BJ	(0.017) BJ	—	0.170 J	(0.100) B	0.230 BJ	—	0.330 J	0.530 BJ	(0.021) BJ	.011 - .017
Carbon disulfide	0.020 J	—	—	—	—	—	0.020 J	0.006 J	0.130 J	—	.006 - .009
1,1-Dichloroethane	—	—	—	—	—	—	—	—	1.2 J	—	.006 - .009
1,2-Dichloroethene (total)	—	—	—	—	—	—	—	—	—	—	.006 - .009
2-Butanone	0.360 J	0.028	—	—	0.003 J	0.011 J	—	—	0.099 J	—	.011 - .017
1,1,1-Trichloroethane	—	—	—	—	—	—	—	—	1.1	—	.006 - .009
Vinyl acetate	—	0.016	—	—	—	—	—	—	—	—	.011 - .017
1,2-Dichloropropane	—	—	—	—	—	—	—	—	—	—	.006 - .009
Trichloroethene	—	—	—	—	—	—	—	0.008 J	—	—	.006 - .009
Benzene	0.030 J	—	—	—	—	—	—	—	1.9 J	0.008 J	.006 - .009
Tetrachloroethene	—	—	—	—	—	—	0.004 J	—	0.260 J	—	.006 - .009
1,1,2,2-Tetrachloroethane	—	—	—	—	—	—	—	—	0.051 J	—	.006 - .009
Toluene	0.055 J	0.009 J	0.006 J	—	0.003 J	—	—	—	0.094 J	0.017 J	.006 - .009
Ethylbenzene	0.680 J	0.002 J	—	—	—	—	0.078 J	0.006 J	1.4	0.004 J	.006 - .009
Xylenes (total)	0.320 J	0.009 J	—	—	—	—	0.250 J	—	0.890	0.002 J	.006 - .009
							1.3 J	—	4.1	0.012 J	.006 - .009

NOTES:

- - Compound was analyzed for but not detected.
 J - Indicates an estimated value according to QA/QC data validation protocols.
 B - Indicates the compound was found in the associated blank and the sample.
 () - Detection attributed to laboratory contamination.
 DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
 * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-11 (Cont.)
 Summary of Volatile Organic Compound Analyses
 Soil Boring Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	MW-01S	MW-01D	MW-01D	MW-02S	MW-02D	MW-02D	MW-02D-DP	MW-03S	MW-03D	MW-04S	Detection
Sample Depth (ft.)	10-12	18-20	40-42	4-6	19-21	33-35	33-35	2-12	18-20	9-10	Limit
Date Collected	05/15/91	05/20/91	05/20/91	05/15/91	05/19/91	05/19/91	05/19/91	05/20/91	05/20/91	05/30/91	Limit
											(Range)
Methylene chloride	(0.029) B	(0.057) BJ	(0.024) BJ	(0.055) B	(0.024) BJ	(0.021) BJ	(0.015) BJ	(0.015) BJ	(0.040) BJ	(0.022) BJ	.005 - .006
Acetone	0.016 J	0.290 BJ	(0.020) BJ	0.080 J	(0.030) BJ	0.220 BJ	0.480 BJ	0.011 JB	(0.140) BJ	0.470 J	.011 - .012
Carbon disulfide	---	---	---	---	---	---	---	---	0.006 J	---	.005 - .006
1,1-Dichloroethane	---	---	---	---	---	---	---	---	---	---	.005 - .006
1,2-Dichloroethene (total)	0.007	---	---	---	---	---	---	---	---	---	.005 - .006
2-Butanone	---	0.009 J	---	---	---	---	---	---	---	---	.005 - .006
1,1,1-Trichloroethane	---	0.010 J	---	---	---	---	---	---	0.015 J	---	.011 - .012
Vinyl acetate	---	0.003 J	---	---	---	---	---	---	---	---	.005 - .006
1,2-Dichloropropane	---	---	---	---	---	0.003 J	---	---	---	---	.011 - .012
Trichloroethene	0.140 J	---	---	---	---	---	---	---	---	---	.005 - .006
Benzene	---	---	---	---	---	---	---	---	---	---	.005 - .006
Tetrachloroethene	---	---	---	---	---	---	---	---	---	---	.005 - .006
1,1,2,2-Tetrachloroethane	---	---	---	---	---	---	---	---	---	---	.005 - .006
Toluene	0.003 J	0.009	0.004 J	0.012	0.008 J	0.005	---	---	---	---	.005 - .006
Ethylbenzene	---	0.001 J	---	---	---	---	---	0.004 J	0.007 J	---	.005 - .006
Xylenes (total)	---	0.007	---	0.008	0.008 J	---	---	---	---	---	.005 - .006

- NOTES:
- - Compound was analyzed for but not detected.
 - J - Indicates an estimated value according to QA/QC data validation protocols.
 - B - Indicates the compound was found in the associated blank and the sample.
 - () - Detection attributed to laboratory contamination.
 - DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
 - * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-12

Summary of Semivolatile Organic Compound Analyses
Soil Boring Samples
Site Investigation
Linden Road Landfill
(All Values in mg/kg)

Sample No.	SB-01	SB-01	SB-02	SB-02	SB-02	SB-02DP	SB-03	SB-03	SB-04*	MW-01S*	Detection
Sample Depth (ft.)	0-10	22-26	1-6	8-13	14-20	14-20	1-6	11-17	0-3	2-8	Limit
Date Collected	05/18/91	05/18/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	06/01/91	05/15/91	(Range)
Phenol	---	---	---	---	---	---	0.780 J	---	---	---	.3 - 8
Benzoic acid	---	---	0.760 J	---	---	---	---	---	---	---	1.9 - 10
1,2,4-Trichlorobenzene	---	---	---	---	---	---	0.740 J	---	---	---	.38 - 8
Naphthalene	15 J	0.050 J	0.500 J	---	---	---	3.8 J	---	---	---	.38 - 8
2-Methylnaphthalene	9.2	0.048 J	0.420 J	---	---	---	3.5 J	---	---	---	.38 - 8
Acenaphthylene	---	---	1.7 J	---	---	---	---	---	---	---	.38 - 8
Acenaphthene	3.5 J	---	2.1 J	0.200 J	---	---	5.1 J	---	---	---	.38 - 8
Dibenzofuran	2.6 J	---	1.3 J	0.200 J	---	---	3.7 J	---	---	---	.38 - 8
Fluorene	5.2 J	---	2.8 J	0.230 J	---	---	7.5 J	---	---	---	.38 - 8
Phenanthrene	22	0.110 J	22 J	1.2 J	0.050 J	0.041 J	37 J	0.045 J	28 J	3.7 J	.38 - 8
Anthracene	3.1 J	---	8.6 J	0.390 J	---	---	6.9 J	---	---	---	.38 - 8
Di-n-butylphthalate	1.1 J	---	---	0.042 J	---	---	2.3 J	0.072 J	---	0.680 J	.38 - 8
Fluoranthene	13	0.063 J	31 J	1.9 J	---	---	29 J	---	---	4.5 J	.38 - 8
Pyrene	19	0.061 J	49 J	3.2 J	0.039 J	0.041 J	43 J	---	14 J	6.1 J	.38 - 8
Benzo(a)anthracene	8.1	---	29 J	1.2 J	---	---	15 J	---	---	3.4 J	.38 - 8
Chrysene	9.2	0.043 J	27 J	1.2 J	---	---	16 J	---	---	2 J	.38 - 8
bis(2-Ethylhexyl)phthalate	---	0.620 JB	0.870 JB	(0.190) JB	(0.150) JB	(0.170) JB	---	(0.049) BJ	---	6 J	.38 - 8
Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---	---	.38 - 8
Benzo(b)fluoranthene	7.8 J	---	27 J	1.5 J	0.051 J	---	10 J	---	---	---	.38 - 8
Benzo(k)fluoranthene	4.1 J	---	24 J	0.840 J	0.065 J	---	29 J	---	---	---	.38 - 8
Benzo(a)pyrene	---	---	25 J	1.2 J	0.082 J	0.046 J	11 J	---	---	---	.38 - 8
Indeno(1,2,3-cd)pyrene	5.3 J	---	21 J	0.690 J	---	---	7.8 J	---	---	---	.38 - 8
Dibenzo(a,h)anthracene	---	---	7.9 J	0.240 J	---	---	---	---	---	---	.38 - 8
Benzo(g,h,i)perylene	6.2 J	---	26 J	0.770 J	---	---	9.7	---	---	---	.38 - 8

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value according to QA/QC data validation protocols.
- B - Indicates the compound was found in the associated blank and the sample.
- () - Detection attributed to laboratory contamination.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-12 (Cont.)
 Summary of Semivolatile Organic Compound Analyses
 Soil Boring Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	MW-01S	MW-01D	MW-01D	MW-02S	MW-02D	MW-02D	MW-02DP	MW-03S	MW-03D	MW-04S	Detection Limit (Range)
Sample Depth (ft.)	8-14	16-20	40-44	3-8	19-23	33-41	33-41	2-12	18-20	8-14	
Date Collected	05/15/91	05/20/91	05/20/91	05/15/91	05/19/91	05/19/91	05/19/91	05/15/91	05/20/91	05/30/91	
Phenol	---	---	---	---	---	---	---	---	---	---	.36 - .41
Benzoic acid	---	---	---	---	---	---	---	---	---	---	1.8 - 2.0
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Naphthalene	---	---	---	---	---	---	---	---	---	---	.36 - .41
2-Methylnaphthalene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Acenaphthylene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Acenaphthene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Dibenzofuran	---	---	---	---	---	---	---	---	---	---	.36 - .41
Fluorene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Phenanthrene	0.078 J	---	---	---	---	---	---	---	---	---	.36 - .41
Anthracene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Di-n-butylphthalate	---	---	---	---	---	---	---	---	---	0.140 J	.36 - .41
Fluoranthene	0.057 J	---	---	---	---	---	---	---	---	---	.36 - .41
Pyrene	0.064 J	---	---	---	---	---	---	---	---	---	.36 - .41
Benzo(a)anthracene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Chrysene	---	---	---	---	---	---	---	---	---	---	.36 - .41
bis(2-Ethylhexyl)phthalate	0.310 J	(0.046) JB	(0.097) JB	(0.100) J	(0.056) JB	(0.410) JB	(0.450) JB	0.093 J	(0.470) JB	(0.061) JB	.36 - .41
Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---	---	.36 - .41
Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Benzo(a)pyrene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Dibenzo(a,h)anthracene	---	---	---	---	---	---	---	---	---	---	.36 - .41
Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---	---	.36 - .41

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value according to QA/QC data validation protocols.
- B - Indicates the compound was found in the associated blank and the sample.
- () - Detection attributed to laboratory contamination.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- * - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

5-38

Table 5-13

Summary of Pesticide/PCB Compound Analyses
 Soil Boring Samples
 Site Investigation
 Linden Road Landfill
 (All Values in mg/kg)

Sample No.	SB-01	SB-01	SB-02	SB-02	SB-02	SB-02DP	SB-03	SB-03	SB-04	MW-01S*	Detection
Sample Depth (ft.)	0-10	22-26	1-6	8-13	14-20	14-20	1-6	11-17	0-3	2-8	Limit
Date Collected	05/18/91	05/18/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	06/01/91	05/15/91	(Range)
4,4'-DDT	0.024 J	---	0.200 J	---	---	---	---	---	---	---	.018 - .19
Aroclor-1248	---	---	---	---	---	---	---	---	---	---	.092 - 4.8
Aroclor-1254	---	---	---	0.430 J	---	---	---	---	4.8 J	---	.18 - 9.6
Aroclor-1260	---	---	---	---	---	---	4.8	---	---	59	.18 - 9.6
									3.7 J	---	

Sample No.	MW-01S	MW-01D	MW-01D	MW-02S	MW-02D	MW-02D	MW-02DP	MW-03S	MW-03D	MW-04S	Detection
Sample Depth (ft.)	8-14	16-20	40-44	3-8	19-23	33-41	33-41	2-12	18-20	8-14	Limit
Date Collected	05/15/91	05/20/91	05/20/91	05/15/91	05/19/91	05/19/91	05/19/91	05/15/91	05/20/91	05/30/91	(Range)
4,4'-DDT	---	---	---	---	---	---	---	---	---	---	.017 - .092
Aroclor-1248	---	---	---	---	---	---	---	---	---	---	.087 - .46
Aroclor-1254	0.091 J	---	---	---	---	---	---	---	---	---	.17 - .92
Aroclor-1260	---	---	---	---	---	---	---	---	---	0.063 J	.17 - .92

NOTES:

--- - Compound was analyzed for but not detected.

J - Indicates an estimated value according to QA/QC data validation protocols.

B - Indicates the compound was found in the associated blank and the sample

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-14

Summary of Inorganic Compound Analyses
Soil Boring Samples
Site Investigation
Linden Road Landfill
(All Values in mg/kg)

Sample No.	SB-01*	SB-01	SB-02	SB-02	SB-02	SB-02DP	SB-03	SB-03	SB-04	MW-01S	Detection
Sample Depth (ft.)	0-10	22-26	1-6	8-13	14-20	14-20	1-6	11-17	0-3	2-8	Limit
Date Collected	05/18/91	05/18/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	05/30/91	06/01/91	05/15/91	(Range)
Aluminum, total	3,330 J	10,800 J	4,290	2,850	6,480	7,770	5,670	10,800	1,160	4,260	19.9 - 64.6
Arsenic, total	25.4	14.1	23.8	4.5	5.2	6.3	6.2	8.1	5.3 J	20.6 J	.4 - 3.6
Barium, total	1,900	72.8	592	78.0	50.4	53.6	570	58.8	111 J	522 J	5 - 16.1
Beryllium, total	—	—	—	—	—	—	—	—	—	1.6	.36 - 1.6
Calcium, total	32,800 J	56,500 J	24,000	81,800	57,400	49,900	33,500	39,100	78,100	16,200	9.9 - 32.3
Cadmium, total	16.1 J	—	5.0	—	—	—	1.6	—	—	—	.29 - 1.3
Cobalt, total	—	10.1 J	21.3	3.6	6.8	6.9	19.3	11.8	5.7	9.3	2 - 6.5
Chromium, total	1,190 J	14.7 J	1,060	11.9	10.6	11.2	286	14.8	30.1	326 J	2 - 6.5
Copper, total	1,220	17.9	434	60.7	15.6	13.9	2,550	17.3	39.4	624 J	2 - 6.5
Iron, total	299,000	24,300	164,000	14,700	17,000	17,000	109,000	25,300	5,720 J	52,200	3 - 35.8
Mercury, total	1.6 J	—	0.38	—	—	—	0.67	—	—	—	.086 - .27
Potassium, total	—	2,270 J	—	656 J	1,430 J	1,760 J	660 J	1,960 J	222	801 J	199 - 646
Magnesium, total	12,200 J	23,600 J	5,880	18,900	19,700	20,200	5,700	16,800	2,950 J	2,990 J	9.9 - 64.6
Manganese, total	3,050	409	2,070 J	408 J	398 J	477 J	8,660 J	413 J	168 J	1,050	.99 - 3.2
Sodium, total	—	167 J	212	118	186	168	746	244	293	226	14.3 - 64.6
Nickel, total	1,360 J	25.0 J	418	14.3	18.0	16.2	3,050	26.9	17.4	925	2 - 6.5
Lead, total	2,340 J	14.1 J	958 J	16.0 J	10.9 J	11.5 J	291 J	17.3 J	2,720	1,750 J	.45 - 16.2
Selenium, total	—	—	—	—	—	—	1.3 J	—	0.25 J	0.98	.36 - 2.6
Vanadium, total	26	28.1	19.1	11.2	17.4	20.1	25.6	27.5	6.4	26.0	1.6 - 3.2
Zinc, total	1,210	44.9	706	111	89.3	37.8	311	49.5	97.8	249 J	.99 - 3.2
Cyanide, total	—	—	—	—	—	—	1.3	—	—	—	.51 - .99

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value according to QA/QC data validation protocols.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

* - Detection limits for all the compounds or individual compounds as shown are higher than the range indicated [See Appendix H for specific detection limit(s)].

Table 5-14 (Cont.)

Summary of Inorganic Compound Analyses

Soil Boring Samples

Site Investigation

Linden Road Landfill

(All Values in mg/kg)

Sample No.	MW-01S	MW-01D	MW-01D	MW-02S	MW-02D	MW-02D	MW-02D-DP	MW-03S	MW-03D	MW-04S	Detection
Sample Depth (ft.)	8-14	16-20	40-44	3-8	19-23	33-41	33-41	2-12	18-20	8-14	Limit
Date Collected	05/15/91	05/20/91	05/20/91	05/15/91	05/19/91	05/19/91	05/19/91	05/15/91	05/20/91	05/30/91	(Range)
Aluminum, total	6,490	3,130 J	5,320 J	8,560	6,810 J	9,820 J	10,800 J	5,970	8,150 J	9,840	26.7 - 48.5
Arsenic, total	4.6 J	3.1	9.5	13.6 J	6.0	4.1	7.8	4.6 J	8.7	6.6	.28 - .45
Barium, total	33.3 J	34.9	40.2	84.6 J	41.1	56.6	62.8	34.8 J	59.5	46.8	6.7 - 12.1
Beryllium, total	—	—	—	—	—	—	—	—	—	—	.67 - 1.2
Calcium, total	56,300	35,700 J	55,300 J	45,400	60,600 J	59,000 J	65,700 J	45,300	50,700 J	73,700	13.3 - 24.3
Cadmium, total	—	—	—	—	—	—	—	—	—	—	.53 - .97
Cobalt, total	6.4	—	5.5 J	9.2	7.6 J	8.6 J	9.0 J	6.7	8.0 J	8.3	2.7 - 4.9
Chromium, total	5.8 J	3.8 J	6.2 J	9.7 J	7.6 J	13.3 J	14.6 J	6.1 J	9.7 J	12.8	2.7 - 4.9
Copper, total	11.5 J	5.7	9.6	13.0 J	13.9	13.0	14.3	12.2 J	12.7	15.6	2.7 - 4.9
Iron, total	15,200	7,950	13,100	20,000	17,900	18,200	20,500	15,700	19,100	20,800	4.0 - 7.3
Mercury, total	—	0.092 J	0.088 J	—	0.097 R	0.096 R	0.083 R	—	0.079 R	—	.079 - .11
Potassium, total	1,220 J	714 J	1,200	1,700 J	1,300 J	2,210 J	2,150 J	1,200 J	1,780 J	2,190 J	267 - 485
Magnesium, total	25,800 J	12,100 J	20,300 J	18,400 J	23,800 J	24,900 J	28,800 J	18,500 J	20,500 J	33,600	26.7 - 48.5
Manganese, total	269	179	279 J	563	366	345	378	264	366	466 J	1.3 - 2.4
Sodium, total	126	86.7 J	141 J	130	136 J	254 J	233 J	126	159 J	223	26.7 - 48.5
Nickel, total	14.0	6.6 J	10.3 J	21.0	17.9 J	17.1 J	20.3 J	16.8	16.8 J	16.9	2.7 - 4.9
Lead, total	13.8 J	5.1 J	11.4 J	9.0 J	12.5 J	7.1 J	8.4 J	8.5 J	8.2 J	10.5 J	.38 - 2.0
Selenium, total	—	—	—	—	—	—	—	—	—	—	.28 - 2.0
Vanadium, total	19.1	10.1	15.1	23.4	17.2	25.8	27.9	16.5	22.2	27.1	1.3 - 2.4
Zinc, total	34.3 J	20.8	25.4	41.3 J	34.6	35.4	41.0	35.6 J	38.1	41.3	1.3 - 2.4
Cyanide, total	—	—	—	—	—	—	—	—	—	—	.49 - .53

NOTES:

— - Compound was analyzed for but not detected.

J - Indicates an estimated value according to QA/QC data validation protocols.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

R - Data unusable based on validation.

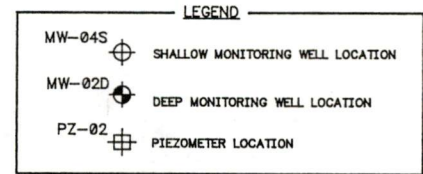
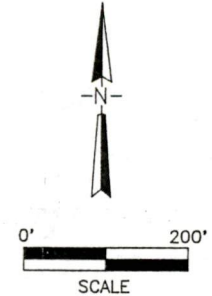
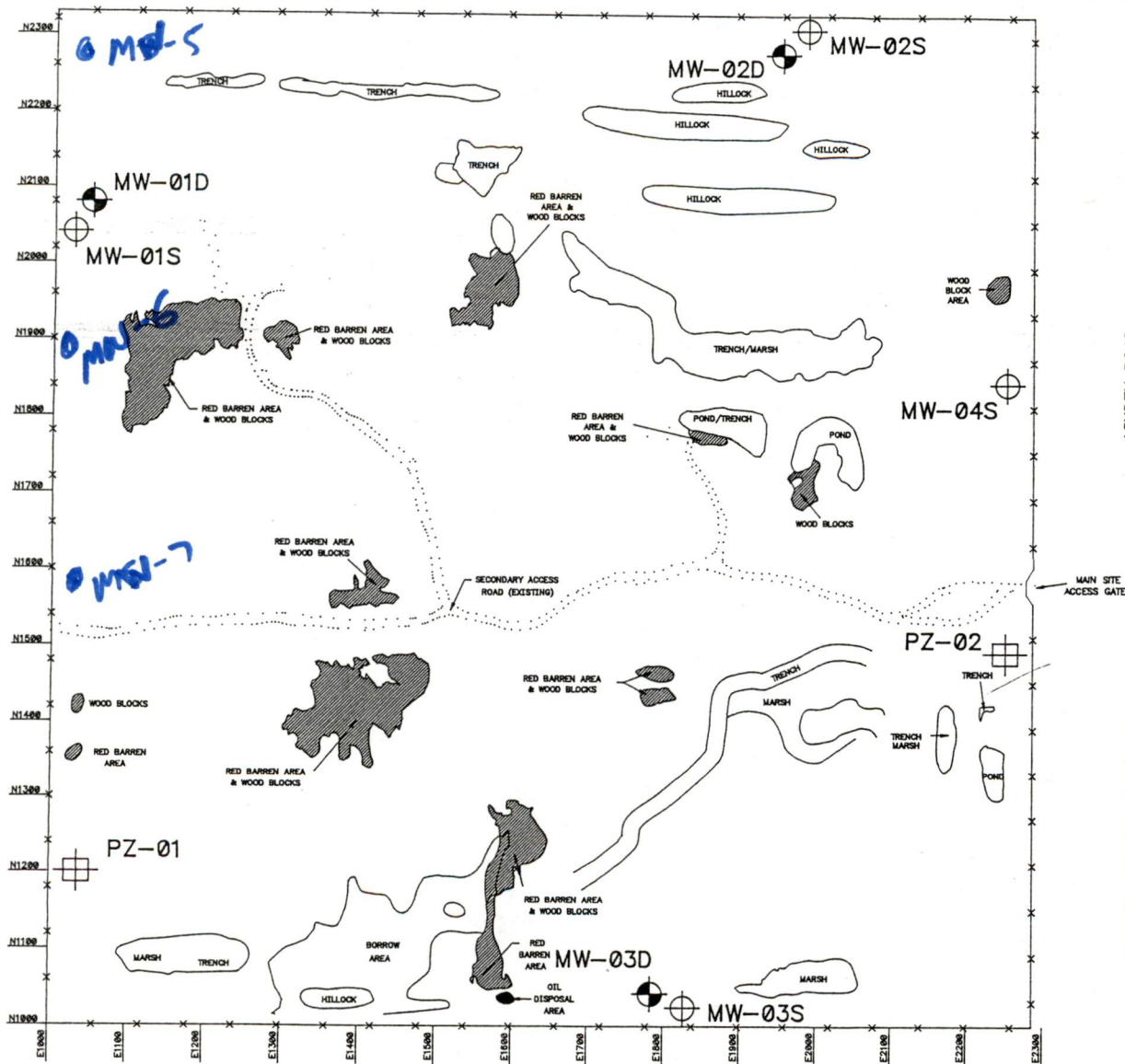
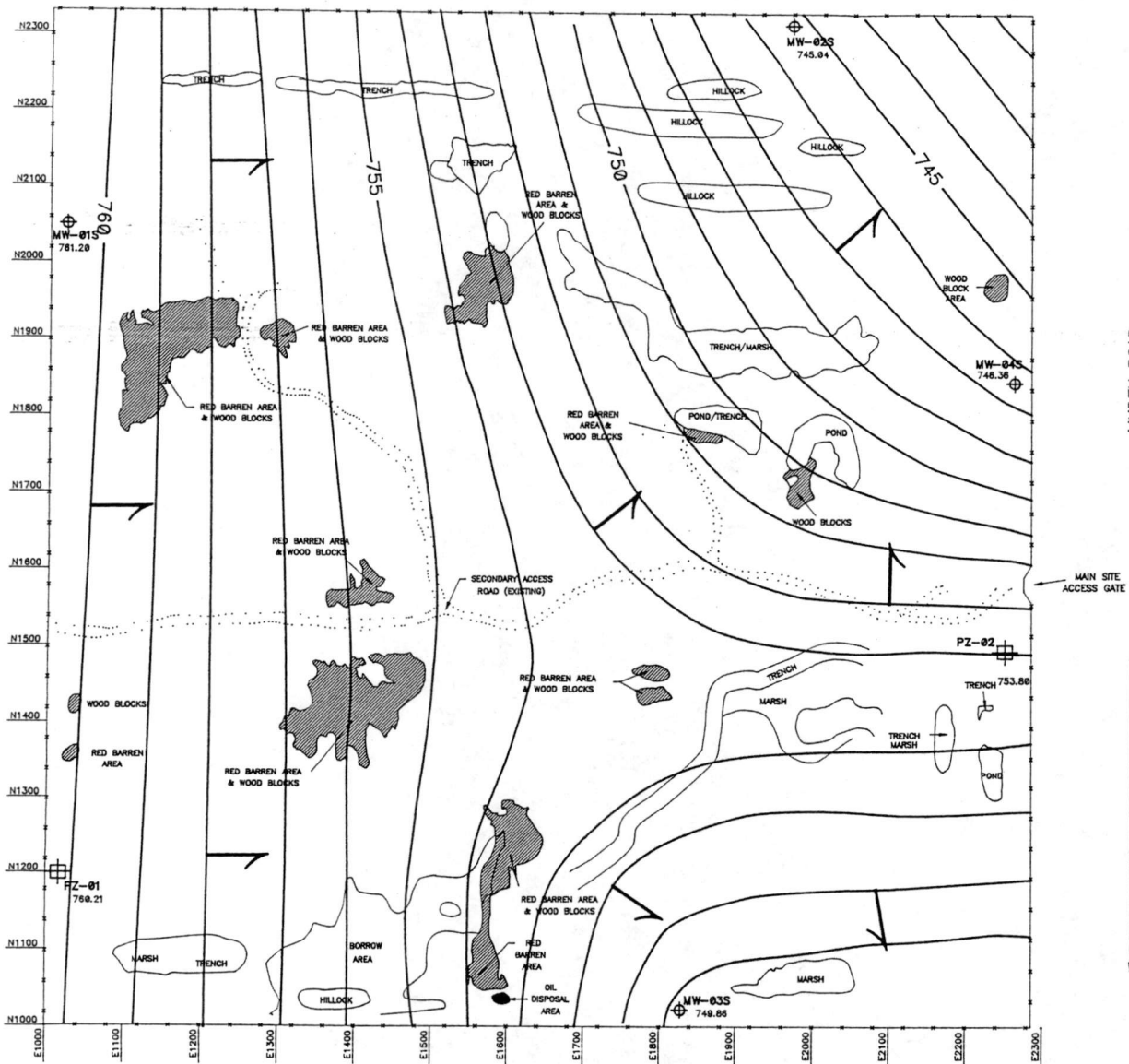


FIGURE 4-6

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061

MONITORING WELL &
PIEZOMETER LOCATIONS
LINDEN ROAD LANDFILL
Flint, Michigan



LEGEND




<p>MW-04S 746.36</p> <p>PZ-02 753.88</p>	 SHALLOW MONITORING WELL LOCATION /G.W. ELEVATION IN FEET (MSL)
	PIEZOMETER LOCATION /G.W. ELEVATION IN FEET (MSL)
	GROUNDWATER FLOW DIRECTION
CONTOUR INTERVAL = 1 FOOT	

FIGURE 4-9


WESTON
 MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
 Vernon Hills, Illinois
 60061

POTENTIOMETRIC SURFACE CONTOUR MAP
SHALLOW WATER-BEARING ZONE (JUNE 1991)
 LINDEN ROAD LANDFILL
 Flint, Michigan

Table 5-15

**Summary of Volatile Organic Compound Analyses
Groundwater Samples - Round I (May/June, 1991)**

**Site Investigation
Linden Road Landfill**

(All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S 05/31/91	MW-01S-DP 05/31/91	MW-01D 05/31/91	MW-02S 06/01/91	MW-02D 05/31/91	MW-03S 06/01/91	MW-03D 06/01/91	MW-04S 06/02/91	TB-02 05/31/91	TB-03 06/01/91	MW-03S-FB 06/01/91	Detection Limit (Range)
Methylene chloride	---	---	---	(0.007)	---	---	---	---	---	(0.007)	(0.010)	0.005
Acetone	(0.006) BJ	---	(0.013) BJ	---	(0.009) BJ	---	---	---	(0.004) BJ	---	---	0.010
Carbon disulfide	---	---	---	---	---	---	---	---	---	---	(0.022)	0.005
1,1-Dichloroethane	---	---	---	---	---	0.012	---	---	---	---	---	0.005
1,2-Dichloroethene (total)	0.036	0.037	---	---	---	---	---	---	---	---	---	0.005
Trichloroethene	0.300	0.380	---	---	---	0.010	---	---	---	---	---	0.005

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- () - Detection attributed to laboratory contamination.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- TB - Trip blank.
- S - Shallow well.
- D - Deep well.

Table 5-16
 Summary of Volatile Organic Compound Analyses
 Groundwater Samples - Round II (September 1991)
 Site Investigation
 Linden Road Landfill
 (All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S	MW-01D	MW-01D-DP	MW-02S	MW-02D	MW-03S	MW-03D	MW-04S	PZ-01	PZ-02	Trip Blank	MW-01S-FB	Detection Limit (Range)
Methylene chloride	(0.010) JB	(0.007) JB	(0.008) JB	(0.009) JB	(0.011) JB	(0.009) JB	(0.013) JB	(0.015) JB	(0.012) JB	(0.014) JB	(0.009) B	(0.007) JB	0.005
Acetone	(0.017) JB	(0.006) JB	(0.007) JB	(0.009) JB	(0.012) JB	(0.024) B	(0.013) JB	(0.011) B	(0.014) B	(0.012) B	(0.010) JB	(0.015) JB	0.010
Carbon disulfide	---	---	---	---	---	---	---	---	---	---	---	---	0.005
1,1-Dichloroethane	---	---	---	---	---	---	---	---	---	---	---	---	0.005
1,2-Dichloroethene (total)	0.061 J	---	---	---	---	0.014 J	---	---	0.020	---	---	---	0.005
1,2-Dichloroethane	---	---	---	---	---	---	---	---	0.009	---	---	---	0.005
2-Butanone	---	---	---	---	---	---	---	0.001 J	0.001 J	0.002 J	---	---	0.010
1,2-Dichloropropane	---	---	---	---	---	---	---	---	0.190	---	---	---	0.005
Trichloroethene	0.320	---	---	---	---	---	---	---	0.003 J	---	---	---	0.005
Benzene	---	---	---	---	---	---	---	---	---	0.006	---	---	0.005
4-Methyl-2-pentanone	---	---	---	---	---	---	---	---	---	0.073	---	---	0.010
Toluene	---	---	---	---	---	---	---	0.002 J	0.002 J	0.010	---	---	0.005
Chlorobenzene	---	---	---	---	---	---	---	---	---	0.003 J	---	---	0.005
Ethylbenzene	---	---	---	---	---	---	---	---	---	0.068	---	---	0.005
Xylenes (total)	---	---	---	---	---	---	---	---	---	0.310	---	---	0.005

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- () - Detection attributed to laboratory contamination.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- TB - Trip blank.
- S - Shallow well.
- D - Deep well.
- All prefixes to sample numbers are not shown for Table clarity purposes.

Table 5-17

**Summary of Semivolatile Organic Compound Analyses
Groundwater Samples - Round I (May/June, 1991)**

**Site Investigation
Linden Road Landfill**

(All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S 05/31/91	MW-01S-DP 05/31/91	MW-01D 05/31/91	MW-02S 06/01/91	MW-02D 05/31/91	MW-03S 06/01/91	MW-03D 06/01/91	MW-04S 06/02/91	MW-03S-FB 06/01/91	Detection Limit (Range)
bis(2-Chloroethyl)ether	0.0009 J	0.0009 J	---	---	---	---	---	---	---	.008 - .012
bis(2-Chloroisopropyl)ether	0.022 J	0.022 J	---	---	---	---	---	---	---	.008 - .012
Diethylphthalate	---	---	---	---	---	---	0.001 J	---	---	.008 - .012
Di-n-butylphthalate	---	---	---	---	---	0.001 J	---	---	---	.008 - .012
bis(2-Ethylhexyl)phthalate	---	---	0.001 J	---	---	---	---	---	---	.008 - .012

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- S - Shallow well.
- D - Deep well.

Table 5-18
 Summary of Semivolatile Organic Compound Analyses
 Groundwater Samples - Round II (September 1991)
 Site Investigation
 Linden Road Landfill
 (All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S 09/11/91	MW-01D 09/11/91	MW-01D-DP 09/11/91	MW-02S 09/12/91	MW-02D 09/12/91	MW-03S 09/12/91	MW-03D 09/12/91	MW-04S 09/13/91	PZ-02 09/12/91	MW-01S-FB 09/11/91	Detection Limit (Range)
bis(2-Chloroethyl)ether	0.002 J	---	---	---	---	---	---	---	---	---	
1,2-Dichlorobenzene	---	---	---	---	---	---	---	---	---	---	
bis(2-Chloroisopropyl)ether	0.030 J	---	---	---	---	---	---	---	0.003 J	---	.009 - .015
Naphthalene	---	---	---	---	---	---	---	---	---	---	.009 - .015
Acenaphthene	---	---	---	---	---	---	---	---	0.018	---	.009 - .015
Dibenzofuran	---	---	---	---	---	---	---	---	0.004 J	---	.009 - .015
Fluorene	---	---	---	---	---	---	---	---	0.002 J	---	.009 - .015
Di-n-butylphthalate	---	---	---	0.003 J	---	---	---	---	0.002 J	---	.009 - .015
bis(2-Ethylhexyl)phthalate	0.002 J	---	---	0.009 J	---	---	---	---	---	---	.009 - .015
Indeno(1,2,3-cd)pyrene	---	---	---	0.002 J	---	---	---	---	0.002 J	---	.009 - .015
Benzo(g,h,i)perylene	---	---	---	0.002 J	---	---	---	---	---	---	.009 - .015
Dibenzo(a,h)anthracene	---	---	---	---	---	0.001 J	---	---	---	---	.009 - .015

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- S - Shallow well.
- D - Deep well.
- Piezometer PZ-01 was not sampled due to lack of water.

Table 5-19

Summary of Pesticide/PCB Compound Analyses
 Groundwater Samples - Round I (May/June, 1991)
 Site Investigation
 Linden Road Landfill
 (All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S	MW-01S-DP	MW-01D	MW-02S	MW-02D	MW-03S	MW-03D	MW-04S	MW-03S-FB	Detection Limit (Range)
Alpha-BHC	0.000019 J	---	0.000012 J	---	---	---	---	---	---	.000047 - .000062
Aroclor-1254	0.00030 J	0.00028 J	---	---	---	---	---	---	---	.094 - .012

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- S - Shallow well.
- D - Deep well.

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Table 5-20

Summary of Inorganic Compound Analyses
Groundwater Samples - Round I (May/June, 1991)

Site Investigation
Linden Road Landfill

(All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S	MW-01S-DP	MW-01D	MW-02S	MW-02D	MW-03S	MW-03D	MW-04S	MW-03S-FB	Detection Limit
Arsenic, soluble	---	---	0.021	---	0.011	---	0.0185	---	---	0.002
Barium, soluble	0.088	0.092	0.077	0.10 J	0.087	0.10 J	0.20 J	0.19 J	---	0.05
Calcium, soluble	121	121	30.4	155	41.5	151	263	88.9	0.16	0.1
Iron, soluble	0.21	0.094	0.038	0.26 J	---	0.25 J	---	1.5 J	---	0.3
Potassium, soluble	10.4	10.7	2.0	15.2	2.4	14.8	11.1	---	---	2.0
Magnesium, soluble	40.3	39.8	9.4	65.9 J	18.9	64.1 J	129 J	31.6 J	---	0.2
Manganese, soluble	1.5	1.6	0.035	0.45 J	0.028	0.44 J	0.087 J	0.20 J	---	0.01
Sodium, soluble	18.5	18.0	28.2	53.9	31.1	52.4	71.5	6.7	0.41	0.2
Nickel, soluble	0.020	0.051	---	---	---	---	---	---	---	0.02
Lead, soluble	---	---	0.0037	---	---	---	---	---	---	0.002
Selenium, soluble	---	---	---	0.0044 J	---	---	---	---	---	0.002
Zinc, soluble	---	---	---	---	---	---	0.073	---	0.023	0.01

NOTES:

--- - Compound was analyzed for but not detected.

J - Indicates an estimated value.

B - Indicates the compound was found in the associated blank and the sample.

DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.

FB - Field blank.

S - Shallow well.

D - Deep well.

Table 5-21
Summary of Inorganic Compound Analyses
Groundwater Samples - Round II (September 1991)
Site Investigation
Linden Road Landfill
 (All Values in mg/L)

Sample No. Sample Depth (ft.) Date Collected	MW-01S	MW-01D	MW-01D-DP	MW-02S	MW-02D	MW-03S	MW-03D	MW-04S	PZ-02	MW-01S-FB	Detection Limit
Arsenic, total	—	0.020	0.019	—	0.01	0.0032	0.015	0.0023	0.0030	—	0.002
Barium, total	0.12	0.12	0.12	0.093	0.094	0.21	0.12	0.12	6.7	—	0.05
Calcium, total	163	31.2	31.9	206	40.3	208	70.9	151	82.1	—	0.10
Iron, total	0.24	0.18	0.047	—	—	0.065 J	0.13 J	—	0.5 J	—	0.30
Potassium, total	12.8	—	—	6	2.6	9.6	2.4	6.1	14.4	—	2.0
Magnesium, total	53.5	10.1	10.2	93.4	20.2	78.7	53.2	74.2	30.8	—	0.20
Manganese, total	1.8	0.049	0.048	0.036	0.08	0.65	0.066	0.58	1.4	—	0.01
Sodium, total	29.1	29.1	29.4	70.3	34.9	79.6	26.3	64.8	23.4	0.32	0.2
Nickel, total	0.020	—	—	0.02	—	—	—	—	—	—	0.02
Lead, total	0.0042	0.011	0.0082	0.002 J	0.0023	0.0026 J	0.0028 J	—	0.0037 J	0.0028	0.002
Thallium, total	0.0036	—	—	—	0.0030	—	—	—	—	—	0.002
Zinc, total	0.018	0.011	0.016	0.02	—	0.015	0.012	0.032	—	—	0.01

NOTES:

- - Compound was analyzed for but not detected.
- J - Indicates an estimated value.
- B - Indicates the compound was found in the associated blank and the sample.
- DP - Indicates a duplicate sample was collected at that location for QA/QC purposes.
- FB - Field blank.
- S - Shallow well.
- D - Deep well.
- Piezometer PZ-01 was not sampled due to lack of water.
- No CN analysis was performed on sample MW-02S due to insufficient sample quantity.