REPORT OF
PHASE II ENVIRONMENTAL SITE ASSESSMENT

AREA-WIDE ASSESSMENT OF HISTORIC FILL
OF MUSKEGON LAKE SHORELINE
MUSKEGON, MICHIGAN

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PROJECT NO. MK1246.00

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PHASE II REPORT
FOR
AREA-WIDE ASSESSMENT OF HISTORIC FILL

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EXECUTIVE SUMMARY

This report documents Phase II of an Area-Wide investigation performed to evaluate environmental conditions related to historic fill along the south shore of Muskegon Lake in downtown Muskegon, Michigan. The primary objective of Phase II of the Area-Wide Assessment of Fill Characteristics was to build upon the database collected in the Phase I Assessment. This was achieved by 1) obtaining additional soils data characterizing the contaminants and ranges of concentrations present in the historic fill material, 2) characterizing the range of contaminant concentrations in the ground water associated with the fill material and 3) evaluating the risks to human health and the environment associated with the range of contaminants. This work was conducted under the Muskegon Shoreline Site Assessment Fund Grant, and pursuant to a work plan approved by the Michigan Department of Environmental Quality dated March 27, 2000.

Seventeen soil borings and thirteen temporary monitoring wells were completed in the study area between the landward fill boundary and the Muskegon Lake Shoreline during Phase II. The locations of the Phase II soil borings and temporary monitoring wells are shown on Figure 2.

A total of thirty soil samples and sixteen ground water samples were collected and analyzed during Phase II. The analyses of the soil samples from the historic fill material indicate that metals (Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, and Zinc), PAH compounds (Benzo(a)pyrene, Dibenzo(a,h)anthracene, Fluoranthene, Naphthalene, and Phenanthrene) and formaldehyde exceeded MDEQ generic residential cleanup criteria in one or more soil samples. The laboratory results from the sixteen ground water samples analyzed during Phase II showed that Manganese was the only contaminant detected at concentrations exceeding MDEQ generic residential cleanup criteria.

Based on the results of the Phase I and II soil and ground water sampling analyses, the historic fill found in the study area contains a number of contaminants at concentrations exceeding the MDEQ's generic residential cleanup criteria. Therefore, it is the conclusion of this Phase II Report that properties located wholly or in part within the historic fill area are "facilities" as that term is defined under Part 201 of the Michigan Natural Resources and Environmental Protection Act (PA 451 of 1994 as amended- "Part 201"). Additional information is provided in a separate report entitled *Area-Wide Assessment of Fill Characteristics of Muskegon Shoreline – Summary Report, Muskegon, Michigan*, June 2003.

Baseline Environmental Assessment and Section 20107a/Due Care information intended to be of assistance to current and prospective owners/operators of properties within the Area Wide study boundary is also provided in the aforementioned *Summary Report*.

PHASE II REPORT
FOR
AREA-WIDE ASSESSMENT OF HISTORIC FILL
OF MUSKEGON SHORELINE
MUSKEGON, MICHIGAN

1.0 INTRODUCTION

The City of Muskegon was awarded a grant from the State of Michigan's Site Assessment Fund Program on July 14, 1995 (Project No. 454405-68) for the Muskegon Shoreline Development project. The scope of Muskegon's Site Assessment Program included an assessment of historic fill material on an area-wide basis. This area-wide approach was proposed based on the fact that much of the land along the south shore of Muskegon Lake consists of non-native fill materials from various sources. An in-depth discussion of the historic nature of the fill materials was provided in the Phase I Work Plan dated October 1996. The general location of the Area-Wide Study Area is shown on Figure 1. The boundaries of the Study Area are shown in more detail in Figure 2.

Due to the similarities of the historic fill material throughout the area and for economy of scale, an area-wide investigation was performed to evaluate the potential risks to human health and the environment associated with this material. The area-wide approach was also performed to evaluate risks posed to redevelopment of the lakeshore, including the completion of eastern extension of Shoreline Drive and the Shoreline Trail.

Phase I of the Area-Wide Assessment was completed under a work plan dated October 1996. The purpose of Phase I was to characterize the landward extent of the historic fill material and collect preliminary information on the range of contaminants found in it. The Phase I findings are included in the Phase I Report dated June 1998.

2.0 OBJECTIVES

The Work Plan dated February 2000 set forth the scope of work to be completed in Phase II of the Area-Wide Assessment. The purpose of the Phase II investigation was to more fully characterize the range of contaminants found in the fill material, determine if those contaminants have adversely affected the ground water and evaluate the level of risk to human health and the environment posed by contaminants in the historic fill material and ground water. The specific objectives of Phase II of the Area-Wide Assessment were to:

1. Undertake historic fill characterization to facilitate redevelopment along the shoreline.
2. Obtain additional soils data to complete the characterization of the range of contaminant concentrations present in the fill material.
3. Define the vertical extent of the historic fill.
4. Characterize the range of contaminant concentrations in the ground water associated with the fill material.
5. Evaluate the risks to human health and the environment associated with the range of contaminants found in the fill material and ground water.
6. Develop generic Baseline Environmental Assessments (BEAs) and Section 20107a Compliance Analyses, for properties located in the historic fill area.
7. Evaluate the necessity for, and feasibility of, preparing an Area-Wide Remedial Action Plan.
8. Facilitate movement of soils among properties located within the historic fill area.

3.0 METHODOLOGY

3.1 Soil Borings

Phase I soil boring locations were selected to characterize the landward extent of the historic fill material. Phase II boring locations were selected to more fully characterize the historic fill material between the landward fill boundary and the Muskegon Lake shoreline. The Phase II borings were evenly distributed throughout the Area-Wide Assessment Area. Where ever possible, borings were located on public rights-of-way, City owned properties and individual Site Assessment Program sites in order to avoid obtaining private property access. All boring locations were cleared through the MISS DIG process before boring activities were initiated.

A total of thirty (30) borings were advanced during Phase II. Borings were made at seventeen (17) locations (SB-39 through SB-54, S-14 and S-41) for the purposes of logging the subsurface stratigraphy and collecting samples of the historic fill material. At thirteen (13) additional locations (TMW 1-13) borings were conducted for the additional purpose of installing temporary monitoring wells. All soil borings and temporary monitoring well locations are depicted on Figure 2.

All borings were advanced to the water table or to native material using hand auger or truck mounted hollow stem auger equipment and methods as set forth in Section 4.1.1.1-Soil Boring Methodology contained in the Phase I Work Plan. Ground water was encountered at depths ranging from three to twelve feet in the thirty (30) borings.

3.2 Soil Sampling

Soil samples were collected continuously during the soil boring operations at each boring location. The soil samples were inspected and the observed characteristics of the samples were logged on boring log forms, which are included in Appendix A. Soil samples with apparent volatile organic compound (VOC) impact were screened in the field with a photoionization detector (PID) and the PID readings were recorded on the boring log forms.

One soil sample was retained for laboratory analysis from each of the seventeen soil boring and thirteen temporary monitoring well locations. All soil samples selected for laboratory analysis were collected above the water table from the depth that best represented the average conditions of the fill material at the boring location. All soil samples were collected in conformance with the procedures set forth in Section 4.1.1.2 - Soil Sampling Protocol and Laboratory Analysis and Appendix A - Sampling Methodology and Quality Assurance/Quality Control contained in the Phase I Work Plan.

Soil samples were analyzed for polynuclear aromatic hydrocarbons (PAHs), metals (As, Cd, Cr, Cu, Pb, Mn, Ni, and Zn), PCBs, cyanide, phenolics and formaldehyde. Samples were also analyzed for volatile organic compounds (VOCs) if PID readings during soil screening indicated the presence of VOCs.

3.3 Monitoring Wells

Thirteen (13) temporary monitoring wells (TMW 1-13) were installed at the locations indicated on Figure 2 to characterize the range of contaminant concentrations in the ground water associated with the historic fill material. Temporary monitoring well locations were selected to characterize concentrations of contaminants in the ground water in fill areas and at the ground water - surface water interface (GSI).

Temporary monitoring wells were installed using hand auger or truck mounted hollow stem auger equipment and methods as set forth in the methodologies included in Appendix A of the Phase I Work Plan. The temporary wells consisted of two-inch diameter PVC well screens and risers. Wells screens were five feet in length with No. 10 slot size. The well screens were set to straddle the top of the water table.

3.4 Ground Water Sampling

Ground water samples were collected from eleven (11) of the thirteen (13) temporary monitoring wells. Samples were not collected from TMW-6 or TMW-12. TMW-6, located in the Terrace Street right-of-way was lost or destroyed. TMW-12, located on private property, could not be accessed during the sampling event.

In addition to the temporary monitoring wells installed during Phase II, five existing monitoring wells previously installed by third parties on public and private properties in the historic fill area were accessed and sampled to increase the number and geographic distribution of ground water data points. The additional monitoring wells that were sampled include: TMW-19s located on the West Michigan Steel property, TMW-21s located on the Kirksey Westran property, GTMW-4 located on the Grand Trunk Terminal Dock property, HMW-1 located on the Hartshorn Marina property, and K-TMW-11 located in the rail road right-of-way on the west (south?) side of West Western Street west of the Cole's Quality Foods property.

Ground water samples were analyzed for PAHs, metals (As, Cd, Cr, Cu, Pb, Mn, Ni, and Zn) and formaldehyde. Ground water samples were collected using low flow purge techniques at the request of MDEQ. All ground water sample handling and laboratory analysis procedures conformed to the methodologies set forth in the Phase I Work Plan.

3.5 Global Positioning System Coordinates

The latitudinal and longitudinal coordinates were obtained for the Phase II soil boring and temporary monitoring wells utilizing global positioning system (GPS) instruments with differential correction for improved accuracy. GPS coordinates were obtained to provide the City of Muskegon with information necessary to include the soil boring and temporary monitoring well locations and analytical data in the city-wide GIS system. The GPS coordinates were obtained for most soil boring and temporary monitoring well locations.

4.0 DISCUSSION OF FINDINGS

4.1 Soil Analytical Results

Soil/historic fill descriptions logged for the thirty Phase II soil boring locations are consistent with fill characteristics observed during the Phase I assessment. Results of the laboratory analysis of soil samples are summarized in Tables 1 through 3. The laboratory analytical reports for all samples are included in Appendix B.

Table 1 includes the results of the metals analyses compared to applicable generic residential cleanup criteria established under Part 201 of Act 451, P.A. 451 of 1994, as amended. Aquifer protection, direct contact, GSI protection and statewide background criteria were deemed the applicable criteria and are provided at the bottom of Table 1.

The concentration of at least one metal exceeded generic residential criteria in the soil samples collected from 12 of the 30 boring locations. Chromium exceeded GSI criteria at nine boring sites and exceeded aquifer protection at four boring locations. Copper exceeded GSI protection criteria at six boring locations. Zinc exceeded GSI protection criteria in six samples and exceeded aquifer protection in one sample. Manganese exceeded GSI and aquifer protection standards at four boring locations. Arsenic exceeded residential direct contact criteria in one sample. Lead exceeded residential direct contact criteria in one sample. Cadmium exceeded GSI protection criteria in one sample. Only nickel did not exceed any criteria in any samples of soil.

Table 2 presents the results of the polynuclear aromatic hydrocarbon (PAH) analyses for the soil samples compared to applicable Part 201 residential aquifer protection, direct contact and GSI protection criteria. The concentration of at least one PAH compound exceeded MDEQ criteria at 13 of the 30 soil sampling locations. One sample had five PAH exceedances. Benzo(a)pyrene exceeded direct contact criteria at nine boring locations. Dibenzo(a,h)anthracene was detected above direct contact criteria at two soil sample locations. Fluoranthene exceeded GSI protection criteria in six samples. Naphthalene exceeded GSI protection criteria in nine samples. Phenanthrene exceeded GSI protection criteria in five soil samples.

The soil analytical results for cyanide, total phenols, formaldehyde and PCBs are summarized in Table 3. These sample results were compared to applicable Part 201 residential aquifer protection, direct contact and GSI protection criteria. Cyanide, total phenols, and PCBs were not detected above MDEQ residential criteria in any of the soil samples. Formaldehyde exceeded GSI protection criteria in five of the thirty soil sample locations.

Contaminant concentrations did not verify significantly with depth.

A detailed statistical analysis of all Phase I and Phase II analytical data is presented in a separate report entitled *Area-Wide Assessment of Fill Characteristics of Muskegon Shoreline – Summary Report, Muskegon, Michigan*, June 2003. Data collected for individual environmental assessments of Site Assessment Grant funded properties located in the Muskegon Lake Shoreline study area was also incorporated in the statistical analysis.

4.2 Ground Water Analytical Results

The analytical results for the ground water samples are summarized in Table 4. Only parameters that were detected in at least one sample are listed in Table 4. Table 4 compares the ground water results with the applicable MDEQ residential criteria. The laboratory analytical reports for all samples are included in Appendix B.

No PAH compounds or formaldehyde were detected in any of the 16 ground water samples. Chromium, Manganese and Zinc were the only metals that were detected in the groundwater samples. Chromium was detected in only one sample, TMW-1, at a concentration that was below MDEQ criteria. Manganese was detected in eleven of the sixteen ground water samples. Of these eleven detections, ten samples exceeded MDEQ drinking water criteria, and no other applicable criteria were exceeded for Manganese. Zinc was detected in eight of the ground water samples, but was below MDEQ criteria.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Phase II Area-Wide Assessment activities confirmed the nature and areal extent of the historic fill material in the study area. The historic fill generally consists of industrial fill (containing dark-colored foundry sands, slag, core sands, coal, cinders, etc) and construction fill (containing glass, concrete, wood, metal, etc.). Native soils, underlying the historic fill materials, consisted of orangish-brown sand, wood debris associated with former lumbering activities, or a peat layer indicative of former wetlands/surface waters. The landward boundary of the historic fill material generally parallels the 1837 shoreline as indicated on Figure 2. The historic fill extends landward to the greatest extent in areas near existing or former surface water bodies (e.g., reported low-lying pond and wetland areas near the Cole's Quality Foods site, the area between Ninth Street and Third Street, near Ryerson Creek and near the South Branch of the Muskegon River).

Results of laboratory analysis of samples of fill material from the thirty soil boring locations advanced during Phase II are summarized in Tables 1 through 3. The analyses of the fill samples indicated that metals (Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, and Zinc), PNA compounds (Benzo(a)pyrene, Dibenzo(a,h)anthracene, Fluoranthene, Naphthalene, and Phenanthrene) and formaldehyde were detected in at least one soil sample in concentrations that exceeded Part 201 generic residential cleanup criteria.

Results of the laboratory analysis of ground water samples from sixteen monitoring wells are summarized in Table 4. Manganese was the only contaminant detected in concentrations that exceeded Part 201 generic residential cleanup criteria.

Based on the results of the Phase I and II soil and ground water sampling analyses, the historic fill found in the study area contains a number of contaminants at concentrations exceeding the Part 201 generic residential cleanup criteria. Therefore, properties located wholly or in part within the historic fill area are "facilities" as that term is defined under Part 201. Further justification for this conclusion including a detailed statistical analysis is provided in a separate report entitled *Area-Wide Assessment of Fill Characteristics of Muskegon Shoreline – Summary Report, Muskegon, Michigan*, June 2003.

Baseline Environmental Assessment and Section 20107a/Due Care information intended to be of assistance to current and prospective owners/operators of properties within the Area Wide study area is also provided in the aforementioned *Summary Report.* Preparation of a Remedial Action Plan (RAP) for the Area-Wide study boundary was initially considered to be an objective of the project. However, this was determined to be unnecessary based upon the results of the study and the amendments to Michigan cleanup laws since the project was initiated, as further discussed in the *Summary Report.*

TABLES

TABLE 1
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PHASE II METALS SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (mg/kg)							
			Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Zinc
SB-39	3	10/19/2000	0.98	0.048	5.9	9.3	79	32	2.1	150
SB-40	0-2	8/9/2000	1.4	0.3	11	**110**	190	160	9.1	**270**
SB-41	0-1	8/9/2000	0.085	0.79	8.1	**120**	**470**	440	8.4	**450**
SB-43	0-4	8/9/2000	2.1	0.38	13	15	51	190	5.3	61
SB-44	1-5	8/30/2000	1.3	0.077	6.7	5.6	9	320	4.6	98
SB-45	1-4	8/31/2000	0.68	0.017	6.7	4.9	6.8	55	6.2	25
SB-46	2-6	8/31/2000	0.61	0.13	3.5	11	41	78	3.3	100
SB-47	1-3	5/3/2001	5.5	1	7.4	43	120	90	7.4	100
SB-48	1-3	5/3/2001	2.2	0.44	5.6	19	40	110	7	59
SB-49	1-3	5/4/2001	2.6	0.079	**64**	33	32	**7300**	18	140
SB-50	1-4	5/4/2001	3.4	0.34	7.3	24	55	110	5.9	57
SB-51	2-4	5/4/2001	1.8	1.4	4.4	24	52	110	5.5	59
SB-52	3-5	5/4/2001	4.2	1.4	**67**	**600**	110	190	69	**3400**
SB-53	1-3	5/4/2001	5.2	0.39	**23**	58	89	170	17	140
SB-54	1-2	5/8/01	2.8	0.56	**19**	64	89	410	16	**280**
S-14	0-2	10/16/2000	ND	ND	**39**	**230**	77	160	24	110
S-41	1-3	10/16/2000	ND	ND	**48**	74	22	**1300**	30	41
MDEQ RESIDENTIAL CRITERIA	Aquifer Protection		**23**	**6.0**	**30**	**5,800**	**700**	**1.0**	**100**	**2,400**
	Direct Contact		**7.6**	**550**	**2,500**	**20,000**	**400**	**25,000**	**40,000**	**170,000**
	GSI		**70**	**3.6**	**3.3**	**75**	**2,800**	**15**	**76**	**170**
	Statewide Background		**5.8**	**1.2**	**18**	**32**	**21**	**440**	**20**	**47**

TABLE 1
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PHASE II METALS SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (mg/kg)							
			Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Nickel	Zinc
TMW-1	1.5	8/29/2000	0.56	0.013	1.9	3.3	4	28	1.2	6.6
TMW-2	3-5	8/29/2000	3.5	0.45	**28**	**85**	160	**480**	23	**240**
TMW-3	1-5	8/29/2000	**14**	1.5	**24**	**140**	360	440	20	**550**
TMW-4	1-5	8/29/2000	1.1	0.1	2.6	7.2	66	29	1.7	57
TMW-5	2-7	8/30/2000	0.85	0.023	2.5	4.3	18	52	1.6	15
TMW-6	1	8/30/2000	1.2	0.045	6.5	13	39	120	5.2	54
TMW-7	3-4	10/18/2000	2.3	0.11	9.1	22	230	95	5.3	89
TMW-8	3	10/18/2000	2	0.19	17	30	27	180	7.4	38
TMW-9	5	10/18/2000	3.5	0.13	**28**	41	18	**720**	18	43
TMW-10	2-6	10/18/2000	1.1	0.24	4.5	12	38	80	2.4	40
TMW-11	0-1	10/19/2000	1.7	0.082	8.8	26	39	200	6.8	36
TMW-12	0-2	5/3/2001	2.8	**4.9**	5.7	18	120	120	4.8	150
TMW-13	3-5	5/8/01	ND	2.5	7.0	7.1	24	61	4.1	26
MDEQ	**Aquifer Protection**		**23**	**6.0**	**30**	**5,800**	**700**	**1.0**	**100**	**2,400**
RESIDENTIAL	**Direct Contact**		**7.6**	**550**	**2,500**	**20,000**	**400**	**25,000**	**40,000**	**170,000**
CRITERIA	**GSI**		**70**	**3.6**	**3.3**	**75**	**2,800**	**15**	**76**	**170**
	Statewide Background		**5.8**	**1.2**	**18**	**32**	**21**	**440**	**20**	**47**

* = MDEQ Part 201 Generic Cleanup Criteria and Screening Levels. Groundwater: Residential and 'Industrial - Commercial. Rule 746 & 748, Dec. 21, 2002
** = MDEQ Part 201 Generic Facility-Specific
BDL = Below Detection Limit
ID = Inadequate Data to Develop Criteria
NV = Not Likely to Volatilize
COMM = Commercial
IND = Industrial
RES - Residential
GSI = Groundwater/Surface Water Interface
= Exceeds Generic Residential Clean-up Criteria

TABLE 2
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PHASE II POLYNUCLEAR AROMATIC HYDROCARBONS SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (ug/kg)															
			Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(ghi)perylene	Benzo(a)pyrene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
SB-39	3	10/19/2000	BDL	BDL	BDL	580	490	BDL	BDL	450	680	BDL	1,300	BDL	BDL	BDL	780	1,100
SB-40	0-2	8/9/2000	BDL	4,200	1,400	12,000	13,000	12,000	7,500	**12,000**	13,000	**3,900**	**18,000**	460	8,400	**3,200**	**5,000**	13,000
SB-41	0-1	8/9/2000	BDL	BDL	1,300	9,800	12,000	13,000	12,000	**14,000**	12,000	**4,600**	**15,000**	BDL	11,000	**1,000**	**7,600**	11,000
SB-43	0-4	8/9/2000	1,300	BDL	2,300	4,300	3,200	4,600	3,000	**4,600**	5,600	1,100	**12,000**	1,600	2,600	**1,100**	**14,000**	9,000
SB-44	1-5	8/30/2000	BDL	640	350	3,400	1,800	2,300	2,700	**2,700**	3,100	590	4,900	BDL	1,900	590	1,400	4,800
SB-45	1-4	8/31/2000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SB-46	2-6	8/31/2000	BDL	BDL	BDL	350	BDL	BDL	BDL	370	470	BDL	960	BDL	BDL	BDL	670	650
SB-47	1-3	5/3/2001	240	BDL	290	420	980	BDL	BDL	BDL	510	BDL	960	350	BDL	**18,000**	1,900	940
SB-48	1-3	5/3/2001	BDL	BDL	BDL	260	320	210	BDL	280	250	BDL	500	BDL	BDL	250	700	450
SB-49	1-3	5/4/2001	BDL	BDL	BDL	290	470	360	BDL	350	320	BDL	570	BDL	BDL	BDL	510	520
SB-50	1-4	5/4/2001	BDL	BDL	BDL	860	1,700	1,200	220	1,100	890	BDL	1,500	BDL	260	520	1,100	1,300
SB-51	2-4	5/4/2001	BDL	BDL	BDL	480	760	530	BDL	610	470	BDL	810	BDL	BDL	260	730	750
SB-52	3-5	5/4/2001	430	1,100	3,900	8,100	9,200	5,300	2,000	**6,600**	7,900	950	**13,000**	2,800	2,300	**6,100**	**16,000**	18,000
SB-53	1-3	5/4/2001	BDL	320	190	790	2,000	1,400	230	990	1,000	BDL	1,900	BDL	270	**1,300**	1,200	1,500
SB-54	1-2	5/8/01	1,700	320	2,800	7,600	9,300	7,300	1,000	**9,100**	7,800	BDL	**12,000**	1,400	1,100	**3,000**	**15,000**	16,000
S-14		10/16/2000	BDL	BDL	490	1,500	1,400	780	890	1,100	2,200	BDL	2,800	BDL	630	**4,000**	**4,500**	2,800
S-41		10/16/2000	BDL	BDL	890	3,900	6,100	3,500	5,500	**6,400**	4,400	1,300	5,200	BDL	4,900	BDL	**3,000**	4,800
MDEQ	Aquifer Protection		**300,000**	**5,900**	**41,000**	NLL	NLL	NLL	NLL	NLL	NLL	NLL	**730,000**	**390,000**	NLL	**35,000**	**56,000**	**480,000**
RESIDENT.	Direct Contact		**4.1E+7**	**1.6E+6**	**2.3E+8**	**20,000**	**20,000**	**200,000**	**2.5E+6**	**2,000**	**2.0E+6**	**2,000**	**4.6E+7**	**2.7E+7**	**20,000**	**1.6E+7**	**1.6E+6**	**2.9E+7**
CRITERIA	GSI		**4,400**	ID	ID	NLL	NLL	NLL	NLL	NLL	NLL	NLL	**5,500**	**5,300**	NLL	**870**	**5,300**	ID

TABLE 2

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PHASE II POLYNUCLEAR AROMATIC HYDROCARBONS SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON

AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (ug/kg)															
			Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(ghi)perylene	Benzo(a)pyrene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
TMW-1	1.5	8/29/2000	BDL	1,100	BDL	1,200	1,800	1,600	2,800	2,200	1,600	790	1,300	BDL	2,000	BDL	BDL	1,300
TMW-2	3-5	8/29/2000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TMW-3	1-5	8/29/2000	BDL	BDL	BDL	780	650	630	770	760	980	BDL	1,800	BDL	560	780	1,600	1,200
TMW-4	1-5	8/29/2000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	410	460	BDL
TMW-5	2-7	8/30/2000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TMW-6	1	8/30/2000	BDL	BDL	BDL	460	370	350	360	450	630	BDL	880	BDL	BDL	BDL	450	780
TMW-7	3-4	10/18/2000	BDL	BDL	BDL	830	1,300	790	650	930	1,200	BDL	1,100	BDL	610	690	840	1,100
TMW-8	3	10/18/2000	BDL	BDL	BDL	470	BDL	BDL	BDL	BDL	490	BDL	1,100	BDL	BDL	BDL	1,000	960
TMW-9	5	10/18/2000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	450	BDL
TMW-10	2-6	10/18/2000	690	BDL	1,600	3,400	2,900	1,800	1,900	2,700	3,700	550	8,000	630	1,600	BDL	5,500	6,900
TMW-11	0-1	10/19/2000	BDL	BDL	BDL	820	1,200	610	550	870	1,000	ND	1,200	BDL	490	1,500	1,200	1,300
TMW-12	0-2	5/3/2001	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TMW-13	3-5	5/8/01	BDL	BDL	BDL	240	330	220	BDL	280	230	BDL	BDL	BDL	BDL	BDL	320	380
MDEQ	Aquifer Protection		300,000	5,900	41,000	NLL	NLL	NLL	NLL	NLL	NLL	NLL	730,000	390,000	NLL	35,000	56,000	480,000
RESIDENT.	Direct Contact		4.1E+7	1.6E+6	2.3E+8	20,000	20,000	200,000	2.5E+6	2,000	2.0E+6	2,000	4.6E+7	2.7E+7	20,000	1.6E+7	1.6E+6	2.9E+7
CRITERIA	GSI		4,400	ID	ID	NLL	NLL	NLL	NLL	NLL	NLL	NLL	5,500	5,300	NLL	870	5,300	ID

* = MDEQ Part 201 Generic Cleanup Criteria and Screening Levels. Groundwater: Residential and 'Industrial - Commercial. Rule 746 & 748, Dec. 21, 2002

** = MDEQ Part 201 Generic Facility-Specific

BDL = Below Detection Limit

ID = Inadequate Data to Develop Criteria

NV = Not Likely to Volatilize

COMM = Commercial

IND = Industrial

RES - Residential

GSI = Groundwater/Surface Water Interface

= Exceeds Generic Residential Clean-up Criteria

TABLE 3
(page 1 of 2)
PHASE II CYANIDE, PHENOLS AND PCB SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (ug/kg)			
			Cyanide	Total Phenols	Formaldehyde	PCBs
SB-39	3	10/19/2000	BDL	BDL	BDL	BDL
SB-40	0-2	8/9/2000	BDL	BDL	BDL	BDL
SB-41	0-1	8/9/2000	BDL	690	BDL	BDL
SB-43	0-4	8/9/2000	BDL	990	BDL	BDL
SB-44	1-5	8/30/2000	BDL	BDL	**3,700**	BDL
SB-45	1-4	8/31/2000	BDL	BDL	**7,500**	BDL
SB-46	2-6	8/31/2000	230	BDL	BDL	49
SB-47	1-3	5/3/2001	BDL	BDL	**3,000**	BDL
SB-48	1-3	5/3/2001	BDL	BDL	BDL	BDL
SB-49	1-3	5/4/2001	BDL	BDL	**9,100**	BDL
SB-50	1-4	5/4/2001	BDL	BDL	BDL	BDL
SB-51	2-4	5/4/2001	BDL	BDL	BDL	BDL
SB-52	3-5	5/4/2001	BDL	BDL	BDL	330
SB-53	1-3	5/4/2001	BDL	BDL	BDL	BDL
SB-54	1-2	5/8/01	BDL	BDL	BDL	BDL
S-14		10/16/2000	BDL	BDL	BDL	BDL
S-41		10/16/2000	BDL	BDL	BDL	BDL
CLEANUP CRITERIA	**Aquifer Protection**		**4,000**	**88,000**	**26,000**	**NLL**
	Direct Contact		**12,000**	**12,000,000**	**41,000,000**	**4,000**
	GSI		**400**	**4,200**	**2,400**	**NLL**

* = MDEQ Part 201 Generic Cleanup Criteria and Screening Levels. Groundwater: Residential and Industrial - Commercial. Rule 746 & 748, Dec. 21, 2002
** = MDEQ Part 201 Generic Facility-Specific
BDL = Below Detection Limit
ID = Inadequate Data to Develop Criteria
NV = Not Likely to Volatilize
COMM = Commercial
IND = Industrial
RES - Residential
GSI = Groundwater/Surface Water Interface
= Exceeds Generic Residential Clean-up Criteria

TABLE 3
(page 2 of 2)
PHASE II CYANIDE, PHENOLS AND PCB SOIL ANALYTICAL RESULTS

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

Boring Location	Depth (feet)	Sample Date	PARAMETER & CONCENTRATION (ug/kg)			
			Cyanide	Total Phenols	Formaldehyde	PCBs
TMW-1	1.5	8/29/2000	BDL	BDL	BDL	BDL
TMW-2	3-5	8/29/2000	BDL	BDL	BDL	1,400
TMW-3	1-5	8/29/2000	BDL	BDL	BDL	BDL
TMW-4	1-5	8/29/2000	BDL	BDL	BDL	BDL
TMW-5	2-7	8/30/2000	BDL	BDL	BDL	BDL
TMW-6	1	8/30/2000	BDL	BDL	BDL	BDL
TMW-7	3-4	10/18/2000	BDL	BDL	BDL	BDL
TMW-8	3	10/18/2000	BDL	BDL	2,100	BDL
TMW-9	5	10/18/2000	BDL	BDL	**5,800**	BDL
TMW-10	2-6	10/18/2000	BDL	BDL	BDL	BDL
TMW-11	0-1	10/19/2000	BDL	BDL	BDL	BDL
TMW-12	0-2	5/3/2001	BDL	BDL	BDL	BDL
TMW-13	3-5	5/8/01	BDL	BDL	BDL	BDL
CLEANUP CRITERIA	**Aquifer Protection**		**4,000**	**88,000**	**26,000**	**NLL**
	Direct Contact		**12,000**	**12,000,000**	**41,000,000**	**4,000**
	GSI		**400**	**4,200**	**2,400**	**NLL**

* = MDEQ Part 201 Generic Cleanup Criteria and Screening Levels. Groundwater: Residential and Industrial - Commercial. Rule 746 & 748, Dec. 21, 2002
** = MDEQ Part 201 Generic Facility-Specific
BDL = Below Detection Limit
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NV = Not Likely to Volatilize
COMM = Commercial
IND = Industrial
RES - Residential
GSI = Groundwater/Surface Water Interface
= Exceeds Generic Residential Clean-up Criteria

TABLE 4
PHASE II SUMMARY OF GROUND WATER ANALYTICAL RESULTS (ug/L)

CITY OF MUSKEGON
AREA-WIDE ASSESSMENT OF FILL CHARACTERISTICS

	Drinking Water*	Indoor Air Inhalation*		Groundwater*											
	RES	RES	COMM/IND	GSI**	Direct Contact	Flammability & Explosivity	Acute Inhalation	TMW-1	TMW-2	TMW-3	TMW-4	TMW-5	TMW-7	TMW-8	TMW-9
PNAs															
	Varies	Varies	Varies	Varies	Varies	Varies	Varies	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
METALS															
Chromium	100	NV	NV	100	4.6E+05	ID	ID	**5.3**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Manganese	50	NV	NV	760	9.1E+06	ID	ID	BDL	**740**	**620**	BDL	BDL	**450**	**330**	**390**
Zinc	2,400	NV	NV	170	1.1E+08	ID	ID	**34**	**32**	**20**	**28**	**27**	**20**	BDL	BDL
Other Metals	Varies	Varies	Varies	Varies	Varies	Varies	Varies	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CARBONYLS															
Formaldehyde	2,000	63,000	3.6E+05	120	3.0E+07	ID	61,000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

	Drinking Water*	Indoor Air Inhalation*		Groundwater*											
	RES	RES	COMM/IND	GSI**	Direct Contact	Flammability & Explosivity	Acute Inhalation	TMW-11	TMW-10	TMW-13	TMW-19s	TMW-21s	GTMW-4	HMW-1	K-TMW-11
PNAs															
	Varies	Varies	Varies	Varies	Varies	Varies	Varies	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
METALS															
Chromium	100	NV	NV	100	4.6E+05	ID	ID	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Manganese	50	NV	NV	760	9.1E+06	ID	ID	BDL	**430**	**430**	**450**	**43**	**310**	**680**	BDL
Zinc	5,000	NV	NV	170	1.1E+08	ID	ID	BDL	BDL	BDL	BDL	BDL	BDL	**20**	**31**
Other Metals	Varies	Varies	Varies	Varies	Varies	Varies	Varies	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CARBONYLS															
Formaldehyde	2,000	63,000	3.6E+05	120	3.0E+07	ID	61,000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

* = MDEQ Part 201 Generic Cleanup Criteria and Screening Levels. Groundwater: Residential and Industrial - Commercial. Rule 744, Dec. 21, 2002

** = MDEQ Part 201 Generic Facility-Specific

BDL = Below Detection Limit

ID = Inadequate Data to Develop Criteria

NV = Not Likely to Volatilize

COMM = Commercial

IND = Industrial

RES - Residential

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= Exceeds Generic Residential Clean-up Criteria

ATTACHMENT A

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-39
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/19/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	Hand Auger	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	4 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	N.A.	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	Bayow St. - Resample		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 6"	VEGETATION/topsoil
6" - 2.5 '	SAND, fine, brown, dry
2.5 - 4 '	FOUNDRY sand with industrial slag, black, dry

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 4 ' Cuttings	0 ppm
SB-39 (3')	Soil Sample

GPS COORDINATES

	43° 14.995'N
	86° 14.152'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-40
PROJECT:	City Of Muskegon	**DATE DRILLED:**	8/9/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	Hand Auger	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	6 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	3 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	20 ' South form railroad spurs & 20 ' west from main R.R. tracks -		
	CSX Property.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 2 '	SAND with gravel and industrial slag, black, dry
2 - 6 '	SAND, fine, brown, dry, saturation @ 3 '

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 6 '	0 ppm
SB-40 (0-2 ')	Soil Sample

GPS COORDINATES

	43° 14.897'N
	86° 14.427'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-41
PROJECT:	City Of Muskegon	**DATE DRILLED:**	8/9/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	Hand Auger	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	6 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	3.5 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	900 ' North from Marquette Ave. (West End)		
	100 ' East from main R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	GRAVEL with sand, some industrial slag and coal, black, dry
1 - 6 '	SAND, fine, brown, dry, saturation @ 3.5 '

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 6 '	0 ppm
SB-41 (0-1 ')	Soil Sample

GPS COORDINATES

	43° 14.940'N
	86° 14.348'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-43
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/29/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	N/A
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	N/A
TOTAL DEPTH DRILLED:	15'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	N/A
GROUT TYPE/QUANTITY:	N/A	**SCREENED INTERVAL:**	N/A
GROUT INTERVAL(S):	N/A	**GRAVEL PACK TYPE:**	N/A
DEPTH TO WATER:	7'	**GRAVEL PACK INTERVAL:**	N/A
WATER LEVEL ELEVATION:	N/A		
REMARKS:	72 feet east from water inlet and 60 feet south from SE corner of Fisherman's Landing registration building.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-9'	SAND with gravel, contains glass and steel pieces, dark brown, dry, saturated @ 7'
9-15'	SAND, fine, gray/brown, saturated

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-15' cutting	0 ppm
SB-43 (0-4')	Soil Sample - formerly submitted

GPS COORDINATES

	43° 14.620'N
	86° 14.516'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-44
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/30/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	N/A
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	N/A
TOTAL DEPTH DRILLED:	19'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	N/A
GROUT TYPE/QUANTITY:	N/A	**SCREENED INTERVAL:**	N/A
GROUT INTERVAL(S):	N/A	**GRAVEL PACK TYPE:**	N/A
DEPTH TO WATER:	5'	**GRAVEL PACK INTERVAL:**	N/A
WATER LEVEL ELEVATION:	N/A		
REMARKS:	63 ' West from 3rd Street curb and 165 ' South from 1st Street light on road going to Marina.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	VEGETATION
3"-6'	SAND, some wire and industrial slag, dark brown, dry, saturation at 5'
6-7'	INDUSTRIAL SLAG, black, saturated
7-17'	SAND with wood, black, saturated
17-19'	SAND, fine, gray, saturated (lake bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-19'	0 ppm
SB-44 (1-5')	Soil Sample
7-17'	Strong creosote odor (0 ppm)

GPS COORDINATES

	43° 14.347'N
	86° 15.350'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-45
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/31/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	N/A
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	N/A
TOTAL DEPTH DRILLED:	11'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	N/A
GROUT TYPE/QUANTITY:	N/A	**SCREENED INTERVAL:**	N/A
GROUT INTERVAL(S):	N/A	**GRAVEL PACK TYPE:**	N/A
DEPTH TO WATER:	4'	**GRAVEL PACK INTERVAL:**	N/A
WATER LEVEL ELEVATION:	N/A		
REMARKS:	132 ' North/Northeast of light pole and 96 ' west from light pole. - Northern parking area for Walker Arena.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	VEGETATION
3"-8'	SAND with industrial slag and wood, black, dry, saturation at 4'
8-11'	SAND, fine, gray, saturated (former lake bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-11' Cuttings	0 ppm
SB-45 (1-4')	Soil Sample

GPS COORDINATES

43° 14.272'N	
86° 15.369'W	

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-46
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/31/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	N/A
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	N/A
TOTAL DEPTH DRILLED:	16'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	N/A
GROUT TYPE/QUANTITY:	N/A	**SCREENED INTERVAL:**	N/A
GROUT INTERVAL(S):	N/A	**GRAVEL PACK TYPE:**	N/A
DEPTH TO WATER:	12'	**GRAVEL PACK INTERVAL:**	N/A
WATER LEVEL ELEVATION:	N/A		
REMARKS:	66 ' South from power pole along Western in BU-31 corrido		
	from power pole along South bound US-31.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	VEGETATION
3"-8'	SAND, trace industrial slag, glass and brick, brown, dry
8-15'	MORROW, soft, white, moist
15-16'	SAND, fine, brown, saturated

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-16' Cuttings	0 ppm
SB-46 (2-6')	Soil Sample

GPS COORDINATES

	43° 14.372'N
	86° 14.513'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-47
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/3/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	3.25 " H.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	6 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	4 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	Near northest corner of lakeview mart - 12 ' west from west edge of Torrent St.,		
	10 ' northwest from nearby power pole. - RR right-of-way		
LOGGED BY:			

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND with gravel, dark brown, dry
1 - 3 '	INDUSTRIAL slag, balck, dry
3 - 6 '	SAND, fine, balck stain, dry, saturation @ 4 '

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
SB-47 (1 - 3 ')	180 - 200 ppm
1 '	0 ppm
2 '	180 ppm
3 '	200 ppm
4 '	500 ppm (sat)

GPS COORDINATES

	43° 13.025'N
	86° 17.514'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-48
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/3/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	3.25 ' H.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	5 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	~ 6 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	Approximately 100 ' west from north end of High Street along R.R. tracks and 15 ' north from R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND, trace gravel, brown, dry
1 - 2 '	INDUSTRIAL slag
2 - 3 '	SAND with brick, brown, dry
3 - 4 '	SAND with clay, light brown, dry
4 - 5 '	SAND with clay, peat and wood, brown, dry
5 '	WOOD timbers - end of boring.

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB - 48 (1- 3 ')	Soil

GPS COORDINATES

	43° 13.539'N
	86° 16.647'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	WELL/BORING NO.:	SB-49
PROJECT:	Muskegon Area Wide	DATE DRILLED:	5/4/2001
LOCATION:	Muskegon	CASING TYPE/DIA.:	N.A.
DRILLING METHOD:	3.25 " H.A.	TOTAL CASING:	N.A.
TOTAL DEPTH DRILLED:	6 '	T.O.C. ELEVATION:	N.A.
GROUND ELEVATION:	N.A.	SCREEN TYPE/LENGTH:	N.A.
GROUT TYPE/QUANTITY:	N.A.	SCREENED INTERVAL:	N.A.
GROUT INTERVAL(S):	N.A.	GRAVEL PACK TYPE:	N.A.
DEPTH TO WATER:	9.80 From nearby well	GRAVEL PACK INTERVAL:	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	25 ' Northwest from corner of west Michigan steel bldg., 33 ' south from nearby		
	light pole and 3 ' north from R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 6 '	SAND with gravel and industrail slag, pieces of brick and metal debre, dark
	brown/black, dry
	Obstruction @ 6 ' - End of boring.

ANALYTICAL INFORMATION

Sample Interval	Comment
SB-49 (1 - 3 ')	Soil

GPS COORDINATES

	43° 13.913'N
	86° 16.235'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-50
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/4/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	3.25 " H.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	8 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	7 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	125 ' west along R.R. tracks from Harthorn Marina property corner and 5 ' north from		
	R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND with gravel, some glass and industrail slag, brown, dry
1 - 4 '	INDUSTRIAL slag, with some sand and gravel, balck, dry
4 - 5 '	SAND, dark brown, dry
5 - 5.50 '	SILT/PEAT, organic black, moist
5.50 - 8 '	SAND, medium, light brown, dry, saturation @ 7 '

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB-5 (1 - 4 ')	Soil Sample

GPS COORDINATES

	43° 13.842'N
	86° 15.940'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-51
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/4/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	3.25 " H.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	7 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	5 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	South edge of heritage landing property - 25 ' west / southwest from nearby		
	powerpole and 3 ' north from R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 -1 '	SAND, trace gravel, trace coal, balck, dry
1 - 2 '	SAND with large gravel and brick, black, dry
2 - 3 '	SAND with some industrail slag and gravel, brown, dry
3 - 7 '	SAND with industrial slag (Foundry sand), some metal, black, dry, saturation @ 5 '

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB-51 (2 - 4 ')	Soil Sample

GPS COORDINATES

	43° 13.808'N
	86° 15.746'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	WELL/BORING NO.:	SB-52
PROJECT:	Muskegon Area Wide	DATE DRILLED:	5/4/2001
LOCATION:	Muskegon	CASING TYPE/DIA.:	N.A.
DRILLING METHOD:	3.25 " H.A.	TOTAL CASING:	N.A.
TOTAL DEPTH DRILLED:	7 '	T.O.C. ELEVATION:	N.A.
GROUND ELEVATION:	N.A.	SCREEN TYPE/LENGTH:	N.A.
GROUT TYPE/QUANTITY:	N.A.	SCREENED INTERVAL:	N.A.
GROUT INTERVAL(S):	N.A.	GRAVEL PACK TYPE:	N.A.
DEPTH TO WATER:	6 '	GRAVEL PACK INTERVAL:	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	South edge of Heritage Landing property - 100 ' west from park sign along R.R.		
	tracks and 5 ' north from R.R. tracks.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1/2 '	22A Limestone
1/2 - 1 '	INDUSTRIAL slag with sand, black, dry
1 - 2 '	CLAY with sand mix, brown, dry
2 - 3 '	SAND, fine, brown, dry
3 - 6 '	INDUSTRIAL slag with coal, black, dry
6 - 7 '	SAND, fine, brown, saturated

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB-52	Soil

GPS COORDINATES

	43° 13.894'N
	86° 15.627'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	WELL/BORING NO.:	SB-53
PROJECT:	Muskegon Area Wide	DATE DRILLED:	5/4/2001
LOCATION:	Muskegon	CASING TYPE/DIA.:	N.A.
DRILLING METHOD:	3.25" H.A.	TOTAL CASING:	N.A.
TOTAL DEPTH DRILLED:	6 '	T.O.C. ELEVATION:	N.A.
GROUND ELEVATION:	N.A.	SCREEN TYPE/LENGTH:	N.A.
GROUT TYPE/QUANTITY:	N.A.	SCREENED INTERVAL:	N.A.
GROUT INTERVAL(S):	N.A.	GRAVEL PACK TYPE:	N.A.
DEPTH TO WATER:	4 '	GRAVEL PACK INTERVAL:	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	10 ' North from R.R. tracks - 150 ' east alosn R.R. tracks from Heritage Landing		
	park sign.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND with gravel and industrial slag, balck, dry
1 - 3 '	INDUSTRIAL slag, black, dry
3 - 6 '	SAND , medium, brown, dry, saturation @ 4 '

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB-53 (1 - 3 ')	Soil

GPS COORDINATES

	43° 13.992'N
	86° 15.529'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	SB-54
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/8/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	3.25 " H.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	7 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	6 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	15 ' west - southwest from Shoreline Drive traffic pole and 50 ' northeast from light pole along Western Ave.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 3 "	SOD/topsoil
3" - 1 '	SAND with gravel, brown, dry
1 - 2 '	INDUSTRIAL slag and sand, black, dry
2 - 5 '	SAND, medium, light tan, dry
5 - 5.50 '	INDUSTRAIL slag with glass, black, dry
5.50 - 6 '	SAND with peat and wood chips, organic, black, dry, saturation @ 6 '
6 - 6.5 '	WOOD CHIPS, brown, saturated
6.5 - 7 '	SAND, fine, gray, saturated

ANALYTICAL INFORMATION

Sample Intervals	Comment
SB-54 (1 - 2 ')	Soil

GPS COORDINATES

	43° 13.890'N
	86° 15.553'W

BORING/WELL LOG DATA

ENVIRONMENTAL RESOURCES MANAGEMENT

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	S-14, 75'N
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	10/16/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	SS Hand Auger	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	5'	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	N.A.	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:			
LOGGED BY:	ERM		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-2'	SAND, fine, black and slag, dry
2'-4'	SAND, fine, light brown, some roots, moist
4'-5'	WOOD, wet

ANALYTICAL INFORMATION

Soil Sample Intervals	Comments
0-2'	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

ENVIRONMENTAL RESOURCES MANAGEMENT

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	S-41, 450'N
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	10/16/2003
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	N.A.
DRILLING METHOD:	SS Hand Auger	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	3'	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	N.A.
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	N.A.
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	N.A.	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:			
LOGGED BY:	ERM		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-1'	SAND, fine, dark brown with silt, some roots, dry
1'-3'	SAND, fine, brown to rusty with slag, some silt, glass, trace wire/metal ect…
	Refusal on slag at 3' - end of boring.

ANALYTICAL INFORMATION

Sample Intervals	Comment
1'-3'	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-1
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/29/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	3'
TOTAL DEPTH DRILLED:	10'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	3-8'
GROUT INTERVAL(S):	1-2'	**GRAVEL PACK TYPE:**	Filter Sand
DEPTH TO WATER:	4.5'	**GRAVEL PACK INTERVAL:**	2-8'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	West end of Bayou Ave. - 45 feet NW from power pole - south on Bayou and		
	51 feet SW from power pole located on north side of Bayou Ave.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-6"	CONCRETE
6"-1'	GRAVEL - road base
1-1.5'	GRAVEL, road base with trace industrial slag
1.5-10'	SAND, fine, brown, dry
	SATURATION at 4.5'

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
TMW-1 (1.5')	Soil sample
0-10' cutting	0 ppm

GPS COORDINATES

	43° 15.035'N
	86° 14.174'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-2
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/29/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	6'
TOTAL DEPTH DRILLED:	19'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	6-11'
GROUT INTERVAL(S):	3-4'	**GRAVEL PACK TYPE:**	Filter
DEPTH TO WATER:	7'	**GRAVEL PACK INTERVAL:**	5-11'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	63 feet west from NE corner of Fisherman's Landing Park and 33 feet north from first north road in park.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	VEGETATION / TOPSOIL
3"-7'	SAND with brick, some glass, concrete, plastic and car parts, dark brown, dry
7-11'	INDUSTRIAL SLAG with wire and metal, black, saturated
11-17'	SAND, trace wood chips, fine, brown, saturated
17-19'	SAND, fine, brown, saturated

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-19' cuttings	0 ppm
TMW-2 (3-5')	Soil Sample

GPS COORDINATES

	43° 14.703N
	86° 14.476'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-3
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/29/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	7'
TOTAL DEPTH DRILLED:	18'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	7-12'
GROUT INTERVAL(S):	5-6'	**GRAVEL PACK TYPE:**	Filter
DEPTH TO WATER:	8'	**GRAVEL PACK INTERVAL:**	6-12'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	NW corner of Fisherman's Landing Park 30 feet west from 2nd to last campsite		
	post and 42 feet north from Camp Park Road.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	VEGETATION/TOPSOIL
3"-7'	SAND with gravel, some brick, glass and miscellaneous debris
7-14'	SAND, fine, brown, saturated
14-18'	SAND layers with silt, trace shells and wood, organic, rich, saturated (lake bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-18'	0 ppm
TMW-3 (1-5')	Soil Sample

GPS COORDINATES

	43° 14.734'N
	86° 14.649'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-4
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/29/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	N/A
TOTAL DEPTH DRILLED:	12'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	6-11'
GROUT INTERVAL(S):	3-4'	**GRAVEL PACK TYPE:**	Natural
DEPTH TO WATER:	7'	**GRAVEL PACK INTERVAL:**	5-11'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	18 Ft. SE from curb @ Eastern & Western, 86 ' NE from power pole along Western.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3'	VEGETATION/TOPSOIL
3-6'	SAND with coal, brown, dry
6-12'	SAND, fine, brown, dry
	SATURATION at 7'

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-12' cuttings	0 ppm
TMW-4 (1-5')	Soil Sample

GPS COORDINATES

	43° 14.395'N
	86° 14.659'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-5
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/30/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	11'
TOTAL DEPTH DRILLED:	16'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	11-16'
GROUT INTERVAL(S):	8-10'	**GRAVEL PACK TYPE:**	Natural
DEPTH TO WATER:	12'	**GRAVEL PACK INTERVAL:**	10-16'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	45 ' North form street light located southeast from Pine & Western & 51 ' NE from		
	power pole located on west side of Western.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-5"	ASPHALT
5"-1'	ROAD BASE
1-7'	SAND, trace wood, fine, brown, dry
7-16'	SAND, fine, brown, dry, saturation at 12'

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-16' Cuttings	0 ppm
TMW-5 (2-7')	Soil Sample

GPS COORDINATES

	43° 14.384'N
	86° 14.793'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-6
PROJECT:	City of Muskegon	**DATE DRILLED:**	8/30/2000
LOCATION:	Muskegon, Michigan	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4 1/4" H.S.A.	**TOTAL CASING:**	5'
TOTAL DEPTH DRILLED:	14'	**T.O.C. ELEVATION:**	N/A
GROUND ELEVATION:	N/A	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5'
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	5-10'
GROUT INTERVAL(S):	2-3'	**GRAVEL PACK TYPE:**	Filter
DEPTH TO WATER:	5.5'	**GRAVEL PACK INTERVAL:**	4-10'
WATER LEVEL ELEVATION:	N/A		
REMARKS:	36 ' West from No Parking sign located on north side of Ferris @ Bend and 87 '		
	northeast from light pole LaBhed B-6 & in medium of Terris-around bend.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0-3"	SOD
3"-1'	SAND with wood, concrete and industrial slag, brown, dry
1-6'	SAND, trace wood and industrial slag
6-10'	INDUSTRIAL SLAG with sand, black, saturated
10-14'	SAND with wood and shells, gray, brown, saturated (lake bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0-14' Cuttings	0 ppm
TMW-6 (1')	Soil Sample

GPS COORDINATES

	43° 14.412'N
	86° 15.148'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-7
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/18/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4.25" H.S.A.	**TOTAL CASING:**	5 '
TOTAL DEPTH DRILLED:	12 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	5 - 10 '
GROUT INTERVAL(S):	2 - 3 '	**GRAVEL PACK TYPE:**	Filter Sand
DEPTH TO WATER:	5.25 '	**GRAVEL PACK INTERVAL:**	4 - 10 '
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	54 ' easterly from northeast corner of Hartshorn Marina office building and 87 '		
	northerly from flag pole @ entrance of marina.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 6"	SOD/topsoil
6" - 3 '	SAND, fine, brown, dry
3 - 5 '	SAND with wire & gravel, some industrial slag, brown, dry
5 - 12 '	SAND, fine to medium, brown, dry, saturation @ 5.5 '

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 12 ' Cuttings	0 ppm
TMW-7 (3-4 ')	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-8
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/18/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4.25" H.S.A.	**TOTAL CASING:**	3 '
TOTAL DEPTH DRILLED:	15 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	3 - 8 '
GROUT INTERVAL(S):	1.5 - 2 '	**GRAVEL PACK TYPE:**	Filter Sand
DEPTH TO WATER:	4 '	**GRAVEL PACK INTERVAL:**	2 - 8 '
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	20 ' westerly from southeasterly corner of Hartshorn Marina fence, 42 ' easterly		
	from nearby light pole.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 2 '	SAND with concrete & gravel, brown, dry
2 - 14 '	SAND with industrial (foundry) sand, trace silt and industrial slag, black, saturated -
	some wood chips from 11 - 14 '
14 - 15 '	SAND with shells, gray, saturated (Lake Bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 15 '	0 ppm
TMW-8 (3 ')	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-9
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/18/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC, 2"
DRILLING METHOD:	4.25" H.S.A.	**TOTAL CASING:**	7 '
TOTAL DEPTH DRILLED:	15 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	7 - 12 '
GROUT INTERVAL(S):	3 - 4 '	**GRAVEL PACK TYPE:**	Filter Sand
DEPTH TO WATER:	8 '	**GRAVEL PACK INTERVAL:**	6 - 12 '
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	171' westerly from most westerly gate of Hartshorn Marina		
	68 ' southerly from marina channel.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 5 '	SAND with gravel, trace industrial slag, brown, dry
5 - 10 '	FOUNRY sand with industrial slag & wood chips, black, dry, saturation @ 8.5 '
10 - 15 '	SAND with shells, gray, saturated (Lake Bottom)

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 15 ' Cuttings	0 ppm
TMW-9 (5 ')	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-10
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/18/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	4.25" H.S.A.	**TOTAL CASING:**	N.A.
TOTAL DEPTH DRILLED:	12 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	Bentonite	**SCREENED INTERVAL:**	6 - 11 '
GROUT INTERVAL(S):	3 - 4 '	**GRAVEL PACK TYPE:**	Filter Sand
DEPTH TO WATER:	7 '	**GRAVEL PACK INTERVAL:**	5 - 11 '
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	Southeasterly corner of former Amoco property.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 6"	GRAVEL
6" - 3 '	SAND with gravel, brown, dry
3 - 6 '	SAND with concrete and steel, brown, dry (misc. debrie)
6 - 8 '	SAND with industrial slag, black, dry, saturation @ 7 '
8 - 12 '	SAND, medium with gravel, brown, saturated

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 12 ' Cuttings	0 ppm
TMW-10 (2-6')	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-11
PROJECT:	City of Musk. - Areawide	**DATE DRILLED:**	10/19/2000
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2"
DRILLING METHOD:	Hand Auger	**TOTAL CASING:**	2 '
TOTAL DEPTH DRILLED:	8 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	2 - 8 '
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	Natural
DEPTH TO WATER:	6 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	Approx. 550 northerly from northern property boundry of former Amoco terminal,		
	50 ' southerly from 3rd P.P. along R.R. tracks. From Amoco @ 50 ' westerly from R.R.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND with coal & industrial slag, black, dry
1 - 8 '	SAND, fine to medium, light brown, dry, saturation @ 6 '

ANALYTICAL INFORMATION

Soil Sample Intervals	PID
0 - 8 ' Cuttings	0 ppm
TMW-11 (0 - 1 ')	Soil Sample

GPS COORDINATES

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-12
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/3/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2 "
DRILLING METHOD:	3.25 " H.A.	**TOTAL CASING:**	3 '
TOTAL DEPTH DRILLED:	6 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	1 - 6 '
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	N.A.
DEPTH TO WATER:	3 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	50 ' west from harbor resort fence and 25 ' north from nearby tree.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 2.50 '	PEAT with silt and wood, organic black, moist
2.50 - 3 '	SAND, fine, brown, dry
3 - 6 '	SAND, fine, gray, saturated - light brown @ 4 '

ANALYTICAL INFORMATION

Sample Intervals	Comment
TMW-12 (0 - 2 ')	Soil

GPS COORDINATES

	43° 13.591'N
	86° 16.575'W

BORING/WELL LOG DATA

SUPERIOR ENVIRONMENTAL CORP.

PROJECT NO.:	MK1246.00	**WELL/BORING NO.:**	TMW-13
PROJECT:	Muskegon Area Wide	**DATE DRILLED:**	5/3/2001
LOCATION:	Muskegon	**CASING TYPE/DIA.:**	PVC 2 "
DRILLING METHOD:	4.25 " H.S.A.	**TOTAL CASING:**	4 '
TOTAL DEPTH DRILLED:	9 '	**T.O.C. ELEVATION:**	N.A.
GROUND ELEVATION:	N.A.	**SCREEN TYPE/LENGTH:**	PVC, 10 slot, 5 '
GROUT TYPE/QUANTITY:	N.A.	**SCREENED INTERVAL:**	4 - 9 '
GROUT INTERVAL(S):	N.A.	**GRAVEL PACK TYPE:**	Natural
DEPTH TO WATER:	5 '	**GRAVEL PACK INTERVAL:**	N.A.
WATER LEVEL ELEVATION:	N.A.		
REMARKS:	50 ' west from curb of the new mart street and 5 ' north from the north curb - east entrance of walker arena parking area.		
LOGGED BY:	Tim Kamp		

PHYSICAL DESCRIPTION

DEPTH	FORMATION DESCRIPTION
0 - 1 '	SAND with gravel, some glass, brown, dry
1 - 3 '	SAND, fine, brown and tan, dry
3 - 6 '	CONCRETE and gravel, large, some brick and metal - Construction debre,
	brown/black, dry
6 - 8 '	WOOD CHIPS - dry, saturated @ 5 '
8 - 9 '	SAND, fine, gray, saturated

ANALYTICAL INFORMATION

Sample Intervals	Comment
TMW-13 (3 - 5 ')	Soil

GPS COORDINATES

ATTACHMENT B

RECEIVED AUG 2 5 2000

MICROSPEC ANALYTICAL GROUP, LTD.
Analytical Laboratory and Testing Services
3352 128th Avenue, Holland, Michigan 49424-9263
Phone: 616-399-6070 FAX: 616-399-6185
E-Mail: info@mspec.com Internet: http://www.mspec.com

CLIENT: Superior Environmental Corp.
14641 16th Avenue
P.O.Box 118
Marne, MI 49435

Attn: Scott Miller
Re: City of Muskegon (Areawide)

DATE: August 22, 2000

ANALYSIS OF: Soil Samples

REPORTED BY: Robert K. Zahray, Laboratory Director

DATE RECEIVED: Received from client on August 10, 2000.

Sample ID: SB-40 (0'-2') Lab ID: 0008161-01 Collected: 08/09/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	08/11/00	WS	EPA 9010/14	0.29
Total Phenols	ND	mg/kg dry wt.	08/15/00	MBR	EPA 9065	0.57
Total Solids (104 °C)	85.6	% of sample	08/14/00	JA	EPA 160.3	
Arsenic	1.4	mg/kg dry wt.	08/15/00	JA	EPA 7060	0.033
Cadmium	0.30	mg/kg dry wt.	08/16/00	JA	EPA 7131	0.0033
Chromium	11	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.17
Copper	110	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Lead	190	mg/kg dry wt.	08/15/00	MBR	EPA 6010	1.7
Manganese	160	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Metals Prep, Solid	08/15/00	date digested		JA	EPA 3050	
Nickel	9.1	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Zinc	270	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt	08/21/00	DAH		330
Acenaphthylene	4,200	µg/kg dry wt	08/21/00	DAH		330
Anthracene	1,400	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)anthracene	12,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(b)fluoranthene	13,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(k)fluoranthene	12,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(ghi)perylene	7,500	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)pyrene	12,000	µg/kg dry wt	08/21/00	DAH		330
Chrysene	13,000	µg/kg dry wt	08/21/00	DAH		330
Dibenzo(a,h)anthracene	3,900	µg/kg dry wt	08/21/00	DAH		330
Fluoranthene	18,000	µg/kg dry wt	08/21/00	DAH		330
Fluorene	460	µg/kg dry wt	08/21/00	DAH		330
Indeno(1,2,3-cd)pyrene	8,400	µg/kg dry wt	08/21/00	DAH		330
Naphthalene	3,200	µg/kg dry wt	08/21/00	DAH		330
Phenanthrene	5,000	µg/kg dry wt	08/21/00	DAH		330
Pyrene	13,000	µg/kg dry wt	08/21/00	DAH		330

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-40 (0'-2') Lab ID: 0008161-01 Collected: 08/09/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt.	08/18/00	MG		62
PCB-1221	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1232	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1242	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1248	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1254	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1260	ND	µg/kg dry wt.	08/18/00	MG		38
Total PCBs	ND	µg/kg dry wt.	08/18/00	MG		290
Soxhlet Ext. for PCBs	08/14/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	08/11/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt.	08/17/00	KL	EPA 8315	2,000
Solid Ext for Aldehydes	08/14/00	prep. date		KL	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-41 (0'-1') Lab ID: 0008161-02 Collected: 08/09/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	08/11/00	WS	EPA 9010/14	0.29
Total Phenols	0.69	mg/kg dry wt.	08/15/00	MBR	EPA 9065	0.57
Total Solids (104 °C)	94.3	% of sample	08/14/00	JA	EPA 160.3	
Arsenic	0.085	mg/kg dry wt.	08/15/00	JA	EPA 7060	0.033
Cadmium	0.79	mg/kg dry wt.	08/16/00	JA	EPA 7131	0.0033
Chromium	8.1	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.17
Copper	120	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Lead	470	mg/kg dry wt.	08/15/00	MBR	EPA 6010	1.7
Manganese	440	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Metals Prep, Solid	08/15/00	date digested		JA	EPA 3050	
Nickel	8.4	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Zinc	450	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt	08/21/00	DAH		330
Acenaphthylene	ND	µg/kg dry wt	08/21/00	DAH		330
Anthracene	1,300	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)anthracene	9,800	µg/kg dry wt	08/21/00	DAH		330
Benzo(b)fluoranthene	12,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(k)fluoranthene	13,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(ghi)perylene	12,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)pyrene	14,000	µg/kg dry wt	08/21/00	DAH		330
Chrysene	12,000	µg/kg dry wt	08/21/00	DAH		330
Dibenzo(a,h)anthracene	4,600	µg/kg dry wt	08/21/00	DAH		330
Fluoranthene	15,000	µg/kg dry wt	08/21/00	DAH		330
Fluorene	ND	µg/kg dry wt	08/21/00	DAH		330
Indeno(1,2,3-cd)pyrene	11,000	µg/kg dry wt	08/21/00	DAH		330
Naphthalene	1,000	µg/kg dry wt	08/21/00	DAH		330
Phenanthrene	7,600	µg/kg dry wt	08/21/00	DAH		330
Pyrene	11,000	µg/kg dry wt	08/21/00	DAH		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt.	08/18/00	MG		68
PCB-1221	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1232	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1242	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1248	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1254	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1260	ND	µg/kg dry wt.	08/18/00	MG		40
Total PCBs	ND	µg/kg dry wt.	08/18/00	MG		300
Soxhlet Ext. for PCBs	08/15/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	08/11/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt.	08/17/00	KL	EPA 8315	2,000
Solid Ext for Aldehydes	08/14/00	prep. date		KL	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-43 (0'-4') Lab ID: 0008161-03 Collected: 08/09/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	08/11/00	WS	EPA 9010/14	0.29
Total Phenols	0.99	mg/kg dry wt.	08/15/00	MBR	EPA 9065	0.57
Total Solids (104 °C)	90.6	% of sample	08/14/00	JA	EPA 160.3	
Arsenic	2.1	mg/kg dry wt.	08/15/00	JA	EPA 7060	0.033
Cadmium	0.38	mg/kg dry wt.	08/16/00	JA	EPA 7131	0.0033
Chromium	13	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.17
Copper	15	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Lead	51	mg/kg dry wt.	08/15/00	MBR	EPA 6010	1.7
Manganese	190	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Metals Prep, Solid	08/15/00	date digested		JA	EPA 3050	
Nickel	5.3	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Zinc	61	mg/kg dry wt.	08/15/00	MBR	EPA 6010	0.33
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	1,300	µg/kg dry wt	08/21/00	DAH		330
Acenaphthylene	ND	µg/kg dry wt	08/21/00	DAH		330
Anthracene	2,300	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)anthracene	4,300	µg/kg dry wt	08/21/00	DAH		330
Benzo(b)fluoranthene	3,200	µg/kg dry wt	08/21/00	DAH		330
Benzo(k)fluoranthene	4,600	µg/kg dry wt	08/21/00	DAH		330
Benzo(ghi)perylene	3,000	µg/kg dry wt	08/21/00	DAH		330
Benzo(a)pyrene	4,600	µg/kg dry wt	08/21/00	DAH		330
Chrysene	5,600	µg/kg dry wt	08/21/00	DAH		330
Dibenzo(a,h)anthracene	1,100	µg/kg dry wt	08/21/00	DAH		330
Fluoranthene	12,000	µg/kg dry wt	08/21/00	DAH		330
Fluorene	1,600	µg/kg dry wt	08/21/00	DAH		330
Indeno(1,2,3-cd)pyrene	2,600	µg/kg dry wt	08/21/00	DAH		330
Naphthalene	1,100	µg/kg dry wt	08/21/00	DAH		330
Phenanthrene	14,000	µg/kg dry wt	08/21/00	DAH		330
Pyrene	9,000	µg/kg dry wt	08/21/00	DAH		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt.	08/18/00	MG		66
PCB-1221	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1232	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1242	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1248	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1254	ND	µg/kg dry wt.	08/18/00	MG		38
PCB-1260	ND	µg/kg dry wt.	08/18/00	MG		38
Total PCBs	ND	µg/kg dry wt.	08/18/00	MG		300
Soxhlet Ext. for PCBs	08/14/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	08/11/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt.	08/18/00	KL	EPA 8315	2,000
Solid Ext for Aldehydes	08/14/00	prep. date		KL	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-44 (1'-5') Lab ID: 0008408-07 Collected: 08/30/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	95.8	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	1.3	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.077	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	6.7	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	5.6	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	9.0	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	320	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	4.6	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	98	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	640	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	350	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	3,400	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	1,800	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	2,300	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	2,700	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	2,700	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	3,100	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	590	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	4,900	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	1,900	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	590	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	1,400	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	4,800	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		58
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		58
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		34
Soxhlet Ext. for PCBs	09/05/00	prep. date		DGK		390
Soxhlet Extraction for PAH	09/05/00	prep. date		MG	EPA 3540	
Formaldehyde	3,700	µg/kg dry wt	09/08/00	BT	EPA 3540	
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	2,000
				KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-45 (1'-4') Lab ID: 0008408-08 Collected: 08/31/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	84.4	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	0.68	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.017	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	6.7	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	4.9	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	6.8	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	55	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	6.2	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	25	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	ND	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		39
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		39
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		280
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/05/00	prep. date		BT	EPA 3540	
Formaldehyde	7,500	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-46 (2'-6') Lab ID: 0008408-09 Collected: 08/31/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	0.23	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	94.4	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	0.61	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.13	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	3.5	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	11	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	41	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	78	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/05/00	date digested		JA	EPA 3050	
Nickel	3.3	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	100	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	350	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	370	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	470	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	960	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	670	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	650	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1260	49	µg/kg dry wt	09/07/00	DGK		35
Total PCBs	<250	µg/kg dry wt	09/07/00	DGK		250
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/05/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-02

Client Sample ID: SB-47 (1'-3')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS			EPA 8082		Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	190		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	190		µg/Kg-dry	1	5/9/01
METALS ANALYSIS BY ICP			EPA 6010		Prep Date: 5/8/01	Analyst: MBR
Arsenic	5.5	0.70		mg/Kg-dry	1	5/10/01
Cadmium	1.0	0.35		mg/Kg-dry	1	5/14/01
Chromium	7.4	0.35		mg/Kg-dry	1	5/10/01
Copper	43	0.70		mg/Kg-dry	1	5/10/01
Lead	120	0.70		mg/Kg-dry	1	5/10/01
Manganese	90	0.70		mg/Kg-dry	1	5/10/01
Nickel	7.4	0.70		mg/Kg-dry	1	5/10/01
Zinc	100	0.70		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES			SUBCONTRACT			Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	190		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	190		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	390		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	770		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	190		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	190		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	390		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	190		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	770		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	390		µg/Kg-dry	1	5/14/01
Phenol	ND	190		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	240	190		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	190		µg/Kg-dry	1	5/14/01
Anthracene	290	190		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	420	190		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	ND	940		µg/Kg-dry	5	5/11/01
Benzo(b)fluoranthene	980	940		µg/Kg-dry	5	5/11/01
Benzo(g,h,i)perylene	ND	940		µg/Kg-dry	5	5/11/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT:	Superior Environmental Corp	**Client Sample ID:**	SB-47 (1'-3')
Work Order:	0105088	**Collection Date:**	5/3/01
Project:	Muskegon Area Wide (MK1246)		
Lab ID:	0105088-02	**Matrix:**	SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(k)fluoranthene	ND	940		µg/Kg-dry	5	5/11/01
Chrysene	510	190		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	940		µg/Kg-dry	5	5/11/01
Fluoranthene	960	190		µg/Kg-dry	1	5/14/01
Fluorene	350	190		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	940		µg/Kg-dry	5	5/11/01
Naphthalene	18,000	9,400		µg/Kg-dry	50	5/14/01
Phenanthrene	1,900	190		µg/Kg-dry	1	5/14/01
Pyrene	940	190		µg/Kg-dry	1	5/14/01
MDEQ 8260/624 VOLATILES			EPA 8260		Prep Date: 5/9/01	Analyst: HL
1,1,1-Trichloroethane	ND	14		µg/Kg-dry	100	5/9/01
1,1,2,2-Tetrachloroethane	ND	28		µg/Kg-dry	100	5/9/01
1,1,2-Trichloroethane	ND	14		µg/Kg-dry	100	5/9/01
1,1-Dichloroethane	ND	14		µg/Kg-dry	100	5/9/01
1,1-Dichloroethene	ND	14		µg/Kg-dry	100	5/9/01
1,2-Dibromoethane	ND	14		µg/Kg-dry	100	5/9/01
1,2-Dichlorobenzene	ND	28		µg/Kg-dry	100	5/9/01
1,2-Dichloroethane	ND	14		µg/Kg-dry	100	5/9/01
1,2-Dichloropropane	ND	14		µg/Kg-dry	100	5/9/01
1,3-Dichlorobenzene	ND	28		µg/Kg-dry	100	5/9/01
1,4-Dichlorobenzene	ND	28		µg/Kg-dry	100	5/9/01
2-Butanone	ND	71		µg/Kg-dry	100	5/9/01
2-Hexanone	ND	30,000		µg/Kg-dry	1000	5/9/01
4-Methyl-2-pentanone	ND	5,000		µg/Kg-dry	1000	5/9/01
Acetone	1,200	210		µg/Kg-dry	100	5/9/01
Benzene	3,400	14		µg/Kg-dry	100	5/9/01
Bromodichloromethane	ND	28		µg/Kg-dry	100	5/9/01
Bromoform	ND	28		µg/Kg-dry	100	5/9/01
Bromomethane	ND	71		µg/Kg-dry	100	5/9/01
Carbon disulfide	130	71		µg/Kg-dry	100	5/9/01
Carbon tetrachloride	ND	14		µg/Kg-dry	100	5/9/01
Chlorobenzene	ND	14		µg/Kg-dry	100	5/9/01
Chloroethane	ND	71		µg/Kg-dry	100	5/9/01
Chloroform	ND	14		µg/Kg-dry	100	5/9/01
Chloromethane	ND	71		µg/Kg-dry	100	5/9/01
cis-1,2-Dichloroethene	ND	14		µg/Kg-dry	100	5/9/01
cis-1,3-Dichloropropene	ND	14		µg/Kg-dry	100	5/9/01
Dibromochloromethane	ND	28		µg/Kg-dry	100	5/9/01
Diethyl ether	ND	71		µg/Kg-dry	100	5/9/01
Ethylbenzene	34,000	140		µg/Kg-dry	1000	5/9/01
m,p-Xylene	110,000	280		µg/Kg-dry	1000	5/9/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

U - Analyzed for but Not Detected

E - Value above quantitation range

H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-02

Client Sample ID: SB-47 (1'-3')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Methyl tert-butyl ether	ND	71		µg/Kg-dry	100	5/9/01
Methylene chloride	ND	71		µg/Kg-dry	100	5/9/01
o-Xylene	6,600	140		µg/Kg-dry	1000	5/9/01
Styrene	ND	14		µg/Kg-dry	100	5/9/01
Tetrachloroethene	ND	14		µg/Kg-dry	100	5/9/01
Toluene	16,000	140		µg/Kg-dry	1000	5/9/01
trans-1,2-Dichloroethene	ND	14		µg/Kg-dry	100	5/9/01
trans-1,3-Dichloropropene	ND	14		µg/Kg-dry	100	5/9/01
Trichloroethene	ND	14		µg/Kg-dry	100	5/9/01
Trichlorofluoromethane	ND	71		µg/Kg-dry	100	5/9/01
Vinyl chloride	ND	28		µg/Kg-dry	100	5/9/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: MBR
Cyanide, Total	ND	0.29		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: JDA
Percent Moisture	15	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-03

Client Sample ID: SB-48 (1'-3')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **5/7/01**	Analyst: **DGK**
Aroclor 1016	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	180		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA			**EPA 7131**		Prep Date: **5/8/01**	Analyst: **JDA**
Cadmium	0.44	0.028		mg/Kg-dry	5	5/11/01
METALS ANALYSIS BY ICP			**EPA 6010**		Prep Date: **5/8/01**	Analyst: **MBR**
Arsenic	2.2	0.57		mg/Kg-dry	1	5/10/01
Chromium	5.6	0.28		mg/Kg-dry	1	5/10/01
Copper	19	0.57		mg/Kg-dry	1	5/10/01
Lead	40	0.57		mg/Kg-dry	1	5/10/01
Manganese	110	0.57		mg/Kg-dry	1	5/10/01
Nickel	7.0	0.57		mg/Kg-dry	1	5/10/01
Zinc	59	0.57		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES			**SUBCONTRACT**			Analyst: **KAR**
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS			**EPA 8270**		Prep Date: **5/9/01**	Analyst: **DAH**
2,4,6-Trichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	360		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	730		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	180		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	360		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	180		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	730		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	360		µg/Kg-dry	1	5/14/01
Phenol	ND	180		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)			**EPA 8270**		Prep Date: **5/9/01**	Analyst: **DAH**
Acenaphthene	ND	180		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	180		µg/Kg-dry	1	5/14/01
Anthracene	ND	180		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	260	180		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	280	180		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-03

Client Sample ID: SB-48 (1'-3')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	320	180		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	ND	180		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	210	180		µg/Kg-dry	1	5/14/01
Chrysene	250	180		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	180		µg/Kg-dry	1	5/14/01
Fluoranthene	500	180		µg/Kg-dry	1	5/14/01
Fluorene	ND	180		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	180		µg/Kg-dry	1	5/14/01
Naphthalene	250	180		µg/Kg-dry	1	5/14/01
Phenanthrene	700	180		µg/Kg-dry	1	5/14/01
Pyrene	450	180		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.28		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	11	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-04

Client Sample ID: SB-49 (1'-3')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS			EPA 8082		Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	170		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA			EPA 7131		Prep Date: 5/8/01	Analyst: JDA
Cadmium	0.079	0.0066		mg/Kg-dry	1	5/11/01
METALS ANALYSIS BY ICP			EPA 6010		Prep Date: 5/8/01	Analyst: MBR
Arsenic	2.6	0.66		mg/Kg-dry	1	5/10/01
Chromium	64	0.33		mg/Kg-dry	1	5/10/01
Copper	33	0.66		mg/Kg-dry	1	5/10/01
Lead	32	0.66		mg/Kg-dry	1	5/10/01
Manganese	7,300	66		mg/Kg-dry	100	5/14/01
Nickel	18	0.66		mg/Kg-dry	1	5/10/01
Zinc	140	6.6		mg/Kg-dry	10	5/14/01
SUBCONTRATED ANALYSES			SUBCONTRACT			Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	340		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	680		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	170		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	340		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	170		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	680		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	340		µg/Kg-dry	1	5/14/01
Phenol	ND	170		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	170		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	170		µg/Kg-dry	1	5/14/01
Anthracene	ND	170		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	290	170		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	350	170		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-04

Client Sample ID: SB-49 (1'-3')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	470	170		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	ND	170		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	360	170		µg/Kg-dry	1	5/14/01
Chrysene	320	170		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	170		µg/Kg-dry	1	5/14/01
Fluoranthene	570	170		µg/Kg-dry	1	5/14/01
Fluorene	ND	170		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	170		µg/Kg-dry	1	5/14/01
Naphthalene	ND	170		µg/Kg-dry	1	5/14/01
Phenanthrene	510	170		µg/Kg-dry	1	5/14/01
Pyrene	520	170		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.26		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	4.5	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-05

Client Sample ID: SB-50 (1'-4')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS				EPA 8082	Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	180		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA				EPA 7131	Prep Date: 5/8/01	Analyst: JDA
Cadmium	0.34	0.025		mg/Kg-dry	5	5/11/01
METALS ANALYSIS BY ICP				EPA 6010	Prep Date: 5/8/01	Analyst: MBR
Arsenic	3.4	0.50		mg/Kg-dry	1	5/10/01
Chromium	7.3	0.25		mg/Kg-dry	1	5/10/01
Copper	24	0.50		mg/Kg-dry	1	5/10/01
Lead	55	0.50		mg/Kg-dry	1	5/10/01
Manganese	110	0.50		mg/Kg-dry	1	5/10/01
Nickel	5.9	0.50		mg/Kg-dry	1	5/10/01
Zinc	57	0.50		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES				SUBCONTRACT		Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	360		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	730		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	180		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	360		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	180		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	730		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	360		µg/Kg-dry	1	5/14/01
Phenol	ND	180		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	180		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	180		µg/Kg-dry	1	5/14/01
Anthracene	ND	180		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	860	180		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	1,100	180		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-05

Client Sample ID: SB-50 (1'-4')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	1,700	180		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	220	180		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	1,200	180		µg/Kg-dry	1	5/14/01
Chrysene	890	180		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	180		µg/Kg-dry	1	5/14/01
Fluoranthene	1,500	180		µg/Kg-dry	1	5/14/01
Fluorene	ND	180		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	260	180		µg/Kg-dry	1	5/14/01
Naphthalene	520	180		µg/Kg-dry	1	5/14/01
Phenanthrene	1,100	180		µg/Kg-dry	1	5/14/01
Pyrene	1,300	180		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.28		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	9.8	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-06

Client Sample ID: SB-51 (2'-4')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS				EPA 8082	Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	180		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA				EPA 7131	Prep Date: 5/8/01	Analyst: JDA
Cadmium	1.4	0.15		mg/Kg-dry	25	5/11/01
METALS ANALYSIS BY ICP				EPA 6010	Prep Date: 5/8/01	Analyst: MBR
Arsenic	1.8	0.62		mg/Kg-dry	1	5/10/01
Chromium	4.4	0.31		mg/Kg-dry	1	5/10/01
Copper	24	0.62		mg/Kg-dry	1	5/10/01
Lead	52	0.62		mg/Kg-dry	1	5/10/01
Manganese	110	0.62		mg/Kg-dry	1	5/10/01
Nickel	5.5	0.62		mg/Kg-dry	1	5/10/01
Zinc	59	0.62		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES				SUBCONTRACT		Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	370		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	740		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	180		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	370		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	180		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	740		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	370		µg/Kg-dry	1	5/14/01
Phenol	ND	180		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	180		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	180		µg/Kg-dry	1	5/14/01
Anthracene	ND	180		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	480	180		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	610	180		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-06

Client Sample ID: SB-51 (2'-4')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	760	180		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	ND	180		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	530	180		µg/Kg-dry	1	5/14/01
Chrysene	470	180		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	180		µg/Kg-dry	1	5/14/01
Fluoranthene	810	180		µg/Kg-dry	1	5/14/01
Fluorene	ND	180		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	180		µg/Kg-dry	1	5/14/01
Naphthalene	260	180		µg/Kg-dry	1	5/14/01
Phenanthrene	730	180		µg/Kg-dry	1	5/14/01
Pyrene	750	180		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.28		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	12	0.010		% of sample	1	5/8/01

Qualifiers:

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J - Analyte detected below quanititation limits
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-07

Client Sample ID: SB-52 (3'-5')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS			EPA 8082		Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	180		µg/Kg-dry	1	5/9/01
Aroclor 1254	330	180		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	180		µg/Kg-dry	1	5/9/01
METALS ANALYSIS BY ICP			EPA 6010		Prep Date: 5/8/01	Analyst: MBR
Arsenic	4.2	1.1		mg/Kg-dry	1	5/10/01
Cadmium	1.4	0.53		mg/Kg-dry	1	5/10/01
Chromium	67	0.53		mg/Kg-dry	1	5/10/01
Copper	600	11		mg/Kg-dry	10	5/14/01
Lead	110	1.1		mg/Kg-dry	1	5/10/01
Manganese	190	1.1		mg/Kg-dry	1	5/10/01
Nickel	69	1.1		mg/Kg-dry	1	5/10/01
Zinc	3,400	110		mg/Kg-dry	100	5/14/01
SUBCONTRATED ANALYSES			SUBCONTRACT			Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	370		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	750		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	180		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	370		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	180		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	750		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	370		µg/Kg-dry	1	5/14/01
Phenol	ND	180		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	430	180		µg/Kg-dry	1	5/14/01
Acenaphthylene	1,100	180		µg/Kg-dry	1	5/14/01
Anthracene	3,900	910		µg/Kg-dry	5	5/11/01
Benzo(a)anthracene	8,100	910		µg/Kg-dry	5	5/11/01
Benzo(a)pyrene	6,600	910		µg/Kg-dry	5	5/11/01
Benzo(b)fluoranthene	9,200	910		µg/Kg-dry	5	5/11/01
Benzo(g,h,i)perylene	2,000	910		µg/Kg-dry	5	5/11/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-07

Client Sample ID: SB-52 (3'-5')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(k)fluoranthene	5,300	910		µg/Kg-dry	5	5/11/01
Chrysene	7,900	910		µg/Kg-dry	5	5/11/01
Dibenzo(a,h)anthracene	950	910		µg/Kg-dry	5	5/11/01
Fluoranthene	13,000	9,100		µg/Kg-dry	50	5/14/01
Fluorene	2,800	180		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	2,300	910		µg/Kg-dry	5	5/11/01
Naphthalene	6,100	910		µg/Kg-dry	5	5/11/01
Phenanthrene	16,000	9,100		µg/Kg-dry	50	5/14/01
Pyrene	18,000	9,100		µg/Kg-dry	50	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.28		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	12	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-08

Client Sample ID: SB-53 (1'-3')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS				EPA 8082	Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	170		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	170		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA				EPA 7131	Prep Date: 5/8/01	Analyst: JDA
Cadmium	0.24	0.024		mg/Kg-dry	5	5/11/01
METALS ANALYSIS BY ICP				EPA 6010	Prep Date: 5/8/01	Analyst: MBR
Arsenic	5.2	0.47		mg/Kg-dry	1	5/10/01
Chromium	23	0.24		mg/Kg-dry	1	5/10/01
Copper	58	0.47		mg/Kg-dry	1	5/10/01
Lead	89	0.47		mg/Kg-dry	1	5/10/01
Manganese	170	0.47		mg/Kg-dry	1	5/10/01
Nickel	17	0.47		mg/Kg-dry	1	5/10/01
Zinc	140	0.94		mg/Kg-dry	2	5/14/01
SUBCONTRATED ANALYSES				SUBCONTRACT		Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	360		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	720		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	170		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	360		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	170		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	720		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	360		µg/Kg-dry	1	5/14/01
Phenol	ND	170		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	170		µg/Kg-dry	1	5/14/01
Acenaphthylene	320	170		µg/Kg-dry	1	5/14/01
Anthracene	190	170		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	790	170		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	990	170		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-08

Client Sample ID: SB-53 (1'-3')
Collection Date: 5/4/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	2,000	170		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	230	170		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	1,400	170		µg/Kg-dry	1	5/14/01
Chrysene	1,000	170		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	170		µg/Kg-dry	1	5/14/01
Fluoranthene	1,900	170		µg/Kg-dry	1	5/14/01
Fluorene	ND	170		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	270	170		µg/Kg-dry	1	5/14/01
Naphthalene	1,300	170		µg/Kg-dry	1	5/14/01
Phenanthrene	1,200	170		µg/Kg-dry	1	5/14/01
Pyrene	1,500	170		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: MBR
Cyanide, Total	ND	0.27		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: JDA
Percent Moisture	8.3	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105128
Project: Muskegon Area Wide (MK 1246)
Lab ID: 0105128-01

Client Sample ID: SB-54 (1'-2')
Collection Date: 5/8/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS				EPA 8082	Prep Date: 5/10/01	Analyst: DGK
Aroclor 1016	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1221	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1232	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1242	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1248	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1254	ND	34		µg/Kg-dry	1	5/15/01
Aroclor 1260	ND	34		µg/Kg-dry	1	5/15/01
METALS ANALYSIS BY ICP				EPA 6010	Prep Date: 5/8/01	Analyst: MBR
Arsenic	2.8	0.49		mg/Kg-dry	1	5/10/01
Cadmium	0.56	0.25		mg/Kg-dry	1	5/10/01
Chromium	19	0.25		mg/Kg-dry	1	5/10/01
Copper	64	0.49		mg/Kg-dry	1	5/10/01
Lead	89	0.49		mg/Kg-dry	1	5/10/01
Manganese	410	4.9		mg/Kg-dry	10	5/14/01
Nickel	16	0.49		mg/Kg-dry	1	5/10/01
Zinc	280	4.9		mg/Kg-dry	10	5/14/01
SUBCONTRATED ANALYSES				SUBCONTRACT		Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/17/01
ACID EXTRACTABLE ORGANICS				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	370		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	730		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	180		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	180		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	370		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	180		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	730		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	370		µg/Kg-dry	1	5/14/01
Phenol	ND	180		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	1,700	180		µg/Kg-dry	1	5/14/01
Acenaphthylene	320	180		µg/Kg-dry	1	5/14/01
Anthracene	2,800	1,800		µg/Kg-dry	10	5/15/01
Benzo(a)anthracene	7,600	1,800		µg/Kg-dry	10	5/15/01
Benzo(a)pyrene	9,100	1,800		µg/Kg-dry	10	5/15/01
Benzo(b)fluoranthene	9,300	1,800		µg/Kg-dry	10	5/15/01
Benzo(g,h,i)perylene	1,000	180		µg/Kg-dry	1	5/14/01

Qualifiers:

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S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105128
Project: Muskegon Area Wide (MK 1246)
Lab ID: 0105128-01

Client Sample ID: SB-54 (1'-2')
Collection Date: 5/8/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(k)fluoranthene	7,300	1,800		µg/Kg-dry	10	5/15/01
Chrysene	7,800	1,800		µg/Kg-dry	10	5/15/01
Dibenzo(a,h)anthracene	ND	180		µg/Kg-dry	1	5/14/01
Fluoranthene	12,000	1,800		µg/Kg-dry	10	5/15/01
Fluorene	1,400	180		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	1,100	180		µg/Kg-dry	1	5/14/01
Naphthalene	3,000	1,800		µg/Kg-dry	10	5/15/01
Phenanthrene	15,000	1,800		µg/Kg-dry	10	5/15/01
Pyrene	16,000	1,800		µg/Kg-dry	10	5/15/01
CYANIDE, TOTAL			**EPA 9014**			Analyst: **MBR**
Cyanide, Total	ND	0.28		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			**EPA 160.3**			Analyst: **JDA**
Percent Moisture	12	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

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E-Mail: info@mspec.com Internet: http://www.mspec.com

CLIENT: Dell Engineering/ERM
3352 128th Avenue
Holland, Michigan 49424

Attn: Chad Weber
Re: Muskegon SAF - Areawide (50486.10.01)

DATE: November 15, 2000

ANALYSIS OF: Soil Samples

REPORTED BY: Robert K. Zahray, Laboratory Director

DATE RECEIVED: Received from client on October 18, 2000.

Sample ID: S-14, 75' N Lab ID: 0010259-01 Collected: 10/16/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9065	0.15
Total Solids (104 °C)	91.1	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	ND	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Cadmium	ND	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0049
Chromium	39	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.27
Copper	230	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Lead	77	mg/kg dry wt	11/14/00	MBR	EPA 6010	2.7
Manganese	160	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Metals Prep, Solid	10/25/00	date digested		JA	EPA 3050	
Nickel	24	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Zinc	110	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Acid/Permanganate Cleanup	10/20/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/20/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/28/00	DSR		350
2-chlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		350
2,4-dichlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,800
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,800
Pentachlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,500
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/28/00	DSR		1,800
2-nitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,800
4-nitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,500
2,4-dinitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,500
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/28/00	DSR		3,500
2,4-dimethylphenol	ND	µg/kg dry wt.	10/28/00	DSR		1,800
Florisil Cleanup	10/20/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/28/00	DSR		350
Acenaphthylene	ND	µg/kg dry wt.	10/28/00	DSR		350
Anthracene	490	µg/kg dry wt.	10/28/00	DSR		350
Benzo(a)anthracene	1,500	µg/kg dry wt.	10/28/00	DSR		350
Benzo(b)fluoranthene	1,400	µg/kg dry wt.	10/28/00	DSR		350
Benzo(k)fluoranthene	780	µg/kg dry wt.	10/28/00	DSR		350
Benzo(ghi)perylene	890	µg/kg dry wt.	10/28/00	DSR		350
Benzo(a)pyrene	1,100	µg/kg dry wt.	10/28/00	DSR		350
Chrysene	2,200	µg/kg dry wt.	10/28/00	DSR		350
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/28/00	DSR		350

ND = Not Detected
RL = Reporting Limit

MICROSPEC ANALYTICAL GROUP, LTD.

Sample ID: S-14, 75' N Lab ID: 0010259-01 Collected: 10/16/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Poly Aromatic Hydrocarbons					EPA 8270	
Fluoranthene	2,800	µg/kg dry wt.	10/28/00	DSR		350
Fluorene	ND	µg/kg dry wt.	10/28/00	DSR		350
Indeno(1,2,3-cd)pyrene	630	µg/kg dry wt.	10/28/00	DSR		350
Naphthalene	4,000	µg/kg dry wt.	10/28/00	DSR		350
Phenanthrene	4,500	µg/kg dry wt.	10/28/00	DSR		350
Pyrene	2,800	µg/kg dry wt.	10/28/00	DSR		350
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1221	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1232	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1242	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1248	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1254	ND	µg/kg dry wt	10/23/00	DGK		35
PCB-1260	ND	µg/kg dry wt	10/23/00	DGK		35
Silica Gel Cleanup	10/20/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/19/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/19/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/19/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/20/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/24/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/20/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

MICROSPEC ANALYTICAL GROUP, LTD.

Sample ID: S-41, 450' N Lab ID: 0010259-02 Collected: 10/16/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9065	0.15
Total Solids (104 °C)	95.0	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	ND	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Cadmium	ND	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0049
Chromium	48	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.27
Copper	74	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Lead	22	mg/kg dry wt	11/14/00	MBR	EPA 6010	2.7
Manganese	1,300	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Metals Prep, Solid	10/25/00	date digested		JA	EPA 3050	
Nickel	30	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Zinc	41	mg/kg dry wt	11/14/00	MBR	EPA 6010	0.53
Acid/Permanganate Cleanup	10/20/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/20/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/28/00	DSR		340
2-chlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		340
2,4-dichlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,700
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,700
Pentachlorophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,400
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/28/00	DSR		1,700
2-nitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		1,700
4-nitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,400
2,4-dinitrophenol	ND	µg/kg dry wt.	10/28/00	DSR		3,400
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/28/00	DSR		3,400
2,4-dimethylphenol	ND	µg/kg dry wt.	10/28/00	DSR		1,700
Florisil Cleanup	10/20/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/28/00	DSR		340
Acenaphthylene	ND	µg/kg dry wt.	10/28/00	DSR		340
Anthracene	890	µg/kg dry wt.	10/28/00	DSR		340
Benzo(a)anthracene	3,900	µg/kg dry wt.	10/28/00	DSR		340
Benzo(b)fluoranthene	6,100	µg/kg dry wt.	10/28/00	DSR		340
Benzo(k)fluoranthene	3,500	µg/kg dry wt.	10/28/00	DSR		340
Benzo(ghi)perylene	5,500	µg/kg dry wt.	10/28/00	DSR		340
Benzo(a)pyrene	6,400	µg/kg dry wt.	10/28/00	DSR		340
Chrysene	4,400	µg/kg dry wt.	10/28/00	DSR		340
Dibenzo(a,h)anthracene	1,300	µg/kg dry wt.	10/28/00	DSR		340
Fluoranthene	5,200	µg/kg dry wt.	10/28/00	DSR		340
Fluorene	ND	µg/kg dry wt.	10/28/00	DSR		340
Indeno(1,2,3-cd)pyrene	4,900	µg/kg dry wt.	10/28/00	DSR		340
Naphthalene	ND	µg/kg dry wt.	10/28/00	DSR		340
Phenanthrene	3,000	µg/kg dry wt.	10/28/00	DSR		340
Pyrene	4,800	µg/kg dry wt.	10/28/00	DSR		340
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1221	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1232	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1242	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1248	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1254	ND	µg/kg dry wt	10/23/00	DGK		34
PCB-1260	ND	µg/kg dry wt	10/23/00	DGK		34
Silica Gel Cleanup	10/20/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/19/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/19/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/19/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/20/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/24/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/20/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

MICROSPEC ANALYTICAL GROUP, LTD.

- Data Report and Flag Definitions -

Data Report Definitions

Lab ID	A sample-specific numeric designation that is assigned by the laboratory at the time of sample receipt
Method	The EPA-approved, APHA, or ASTM method which has either been specified or agreed upon for the project, or has otherwise been deemed to be appropriate by the laboratory, is identified. Where applicable, the most recently promulgated version of the method is employed.
RL	The reporting limit (RL) is either the project-specified or the laboratory-default limit of concentration to be reported based upon project needs. The RL may be greater than or equal to the laboratory's practical quantitation limit (PQL) for the analyte. The PQL is that limit which can be reliably achieved within specified limits of precision and accuracy during routine laboratory operations. In instances where the sample has required dilution for analysis, that limit and the RL may be elevated in proportion to the dilution made.
ND	The analyte was not detected (ND) at or above the RL.
Dry weight	Soil/solid sample results are expressed, where possible, on a dry-weight basis taking into account the sample's moisture content.

Data Flags

B = The target analyte was detected at or above the RL in both the sample and the associated method blank.

E = The target analyte concentration exceeds the calibration range of the analytical procedure and the result is reported as estimated (E).

X = Mass spectral intensities did not fall within the guidelines for compound identification provided in the GC/MS method. Despite interference from one or more unidentified non-target compounds, the compound has been judged as present based upon retention time match, mass spectral characteristics, and the professional judgement of the analyst.

Y = Method of Standard Additions (MSA) recoveries were not acceptable and confirm matrix interference; the reported result should be considered an estimate. MSA is applicable to metals analysis where probable sample matrix interference warrants its use due to poor MS recovery.

RECEIVED SEP 19 2000

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CLIENT: Superior Environmental Corp.
14641 16th Avenue
P.O.Box 118
Marne, MI 49435

Attn: Scott Miller
Re: City of Muskegon (MK-1246)

DATE: September 14, 2000

ANALYSIS OF: Soil Samples

REPORTED BY: Robert K. Zahray (wyc)
Robert K. Zahray, Laboratory Director

DATE RECEIVED: Received from client on August 31, 2000.

Sample ID: TMW-1 (1.5') Lab ID: 0008408-01 Collected: 08/29/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	94.1	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	0.56	mg/kg dry wt.	09/12/00	JA	EPA 7060	0.029
Cadmium	0.013	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	1.9	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	3.3	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	4.0	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	28	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	1.2	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	6.6	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	1,100	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	1,200	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	1,800	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	1,600	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	2,800	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	2,200	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	1,600	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	790	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	1,300	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	2,000	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	1,300	µg/kg dry wt.	09/07/00	DSR		330

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-1 (1.5') Lab ID: 0008408-01 Collected: 08/29/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		34
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		240
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/04/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-2 (3'-5') Lab ID: 0008408-02 Collected: 08/29/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	95.9	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	3.5	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.45	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	28	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	85	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	160	mg/kg dry wt.	09/12/00	MBR	EPA 6010	1.5
Manganese	480	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	23	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Zinc	240	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	ND	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		34
PCB-1254	1,400	µg/kg dry wt	09/07/00	DGK		34
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		790
Total PCBs	1,400	µg/kg dry wt	09/07/00	DGK		990
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/04/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-3 (1'-5') Lab ID: 0008408-03 Collected: 08/29/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	93.9	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	14	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	1.5	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Chromium	24	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Copper	140	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Lead	360	mg/kg dry wt.	09/12/00	MBR	EPA 6010	1.5
Manganese	440	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	20	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	550	mg/kg dry wt.	09/12/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	780	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	650	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	630	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	770	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	760	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	980	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	1,800	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	560	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	780	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	1,600	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	1,200	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		38
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		250
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/04/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-4 (1'-5') Lab ID: 0008408-04 Collected: 08/29/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	93.6	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	1.1	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.10	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	2.6	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	7.2	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	66	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	29	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	1.7	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	57	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	ND	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	410	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	460	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		55
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		55
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		36
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	370
Soxhlet Extraction for PAH	09/04/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-5 (2'-7') Lab ID: 0008408-05 Collected: 08/30/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	93.6	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	0.85	mg/kg dry wt.	09/12/00	JA	EPA 7060	0.029
Cadmium	0.023	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	2.5	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	4.3	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	18	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	52	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	1.6	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	15	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	ND	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		35
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		35
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		250
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/04/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-6 (1') Lab ID: 0008408-06 Collected: 08/30/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	09/11/00	MBR	EPA 9010/14	0.15
Total Phenols	ND	mg/kg dry wt.	09/06/00	MBR	EPA 9065	0.50
Total Solids (104 °C)	93.2	% of sample	09/02/00	JA	EPA 160.3	
Arsenic	1.2	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Cadmium	0.045	mg/kg dry wt.	09/08/00	JA	EPA 7131	0.003
Chromium	6.5	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.15
Copper	13	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Lead	39	mg/kg dry wt.	09/07/00	MBR	EPA 6010	1.5
Manganese	120	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Metals Prep, Solid	09/01/00	date digested		JA	EPA 3050	
Nickel	5.2	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Zinc	54	mg/kg dry wt.	09/07/00	MBR	EPA 6010	0.29
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	09/07/00	DSR		330
Acenaphthylene	ND	µg/kg dry wt.	09/07/00	DSR		330
Anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)anthracene	460	µg/kg dry wt.	09/07/00	DSR		330
Benzo(b)fluoranthene	370	µg/kg dry wt.	09/07/00	DSR		330
Benzo(k)fluoranthene	350	µg/kg dry wt.	09/07/00	DSR		330
Benzo(ghi)perylene	360	µg/kg dry wt.	09/07/00	DSR		330
Benzo(a)pyrene	450	µg/kg dry wt.	09/07/00	DSR		330
Chrysene	630	µg/kg dry wt.	09/07/00	DSR		330
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	09/07/00	DSR		330
Fluoranthene	880	µg/kg dry wt.	09/07/00	DSR		330
Fluorene	ND	µg/kg dry wt.	09/07/00	DSR		330
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	09/07/00	DSR		330
Naphthalene	ND	µg/kg dry wt.	09/07/00	DSR		330
Phenanthrene	450	µg/kg dry wt.	09/07/00	DSR		330
Pyrene	780	µg/kg dry wt.	09/07/00	DSR		330
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1221	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1232	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1242	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1248	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1254	ND	µg/kg dry wt	09/07/00	DGK		36
PCB-1260	ND	µg/kg dry wt	09/07/00	DGK		36
Total PCBs	ND	µg/kg dry wt	09/07/00	DGK		260
Soxhlet Ext. for PCBs	09/05/00	prep. date		MG	EPA 3540	
Soxhlet Extraction for PAH	09/05/00	prep. date		BT	EPA 3540	
Formaldehyde	ND	µg/kg dry wt	09/08/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	09/05/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

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RECEIVED NOV 2 0 2000

CLIENT: Superior Environmental Corp.
14641 16th Avenue
P.O.Box 118
Marne, MI 49435

Attn: Scott Miller
Re: Muskegon - Area Wide (MK1246)

DATE: November 16, 2000

ANALYSIS OF: Soil Samples

REPORTED BY: Robert K. Zahray, Laboratory Director

DATE RECEIVED: Received from client on October 20, 2000.

Sample ID: TMW-7 (3-4') Lab ID: 0010314-01 Collected: 10/18/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	91.0	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	2.3	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.11	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	9.1	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	22	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	230	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	95	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	5.3	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	89	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		360
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		360
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/27/00	DSR		360
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		360
Anthracene	ND	µg/kg dry wt.	10/27/00	DSR		360
Benzo(a)anthracene	830	µg/kg dry wt.	10/27/00	DSR		360
Benzo(b)fluoranthene	1,300	µg/kg dry wt.	10/27/00	DSR		360
Benzo(k)fluoranthene	790	µg/kg dry wt.	10/27/00	DSR		360
Benzo(ghi)perylene	650	µg/kg dry wt.	10/27/00	DSR		360
Benzo(a)pyrene	930	µg/kg dry wt.	10/27/00	DSR		360
Chrysene	1,200	µg/kg dry wt.	10/27/00	DSR		360
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		360
Fluoranthene	1,100	µg/kg dry wt.	10/27/00	DSR		360
Fluorene	ND	µg/kg dry wt.	10/27/00	DSR		360

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-7 (3-4') Lab ID: 0010314-01 Collected: 10/18/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Poly Aromatic Hydrocarbons					EPA 8270	
Indeno(1,2,3-cd)pyrene	610	µg/kg dry wt.	10/27/00	DSR		360
Naphthalene	690	µg/kg dry wt.	10/27/00	DSR		360
Phenanthrene	840	µg/kg dry wt.	10/27/00	DSR		360
Pyrene	1,100	µg/kg dry wt.	10/27/00	DSR		360
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		37
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/27/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-8 (3') Lab ID: 0010314-02 Collected: 10/18/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	86.9	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	2.0	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.19	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	17	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	30	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	27	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	180	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	7.4	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	38	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		370
Anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)anthracene	470	µg/kg dry wt.	10/27/00	DSR		370
Benzo(b)fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(k)fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(ghi)perylene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)pyrene	ND	µg/kg dry wt.	10/27/00	DSR		370
Chrysene	490	µg/kg dry wt.	10/27/00	DSR		370
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Fluoranthene	1,100	µg/kg dry wt.	10/27/00	DSR		370
Fluorene	ND	µg/kg dry wt.	10/27/00	DSR		370
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	10/27/00	DSR		370
Naphthalene	ND	µg/kg dry wt.	10/27/00	DSR		370
Phenanthrene	1,000	µg/kg dry wt.	10/27/00	DSR		370
Pyrene	960	µg/kg dry wt.	10/27/00	DSR		370
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		37
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		37
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	2,100	µg/kg dry wt	10/27/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-9 (5') Lab ID: 0010314-03 Collected: 10/18/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	84.4	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	3.5	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.13	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	28	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	41	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	18	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	720	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	18	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	43	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		390
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		390
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		2,000
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		2,000
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,900
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		2,000
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		2,000
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,900
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,900
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,900
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		2,000
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/27/00	DSR		390
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		390
Anthracene	ND	µg/kg dry wt.	10/27/00	DSR		390
Benzo(a)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		390
Benzo(b)fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		390
Benzo(k)fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		390
Benzo(ghi)perylene	ND	µg/kg dry wt.	10/27/00	DSR		390
Benzo(a)pyrene	ND	µg/kg dry wt.	10/27/00	DSR		390
Chrysene	ND	µg/kg dry wt.	10/27/00	DSR		390
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		390
Fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		390
Fluorene	ND	µg/kg dry wt.	10/27/00	DSR		390
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	10/27/00	DSR		390
Naphthalene	ND	µg/kg dry wt.	10/27/00	DSR		390
Phenanthrene	450	µg/kg dry wt.	10/27/00	DSR		390
Pyrene	ND	µg/kg dry wt.	10/27/00	DSR		390
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		39
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		39
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	5,800	µg/kg dry wt	10/27/00	KAR	EPA 8315	
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-10 (2-6') Lab ID: 0010314-04 Collected: 10/18/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	90.8	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	1.1	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.24	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	4.5	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	12	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	38	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	80	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	2.4	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	40	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		360
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		360
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,600
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,800
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	690	µg/kg dry wt.	10/27/00	DSR		360
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		360
Anthracene	1,600	µg/kg dry wt.	10/27/00	DSR		360
Benzo(a)anthracene	3,400	µg/kg dry wt.	10/27/00	DSR		360
Benzo(b)fluoranthene	2,900	µg/kg dry wt.	10/27/00	DSR		360
Benzo(k)fluoranthene	1,800	µg/kg dry wt.	10/27/00	DSR		360
Benzo(ghi)perylene	1,900	µg/kg dry wt.	10/27/00	DSR		360
Benzo(a)pyrene	2,700	µg/kg dry wt.	10/27/00	DSR		360
Chrysene	3,700	µg/kg dry wt.	10/27/00	DSR		360
Dibenzo(a,h)anthracene	550	µg/kg dry wt.	10/27/00	DSR		360
Fluoranthene	8,000	µg/kg dry wt.	10/27/00	DSR		360
Fluorene	630	µg/kg dry wt.	10/27/00	DSR		360
Indeno(1,2,3-cd)pyrene	1,600	µg/kg dry wt.	10/27/00	DSR		360
Naphthalene	ND	µg/kg dry wt.	10/27/00	DSR		360
Phenanthrene	5,500	µg/kg dry wt.	10/27/00	DSR		360
Pyrene	6,900	µg/kg dry wt.	10/27/00	DSR		360
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		36
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/27/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: TMW-11 (0-1') Lab ID: 0010314-05 Collected: 10/19/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	90.2	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	1.7	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.082	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	8.8	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	26	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	39	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	200	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	6.8	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	36	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		370
Anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)anthracene	820	µg/kg dry wt.	10/27/00	DSR		370
Benzo(b)fluoranthene	1,200	µg/kg dry wt.	10/27/00	DSR		370
Benzo(k)fluoranthene	610	µg/kg dry wt.	10/27/00	DSR		370
Benzo(ghi)perylene	550	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)pyrene	870	µg/kg dry wt.	10/27/00	DSR		370
Chrysene	1,000	µg/kg dry wt.	10/27/00	DSR		370
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Fluoranthene	1,200	µg/kg dry wt.	10/27/00	DSR		370
Fluorene	ND	µg/kg dry wt.	10/27/00	DSR		370
Indeno(1,2,3-cd)pyrene	490	µg/kg dry wt.	10/27/00	DSR		370
Naphthalene	1,500	µg/kg dry wt.	10/27/00	DSR		370
Phenanthrene	1,200	µg/kg dry wt.	10/27/00	DSR		370
Pyrene	1,300	µg/kg dry wt.	10/27/00	DSR		370
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		36
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		36
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/27/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Sample ID: SB-39 (3') Lab ID: 0010314-06 Collected: 10/19/00

TEST	RESULT	UNITS	ANALYZED	BY	METHOD	RL
Total Cyanide	ND	mg/kg dry wt.	10/25/00	MBR	EPA 9010/14	0.15
Total Solids (104 °C)	87.0	% of sample	10/24/00	JA	EPA 160.3	
Arsenic	0.98	mg/kg dry wt.	10/28/00	JA	EPA 7060	0.057
Cadmium	0.048	mg/kg dry wt.	10/30/00	JA	EPA 7131	0.0057
Chromium	5.9	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.29
Copper	9.3	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Lead	79	mg/kg dry wt.	11/14/00	MBR	EPA 6010	2.9
Manganese	32	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Metals Prep, Solid	10/28/00	date digested		JA	EPA 3050	
Nickel	2.1	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Zinc	150	mg/kg dry wt.	11/14/00	MBR	EPA 6010	0.57
Acid/Permanganate Cleanup	10/25/00	date completed		BT	EPA 3665	
Alumina Cleanup	10/25/00	date completed		BT	EPA 3611	
EPA Acid Fraction					EPA 8270	
Phenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2-chlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		370
2,4-dichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2,4,6-trichlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Pentachlorophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4-chloro-3-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
2-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
4-nitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dinitrophenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
4,6-dinitro-2-methylphenol	ND	µg/kg dry wt.	10/27/00	DSR		3,700
2,4-dimethylphenol	ND	µg/kg dry wt.	10/27/00	DSR		1,900
Florisil Cleanup	10/25/00	date completed		BT	EPA 3620	
Poly Aromatic Hydrocarbons					EPA 8270	
Acenaphthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Acenaphthylene	ND	µg/kg dry wt.	10/27/00	DSR		370
Anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)anthracene	580	µg/kg dry wt.	10/27/00	DSR		370
Benzo(b)fluoranthene	490	µg/kg dry wt.	10/27/00	DSR		370
Benzo(k)fluoranthene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(ghi)perylene	ND	µg/kg dry wt.	10/27/00	DSR		370
Benzo(a)pyrene	450	µg/kg dry wt.	10/27/00	DSR		370
Chrysene	680	µg/kg dry wt.	10/27/00	DSR		370
Dibenzo(a,h)anthracene	ND	µg/kg dry wt.	10/27/00	DSR		370
Fluoranthene	1,300	µg/kg dry wt.	10/27/00	DSR		370
Fluorene	ND	µg/kg dry wt.	10/27/00	DSR		370
Indeno(1,2,3-cd)pyrene	ND	µg/kg dry wt.	10/27/00	DSR		370
Naphthalene	ND	µg/kg dry wt.	10/27/00	DSR		370
Phenanthrene	780	µg/kg dry wt.	10/27/00	DSR		370
Pyrene	1,100	µg/kg dry wt.	10/27/00	DSR		370
Polychlorinated Biphenyls					EPA 8082	
PCB-1016	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1221	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1232	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1242	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1248	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1254	ND	µg/kg dry wt	10/27/00	DGK		38
PCB-1260	ND	µg/kg dry wt	10/27/00	DGK		38
Silica Gel Cleanup	10/25/00	date completed		BT	EPA 3630	
Soxhlet Ext. for Acid Ext.	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Ext. for PCBs	10/24/00	prep. date		BT	EPA 3540	
Soxhlet Extraction for PAH	10/24/00	prep. date		BT	EPA 3540	
Sulfur Cleanup	10/25/00	date completed		BT	EPA 3660	
Formaldehyde	ND	µg/kg dry wt	10/27/00	KAR	EPA 8315	2,000
Solid Ext for Aldehydes	10/24/00	prep. date		KAR	EPA 8315	

ND = Not Detected
RL = Reporting Limit

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-01

Client Sample ID: TMW-12 (0'-2')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS				EPA 8082	Prep Date: 5/7/01	Analyst: DGK
Aroclor 1016	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1221	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1232	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1242	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1248	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1254	ND	400		µg/Kg-dry	1	5/9/01
Aroclor 1260	ND	400		µg/Kg-dry	1	5/9/01
CADMIUM BY GFAA				EPA 7131	Prep Date: 5/8/01	Analyst: JDA
Cadmium	4.9	1.9		mg/Kg-dry	100	5/11/01
METALS ANALYSIS BY ICP				EPA 6010	Prep Date: 5/8/01	Analyst: MBR
Arsenic	2.8	1.9		mg/Kg-dry	1	5/10/01
Chromium	5.7	0.96		mg/Kg-dry	1	5/10/01
Copper	18	1.9		mg/Kg-dry	1	5/10/01
Lead	120	1.9		mg/Kg-dry	1	5/10/01
Manganese	120	1.9		mg/Kg-dry	1	5/10/01
Nickel	4.8	1.9		mg/Kg-dry	1	5/10/01
Zinc	150	1.9		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES				SUBCONTRACT		Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/14/01
ACID EXTRACTABLE ORGANICS				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	400		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	400		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	820		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	1,600		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	400		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	400		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	820		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	400		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	1,600		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	820		µg/Kg-dry	1	5/14/01
Phenol	ND	400		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)				EPA 8270	Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	400		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	400		µg/Kg-dry	1	5/14/01
Anthracene	ND	400		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	ND	400		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	ND	400		µg/Kg-dry	1	5/14/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105088
Project: Muskegon Area Wide (MK1246)
Lab ID: 0105088-01

Client Sample ID: TMW-12 (0'-2')
Collection Date: 5/3/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	ND	400		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	ND	400		µg/Kg-dry	1	5/14/01
Benzo(k)fluoranthene	ND	400		µg/Kg-dry	1	5/14/01
Chrysene	ND	400		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	400		µg/Kg-dry	1	5/14/01
Fluoranthene	ND	400		µg/Kg-dry	1	5/14/01
Fluorene	ND	400		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	400		µg/Kg-dry	1	5/14/01
Naphthalene	ND	400		µg/Kg-dry	1	5/14/01
Phenanthrene	ND	400		µg/Kg-dry	1	5/14/01
Pyrene	ND	400		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL			EPA 9014			Analyst: MBR
Cyanide, Total	ND	0.62		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE			EPA 160.3			Analyst: JDA
Percent Moisture	60	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105128
Project: Muskegon Area Wide (MK 1246)
Lab ID: 0105128-02

Client Sample ID: TMW-13 (3'-5')
Collection Date: 5/8/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
PCBS			EPA 8082		Prep Date: 5/10/01	Analyst: DGK
Aroclor 1016	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1221	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1232	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1242	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1248	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1254	ND	36		µg/Kg-dry	1	5/15/01
Aroclor 1260	ND	36		µg/Kg-dry	1	5/15/01
METALS ANALYSIS BY ICP			EPA 6010		Prep Date: 5/8/01	Analyst: MBR
Arsenic	ND	0.65		mg/Kg-dry	1	5/10/01
Cadmium	2.5	0.33		mg/Kg-dry	1	5/10/01
Chromium	7.0	0.33		mg/Kg-dry	1	5/10/01
Copper	7.1	0.65		mg/Kg-dry	1	5/10/01
Lead	24	0.65		mg/Kg-dry	1	5/10/01
Manganese	61	0.65		mg/Kg-dry	1	5/10/01
Nickel	4.1	0.65		mg/Kg-dry	1	5/10/01
Zinc	26	0.65		mg/Kg-dry	1	5/14/01
SUBCONTRATED ANALYSES			SUBCONTRACT			Analyst: KAR
Subcontracted Analyses	see attached			as noted	1	5/17/01
ACID EXTRACTABLE ORGANICS			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
2,4,6-Trichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dichlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2,4-Dimethylphenol	ND	350		µg/Kg-dry	1	5/14/01
2,4-Dinitrophenol	ND	690		µg/Kg-dry	1	5/14/01
2-Chlorophenol	ND	170		µg/Kg-dry	1	5/14/01
2-Nitrophenol	ND	170		µg/Kg-dry	1	5/14/01
4,6-Dinitro-2-methylphenol	ND	350		µg/Kg-dry	1	5/14/01
4-Chloro-3-methylphenol	ND	170		µg/Kg-dry	1	5/14/01
4-Nitrophenol	ND	690		µg/Kg-dry	1	5/14/01
Pentachlorophenol	ND	350		µg/Kg-dry	1	5/14/01
Phenol	ND	170		µg/Kg-dry	1	5/14/01
POLY AROMATIC HYDROCARBONS (PAHS)			EPA 8270		Prep Date: 5/9/01	Analyst: DAH
Acenaphthene	ND	170		µg/Kg-dry	1	5/14/01
Acenaphthylene	ND	170		µg/Kg-dry	1	5/14/01
Anthracene	ND	170		µg/Kg-dry	1	5/14/01
Benzo(a)anthracene	240	170		µg/Kg-dry	1	5/14/01
Benzo(a)pyrene	280	170		µg/Kg-dry	1	5/14/01
Benzo(b)fluoranthene	330	170		µg/Kg-dry	1	5/14/01
Benzo(g,h,i)perylene	ND	170		µg/Kg-dry	1	5/14/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

Microspec Analytical Group, Ltd

Date: *June 05, 2001*

CLIENT: Superior Environmental Corp
Work Order: 0105128
Project: Muskegon Area Wide (MK 1246)
Lab ID: 0105128-02

Client Sample ID: TMW-13 (3'-5')
Collection Date: 5/8/01
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
Benzo(k)fluoranthene	220	170		µg/Kg-dry	1	5/14/01
Chrysene	230	170		µg/Kg-dry	1	5/14/01
Dibenzo(a,h)anthracene	ND	170		µg/Kg-dry	1	5/14/01
Fluoranthene	ND	170		µg/Kg-dry	1	5/14/01
Fluorene	ND	170		µg/Kg-dry	1	5/14/01
Indeno(1,2,3-cd)pyrene	ND	170		µg/Kg-dry	1	5/14/01
Naphthalene	ND	170		µg/Kg-dry	1	5/14/01
Phenanthrene	320	170		µg/Kg-dry	1	5/14/01
Pyrene	380	170		µg/Kg-dry	1	5/14/01
CYANIDE, TOTAL		**EPA 9014**				Analyst: MBR
Cyanide, Total	ND	0.27		mg/Kg-dry	1	5/11/01
PERCENT MOISTURE		**EPA 160.3**				Analyst: JDA
Percent Moisture	6.2	0.010		% of sample	1	5/8/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
U - Analyzed for but Not Detected
E - Value above quantitation range
H - Analyzed outside of Hold Time

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-2
Project:	Muskegon Arcawide	Collection Date:	7/23/2001
Lab Sample ID:	0107400-01A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	740		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	32		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-3
Project:	Muskegon Arcawide	Collection Date:	7/23/2001
Lab Sample ID:	0107400-02A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	620		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-4
Project:	Muskegon Arcawide	Collection Date:	7/24/2001
Lab Sample ID:	0107400-03A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	28		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 400		400	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-5
Project:	Muskegon Arcawide	Collection Date:	7/24/2001
Lab Sample ID:	0107400-04A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	27		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 400		400	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-7
Project:	Muskegon Arcawide	Collection Date:	7/24/2001
Lab Sample ID:	0107400-06A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	450		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT: Superior Environmental Corp
Lab Order: 0107400
Project: Muskegon Arcawide
Lab Sample ID: 0107400-07A

Project Number: MK1246
Client Sample ID: GTMW-4
Collection Date: 7/25/2001
Matrix: AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	310		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-11
Project:	Muskegon Arcawide	Collection Date:	7/25/2001
Lab Sample ID:	0107400-08A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 400		400	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-10
Project:	Muskegon Arcawide	Collection Date:	7/25/2001
Lab Sample ID:	0107400-09A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	430		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-19s
Project:	Muskegon Arcawide	Collection Date:	7/25/2001
Lab Sample ID:	0107400-10A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	450		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	K-TMW-11
Project:	Muskegon Arcawide	Collection Date:	7/26/2001
Lab Sample ID:	0107400-11A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	31		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 400		400	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-13
Project:	Muskegon Arcawide	Collection Date:	7/26/2001
Lab Sample ID:	0107400-12A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	430		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	8/2/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	8/2/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	8/2/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	8/2/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	8/2/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	8/2/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-9
Project:	Muskegon Arcawide	Collection Date:	7/26/2001
Lab Sample ID:	0107400-13A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	390		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	TMW-1
Project:	Muskegon Arcawide	Collection Date:	7/26/2001
Lab Sample ID:	0107400-14A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	5.3		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	34		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT:	Superior Environmental Corp	Project Number:	MK1246
Lab Order:	0107400	Client Sample ID:	HMW-1
Project:	Muskegon Arcawide	Collection Date:	7/26/2001
Lab Sample ID:	0107400-15A	Matrix:	AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	680		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q):
J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT: Superior Environmental Corp
Lab Order: 0107400
Project: Muskegon Arcawide
Lab Sample ID: 0107400-16A

Project Number: MK1246
Client Sample ID: TMW-8
Collection Date: 7/26/2001
Matrix: AQUEOUS

Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	330		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

BIO-CHEM Laboratories, Inc.

Date: *8/3/2001*

ANALYTICAL REPORT

CLIENT: Superior Environmental Corp
Lab Order: 0107400
Project: Muskegon Arcawide
Lab Sample ID: 0107400-17A

Project Number: MK1246
Client Sample ID: TMW-21s
Collection Date: 7/26/2001
Matrix: AQUEOUS

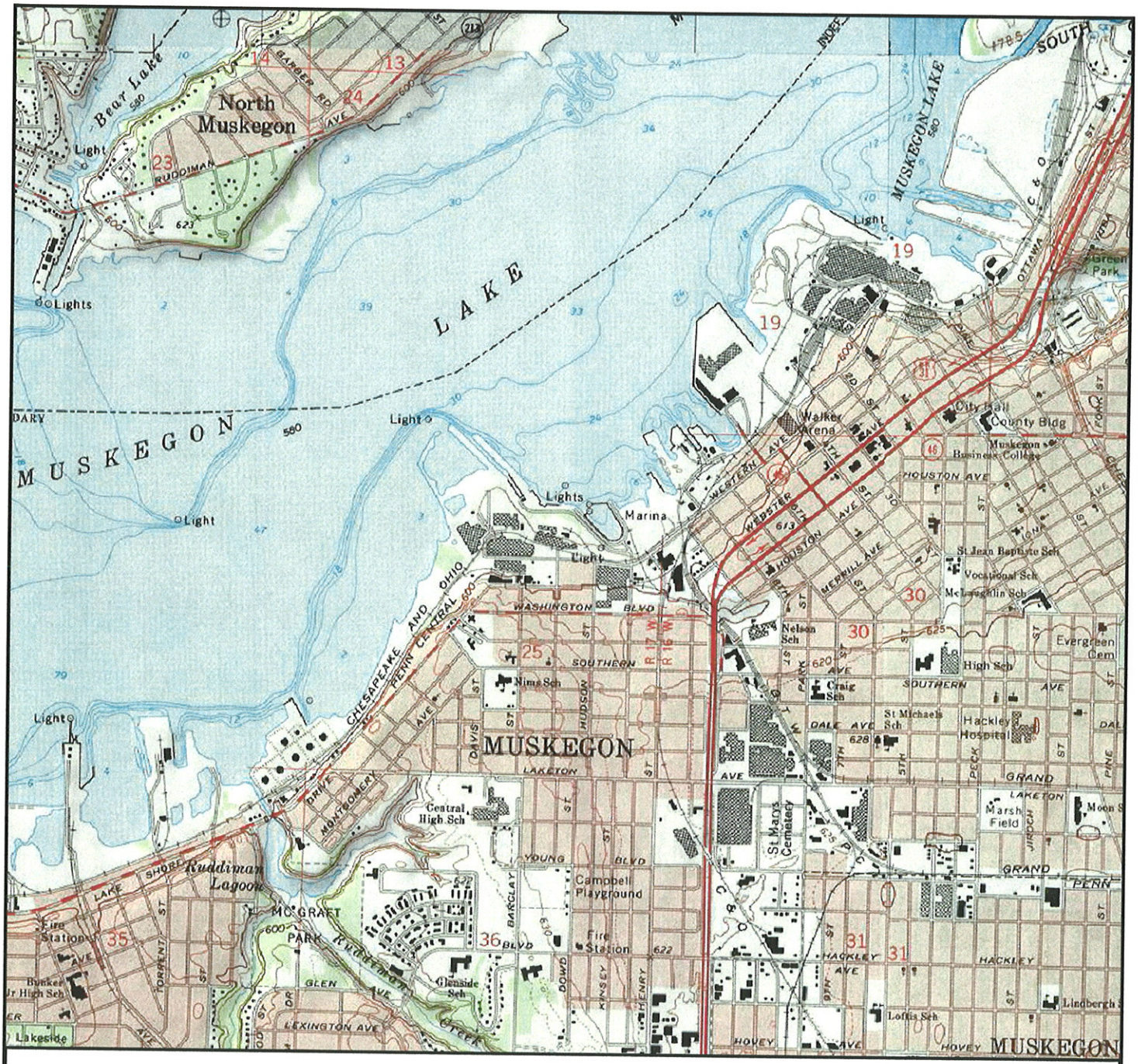
Analyses	Method Ref.	Result	Q	PQL	Units	DF	Analyst	Date
DISSOLVED METAL(s) by GFAA								
1. Lead	SW7421	< 3		3	µg/L	1	RHS	7/31/2001
DISSOLVED METAL(s) by GFAA								
1. Chromium	SW7191	< 5		5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by GFAA								
1. Cadmium	SW7131A	< 0.5		0.5	µg/L	1	RHS	8/1/2001
DISSOLVED METAL(s) by ICP								
1. Arsenic	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
2. Copper	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
3. Manganese	SW6010B	43		20	µg/L	1	RHS	7/31/2001
4. Nickel	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
5. Zinc	SW6010B	< 20		20	µg/L	1	RHS	7/31/2001
PNAs by GC/MS								
1. Acenaphthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
2. Acenaphthylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
3. Anthracene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
4. Benzo[a]anthracene	SW8270C	< 1		1	µg/L	1	NVS	7/31/2001
5. Benzo[a]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
6. Benzo[b]fluoranthene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
7. Benzo[g,h,i]perylene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
8. Benzo[k]fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
9. Chrysene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
10. Dibenz[a,h]anthracene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
11. Fluoranthene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
12. Fluorene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
13. Indeno[1,2,3-cd]pyrene	SW8270C	< 2		2	µg/L	1	NVS	7/31/2001
14. Naphthalene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
15. Phenanthrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
16. Pyrene	SW8270C	< 5		5	µg/L	1	NVS	7/31/2001
CARBONYL Compounds by HPLC								
1. Formaldehyde	N3500	< 40		40	µg/L	1	SCL	7/30/2001

Definitions: PQL - Practical Quantitation Limit
DF - Dilution Factor

Qualifiers (Q): J - Detected below PQL but above MDL: Estimated
S - Spike Recovery Outside Acceptance Limits
B - Analyte detected in associated Method Blank
N - See case narrative for explanation

Note: The sample results reported are based on the sample aliquot(s) tested.

FIGURES



0 2000 feet 4000

Adapted from 7.5 minute topographic quadrangle:
Muskegon West & East, 1982.

FIGURE 1

SITE LOCATION MAP

MUSKEGON AREAWIDE

Section: Various,
Town: 10 North, Range: 16 West,
City of Muskegon,
Muskegon County, Michigan

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ERM.

MK1246-AF

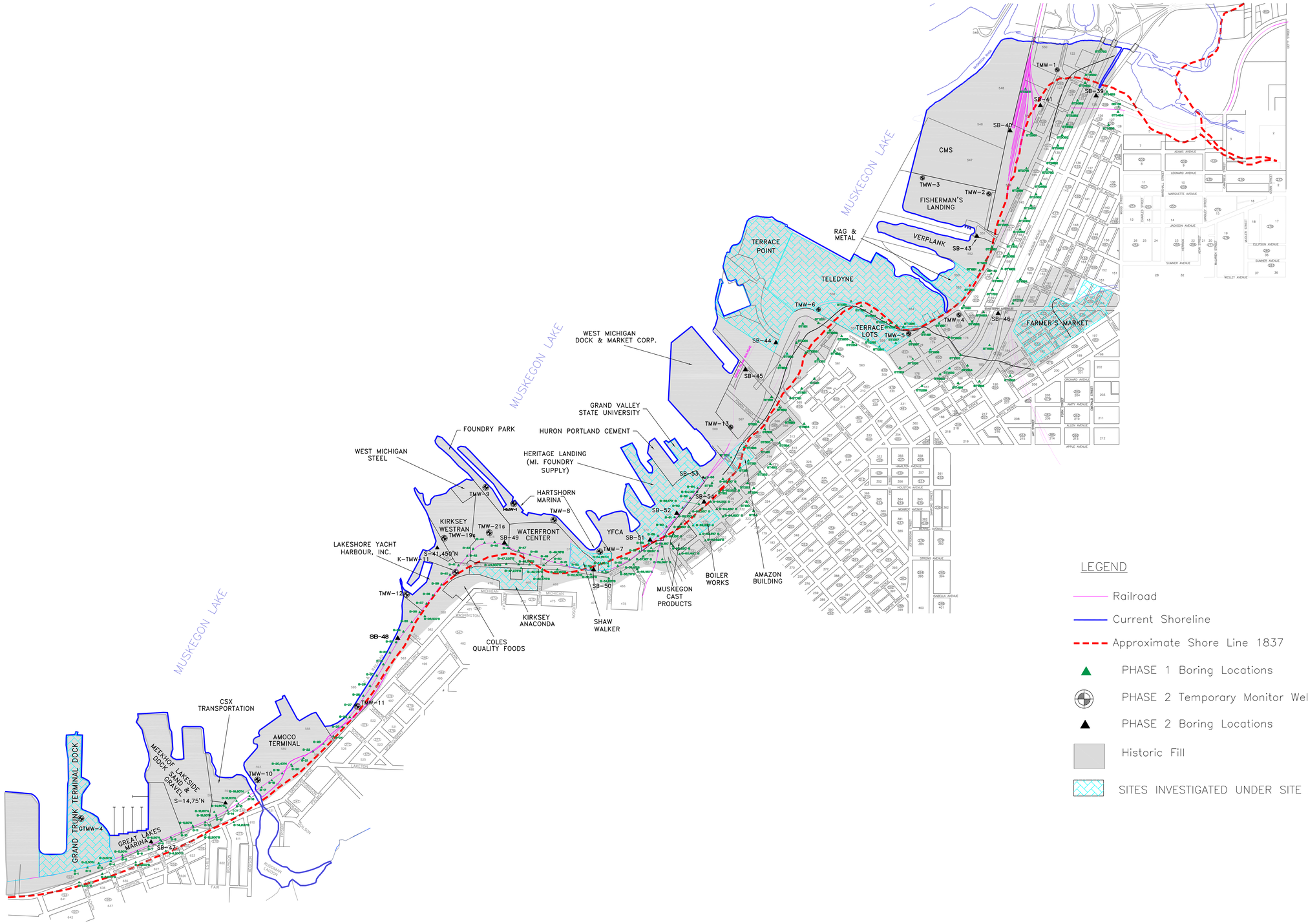

FIGURE 2

PHASE II SOIL BORING AND MONITORING WELL LOCATION MAP

CITY OF MUSKEGON
MUSKEGON LAKE SHORELINE
AREA WIDE ASSESSMENT OF HISTORIC FILL
MUSKEGON COUNTY, MICHIGAN

scale	as shown	date drawn	03/22/96
project mgr.	SM	drawn by	IRC
dwg #	MK1246-EP	revised	dal 10/08/03

Superior ENVIRONMENTAL CORP

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