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December 8, 2014 Project # 12511

Mr. David G. Volkert
Hydrogeologist
Wisconsin DNR
R & R Program
Waukesha Service Center
141 NW Barstow Room 180
Waukesha, WI 53188

RE.: Additional Soil and Groundwater Characterization and Remedial Action Plan, Mankowski Property, Kenosha, Wisconsin.

BRRTS # 02-30-554934

Dear Mr. Volkert:

In accordance with the proposal dated May 19 2014 The Sigma Group, Inc. (Sigma) has completed the additional soil and groundwater characterization activities and developed costs to remediate the subsurface impacts identified at the Mankowski Property in Kenosha, Wisconsin (Figure 1). The additional data were used to evaluate the potential waste handling and management options and assess the potential bioremediation options to address the identified subsurface impacts. An array of remedial options and associated costs were developed to address the source areas identified at the site and allow future development of the site.

On August 11, 2014 Sigma completed the additional soil and groundwater sample collection activities and submitted the samples to the project laboratories (Synergy Environmental Lab, Inc. and Microbial Insight, Inc.) for waste characterization and microbial analysis. The following sections present the data collection activities, discusses the results of the investigation, and presents the remedial action options developed for the site and detailed costs for implementing a cost-effective option for the site.

ADDITIONAL DATA COLLECTION AND RESULTS

- **Soil Sample Analysis and Waste Characterization** – Sigma completed four Geoprobe© soil borings to evaluate the characteristics of the soil waste generated during site remediation activities. Two of the soil borings were completed in the immediate vicinity of the existing monitoring wells SMW-

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1 and SMW-2 (SMW-1GP and SMW-2GP, **Figure 2**) and the two other soil borings were installed next to two soil boring locations SGP-6 and SPG-13 (SGP-6R and SGP-13R, **Figure 2**). At each location continuous soil sampling was performed to a depth of 8 feet below ground surface. Two soil samples, one from the shallow interval and one from deeper intervals, where relatively high soil impacts were historically identified were containerized and submitted to the project laboratory (Synergy Environmental Lab, Inc.) for analysis. The samples were analyzed for volatile organic compounds (VOCs) and Toxicity Characteristics Leaching Procedure (TCLP) VOCs. In addition, two composite samples, one from the shallow zone and one from the deeper zone were submitted to the laboratory for waste characterization analysis to evaluate possible treatment/disposal options. Attached **Figure 2** presents the site layout and the locations of the Geoprobe borings. The soil quality data are summarized in **Table 1** and discussions of the results are presented below. Copies of the soil boring logs are included as **Appendix A** and the laboratory analytical reports are included as **Appendix B**.

SMW-1GP – Two soil samples (one from 2-4 ft depth interval and the other from 6-8 ft depth interval) were collected from a location adjacent to monitoring well SMW-1. Review of the data indicates relatively high concentrations of Trichloroethylene (TCE) were detected in both shallow and deep samples (45,000 micrograms/Kilograms [µg/Kg] and 1,170,000 µg/Kg, respectively); however, relatively low concentrations of Tetrachloroethylene (PCE) and Cis-1,2-Dichloethylene (Cis-1,2-DCE) were detected in these samples. The results compare well with the historical soil quality identified at this location. The TCLP analysis indicates both samples failed the test for TCLP TCE and as such soil from this location would be considered characteristically hazardous due to toxicity (per WDNR Guidance document RR-705).

SMW-2GP – Two soil samples (2-4 ft and 4-6 ft depth intervals) were collected from a location adjacent to monitoring well SMW-2. Review of the data indicates the presence of relatively moderate concentrations of TCE in both shallow and deep samples (7,600 µg/Kg and 15,300 µg/Kg, respectively); however, relatively low concentrations of PCE and Cis-1,2-DCE were detected. The results compare well with the historical soil quality identified at this location. The TCLP analysis detected TCE in both of samples; however, the results passed the toxicity test indicating the soil from this location would not require management as hazardous waste, if removed during remediation.

GP-6R – Two soil samples (2-4 ft and 6-8 ft depth intervals) were collected from a location adjacent to soil boring location GP-6. Review of the data indicates the presence of relatively moderate concentrations of TCE in both shallow and deep samples (8,200 µg/Kg and 8,100 µg/Kg, respectively); however, relatively low concentrations of PCE and Cis-1,2-DCE were detected. The TCLP analysis detected TCE in both of the samples; however, the results passed the toxicity test indicating the soil from this location would not require management as hazardous waste, if removed during remediation.

GP-13R – Two soil samples (2-4 ft and 6-8 ft depth intervals) were collected from a location adjacent to soil boring location GP-13. Review of the data indicates the presence of relatively low concentrations of TCE in both shallow and deep samples (103 µg/Kg and 650 µg/Kg, respectively) and no presence of PCE or Cis-1,2-DCE. The TCLP results indicate the soil passed the toxicity test and therefore, would not require management as hazardous waste.

- **Groundwater Microbial and Dissolved Gas Analyses** – Two groundwater monitoring wells (SMW-1 and SMW-2) were sampled to evaluate the presence of bacterial populations responsible for the degradation of chlorinated ethenes (Dehalococcoides [Dhc] group of organisms and vinyl chloride reductase [vcrA]) for potential in situ enhanced bio-treatment. A review of the data (Microbial Analytical Data, **Appendix A**) indicates the presence of bacterial populations below the laboratory detection limits. A groundwater sample collected from a nearby sample location (PZ-9) in 2011 did indicate the presence of low to moderate bacterial populations (both Dhc and vcrA) in the site groundwater. Considering the low population counts in the groundwater it is likely that microbial augmentation may be needed if an in situ enhanced bioremediation method is selected to address the subsurface impacts.

  In addition to microbial analysis the groundwater samples were analyzed for the presence of dissolved gasses (methane, ethene and ethane) to evaluate the biodegradation by-products. A review of the data indicates the presence of these gasses in relatively moderate concentrations. The presence of these gasses is a clear indication that biodegradation of the chlorinated VOCs are already occurring and in situ enhanced bioremediation methods could be considered to address the site impacts. Copies of the analytical reports are included in **Appendix A**.

- **Potential Remedial Options** – Seven potential remedial options were considered for the site. Each of the options was evaluated for its effectiveness, limitations and likely implementation costs. Attached **Table 2**

provides the description of each option, effectiveness, limitation and budget cost range. The following is a list of options:

1. Monitored Natural Attenuation
2. Capping, Venting and Limited Monitoring
3. Limited Excavation and Monitored Natural Attenuation
4. Limited Excavation, Phytoremediation and Groundwater Monitoring
5. Limited Excavation, In Situ Bioremediation and Groundwater Monitoring
6. Limited Excavation, In-Place Oxidation Treatment and Groundwater Monitoring
7. Excavation and Off-site Disposal of all Identified Source Soil & Limited Groundwater Monitoring

Considering the potential future use of the property (a majority green space area with a small parking lot at the northeast corner) all seven options could be implemented at the site. Option 1 and Option 2 provides no source area mass reduction strategy allowing the continued contribution of contaminants to the groundwater system. Therefore, these two options are eliminated from further consideration. Option 3 allows for the removal of moderately impacted shallow source areas, however, the relatively highly impacted deeper source soil will likely continue to contribute to groundwater impacts and therefore, is also eliminated from further consideration.

Conversely, the complete source removal strategy outlined in Option 7 provides for the removal of all the source area impacts and largely eliminates any potential future contribution of contaminant to the groundwater system. However, the budget estimate to remove all the source materials, both hazardous and non-hazardous waste, and restore the site for future use is substantially higher than all the options evaluated. Although Option 7 allows for the complete removal of the source areas, it does not provide significantly higher levels of protection when compared with the other limited removal options (Options 4 through 6). Therefore, Option 7 is also eliminated from further consideration.

Therefore, Options 4, 5 and 6 are considered most appropriate for the potential implementation at the site to remove moderately impacted shallow source soil, eliminate the potential for direct contact risks, and allow proposed site development. All three options also include treatment of the highly impacted deeper source soil with various degrees of effectiveness.

The treatment methods included for Options 4 and 5 (phytoremediation and in situ enhanced bio, respectively) would require a substantial amount of time due to low permeability subsurface materials and slow remediation processes. On the other hand, Option 6 could be implemented within a relatively short period of time (in the order of months not years). The treatment technology included with this option (in place oxidant mixing using potassium permanganate) is a widely used and proven technology even for a relatively low permeability clay soil. The chemical oxidant is readily available and mixing can be accomplished using conventional excavator and earth moving equipment. The oxidation chemistry typically occurs in days and therefore, once the oxidant mixing is completed the treated soil is rendered non-hazardous with typical mass reduction in the order of 75 to 95 percent. As such, long term groundwater monitoring could be reduced since a significant majority of the highly impacted source area is treated. Considering the cost-effectiveness and time efficient treatment method, Option 6 is recommended for the Mankowski property.

REMEDIAL ACTION PLAN

Introduction – The Mankowski property is located adjacent to a middle school with residences on both east and west of the property. The primary objective of remedial action for a residential setting would be to provide protection against human exposure to soil and groundwater impacts identified at the site. The three likely exposure pathways to the identified impacts include: a) exposure related to the vapor intrusion from the identified source soil to the nearby residences; b) exposure from direct contact with the impacted soil and groundwater; and, c) ingestion of contaminated media.

The owner of the school building has already instituted plans to address vapor intrusion at the school building (sub-slab venting system). Residences located across the streets on both the east and west sides are unlikely to be affected by vapor migration from the site considering the following: a) a separation distance of a couple of hundred feet between the residences and the source areas; b) the presence of relatively low permeability clay soil surrounding the source areas; and c) the non-detect or relatively low level of groundwater impacts at the property boundary.

The only potential off-site migration pathway identified at the site is the storm sewer intersecting the site. Historical investigation and sewer repair work completed in the past makes it an unlikely pathway. Therefore, considering the low permeability clayey soil and no known utility pathways, off-site vapor migration is not a significant concern.

All of the identified source areas are either covered with asphalt, concrete or gravel materials or buried under several feet of relatively clean soil, as such, the potential for direct contact exposure is greatly minimized.

Drinking water for the residences is provided by the city of Kenosha. Therefore, ingestion of the impacted groundwater at the site is also not a concern.

To comply with the State of Wisconsin environmental laws and regulations, the remedial action would have to be designed to protect the environment as well. To this end, the source area soil and groundwater impacts need to be addressed such that contaminant mass would be reduced and the dissolved groundwater plume stability is maintained so the site closure can be achieved in a reasonable period of time to meet the state standards.

This remedial action plan (RAP) proposes to address the identified source areas, reduce the contaminant mass, improve the site groundwater quality, and position the site such that the groundwater standards can be met in a reasonable period of time. The majority of the on-site groundwater impacts are the result of contaminant contribution from source areas identified at the site. An effective strategy to address these on-going sources would be contaminant mass reduction using an in-place treatment technology.

Source Area Remediation

Based on the soil and groundwater quality data, field analyses of geochemical data, laboratory analyses of light hydrocarbons (daughter products of vinyl chloride degradation), and laboratory analyses of geochemical parameters it is evident that natural attenuation is occurring in the groundwater at the site. However, under the current conditions, the continued mass loading of contaminants into the groundwater system does not allow natural attenuation alone to remediate the subsurface system adequately.

Therefore, it is recommended that an engineered remedial system be implemented to reduce or eliminate the mass loading of contaminants to the groundwater system such that the site case closure will be obtainable within a reasonable period of time and the proposed site development could proceed in a relatively short period of time. The remedial engineered system recommended for the site consists of the following elements:

- **Removal and off-site disposal of shallow source soil** – Relatively low to moderate CVOC impacts were identified within the top 4-ft of most of the source areas except a small area in the vicinity of monitoring well location SMW-1. The waste characterization analysis indicates the excavated shallow soil could be managed as solid waste. Therefore, all the shallow source areas will be excavated to 4-ft below ground (only 2-ft in the vicinity of SMW-1)

and hauled off-site to a licensed landfill for disposal as solid waste. The attached **Figure 1** presents the areas of shallow soil excavations. A total of 1,550 tons of soil will be excavated and disposed off-site as special waste.

- **In-place treatment of the relatively highly impacted soils at depth** – After the shallow impacted soils are removed the in-place treatment will begin to reduce the high contaminant mass identified at depth. The highly impacted soil in an area measuring 4,500 square feet and at the 4 to 8 feet depth interval will be treated in place. Approximately 30,000 pounds of potassium permanganate (1.5 percent of the soil mass) will be mixed with 1,000 tons of soil. The oxidant mixing will be facilitated using 12,000 to 15,000 gallons of water to dissolve the permanganate and evenly mix with the contaminated soil. A backhoe bucket will be used to very thoroughly mix the aqueous solution of permanganate with the impacted soil. After the mixing process is complete the treated area will be sampled to assess the degree of mass reduction achieved.

  In addition, a smaller area in the vicinity of the well cluster MW9R/PZ-9/PZ-9B will treated in-place using chemical oxidant (**Figure 1**). The groundwater quality data collected from monitoring well MW-9R and PZ-9 indicates the presence of source soil at this location. Therefore, the top 4 ft of soil will removed for off-site disposal and impacted soil extending from 4 to 16 ft will be treated in-place with potassium permanganate (300 tons of soil and 9,000 lbs of oxidant). After the mixing process is complete the treated area will be sampled to assess the degree of mass reduction achieved.

- **Clean soil cover** – The treated soil will be solidified with imported backfill (limestone screening) and compacted in place. Four foot of clean soil cover will be placed over the entire excavation area and graded with top soil to create green space.

- **Limited groundwater monitoring** – Following the completion of shallow source removal, in-place source treatment and site restoration a groundwater monitoring will be performed. A replacement well nest will be installed in the vicinity of MW-9R/PZ-9B and a network of fifteen wells will be sampled for a total of four quarters to confirm the stability of the groundwater plume and position the site for case closure.

The total estimated cost to implement the recommended remedial action and move the site to closure is $380,000. Attached **Table 3** presents the detailed cost estimate developed for the project including materials and labor costs. The cost estimate was based on unit pricing provided by Underground Power Corporation for excavation, loading, hauling and in-place oxidant mixing; Advanced Disposal Services for disposal of shallow low impacted soil as solid waste; Carus

Corporation for supply of potassium permanganate; and Sigma's project experience for treatment of CVOC impacted soils.

Please review the plan and call us to discuss if you have any questions.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.

Mafizul Islam, P.E.
Senior Project Manager

Randy E. Boness
Senior Project Manager

ATTACHMENTS:

FIGURES

Figure 1:	Mankowski Property
Figure 2:	Site Plan Map
Figure 3:	Remedial Action Plan

TABLES

Table 1:	Soil Analysis
Table 2:	Summary of Potential Remedial Options
Table 3:	Estimate Costs for Soil Removal & In Place Oxidation Treatment

APPENDICES

Appendix A:	Soil Boring Logs
Appendix B:	Laboratory Analytical Reports

FIGURES

FIGURE 1
MANKOWSKI PROPERTY
KENOSHA, WISCONSIN

SOURCE: GOOGLE 2013

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▲ = Soil Boring
⊕ = Monitoring Well
⊞ = Piezometer
⌑ = Sump

N

0 50 100

NOTE:
ADDITIONAL SOIL BORINGS COMPLETED IN 2014

MW-8
MW-15
MW-14R
PZ-14
FILLED RAVINE
MW-26
MW-27
TW-1
Concrete
MW-20
MW-19
SGP-19
SGP-28
SGP-7
MW-23
SGP-8
SGP-1
SGP-6
SGP-25
SGP-18
Gravel
SW-6
SW-4
SW-2
SGP-26
MW-24
SGP-10
SW-1
SGP-11
SGP-9
PZ-9B
SW-5
SW-3
PZ-9
SW-7
MW-9R
SGP-2
SGP-27
MW-17
SW-8
MW-22
SMW-1
SGP-17
MW-21
SGP-12
SGP-16
Concrete
MW-25
SGP-3
SW-9
SGP-21
SGP-13
SGP-15
SMW-2
SMW-3
Asphalt
SGP-22
SGP-20
MW-16
MW-18
SGP-14
SGP-23
SGP-24
Grass
Concrete
PROPERTY BOUNDARY
TW-2
MW-13
Gravel
FENCE
Iron Pipe Found
MW-12
26TH AVENUE
50TH STREET
MH

MANKOWSKI SITE KENOSHA, WI		THE SIGMA GROUP Single Source. Sound Solutions.
DATE: 01/2013	DRW: SLO	PR. # 12511
SITE PLAN MAP		SCALE: 1" = 50'

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FIGURE 2

Filename: WNDR\12511-Mankowski\Figures\New Base Map_SLO_Jan2013.pdf

Filename: WDNR/12511-Mankowski/Figures/New Soil Map_CVOC Concentrations_1.31.13.pdf

N

0 40 80

SHALLOW SOIL EXCAVATION
(600 sq. ft. X 4' = 150 tons)

SHALLOW SOIL EXCAVATION
(350 sq. ft. X 4' = 75 tons)

SHALLOW SOIL EXCAVATION
(4,500 sq. ft. X 4' deep = 1,000 tons)

SHALLOW SOIL EXCAVATION
(200 sq. ft X 4' = 50 tons)

SHALLOW SOIL EXCAVATION
(500 sq. ft. X 4 ft = 100 tons)

IN-PLACE TREATMENT
(500 sq. ft. X 4 to 16 ft = 300 tons)

IN-PLACE TREATMENT AREA
(4,500 sq. ft. and 4 to 8 ft. depth interval)

MH

MW-26 MW-27 TW-1 Concrete MW-20 SGP-7 MW-23 MW-19 SGP-19 SGP-28 SGP-8 SGP-1 SGP-6 SGP-25 MW-12 SGP-18 Gravel SW-4 SW-2 SGP-26 SGP-10 SW-6 SW-1 MW-24 SGP-11 SGP-9 PZ-9B SW-5 SW-3 PZ-9 SGP-2 SW-7 MW-9R SGP-27 MW-17 SW-8 MW-22 SGP-17 MW-21 SMW-1 SGP-12 SGP-16 MW-25 SGP-3 SW-9 Concrete Asphalt SGP-21 SGP-13 SGP-15 SMW-3 SMW-2 SGP-22 SGP-20 SGP-14 MW-16 MW-18 SGP-23 SGP-24

FILLED RAVINE

Concrete

FENCE

Grass

PROPERTY BOUNDARY

Gravel

TW-2 MW-13

LEGEND

1 - 10 mg/kg total CVOC Concentration

10 - 100 mg/kg total CVOC Concentration

>100 mg/kg total CVOC Concentration

▲ = Soil Boring ⊞ = Piezometer

⊕ = Monitoring Well ⌑ = Sump

26TH AVENUE

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SCALE: 1" = 40'

FIGURE 3

MANKOWSKI SITE
KENOSHA, WI

PR. # 12511

DRW: SLO

DATE: 11/07/2014

REMEDIAL ACTION PLAN

TABLES

TABLE 1
SOIL ANALYSIS
VOLATILE ORGANIC COMPOUNDS
MANKOWSKI PROPERTY, KENOSHA, WI
Project Reference # 12511

Soil Boring Identification:						**SMW-1GP**		**SMW-2GP**		**SGP-6R**		**SGP-13R**	
Sample Depth (ft):						2-4	6-8	2-4	4-6	2-4	6-8	2-4	6-8
PID / FID						238	1,507	19	140	18	24	12	7
Parameter	Unit	NR 720 Generic RCL	NR 720.19 EPA SSL RCL GW Protection	NR 720.19 EPA SSL RCL Direct Contact Non-Ind.	NR 720.19 EPA SSL RCL Direct Contact Industrial	Collection Date							
						08/14/14	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**
Benzene	µg/kg	5.5	NC	NC	NC	<9.2	<92	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2
Carbon tetrachloride	µg/kg	NS	5	65	1,100	<25	<250	<25	<25	<25	<25	<25	<25
Chlorobenzene	µg/kg	NS	150	51,000	360,000	<16	<160	<16	<16	<16	<16	<16	<16
Chloroform	µg/kg	NS	39	57	950	<49	<490	<49	<49	<49	<49	<49	<49
1,2-Dichloroethane	µg/kg	4.9	NC	NC	NC	<36	<360	<36	<36	<36	<36	<36	<36
1,1-Dichloroethene	µg/kg	NS	100	120,000	810,000	<21	<210	<21	<21	<21	<21	<21	<21
cis-1,2-Dichloroethene	µg/kg	NS	55	1,300,000	1,300,000	**3,600**	**18,900**	**172**	**380**	**840**	**420**	<24	<24
trans-1,2-Dichloroethene	µg/kg	NS	98	3,200,000	3,200,000	**62 J**	<290	<29	<29	**187**	**165**	<29	<29
Ethylbenzene	µg/kg	2,900	NC	8,900	20,000	<10	**360**	<10	<10	<10	<10	<10	<10
Methylene chloride	µg/kg	NS	1.6	2,700	45,000	<221	<2210	<221	<221	<221	<221	<221	<221
Methyl-tert-butyl-ether	µg/kg	NS	NS	62,000	160,000	<30	<300	<30	<30	<30	<30	<30	<30
Naphthalene	µg/kg	NS	350	68,000	470,000	<114	**2800 J**	<114	<114	<114	<114	<114	<114
Tetrachloroethene	µg/kg	NS	4.1	2,100	35,000	**102 J**	**4,100**	<49	<49	<49	<49	<49	<49
Toluene	µg/kg	1,500	NC	520,000	520,000	<20	**278 J**	<20	<20	<20	<20	<20	<20
1,1,1-Trichloroethane	µg/kg	NS	280	2,000,000	14,000,000	<38	<380	<38	<38	<38	<38	<38	<38
1,1,2-Trichloroethane	µg/kg	NS	1.1	200	3,400	**88**	3,500	<23	<23	<23	<23	<23	<23
Trichloroethene	µg/kg	NS	3.7	14	240	**45,000**	**1,170,000**	**7,600**	**15,300**	**8,200**	**8,100**	**103**	**650**
Vinyl chloride	µg/kg	NS	0.13	56	940	<21	<210	<21	<21	<21	<21	<21	<21
Total Xylenes	µg/kg	4,100	NC	270,000	420,000	<68	**1250 J**	<68	<68	<68	<68	<68	<68

Notes:

µg/kg = micrograms per kilogram (equivalent to parts pe NC = Not Calculated NS = No Standard µg/kg = micrograms per kilogram (equivalent to parts per billion)

NR 720 RCL = Wisconsin Administrative Code, Chapter NR 720 generic Residual Contaminant Level (industrial land use RCLs for RCRA metals).

NR 720.19 EPA = RCLs calculated in accordance with Ch. NR 720.19 and WDNR document PUB-RR-682 using Wisconsin default values in algorithms contained in EPA's Risk Assessment Guidance web site http://rais.ornl.gov/calc_start.htm for specific chemicals.

SSL RCL = Values applicable to source areas 0.5 acres or less. For direct contact, ingestion and inhalation of volatiles pathways were considered and the lower soil screening level of these two pathways selected as the RCL for direct contact.

Exceedances: **BOLD** = detected compound **BOX** = concentration exceeds standard NA = Not Analyzed

TABLE 1 (Contd.)
SOIL WASTE CHARACTERIZATION ANALYSIS
MANKOWSKI PROPERTY, KENOSHA, WI
Project Reference # 12511

Soil Boring Identification:			**SMW-1GP**		**SMW-2GP**		**SGP-6R**		**SGP-13R**		**COMP 2-4**	**COMP 6-8**
Sample Depth (ft):			2-4	6-8	2-4	4-6	2-4	6-8	2-4	6-8	2-4	4-8
TCLP Parameters	Unit	USEPA TCLP LIMITS	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**	**08/14/14**
Benzene	mg/L	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon tetrachloride	mg/L	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	mg/L	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	mg/L	NS	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
1,2-Dichloroethane	mg/L	4.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethene	mg/L	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	mg/L	NS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	mg/L	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	mg/L	0.5	**0.87**	**10**	**0.093**	**0.28**	**0.18**	**0.10**	<0.05	<0.05	**0.11**	**0.22**
Vinyl chloride	mg/L	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

µg/kg = micrograms per kilogram (equivalent to parts pe NC = Not Calculated NS = No Standard µg/kg = micrograms per kilogram (equivalent to parts per billion)

NR 720 RCL = Wisconsin Administrative Code, Chapter NR 720 generic Residual Contaminant Level (industrial land use RCLs for RCRA metals).

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SSL RCL = Values applicable to source areas 0.5 acres or less. For direct contact, ingestion and inhalation of volatiles pathways were considered and the lower soil screening level of these two pathways selected as the RCL for direct contact.

Exceedances: **BOLD** = detected compound **BOX** = concentration exceeds standard NA = Not Analyzed

TABLE 2
Summary of Potential Remedial Options
Mankowski Property, Kenosha, Wisconsin
Sigma Project No. 12511

Remedial Options	Description	Advantages	Disadvantages	Estimated Cost
1. Monitored Natural Attenuation	• Sample groundwater from select monitoring wells at specified intervals to demonstrate natural attenuation and verify long-term plume stability.	• Non-invasive approach. • Capital expenses spread out over long time frame. • Existing surface cap provides protection from direct contact. • Relatively low permeability native clay material provides plume containment. • Compatible with proposed future site development as greenspace.	• Shallow soil impacts in couple of source areas may pose future risk. • High soil impacts at depth will provide continued source to groundwater contamination. • Time frame to achieve closure may be prolonged.	• $70,000 to $90,000 (Annual Natural Attenuation Monitoring of 15 wells for 8 years)
2. Capping, Venting and Limited Monitoring	• Install a clay cap (12" thick low permeability clay layer) over the source areas to prevent infiltration. • Install 6" stone layer below the clay for passive venting of subsurface gas. • Implement limited groundwater monitoring at the perimeter of the source areas to verify plume stability.	• Constructed with traditional earth work machinery. • Capping and venting are proven technology for landfill setting. • Passive vent will allow vapor migration control. • Capped area can be used for greenspace as proposed for future development. • Relatively low permeability native clay material provides plume containment.	• Majority of the contaminant mass in source area soil will not be actively addressed. • Requires maintenance of the surface cap to prevent the infiltration of precipitation into the containment area. • Future site development will be limited to greenspace. • Moderate upfront cost.	• $180,000 to $200,000 (Cap Construction, Passive Venting and Four Rounds of Groundwater Monitoring)

Table 2 (contd.)
Summary of Potential Remedial Options
Mankowski Property, Kenosha, Wisconsin
Sigma Project No. 12511

Remedial Options	Description	Advantages	Disadvantages	Relative Budget Cost
3. Limited Excavation and Monitored Natural Attenuation	• Remove top 4-ft of low to moderately impacted soil for off-site disposal as solid waste (1,500 tons). • Backfill with clean soil, re-grade and finish with green space. • Sample groundwater from select monitoring wells at specified intervals to demonstrate natural attenuation and verify long-term plume stability.	• Removes portion of the impacted shallow soil from the source areas. • Provides surface cover protection from direct contact of highly impacted soil at depth. • Relatively low permeability native clay material provides plume containment. • Compatible with proposed future site development as greenspace.	• Relatively high soil impacts at depth will provide continued source to groundwater contamination. • Health and safety concern during soil excavation and disposal activities. • Time frame to achieve closure may be prolonged. • Moderate upfront cost.	• $210,000 to $235,000 (Limited Soil Removal and Annual Natural Attenuation Monitoring of 15 wells for 8 years)
4. Limited Excavation and Phytoremediation	• Remove top 4-ft of low to moderately impacted soil for off-site disposal as solid waste (1,500 tons). • Backfill with clean soil, re-grade and finish with green space. • Implement Phytoremediation by planting series of hybrid poplar trees and follow-up monitoring.	• Constructed with traditional earth work machinery. • Contaminant mass from shallow source area will be removed (non-haz-waste removal). • Trees will facilitate removal of additional residual contamination from the subsurface and allow bioremediation within the root zone. • Compatible with proposed future site development as greenspace.	• Requires long term commitment for remediation to site closure. • Health and safety concern during soil excavation and disposal activities. • Future site development will be limited to greenspace use. • Moderate to high upfront cost.	• $290,000 to $320,000 (Limited Soil Removal, Planting Trees and Annual O & M and Natural Attenuation Monitoring of 15 wells for 8 years)

Table 2 (contd.)
Summary of Potential Remedial Options
Mankowski Property, Kenosha, Wisconsin
Sigma Project No. 12511

Remedial Options	Description	Advantages	Disadvantages	Relative Budget Cost
5. Limited Excavation, In situ Bioremediation & Groundwater Monitoring.	• Remove top 4-ft of low to moderately impacted soil for off-site disposal as solid waste (1,500 tons). • Backfill with clean soil, re-grade and finish with green space. • Install infiltration galleries for addition of amendments for enhanced bioremediation of highly impacted soil at depth. • Implement groundwater monitoring.	• Removes portion of the impacted shallow soil from the source areas. • Periodic addition of bio-enhancement to expedite subsurface source remediation through reductive dechlorination process. • Reduce contaminant mass and minimize source to groundwater contamination. • Compatible with proposed future site development as greenspace.	• Moderate to high initial capital expenditures. • Relatively long cleanup time. • Soil handling and disposal depends on hazardous/non-hazardous determination. • Health and safety concern during soil excavation and disposal activities. • Relatively high energy demand.	• $350,000 to 375,000 (Limited Soil Removal, In Situ Bioremediation, Annual O & M and Natural Attenuation Monitoring)
6. Limited Excavation, In-Place Oxidation Treatment & Groundwater Monitoring	• Remove top 4-ft of low to moderately impacted soil for off-site disposal as solid waste (1,600 tons). • In Place Oxidation treatment of highly impacted source soil at depth (1,300 tons). • Implement groundwater monitoring. • Backfill with clean soil, re-grade and finish with green space.	• Removes majority of the contaminant mass. • Treatment can be accomplished in months. • Compatible with proposed future site development as greenspace. • Source of groundwater contamination is addressed.	• Moderate to high initial capital expenditures. • Health and safety concern. • Requires fencing and air monitoring. • Relatively high energy demand.	• $350,000 to $400,000 (Limited Soil Removal, In Situ Source Treatment, Annual O & M and Monitoring)

Table 2 (contd.)
Summary of Potential Remedial Options
Mankowski Property, Kenosha, Wisconsin
Sigma Project No. 12511

Remedial Options	Description	Advantages	Disadvantages	Relative Budget Cost
7. Excavation and Off-site Disposal of all Identified Source Soil & Limited Groundwater Monitoring	• Remove top 4-ft of low to moderately impacted soil for off-site disposal as solid waste (1,550 tons). • Remove 4' to 12' of highly impacted soil for off-site disposal as hazardous (1300 tons). • Backfill with clean soil, re-grade and finish with green space. • Implement Limited groundwater monitoring.	• Removes majority of the contaminant mass. • Source removal can be accomplished within a month. • No Limit to future site development including development as greenspace. • Source of groundwater contamination is addressed.	• Relatively high capital cost. • Health and safety concern. • May requires fencing and air monitoring. • Relatively high energy demand.	• $550,000 to $600,000 (Removal of all Identified Source Soil and Limited Groundwater Monitoring)

TABLE 3
ESTIMATED COSTS FOR WASTE REMOVAL & IN PLACE TREATMENT
Off-Site Disposal of Non-Haz Waste and In-Place Chemical Oxidation Treatment of Haz Waste
Mankowski Property
Sigma Project #12511

Work Item	Quantity	Units	Unit Price	Consultant Labor/ Materials	Laboratory	Subcontractor	Totals
Remediation System Design, Bid Package & Permitting							
Injection Permitting, Bid Package Preparation and Contractor Procurement							
Subtotal				**$8,160**	**$0**	**$0**	**$8,160**
Limited Excavation and Disposal							
Area 1: Non-Haz Waste (Moderate to high impacted area 7,000 sft to 4')				**$0**	**$0**	**$125,050**	**$125,050**
Remediation Treatment Setup (Temporary Fencing & Tracking Pad)	1	LS	$5,500			$5,500	$5,500
Excavation, Loading & Transportation	1550	tons	$20			$31,000	$31,000
Disposal	1550	tons	$35			$54,250	$54,250
Backfill & Compaction	1550	tons	$16			$24,800	$24,800
Top Soil, Grading, Seeding and Site Restoration	1	LS	$9,500			$9,500	$9,500
Construction Oversight & Confirmation Sampling				**$12,080**	**$1,560**	**$0**	**$13,640**
Subtotal				**$12,080**	**$1,560**	**$125,050**	**$138,690**
In Place Oxidation Treatment							
Area 2 & PZ-9B: Backhoe Mixing with KMnO4 (1,300 tons)							**$159,500**
Mob/Demob	1	days	$2,500			$2,500	$2,500
Contractor w/ Bobcat/Skid steer/Backhoe rental	5	days	$2,500			$12,500	$12,500
Materials for Mixing (Water tank, generator, hoses) & water supply	1	units	$8,000			$8,000	$8,000
Permanganate (1.5% of Haz-Soil or 39,000 lbs)	39000	lbs	$2.95			$115,050	$115,050
Mixing and solidification	1300	tons	$16.5			$21,450	$21,450
Construction Oversight & Confirmation Sampling				$17,960	$780	$0	**$18,740**
Subtotal				**$17,960**	**$780**	**$159,500**	**$178,240**
Four Rounds of Groundwater Monitoring and Case Closure							
Groundwater Monitoring (Sampling 15 well locations for 4 rounds)				$13,924	$6,060	$6,000	**$25,984**
Coordination, Project management and Data Evaluation				$19,600	$0	$0	**$19,600**
Well Abandonment (34 wells, PZ and sumps) & Site Closure Activities				$5,688	$0	$0	**$5,688**
Closure Report, GIS Documentation Preparation & WDNR fees				$6,630	$0	$0	**$6,630**
Subtotal				**$45,842**	**$6,060**	**$6,000**	**$57,902**
TOTAL ESTIMATED COST FOR NON-HAZ WASTE REMOVAL & IN-PLACE TREATMENT OF HAZARDOUS WASTE =							**$383,000**

APPENDICES

Appendix A
Soil Boring Logs

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mankowski Property	-	SMW-1GP

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Joshua Bartolomey The Sigma Group, Inc.	8/14/2014	8/14/2014	Geoprobe

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet Site	Feet Site	2.3 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SW 1/4 of NE 1/4 of Section 36, T 2 N, R 22 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
230113730	Kenosha	30	Kenosha

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 GP	48 / 36	PUSH	0.5	CONCRETE	---									
			1.0											
			1.5	SAND, black, dense, med fine, damp, chem odor at 4'										
			2.0											
			2.5											
			3.0					238						TCLP VOC, VOC Lab Sample (2-4')
			3.5											
2 GP	48 / 48	PUSH	4.0		SP									
			4.5											
			5.0					437						
			5.5											
			6.0											
			6.5	CLAY, brown, v stiff, trace dk gray mottles, damp										
			7.0		CL			1507						TCLP VOC, VOC Lab Sample (6-8')
			7.5											
			8.0	EOB at 8'. Abandoned with bentonite chips.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm The Sigma Group, Inc. 1300 W. Canal St Milwaukee, WI 53233 Tel: 414-643-4200 Fax: 414-643-4210

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mankowski Property	-	SMW-2GP

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Joshua Bartolomey The Sigma Group, Inc.	8/14/2014	8/14/2014	Geoprobe

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet Site	Feet Site	2.3 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SW 1/4 of NE 1/4 of Section 36, T 2 N, R 22 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
230113730	Kenosha	30	Kenosha

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 GP	48 48	PUSH	0.5	CONCRETE	---									
			1.0											
			1.5	SILTY SAND, brown, dense, some small gravel, dry	SP-SM									
			2.0	SAND, black, dense, med fine, damp										
			2.5											
			3.0					18.8						TCLP VOC, VOC Lab Sample (2-4')
			3.5		SP									
2 GP	48 48	PUSH	4.0											
			4.5											
			5.0					140						TCLP VOC, VOC Lab Sample (4-6')
			5.5	SILTY CLAY, brown, v stiff, some grayish tan mottling, damp										
			6.0											
			6.5		CL-MI									
			7.0					21.7						
			7.5											
			8.0	EOB at 8'. Abandoned with bentonite chips.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Dal Sch

Firm: The Sigma Group, Inc.
1300 W. Canal St Milwaukee, WI 53233

Tel: 414-643-4200
Fax: 414-643-4210

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State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mankowski Property	-	SGP-6R

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Joshua Bartolomey The Sigma Group, Inc.	8/14/2014	8/14/2014	Geoprobe

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet Site	Feet Site	2.3 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SW 1/4 of NE 1/4 of Section 36, T 2 N, R 22 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
230113730	Kenosha	30	Kenosha

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 GP	48 / 48	PUSH	0.5	SILTY SAND, dk grayish brown, med loose, some brick debris and waste material, some gravel, damp										
			1.0					16.7						
			1.5											
			2.0		SP-SM									
			2.5											
			3.0					18.1						TCLP VOC, VOC Lab Sample (2-4')
			3.5											
			4.0	SAND, black, loose, med fine, damp	SP									
2 GP	48 / 36	PUSH	4.5	SILTY SAND, dk brown, med loose, fine, little black sand, some gravel at 7.75', trace clay, damp/moist										
			5.0					29.2						
			5.5											
			6.0		SP-SM									
			6.5											
			7.0					24.2						TCLP VOC, VOC Lab Sample (6-8')
			7.5											
			8.0	EOB at 8'. Abandoned with bentonite chips.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Dal Sch

Firm The Sigma Group, Inc.
1300 W. Canal St Milwaukee, WI 53233

Tel: 414-643-4200
Fax: 414-643-4210

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Mankowski Property	-	SGP-13R

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Joshua Bartolomey The Sigma Group, Inc.	8/14/2014	8/14/2014	Geoprobe

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet Site	Feet Site	2.3 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SW 1/4 of NE 1/4 of Section 36, T 2 N, R 22 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
230113730	Kenosha	30	Kenosha

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 GP	48 48	PUSH	0.5	SANDY SILT, dk grayish brown, med stiff, some gravel, dry	SP-SM									
			1.0	SAND, black, med loose, med fine, dry	SP			12.4						
			1.5											
			2.0	CLAYEY SILT, lt orangish brown, stiff, some dk gray and orange mottling, trace root material, damp										
			2.5											
			3.0					2.7						TCLP VOC, VOC Lab Sample (2-4')
			3.5											
2 GP	48 48	PUSH	4.0											
			4.5											
			5.0		CL-ML			10.1						
			5.5											
			6.0											
			6.5											
			7.0					7.3						TCLP VOC, VOC Lab Sample (6-8')
			7.5											
			8.0	EOB at 8'. Abandoned with bentonite chips.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Dal Schutt Firm The Sigma Group, Inc. 1300 W. Canal St Milwaukee, WI 53233 Tel: 414-643-4200 Fax: 414-643-4210

Appendix B
Laboratory Analytical Reports

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

MAFIZUL ISLAM
THE SIGMA GROUP, INC.
1300 W. CANAL STREET
MILWAUKEE, WI 53233

Report Date *29-Aug-14*

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510A
Sample ID SMW-2 GP (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	96.7	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.093	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/18/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/18/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/18/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/18/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/18/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/18/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/18/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/18/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/18/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/18/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/18/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510A
Sample ID SMW-2 GP (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/18/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/18/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
cis-1,2-Dichloroethene	172	ug/kg	24	77	1	8260B		8/18/2014	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	93	1	8260B		8/18/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/18/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/18/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/18/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/18/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/18/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/18/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/18/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/18/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/18/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/18/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/18/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/18/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/18/2014	CJR	1
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/18/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/18/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/18/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Trichloroethene (TCE)	7600	ug/kg	28	88	1	8260B		8/18/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/18/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/18/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/18/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/18/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
SUR - Toluene-d8	97	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	98	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 4-Bromofluorobenzene	95	Rec %			1	8260B		8/18/2014	CJR	1
SUR - Dibromofluoromethane	92	Rec %			1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510B
Sample ID SMW-2 GP (4-6)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	96.4	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/22/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/22/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Trichloroethene	0.28	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/18/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/18/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/18/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/18/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/18/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/18/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/18/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/18/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/18/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/18/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/18/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/18/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/18/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/18/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
cis-1,2-Dichloroethene	380	ug/kg	24	77	1	8260B		8/18/2014	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	93	1	8260B		8/18/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/18/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/18/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/18/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/18/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/18/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/18/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/18/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/18/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/18/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/18/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/18/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/18/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510B
Sample ID SMW-2 GP (4-6)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/18/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/18/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/18/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Trichloroethene (TCE)	15300	ug/kg	280	880	10	8260B		8/20/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/18/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/18/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/18/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/18/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
SUR - Toluene-d8	97	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	97	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 4-Bromofluorobenzene	97	Rec %			1	8260B		8/18/2014	CJR	1
SUR - Dibromofluoromethane	91	Rec %			1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510C
Sample ID SMW-1 GP (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	96.2	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.87	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/18/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/18/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/18/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/18/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/18/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/18/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/18/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/18/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/18/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/18/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/18/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/18/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/18/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/18/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/18/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/18/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/18/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
cis-1,2-Dichloroethene	3600	ug/kg	24	77	1	8260B		8/18/2014	CJR	1
trans-1,2-Dichloroethene	62 "J"	ug/kg	29	93	1	8260B		8/18/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/18/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/18/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/18/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/18/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/18/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/18/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/18/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/18/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/18/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/18/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/18/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/18/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/18/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Tetrachloroethene	102 "J"	ug/kg	49	157	1	8260B		8/18/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510C
Sample ID SMW-1 GP (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/18/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/18/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/18/2014	CJR	1
1,1,2-Trichloroethane	88	ug/kg	23	74	1	8260B		8/18/2014	CJR	1
Trichloroethene (TCE)	45000	ug/kg	280	880	10	8260B		8/20/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/18/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/18/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/18/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/18/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/18/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/18/2014	CJR	1
SUR - Dibromofluoromethane	88	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 4-Bromofluorobenzene	98	Rec %			1	8260B		8/18/2014	CJR	1
SUR - Toluene-d8	97	Rec %			1	8260B		8/18/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	92	Rec %			1	8260B		8/18/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510D
Sample ID SMW-1 GP (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	82.1	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	10	mg/l	0.5		10	8260B		8/27/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 92	ug/kg	92	290	10	8260B		8/20/2014	CJR	1
Bromobenzene	< 130	ug/kg	130	400	10	8260B		8/20/2014	CJR	1
Bromodichloromethane	< 270	ug/kg	270	850	10	8260B		8/20/2014	CJR	1
Bromoform	< 300	ug/kg	300	950	10	8260B		8/20/2014	CJR	1
tert-Butylbenzene	< 200	ug/kg	200	640	10	8260B		8/20/2014	CJR	1
sec-Butylbenzene	< 410	ug/kg	410	1320	10	8260B		8/20/2014	CJR	1
n-Butylbenzene	860	ug/kg	260	820	10	8260B		8/20/2014	CJR	1
Carbon Tetrachloride	< 250	ug/kg	250	790	10	8260B		8/20/2014	CJR	1
Chlorobenzene	< 160	ug/kg	160	520	10	8260B		8/20/2014	CJR	1
Chloroethane	< 420	ug/kg	420	1330	10	8260B		8/20/2014	CJR	1
Chloroform	< 490	ug/kg	490	1570	10	8260B		8/20/2014	CJR	1
Chloromethane	< 2450	ug/kg	2450	7800	10	8260B		8/20/2014	CJR	1
2-Chlorotoluene	< 160	ug/kg	160	520	10	8260B		8/20/2014	CJR	1
4-Chlorotoluene	< 140	ug/kg	140	430	10	8260B		8/20/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 480	ug/kg	480	1540	10	8260B		8/20/2014	CJR	1
Dibromochloromethane	< 140	ug/kg	140	450	10	8260B		8/20/2014	CJR	1
1,4-Dichlorobenzene	1570	ug/kg	330	1030	10	8260B		8/20/2014	CJR	1
1,3-Dichlorobenzene	< 300	ug/kg	300	950	10	8260B		8/20/2014	CJR	1
1,2-Dichlorobenzene	3500	ug/kg	380	1220	10	8260B		8/20/2014	CJR	1
Dichlorodifluoromethane	< 570	ug/kg	570	1820	10	8260B		8/20/2014	CJR	1
1,2-Dichloroethane	< 360	ug/kg	360	1140	10	8260B		8/20/2014	CJR	1
1,1-Dichloroethane	< 190	ug/kg	190	600	10	8260B		8/20/2014	CJR	1
1,1-Dichloroethene	< 210	ug/kg	210	660	10	8260B		8/20/2014	CJR	1
cis-1,2-Dichloroethene	18900	ug/kg	240	770	10	8260B		8/20/2014	CJR	1
trans-1,2-Dichloroethene	< 290	ug/kg	290	930	10	8260B		8/20/2014	CJR	1
1,2-Dichloropropane	< 95	ug/kg	95	300	10	8260B		8/20/2014	CJR	1
2,2-Dichloropropane	< 460	ug/kg	460	1480	10	8260B		8/20/2014	CJR	4 7 8
1,3-Dichloropropane	< 210	ug/kg	210	680	10	8260B		8/20/2014	CJR	1
Di-isopropyl ether	< 110	ug/kg	110	340	10	8260B		8/20/2014	CJR	1
EDB (1,2-Dibromoethane)	< 200	ug/kg	200	640	10	8260B		8/20/2014	CJR	1
Ethylbenzene	360	ug/kg	100	330	10	8260B		8/20/2014	CJR	1
Hexachlorobutadiene	< 950	ug/kg	950	3040	10	8260B		8/20/2014	CJR	1
Isopropylbenzene	1010	ug/kg	250	800	10	8260B		8/20/2014	CJR	1
p-Isopropyltoluene	420 "J"	ug/kg	310	980	10	8260B		8/20/2014	CJR	1
Methylene chloride	< 2210	ug/kg	2210	7040	10	8260B		8/20/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 300	ug/kg	300	960	10	8260B		8/20/2014	CJR	4 7 8
Naphthalene	2800 "J"	ug/kg	1140	3630	10	8260B		8/20/2014	CJR	1
n-Propylbenzene	284 "J"	ug/kg	240	750	10	8260B		8/20/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 120	ug/kg	120	380	10	8260B		8/20/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 230	ug/kg	230	740	10	8260B		8/20/2014	CJR	1
Tetrachloroethene	4100	ug/kg	490	1570	10	8260B		8/20/2014	CJR	1
Toluene	278 "J"	ug/kg	200	650	10	8260B		8/20/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510D
Sample ID SMW-1 GP (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 790	ug/kg	790	2510	10	8260B		8/20/2014	CJR	1
1,2,3-Trichlorobenzene	< 1290	ug/kg	1290	4110	10	8260B		8/20/2014	CJR	1
1,1,1-Trichloroethane	< 380	ug/kg	380	1200	10	8260B		8/20/2014	CJR	1
1,1,2-Trichloroethane	3500	ug/kg	230	740	10	8260B		8/20/2014	CJR	1
Trichloroethene (TCE)	1170000	ug/kg	5600	17600	200	8260B		8/21/2014	CJR	1
Trichlorofluoromethane	< 860	ug/kg	860	2730	10	8260B		8/20/2014	CJR	1
1,2,4-Trimethylbenzene	2680	ug/kg	260	810	10	8260B		8/20/2014	CJR	1
1,3,5-Trimethylbenzene	870	ug/kg	260	840	10	8260B		8/20/2014	CJR	1
Vinyl Chloride	< 210	ug/kg	210	660	10	8260B		8/20/2014	CJR	1
m&p-Xylene	900 "J"	ug/kg	680	2160	10	8260B		8/20/2014	CJR	1
o-Xylene	350 "J"	ug/kg	310	980	10	8260B		8/20/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	94	Rec %			10	8260B		8/20/2014	CJR	1
SUR - 4-Bromofluorobenzene	99	Rec %			10	8260B		8/20/2014	CJR	1
SUR - Dibromofluoromethane	87	Rec %			10	8260B		8/20/2014	CJR	1
SUR - Toluene-d8	100	Rec %			10	8260B		8/20/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510E
Sample ID SGP-13R (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	80.5	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/22/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/22/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Trichloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/21/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/21/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/21/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/21/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/21/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/21/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/21/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/21/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/21/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/21/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/21/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/21/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/21/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/21/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/21/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/21/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/21/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/21/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/21/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/21/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/21/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/21/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/21/2014	CJR	1
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		8/21/2014	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	93	1	8260B		8/21/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/21/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/21/2014	CJR	8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/21/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/21/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/21/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/21/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/21/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/21/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/21/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/21/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/21/2014	CJR	1
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/21/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/21/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/21/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/21/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/21/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/21/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510E
Sample ID SGP-13R (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/21/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/21/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/21/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/21/2014	CJR	1
Trichloroethene (TCE)	103	ug/kg	28	88	1	8260B		8/21/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/21/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/21/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/21/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/21/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/21/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/21/2014	CJR	1
SUR - Toluene-d8	100	Rec %			1	8260B		8/21/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	95	Rec %			1	8260B		8/21/2014	CJR	1
SUR - 4-Bromofluorobenzene	105	Rec %			1	8260B		8/21/2014	CJR	1
SUR - Dibromofluoromethane	94	Rec %			1	8260B		8/21/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510F
Sample ID SGP-13R (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	87.5	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/22/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/22/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Trichloroethene	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/22/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510F
Sample ID SGP-13R (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	650	ug/kg	28	88	1	8260B		8/19/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	99	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	96	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	86	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	98	Rec %			1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510G
Sample ID SGP-6R (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	91.6	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.18	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	840	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	187	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510G
Sample ID SGP-6R (2-4)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	8200	ug/kg	28	88	1	8260B		8/19/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	99	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	86	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	95	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	96	Rec %			1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510H
Sample ID SGP-6R (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	90.2	%			1	5021		8/19/2014	RKM	1
Organic										
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.10	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	420	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	165	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510H
Sample ID SGP-6R (6-8)
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	8100	ug/kg	28	88	1	8260B		8/19/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	99	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	97	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	95	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	92	Rec %			1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510I
Sample ID TRIP
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	< 24	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	< 29	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	< 28	ug/kg	28	88	1	8260B		8/19/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	96	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	94	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	99	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	106	Rec %			1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510J
Sample ID COMP 2-4
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	92.5	%			1	5021		8/19/2014	RKM	1
Inorganic										
Metals										
TCLP Arsenic	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Barium	< 1.4	mg/l	1.4		1	6010B		8/26/2014	ESC	1
TCLP Cadmium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Chromium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Lead	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Mercury	< 0.01	mg/l	0.01		1	7470A		8/26/2014	ESC	1
TCLP Selenium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Silver	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
Organic										
PCB'S										
PCB-1016	< 0.0065	mg/kg	0.0065	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1221	< 0.0054	mg/kg	0.0054	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1232	< 0.0042	mg/kg	0.0042	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1242	< 0.0032	mg/kg	0.0032	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1248	< 0.0032	mg/kg	0.0032	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1254	< 0.0047	mg/kg	0.0047	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1260	< 0.0049	mg/kg	0.0049	0.017	1	EPA 8082A		8/20/2014	ESC	1
TCLP SVOC's										
TCLP o-Cresol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP m & p-Cresol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 1,4-Dichlorobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4-Dinitrotoluene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachlorobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachlorobutadiene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachloroethane	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Nitrobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Pentachlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Phenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Pyridine	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4,6-Trichlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4,5-Trichlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.11	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	< 26	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510J
Sample ID COMP 2-4
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	< 33	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	< 38	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	750	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	66 "J"	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	< 10	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	< 25	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	< 114	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	11200	ug/kg	28	88	1	8260B		8/19/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	< 26	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	< 26	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	95	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	95	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	93	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	97	Rec %			1	8260B		8/19/2014	CJR	1
Wet Chemistry										
General										
Reactive Sulfide	< 25	mg/kg	25	25	1	EPA 9034		8/21/2014	ESC	1
Free Liquid	none				1	9095A		8/22/2014	ESC	1
Reactive Cyanide	< 0.125	mg/kg	0.125		1	9012B		8/22/2014	ESC	1
Specific Gravity	2.3	g/cm3			1	2710F		8/21/2014	ESC	1
Solids, Total %	79.1	%			1	2540G		8/23/2014	ESC	1
pH	7.3	su			1	EPA 9045D		8/23/2014	ESC	1
Chlorides, Unfiltered	78	mg/kg	0.8	10	1	9056		8/21/2014	ESC	1
Flash Point	> 170	Deg.F			1	D93		8/28/2014	ESC	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510K
Sample ID COMP 4-8
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
General										
General										
Solids Percent	87.9	%			1	5021		8/19/2014	RKM	1
Inorganic										
Metals										
TCLP Arsenic	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Barium	< 1.4	mg/l	1.4		1	6010B		8/26/2014	ESC	1
TCLP Cadmium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Chromium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Lead	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Mercury	< 0.01	mg/l	0.01		1	7470A		8/26/2014	ESC	1
TCLP Selenium	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
TCLP Silver	< 0.45	mg/l	0.45		1	6010B		8/26/2014	ESC	1
Organic										
PCB'S										
PCB-1016	< 0.0065	mg/kg	0.0065	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1221	< 0.0054	mg/kg	0.0054	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1232	< 0.0042	mg/kg	0.0042	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1242	< 0.0032	mg/kg	0.0032	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1248	< 0.0032	mg/kg	0.0032	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1254	< 0.0047	mg/kg	0.0047	0.017	1	EPA 8082A		8/20/2014	ESC	1
PCB-1260	< 0.0049	mg/kg	0.0049	0.017	1	EPA 8082A		8/20/2014	ESC	1
TCLP SVOC's										
TCLP o-Cresol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP m & p-Cresol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 1,4-Dichlorobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4-Dinitrotoluene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachlorobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachlorobutadiene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Hexachloroethane	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Nitrobenzene	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Pentachlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Phenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP Pyridine	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4,6-Trichlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP 2,4,5-Trichlorophenol	< 0.1	mg/l	0.1		1	8270C		8/27/2014	ESC	1
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chlorobenzene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Chloroform	< 0.25	mg/l	0.25		1	8260B		8/23/2014	ESC	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5		1	8260B		8/23/2014	ESC	1
TCLP Tetrachloroethene	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Trichloroethene	0.22	mg/l	0.05		1	8260B		8/23/2014	ESC	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.05		1	8260B		8/23/2014	ESC	1
VOC's										
Benzene	< 9.2	ug/kg	9.2	29	1	8260B		8/19/2014	CJR	1
Bromobenzene	< 13	ug/kg	13	40	1	8260B		8/19/2014	CJR	1
Bromodichloromethane	< 27	ug/kg	27	85	1	8260B		8/19/2014	CJR	1
Bromoform	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
tert-Butylbenzene	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
sec-Butylbenzene	< 41	ug/kg	41	132	1	8260B		8/19/2014	CJR	1
n-Butylbenzene	60 "J"	ug/kg	26	82	1	8260B		8/19/2014	CJR	1
Carbon Tetrachloride	< 25	ug/kg	25	79	1	8260B		8/19/2014	CJR	1

Project Name MANKOWSKI PROPERTY **Invoice #** E27510
Project # 12511

Lab Code 5027510K
Sample ID COMP 4-8
Sample Matrix Soil
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Chlorobenzene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
Chloroethane	< 42	ug/kg	42	133	1	8260B		8/19/2014	CJR	1
Chloroform	< 49	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Chloromethane	< 245	ug/kg	245	780	1	8260B		8/19/2014	CJR	1
2-Chlorotoluene	< 16	ug/kg	16	52	1	8260B		8/19/2014	CJR	1
4-Chlorotoluene	< 14	ug/kg	14	43	1	8260B		8/19/2014	CJR	1
1,2-Dibromo-3-chloropropane	< 48	ug/kg	48	154	1	8260B		8/19/2014	CJR	1
Dibromochloromethane	< 14	ug/kg	14	45	1	8260B		8/19/2014	CJR	1
1,4-Dichlorobenzene	114	ug/kg	33	103	1	8260B		8/19/2014	CJR	1
1,3-Dichlorobenzene	< 30	ug/kg	30	95	1	8260B		8/19/2014	CJR	1
1,2-Dichlorobenzene	287	ug/kg	38	122	1	8260B		8/19/2014	CJR	1
Dichlorodifluoromethane	< 57	ug/kg	57	182	1	8260B		8/19/2014	CJR	1
1,2-Dichloroethane	< 36	ug/kg	36	114	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethane	< 19	ug/kg	19	60	1	8260B		8/19/2014	CJR	1
1,1-Dichloroethene	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
cis-1,2-Dichloroethene	900	ug/kg	24	77	1	8260B		8/19/2014	CJR	1
trans-1,2-Dichloroethene	63 "J"	ug/kg	29	93	1	8260B		8/19/2014	CJR	1
1,2-Dichloropropane	< 9.5	ug/kg	9.5	30	1	8260B		8/19/2014	CJR	1
2,2-Dichloropropane	< 46	ug/kg	46	148	1	8260B		8/19/2014	CJR	4 7 8
1,3-Dichloropropane	< 21	ug/kg	21	68	1	8260B		8/19/2014	CJR	1
Di-isopropyl ether	< 11	ug/kg	11	34	1	8260B		8/19/2014	CJR	1
EDB (1,2-Dibromoethane)	< 20	ug/kg	20	64	1	8260B		8/19/2014	CJR	1
Ethylbenzene	22.7 "J"	ug/kg	10	33	1	8260B		8/19/2014	CJR	1
Hexachlorobutadiene	< 95	ug/kg	95	304	1	8260B		8/19/2014	CJR	1
Isopropylbenzene	61 "J"	ug/kg	25	80	1	8260B		8/19/2014	CJR	1
p-Isopropyltoluene	31.2 "J"	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
Methylene chloride	< 221	ug/kg	221	704	1	8260B		8/19/2014	CJR	1
Methyl tert-butyl ether (MTBE)	< 30	ug/kg	30	96	1	8260B		8/19/2014	CJR	4 7 8
Naphthalene	257 "J"	ug/kg	114	363	1	8260B		8/19/2014	CJR	1
n-Propylbenzene	< 24	ug/kg	24	75	1	8260B		8/19/2014	CJR	1
1,1,2,2-Tetrachloroethane	< 12	ug/kg	12	38	1	8260B		8/19/2014	CJR	1
1,1,1,2-Tetrachloroethane	< 23	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Tetrachloroethene	189	ug/kg	49	157	1	8260B		8/19/2014	CJR	1
Toluene	< 20	ug/kg	20	65	1	8260B		8/19/2014	CJR	1
1,2,4-Trichlorobenzene	< 79	ug/kg	79	251	1	8260B		8/19/2014	CJR	1
1,2,3-Trichlorobenzene	< 129	ug/kg	129	411	1	8260B		8/19/2014	CJR	1
1,1,1-Trichloroethane	< 38	ug/kg	38	120	1	8260B		8/19/2014	CJR	1
1,1,2-Trichloroethane	223	ug/kg	23	74	1	8260B		8/19/2014	CJR	1
Trichloroethene (TCE)	55000	ug/kg	280	880	10	8260B		8/22/2014	CJR	1
Trichlorofluoromethane	< 86	ug/kg	86	273	1	8260B		8/19/2014	CJR	1
1,2,4-Trimethylbenzene	184	ug/kg	26	81	1	8260B		8/19/2014	CJR	1
1,3,5-Trimethylbenzene	62 "J"	ug/kg	26	84	1	8260B		8/19/2014	CJR	1
Vinyl Chloride	< 21	ug/kg	21	66	1	8260B		8/19/2014	CJR	1
m&p-Xylene	< 68	ug/kg	68	216	1	8260B		8/19/2014	CJR	1
o-Xylene	< 31	ug/kg	31	98	1	8260B		8/19/2014	CJR	1
SUR - Toluene-d8	98	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 1,2-Dichloroethane-d4	95	Rec %			1	8260B		8/19/2014	CJR	1
SUR - 4-Bromofluorobenzene	99	Rec %			1	8260B		8/19/2014	CJR	1
SUR - Dibromofluoromethane	90	Rec %			1	8260B		8/19/2014	CJR	1
Wet Chemistry										
General										
Reactive Sulfide	< 25	mg/kg	25	25	1	EPA 9034		8/26/2014	ESC	1
Free Liquid	none				1	9095A		8/22/2014	ESC	1
Reactive Cyanide	< 0.125	mg/kg	0.125	0.125	1	9012B		8/26/2014	ESC	1
Specific Gravity	2.2	g/cm3			1	2710F		8/21/2014	ESC	1
Solids, Total %	88.8	%			1	2540G		8/23/2014	ESC	1
pH	7.3	su			1	EPA 9045D		8/23/2014	ESC	1
Chlorides, Unfiltered	14	mg/kg	0.8	10	1	SM 4500CL		8/21/2014	MDK	1
Flash Point	> 170	Deg. F			1	D93		8/28/2014	ESC	1

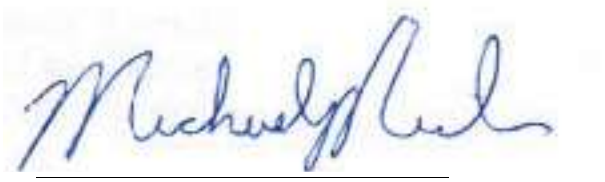
"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Code	*Comment*
1	Laboratory QC within limits.
4	The continuing calibration standard not within established limits.
7	The LCS not within established limits.
8	Closing calibration standard not within established limits.

ESC denotes sub contract lab - Certification #998093910

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



CHAIN OF CUSTODY RECORD

Synergy Environmental Lab, Inc.

1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Chain # No 2740

Page 1 of 2

Sample Handling Request
___ Rush Analysis Date Required ___
(Rushes accepted only with prior authorization)
X Normal Turn Around

Lab I.D. #

Account No.: Sigma | Quote No.:

Project #: 12511

Sampler: (signature) DLSlat

Project (Name / Location): Mankowski: Property / [redacted] Kenosha, WI

Reports To: Mafizul Islam	Invoice To: SAME
Company Sigma	Company
Address 1300 W Canal St	Address
City State Zip Milwaukee, WI 53233	City State Zip
Phone 414-643-4200	Phone
FAX 414-643-4210	FAX

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
507510 A	SHW-2GP (2-4)	8/14/14	12:00		X	N	3	Soil	1-meth
B	SHW-2GP (4-6)								
C	SHW-1GP (2-4)								
D	SHW-1GP (6-8)								
E	SGP-13R (2-4)								
F	SGP-13R (6-8)								
G	SGP-6R (2-4)								
H	SGP-6R (6-8)								
I	Trip						2		

Analysis Requested

DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 542.2)	VOC (EPA 8260)	8-RCRA METALS	TCLP VOC	PID/FID
												X		X	19
															140
															238
															1507
															2.7
															7.3
															18.1
															24.2

Other Analysis

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)

Sample Integrity - To be completed by receiving lab.
Method of Shipment: Pickup
Temp. of Temp. Blank ___ °C On Ice: X
Cooler seal intact upon receipt: X Yes ___ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
DL Slat	7:30	8/15/14			

Received in Laboratory By: [signature] Time: 10:00 Date: 8/16/14

CHAIN OF CUSTODY RECORD

Synergy Environmental Lab, Inc.

1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Chain # Nº 2511

Page 2 of 2

Sample Handling Request
____ Rush Analysis Date Required ____
(Rushes accepted only with prior authorization)
X Normal Turn Around

Lab I.D. #

Account No.: Sigma | **Quote No.:**

Project #: 12511

Sampler: (signature) DC S/ET

Project (Name / Location): Mankowski Property / Kenosha, WI

Reports To: Mafizul Islam	Invoice To: SAME
Company Sigma	Company
Address 1300 W Canal St	Address
City State Zip Milwaukee, WI 53233	City State Zip
Phone 414-643-4200	Phone
FAX 414-643-4210	FAX

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 542.2)	VOC (EPA 8260)	8-RCRA METALS	Protocol B	PID/FID
502 7510 J	Comp 2-4	8/14/14	12:00	X		N	8	Soil	1-meth												X		X	—
k	Comp 4-8	1	1	1		1	1	1	1												X		X	—

Analysis Requested | **Other Analysis**

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)

Sample Integrity - To be completed by receiving lab.

Method of Shipment: Driven

Temp. of Temp. Blank ____ °C On Ice: X

Cooler seal intact upon receipt: X Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
DC S/ET	7:30	8/15/14			

Received in Laboratory By: [signature] Time: 10:00 Date: 8/16/14

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

MAFIZUL ISLAM
THE SIGMA GROUP, INC.
1300 W. CANAL STREET
MILWAUKEE, WI 53233

Report Date *29-Aug-14*

Project Name MANKOWSKI PROPERTY **Invoice #** E27512
Project # 12511

Lab Code 5027512A
Sample ID SMW-1
Sample Matrix Water
Sample Date 8/14/2014

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
GASES										
Ethane	6.1	ug/l	0.5	1.5	1	8015		8/28/2014	MJR	1
Ethene	1.3	ug/l	0.5	1.5	1	8015		8/28/2014	MJR	1
Methane	18.1	ug/l	1	3	1	8015		8/28/2014	MJR	1

Lab Code 5027512B
Sample ID SMW-2
Sample Matrix Water
Sample Date 8/14/2014

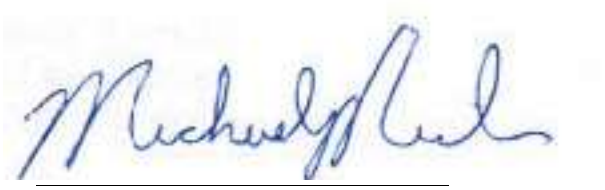
	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
GASES										
Ethane	< 0.5	ug/l	0.5	1.5	1	8015		8/28/2014	MJR	1
Ethene	< 0.5	ug/l	0.5	1.5	1	8015		8/28/2014	MJR	1
Methane	2.9 "J"	ug/l	1	3	1	8015		8/28/2014	MJR	1

"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Code	*Comment*
1	Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



CHAIN OF CUSTODY RECORD

Synergy

Environmental Lab, Inc.

1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Chain # № 31756

Page ____ of ____

Sample Handling Request
____ Rush Analysis Date Required ____
(Rushes accepted only with prior authorization)
____ Normal Turn Around

Lab I.D. #	
Account No. :	**Quote No.:**
Project #:	
Sampler: (signature)	

Project (Name / Location):	
Reports To: Bud Leuth	Invoice To:
Company Water Right Services	Company Same
Address	Address
City State Zip	City State Zip
Phone	Phone
FAX	FAX

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 542.2)	VOC (EPA 8260)	8-RCRA METALS	PID/FID
502753ZA	Puddle 30945	8/1/2																				X		
B	ADV. MSD Sml																					X		

Analysis Requested | **Other Analysis**

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)

Sample Integrity - To be completed by receiving lab.
Method of Shipment: Client
Temp. of Temp. Blank ____ °C On Ice: ____
Cooler seal intact upon receipt: X Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date

Received in Laboratory By: CSR Time: 1100 Date: 8/21/14

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Mafizul Islam
The Sigma Group
1300 W Canal St
Milwaukee, WI 53183

Phone: 414-643-4125

Fax:

Identifier: 052LH **Date Rec:** 08/15/2014 **Report Date:** 08/19/2014

Client Project #: 12511 **Client Project Name:** 12511-Mankowski

Purchase Order #: 12511

Analysis Requested: CENSUS

Reviewed By:

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **The Sigma Group**
Project: 12511-Mankowski

MI Project Number: **052LH**
Date Received: 08/15/2014

Sample Information

Client Sample ID:		**SMW-1**	**SMW-2**
Sample Date:		08/14/2014	08/14/2014
Units:		cells/mL	cells/mL
Analyst:		RW	RW

Dechlorinating Bacteria

Dehalococcoides	*DHC*	<1.90E+00	<4.00E-01
tceA Reductase	TCE	<1.90E+00	<4.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<1.90E+00	<4.00E-01
Vinyl Chloride Reductase	VCR	<1.90E+00	<4.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

REPORT TO:

Name: Mafizul Islam
Company: The Sigma Group
Address: 1300 W Canal St
Milwaukee, WI 53211

email: mislam@thesigmagroup.com
Phone: 414-643-4125
Fax: 414-643-4210

INVOICE TO: (For Invoices paid by a third party it is imperative that all information be provided)

Name: SAME
Company:
Address:

email:
Phone:
Fax:

microbialinsights
10515 Research Dr
Knoxville, TN 37932
865-573-8188
www.microbe.com

Project Manager: Mafizul Islam
Project Name: 12511 - Mankowski
Project No.: 12511

Purchase Order No. 12511
Subcontract No.
MI Quote No.

Please Check One:
☐ More samples to follow
☒ No Additional Samples

Report Type: ☒ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (35%)

EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type: _____

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																				
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tca, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
052LH1	SMW-1	8/14/14	1:30	H_2O						V	V																					
2	SMW-2	8/14/14	1:30	H_2O						V	V																					

Relinquished by: [signature] 8/14/14 Received by: [signature] Date 8/15/14

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

* additional cost and sample preservation are associated with RNA samples.

**Saturday delivery: See sampling protocol for alternate shipping address.