

September 25, 2012

Heather Hopkins  
Department of Environmental Quality – Unit 10  
350 Ottawa Avenue, NW  
Grand Rapids, Michigan 49503-2341



Re: *Investigation Activities*  
*Former Sappi Fine Paper, Muskegon, Michigan*  
*Facility ID No. 61000359*

Ms. Hopkins:

Lakeshore Environmental, Inc. (Lakeshore) presents the following summary of investigation activities conducted at the former Sappi Fine Paper Site in Muskegon, Michigan.

## **SITE ACTIVITIES**

### **Soil Borings and Monitoring Well Installation**

In July 2012, Lakeshore completed 8 soil borings for the installation of 8 additional groundwater monitoring wells. As a result, 18 monitoring wells exist at the Site that surround the Michigan Department of Environmental Quality (DEQ) areas of concern identified in your January 26, 2012 letter. Soil borings were completed utilizing direct push methods and continuous core samples were collected for evaluation. Monitoring wells were installed at each location to collect groundwater samples and to determine groundwater elevations. Well locations and screened intervals (depths) were selected to provide additional groundwater quality information in both the horizontal and vertical directions. Following installation, the monitoring wells were properly developed until purge water was free of suspended sediment and field readings had stabilized. The monitoring well locations are provided in Figure 1 (Attachment A), whereas, pertinent soil boring and monitoring well data is provided in Table 1 (Attachment B). Detailed soil boring logs are provided in Attachment C.

### **Groundwater Sampling**

On July 31, 2012 and August 27, 2012, Lakeshore collected groundwater samples from the newly installed wells. Samples were collected following approved low flow sampling methods and delivered to ALS Laboratories in Holland, Michigan for analysis of the parameters of concern.

## **RESULTS**

### **Site Stratigraphy**

The stratigraphy revealed in the new soil borings is consistent with the information reported in the May 2012, Baseline Assessment and Response Plan (BARP). In general, the top 15 to 18 feet of sediment is historic fill material consisting of dark brown silty sand with wood, gravel, and brick. A 2 foot layer of wood and peat is located below the fill that is believed to represent the former bottom of Muskegon Lake prior to historic filling. Gray fine sand with shells is located below the wood from a depth of approximately 20 feet extending to an average depth of 56 feet. Finally, gray clay is located below the gray sand. The East to West Geologic Cross Section provided in the BARP has been updated and is provided as Figure 2.

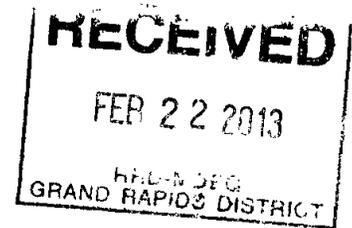


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Mid-Michigan

Northern Ohio



### **Groundwater Flow Direction and Velocity**

On September 5, 2012, groundwater elevation data was collected from both the existing and newly installed monitoring wells for an update of groundwater information (Figure 3). Based on the new data, the groundwater flow direction and velocity were determined to be consistent with earlier data from April, May, and June, 2012. In summary, the horizontal groundwater flow direction is northerly at a velocity of 0.7 feet per day, and the vertical groundwater flow direction is upward (discharge) at a velocity of 0.1 feet per day.

In comparison to April, May, and June 2012, the groundwater elevations are approximately 1.5 feet lower, the stormwater basin elevation is 1.18 feet lower, and Muskegon Lake is 0.3 feet lower.

### **Groundwater Quality**

The field measurements and analytical results for the sampling of the new wells are summarized in Table 2. The complete analytical results are provided in Attachment D. To facilitate a complete analysis, the analytical results for the wells installed earlier are also provided in Table 2. A review of the data in Table 2 indicates that only two (2) of the 18 sampling locations (LMW-4i2 and LMW-4d) exceeded the Generic Groundwater Surface Water Interface (GSI) criteria (the applicable criteria per the DEQ). At LMW-4i2 and LMW-4d, the groundwater contained arsenic, chromium, silver, and pH, over the criteria. To validate the data, Lakeshore re-sampled wells LMW-4i2 and LMW-4d on August 27, 2012. The data from the re-sampling was lower in arsenic, chromium, silver, and pH (new wells often decrease in concentration for several sampling events); however, the groundwater still exceeded the generic criteria. Fortunately, the chromium was found to be composed entirely of trivalent chromium (found in vitamins), which is not a significant risk to the environment at these concentrations. Lakeshore is presently in the process of obtaining a mixing zone determination for the site from the DEQ. The mixing zone determination will be used to develop site specific criteria that will almost certainly be higher than the low concentrations identified in the GSI wells. Based on the results of water samples collected in Muskegon Lake at the GSI (reported in the BARP report); there is no degradation to Muskegon Lake from groundwater entering the lake from the Site.

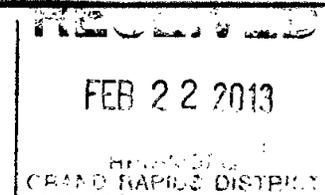
A review of the groundwater data for the LMW-4s/4i1/4i2/4d well cluster reveals that the greatest concentration of regulated substances is found in the deepest portion of the saturated formation.

### **OTHER INVESTIGATION ACTIVITIES**

#### **Fuel Oil Release Evaluation (DEQ Item#16)**

Lakeshore has performed monthly evaluations of the former fuel oil release area since September 2011 and found no evidence of floating fuel oil. To further evaluate the existing environmental quality of this location, Lakeshore installed two (2) additional downgradient monitoring wells (MW-3 and MW-4) on July 12, 2012. The wells were properly developed and allowed to equalize, then tested for the presence of floating fuel oil. Groundwater elevations were also measured at the time of sampling, which were utilized to determine that groundwater flow is to the north. The soil boring and monitoring well data for the fuel oil release wells is provided in Table 1, differentiated from the wells discussed above (LMW's) by the designation MW or REC (recovery well). The soil boring logs for the two (2) new wells are included in Attachment C.

Since no floating oil was observed in the new wells, nor were any fuel oil odors detected in the soil or water, on August 1, 2012, Lakeshore sampled the four (4) monitoring wells and former recovery well for the presence of dissolved petroleum compounds. The results of the groundwater testing (Table 3)



revealed no detectable concentrations of petroleum hydrocarbons, with the exception of 1.3 ug/l of 1,2,4-trimethylbenzene in the recovery well, which is likely the result of laboratory error (the laboratory detection limit is 1.0 ug/l or 1 part per billion). In any event, this trace amount is significantly lower than the Generic GSI Criteria for 1,2,4-trimethylbenzene of 17.0 ug/l. Figure 4 provides the locations of the fuel oil release monitoring wells and recovery well.

## CONCLUSIONS

Recent investigation activities included the installation of 8 additional GSI monitoring wells and two (2) additional fuel oil release monitoring wells. The additional wells were installed to better define the perimeter of the DEQ areas of concern. Based on the data, Lakeshore concludes that the horizontal spacing at the GSI is more than sufficient to identify any anomalies that may exist. Evidence for this exists in the soil borings, groundwater elevations, and groundwater sampling data. It can also be concluded, based on the 6 well clusters, that sufficient vertical information has been collected. This information reveals that the highest concentrations are generally obtained at the deepest locations, where Melching has five (5) deep wells installed along the northern margin of the site adjacent to Muskegon Lake. In light of this, there is no need to continue testing the "intermediate" strata.

New groundwater quality data reveals that the LMW-4s/4i1/4i2/4d well location contains metals above the Generic GSI criteria. This is not a concern, however, since mixing zone calculations will show the metals meet site specific criteria, and actual tests in Muskegon Lake have shown no degradation from any compounds. The source of the metals is unknown, but likely a result of the historic fill used at most locations surrounding Muskegon Lake.

The source of the elevated pH at LMW-4i2 and LMW-4d is almost certainly due to the historic use of sodium hydroxide (Item of Concern #6) and sodium sulfide in the paper making process. Both of these materials are extremely alkaline (high pH). Fortunately, pH levels in Muskegon Lake are normal where this groundwater discharges into the lake. Since these materials have been removed from the site, the pH levels at this location will only improve with time.

Based on recent data, as with data previously reported in May, 2012, and July 2012, Lakeshore concludes that environmental conditions at the former Sappi Fine Paper Site are good and slowly improving, considering the long history of industrial activity. This conclusion is supported by over 100 samples of either groundwater, soil, sediment, and surface water, that were collected and tested for over 100 separate parameters. Despite this thorough analysis, only three metals were detected in the groundwater above the generic criteria. With regard to these three metals, the pending mixing zone analysis will likely reveal that they meet site specific criteria. It's unlikely that other historic industrial sites in Muskegon could undergo this level of scrutiny without discovery of a greater degree of hazardous substances over applicable criteria.

## RECOMMENDATIONS

To further confirm the conclusions stated above, Lakeshore recommends that additional water samples be collected in Muskegon Lake in the vicinity of the LMW-4s/4i1/4i2/4d GSI cluster well location. Water samples should be collected directly above the sediment at depths of 5, 20, and 40 feet of depth. Samples should be analyzed for arsenic, chromium, silver, and pH.



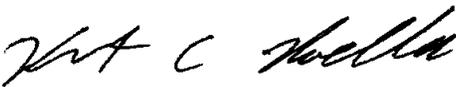
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To evaluate groundwater conditions with little to no recharge from the surface, all of the newly installed wells should be re-sampled in late winter when the surface is snow covered and the ground is frozen. The data will verify that substances of concern do not vary as a result of seasonal condition.

Since no petroleum compounds were identified in the groundwater, with the exception of a trace amount likely due to lab error and well below criteria, it is recommended that soil be tested in the vicinity of the fuel oil release. Depending on the results, it may be feasible to close this previous release, which occurred more than 8 years ago.

Please feel free to contact me with any questions or comments.

Sincerely,  
Lakeshore Environmental, Inc.



Kurt C. Koella  
Senior Hydrogeologist

(10-399/mvh)

Attachments

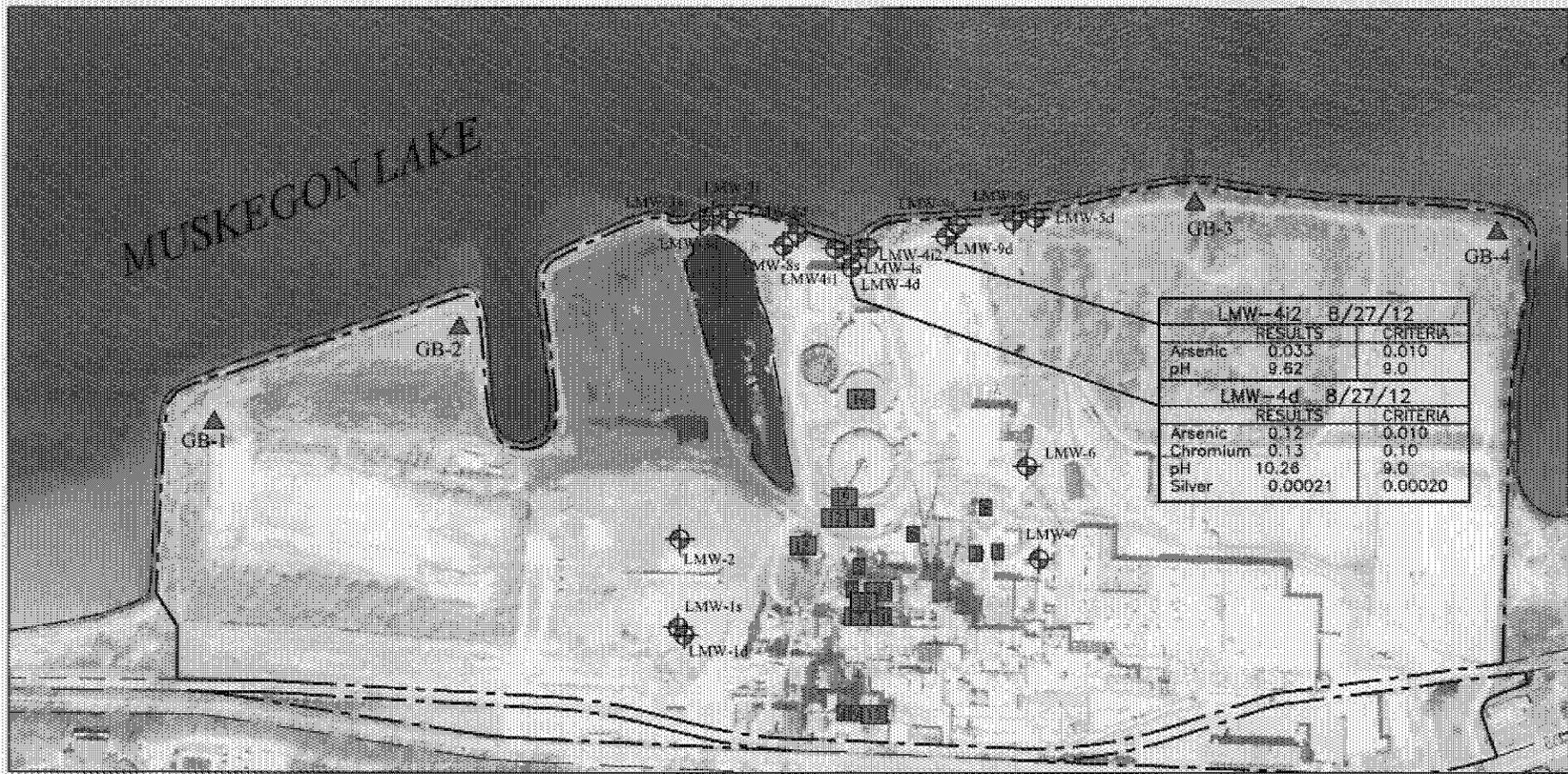
Cc: Doug Melching – Melching, Inc.  
Matt VanHoef – Scholten Fant  
File



# **Attachment A**

## **Figures**

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| LMW-4/2 8/27/12 |         |          |
|-----------------|---------|----------|
|                 | RESULTS | CRITERIA |
| Arsenic         | 0.033   | 0.010    |
| pH              | 9.62    | 9.0      |

| LMW-4d 8/27/12 |         |          |
|----------------|---------|----------|
|                | RESULTS | CRITERIA |
| Arsenic        | 0.12    | 0.010    |
| Chromium       | 0.13    | 0.10     |
| pH             | 10.26   | 9.0      |
| Silver         | 0.00021 | 0.00020  |

**LEGEND**

- ⊕ EXISTING MONITORING WELL
  - ▲ EXISTING GEOLOGIC BORING
  - MDEQ AREAS OF CONCERN
- ALL RESULTS IN mg/L

ONLY LOCATIONS AND PARAMETERS ABOVE CRITERIA ARE SHOWN  
 ALL OTHER LOCATIONS BELOW APPLICABLE CRITERIA

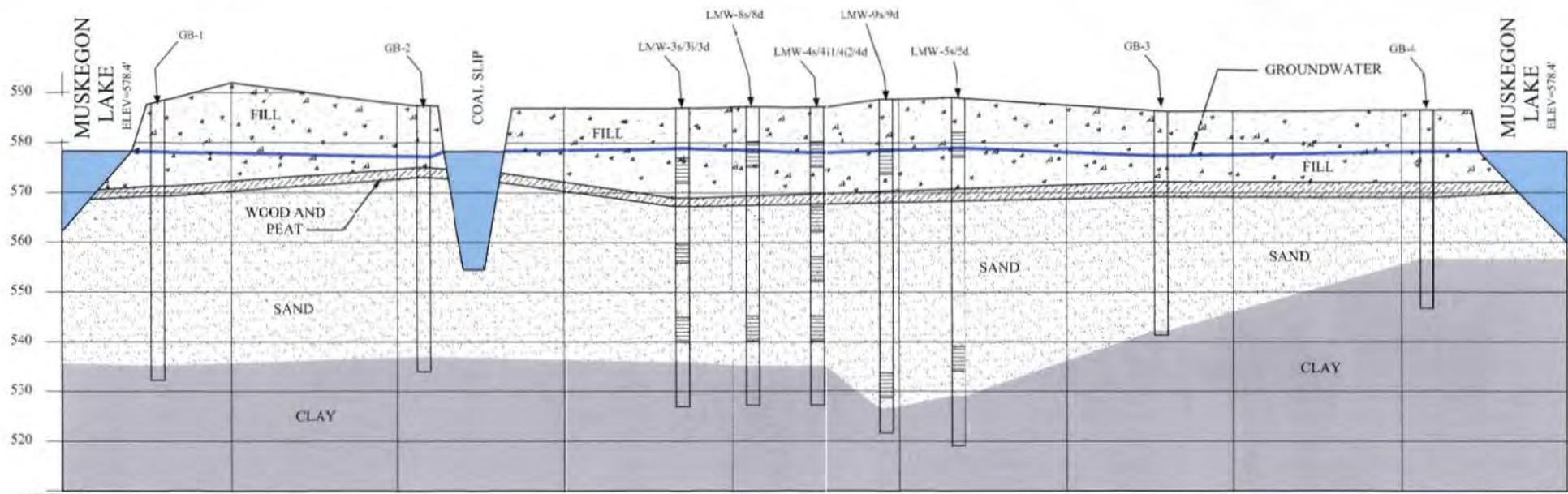
LAKESHORE DRIVE



**SAMPLING LOCATION MAP**

2490 LAKESHORE DRIVE  
 MUSKEGON, MICHIGAN

JOB # 10-339-01    SEPTEMBER 2012    FIGURE 1

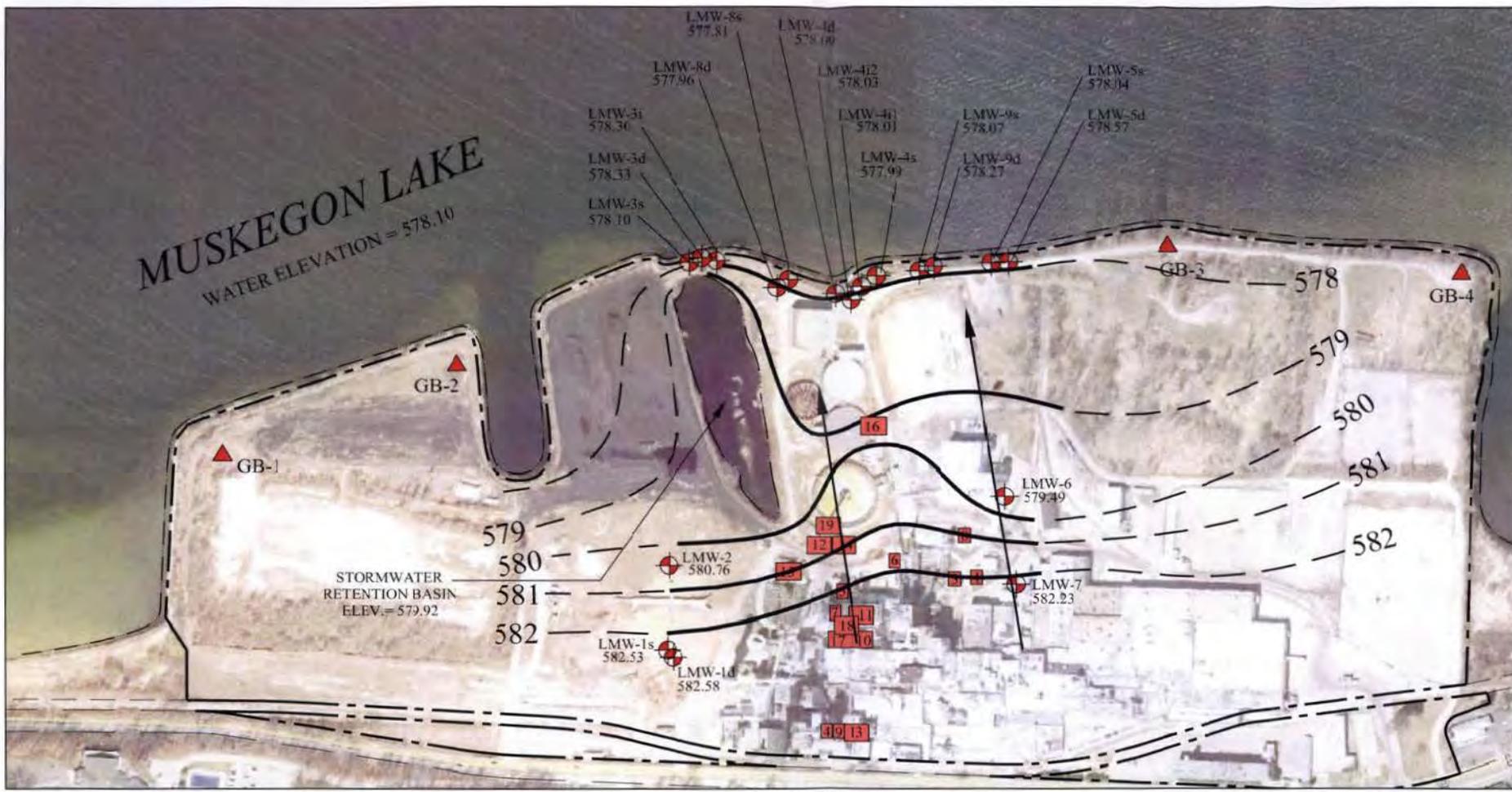


W E

HORIZONTAL SCALE: 1" = 300'  
 VERTICAL SCALE: 1"=20'  
 15X EXAGGERATION



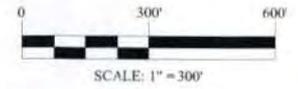
|  |                |          |
|--|----------------|----------|
| <b>CROSS SECTION<br/>EAST-WEST</b>         |                |          |
| 2400 LAKESHORE DRIVE<br>MUSKEGON, MICHIGAN |                |          |
| JOB # 10-339                               | SEPTEMBER 2012 | FIGURE 2 |



**LEGEND**

- LMW-5  MONITORING WELL
- 578.63  GROUNDWATER ELEVATION - SEPTEMBER 5, 2012
- GB  GEOLOGICAL BORING
-  578 GROUNDWATER ELEVATION CONTOUR
-  MDEQ AREAS OF CONCERN
-  DIRECTION OF GROUNDWATER FLOW

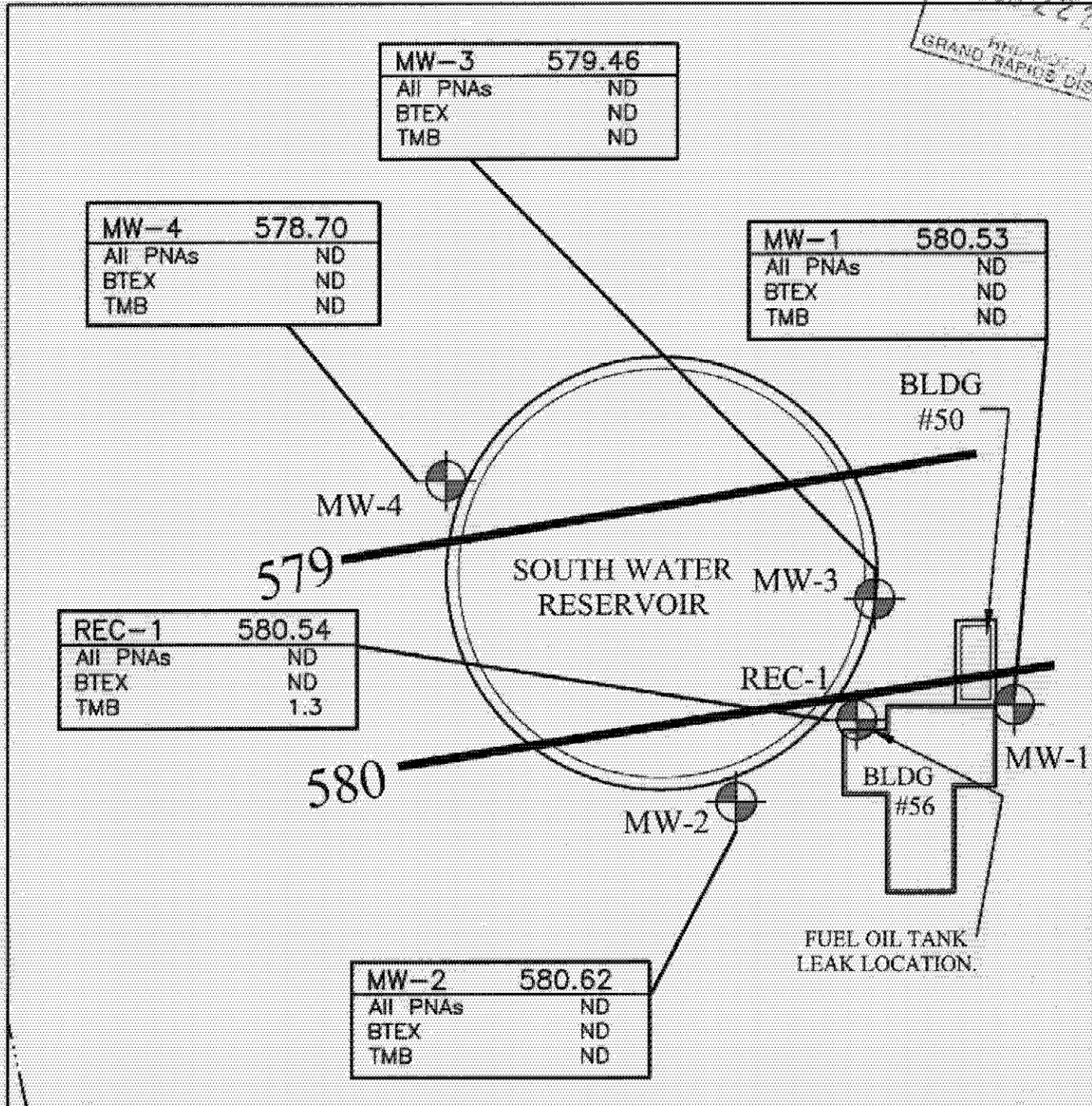
LAKESHORE DRIVE



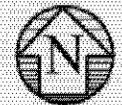
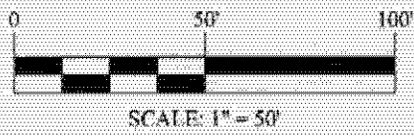

**Lakeshore Environmental, Inc.**  
Scientists | Engineers | Planners

|   |                   |          |
|---|-------------------|----------|
| INVESTIGATION ACTIVITIES<br>GROUNDWATER ELEVATION CONTOUR MAP |                   |          |
| 2400 LAKESHORE DRIVE<br>MUSKEGON, MICHIGAN                    |                   |          |
| JOB # 10-339-01   | SEPTEMBER 5, 2012 | FIGURE 3 |

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ALL RESULTS IN  $\mu\text{g/L}$   
 SAMPLES COLLECTED AUGUST 1, 2012  
 NO APPLICABLE CRITERIA EXCEEDED



**Lakeshore**  
 Environmental, Inc.  
 Scientists | Engineers | Planners

**AREA 16 - FUEL OIL RELEASE**  
 MELCHING, INC.  
 2400 LAKESHORE DRIVE  
 MUSKEGON, MICHIGAN

JOB # 10-339-01    SEPTEMBER 7, 2012    FIGURE 4

## **Attachment B**

### **Tables**

**Table 1  
Monitoring Well Data Summary**

| Well Designation  | Depth of Boring(ft) | Well Screened Interval (ft bgs) | Ground Elevation (ft) | TOC Elevation (ft) | 9/5/2012        |           |
|---|---------------------|---------------------------------|-----------------------|--------------------|-----------------|-----------|
|   |                     |                                 |                       |                    | SWL (ft BTOC)   | GWE (ft*) |
| <b>Investigation Wells - Surrounding DEQ Areas of Concern</b> |                     |                                 |                       |                    |                 |           |
| LMW-1s  | 15                  | 9.8-14.8                        | 591.10                | 593.60             | 11.07           | 582.53    |
| LMW-1d  | 54                  | 39.9-44.9                       | 590.79                | 593.29             | 10.71           | 582.58    |
| LMW-2   | 16                  | 10.0-15.0                       | 592.43                | 592.61             | 11.85           | 580.76    |
| LMW-3s  | 15                  | 10.0-15.0                       | 587.54                | 591.54             | 13.44           | 578.10    |
| LMW-3i  | 31                  | 26.3-31.3                       | 587.62                | 591.62             | 13.32           | 578.30    |
| LMW-3d  | 60                  | 42.3-47.3                       | 586.91                | 590.91             | 12.58           | 578.33    |
| LMW-4s  | 12                  | 7.0-12.0                        | 586.92                | 589.92             | 11.93           | 577.99    |
| LMW-4i1   | 25                  | 20.1-25.1                       | 587.09                | 590.79             | 12.78           | 578.01    |
| LMW-4i2   | 60                  | 29.9-34.9                       | 587.19                | 591.61             | 13.58           | 578.03    |
| LMW-4d  | 60                  | 41.6-46.6                       | 587.07                | 590.44             | 12.35           | 578.09    |
| LMW-5s  | 12                  | 7.0-12.0                        | 589.08                | 591.58             | 13.54           | 578.04    |
| LMW-5d  | 70                  | 50.1-55.1                       | 588.42                | 592.00             | 13.43           | 578.57    |
| LMW-6   | 10                  | 4.9-9.9                         | 586.02                | 585.68             | 6.19            | 579.49    |
| LMW-7   | 15                  | 2.0-7.0                         | 587.43                | 586.94             | 4.71            | 582.23    |
| LMW-8s  | 15                  | 10.4-15.4                       | 587.21                | 590.21             | 12.40           | 577.81    |
| LMW-8d  | 55                  | 43.1-48.1                       | 587.01                | 589.39             | 11.43           | 577.96    |
| LMW-9s  | 20                  | 10.0-15.0                       | 588.78                | 592.38             | 14.31           | 578.07    |
| LMW-9d  | 67                  | 55.3-60.3                       | 588.72                | 592.04             | 13.77           | 578.27    |
| <b>Fuel Oil Release Wells - DEQ Item #16</b>                  |                     |                                 |                       |                    | <b>8/1/2012</b> |           |
| MW-1  | 10                  | 7.0-9.5                         | 588.46                | 591.46             | 10.93           | 580.53    |
| MW-2  | 10                  | 6.0-10.0                        | 587.77                | 591.77             | 11.15           | 580.62    |
| MW-3  | 12                  | 7.4-12.4                        | 588.15                | 587.76             | 8.30            | 579.85    |
| MW-4  | 12                  | 7.2-12.2                        | 587.26                | 587.01             | 8.31            | 578.95    |
| Recovery Well   | 17                  | 6.8-16.8                        | 587.34                | 589.69             | 9.15            | 580.54    |

ft bgs: Feet Below Ground Surface

SWL: Static Water Level

GWE: Groundwater Elevation

TOC: Top of Well Casing Elevation

ft BTOC: Feet Below Top of Casing

Recovery Well Data from field measurements. No Log Available

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Groundwater Sampling Results

Table 2  
Groundwater Sampling Analytical Results  
Melchling, Inc.

| Constituent             | Sample Identification Number<br>(Screen Interval) |  |  |  |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |  |  |
|-------------------------|---|--|--|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--|--|
|                         | LMW-4B<br>10' X 14.5' BGS<br>6/18/2012            | LMW-4B<br>10' X 14.5' BGS<br>6/18/2012 | LMW-4C<br>10' X 14.5' BGS<br>6/18/2012 | LMW-4C<br>10' X 14.5' BGS<br>6/18/2012 | LMW-5<br>10' X 14.5' BGS<br>6/18/2012 | LMW-5<br>10' X 14.5' BGS<br>6/18/2012 | LMW-6<br>10' X 14.5' BGS<br>6/18/2012 | LMW-6<br>10' X 14.5' BGS<br>6/18/2012 | LMW-7<br>10' X 14.5' BGS<br>6/18/2012 | LMW-7<br>10' X 14.5' BGS<br>6/18/2012 | LMW-8<br>10' X 14.5' BGS<br>6/18/2012 | LMW-8<br>10' X 14.5' BGS<br>6/18/2012 | LMW-9<br>10' X 14.5' BGS<br>6/18/2012 | LMW-9<br>10' X 14.5' BGS<br>6/18/2012 | LMW-10<br>10' X 14.5' BGS<br>6/18/2012 | LMW-10<br>10' X 14.5' BGS<br>6/18/2012 |
| Field Parameters        |   |  |  |  |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |  |  |
| pH                      | 7.26  | 7.88                                   | 8.04                                   | 8.00                                   | 7.02                                  | 7.22                                  | 7.17                                  | 8.33                                  | 7.01                                  | 7.24                                  | 6.91                                  | 6.98                                  | 6.76                                  | 6.70                                  | 7.25                                   | 6.68                                   |
| Conductivity (uS/cm)    | 1303  | 1240                                   | 440                                    | 537                                    | 1354                                  | 1198                                  | 762                                   | 1104                                  | 1132                                  | 1438                                  | 1014                                  | 1331                                  | 1470                                  | 1370                                  | 1370                                   | 1370                                   |
| ORP (mV)                | 25  | -120                                   | -461                                   | -150                                   | -77                                   | -138                                  | -244                                  | -216                                  | -105                                  | -197                                  | -189                                  | -446                                  | -153                                  | -156                                  | -292                                   | -283                                   |
| Dissolved Oxygen (mg/L) | 1.66  | 6.18                                   | 0.72                                   | 1.36                                   | 0.87                                  | 2.66                                  | 1.34                                  | 0.72                                  | 0.38                                  | 0.47                                  | 1.33                                  | 0.22                                  | 0.42                                  | 0.64                                  | 0.44                                   | 0.31                                   |
| Temperature (degrees C) | 12.2  | 10.4                                   | 12.5                                   | 13.1                                   | 15.1                                  | 14.3                                  | 8.5                                   | 15.5                                  | 11.9                                  | 15.4                                  | 11.6                                  | 12.5                                  | 17.0                                  | 16.0                                  | 15.8                                   | 17.0                                   |
| Thiobacilli (NFU)       | 14.5  | 0.6                                    | 12.5                                   | 2.0                                    | 3.1                                   | 4.0                                   | 2.8                                   | 3.0                                   | 1.4                                   | 7.0                                   | 5.3                                   | 2.0                                   | 3.0                                   | 3.6                                   | 3.2                                    | 3.7                                    |
| Methane (mg/L)          | ND  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Asaric                  | ND  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Beryllium               | ND  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Cadmium                 | 0.0025  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Chromium                | 0.1   | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Chromium (VI)           | 0.013   | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Copper                  | 0.014   | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Lead                    | 0.014   | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Mercury (Total)         | 0.000013  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Nickel                  | 0.005   | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Selenium                | 0.002 (M)   | 0.00008                                | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Silver                  | 0.17  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| Sulfate                 | 38  | 31                                     | 93                                     | 83                                     | MD                                    | 2                                     | 16                                    | 3                                     | 5                                     | 31                                    | 1                                     | 3                                     | 15                                    | 15                                    | 15                                     | 15                                     |
| Sulfide                 | NA  | NA                                     | 100                                    | 24                                     | 24                                    | 120                                   | 130                                   | 110                                   | 130                                   | 110                                   | 200                                   | 250                                   | 280                                   | 280                                   | 280                                    | 280                                    |
| Sodium                  | 76  | 100                                    | 24                                     | 24                                     | 120                                   | 130                                   | 110                                   | 130                                   | 110                                   | 200                                   | 250                                   | 280                                   | 280                                   | 280                                   | 280                                    | 280                                    |
| Solids (mg/L)           | ND  | ND                                     | ND                                     | ND                                     | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                     | ND                                     |
| TSS                     | ND  | ND                                     | ND                                     | ND                                     | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                    | ND                                     | ND                                     |
| Volatiles (mg/L)        | ND  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |
| VOC's                   | ND  | MT                                     | ND                                     | NT                                     | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                    | NT                                    | ND                                     | NT                                     |

Notes:  
 NT - Not Tested  
 ND - Constituent not detected above laboratory method detection limit  
 NA - Not Available  
 MC - No criteria developed  
 HGS - Below ground surface (bgs)  
 Screen Depths are listed on acid boring/well construction logs



**Table 3  
Due Care Sampling - Fuel Oil Release  
Melching, Inc.**

| Constituent                  | Non Residential Part 201 Generic Cleanup Criteria and Screening Levels |  | Sample Identification Number |          |          |          |          |
|------------------------------|--|--|------------------------------|----------|----------|----------|----------|
|                              | Non Residential Drinking Water Criteria & RBSLs                        | Groundwater Surface Water Interface Criteria & RBSLs | MW-1                         | MW-2     | MW-3     | MW-4     | REC      |
|                              |  |  | 8/1/2012                     | 8/1/2012 | 8/1/2012 | 8/1/2012 | 8/1/2012 |
| <b>Semi-volatiles (µg/L)</b> |  |  |                              |          |          |          |          |
| PNAAs                        | Various  | Various  | ND                           | ND       | ND       | ND       | ND       |
| <b>Volatiles (µg/L)</b>      |  |  |                              |          |          |          |          |
| 1,2,4-Trimethylbenzene       | 63 (E)   | 17.0   | ND                           | ND       | ND       | ND       | 1.3      |
| <b>Field Parameters</b>      |  |  |                              |          |          |          |          |
| pH                           | 6.5 to 8.5 (E)   | 6.5 to 9.0   | 7.82                         | 7.47     | 7.12     | 7.21     | 6.92     |
| Conductivity (uS/cm)         | NC   | NC   | 1567                         | 278.6    | 178      | 211      | 321      |
| ORP (mV)                     | NA   | (EE)   | -88                          | 24       | 125      | -30      | -96      |
| Dissolved Oxygen (mg/L)      | NA   | (EE)   | 7.62                         | 4.12     | 0.8      | 0.32     | 1.21     |
| Temperature (degrees C)      | NA   | NA   | 19                           | 20.9     | 18.8     | 18.4     | 20.9     |
| Turbidity (NTU)              | NA   | (EE)   | 2                            | 3        | 3        | 2        | 9        |

Notes: (9/20/12)

**No samples exceeded applicable criteria**

BGS - Below ground surface (feet).

NA - Not Available

NC - No criteria developed

ND: Constituent not detected above laboratory method detection limit

EE/FF - Value dependent upon receiving water body use/designation.

ID: Inadequate data to develop criterion

**Attachment C**  
**Soil Boring Logs**

# SOIL BORING / WELL CONSTRUCTION LOG



**DRILLING METHOD:**  
 GEOPROBE - DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

**BORING NO.** LMW-1s

**SHEET**  
 1 OF 1

**SAMPLING METHOD:**  
 5' ACETATE LINERS

**DRILLING**

**START**                      **FINISH**

**TIME**                        **TIME**

**SITE NAME:** MELCHING INC.  
**LOCATION:** 2400 LAKESHORE DRIVE,  
 MUSKEGON, MI

**WATER LEVEL**            11.07' BTOC

**TIME**

**DATE**

**DATE**                      **DATE**

APRIL 4, 2012            APRIL 4, 2012

**DRILL RIG:** GEOPROBE    **OPERATOR:** R. LUBERDA

**CASING DEPTH**

**DRILLING CONTRACTOR:** ALLUVIAL EARTH

**SURFACE CONDITIONS:**

**ELEVATION:** 591.10      **DATUM:** USGS

**GROUT:**

**SUPERVISED BY:** KWP-LAKESHORE ENVIRONMENTAL, INC    **LEI PROJECT #:** 10-339-01

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|--------------------------------------|
| 5'                        |            | WOOD CHIPS                             |          |         |           |                           |                                      |
| 10'                       |            | LT GRAY SAND; WELL SORTED              |          |         |           |                           |                                      |
| 12.5'                     |            | FILL SAND;<br>TRACES BRICK, COAL, WOOD |          |         |           |                           | SCREENED INTERVAL<br>● 9.8-14.8' BGS |
| 13.5'                     |            | WOOD AND PEAT                          |          |         |           |                           |                                      |
| 14.5'                     |            | GRAY SAND,<br>FINE TO MEDIUM GRAINED.  |          |         |           |                           |                                      |
| 15'                       |            |  |          |         |           | ▼                         | EOB ● 15'                            |
| 20'                       |            |  |          |         |           |                           |                                      |
| 25'                       |            |  |          |         |           |                           |                                      |
| 30'                       |            |  |          |         |           |                           |                                      |
| 35'                       |            |  |          |         |           |                           |                                      |
| 40'                       |            |  |          |         |           |                           |                                      |
| 45'                       |            |  |          |         |           |                           |                                      |
| 50'                       |            |  |          |         |           |                           |                                      |

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FEB 22 2013

GRAND RAPIDS DISTRICT

# SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE - DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-1d**  
 SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING  
 START TIME: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_  
 DATE: **APRIL 4, 2012** DATE: **APRIL 4, 2012**

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL: **10.71' BTOC**  
 TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 CASING DEPTH: \_\_\_\_\_

DRILL RIG: **GEOPROBE** OPERATOR: **R. LUBERDA**

DRILLING CONTRACTOR: **ALLUVIAL EARTH** SURFACE CONDITIONS: \_\_\_\_\_

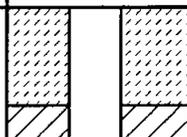
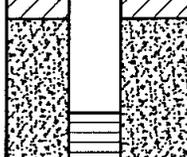
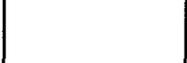
ELEVATION: **590.79** DATUM: **USGS** GROUT: \_\_\_\_\_

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC** LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY                                      | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|--|--------------------------------------|
| 5'                        |            | WOOD CHIPS                             |          |         |           |  |                                      |
| 10'                       |            | LT GRAY SAND; WELL SORTED.             |          |         |           |  |                                      |
| 10'                       |            | FILL SAND;<br>TRACES BRICK, COAL, WOOD |          |         |           |  |                                      |
| 10'                       |            | WOOD AND PEAT                          |          |         |           |  |                                      |
| 15'                       |            | GRAY SAND,<br>FINE TO MEDIUM GRAINED.  |          |         |           |  |                                      |
| 20'                       |            |  |          |         |           |  |                                      |
| 25'                       |            |  |          |         |           |  |                                      |
| 30'                       |            |  |          |         |           |  |                                      |
| 35'                       |            |  |          |         |           |  |                                      |
| 40'                       |            |  |          |         |           |  |                                      |
| 45'                       |            |  |          |         |           |  |                                      |
| 50'                       |            | GRAY CLAY.                             |          |         |           | SCREENED INTERVAL<br>@ 39.9-44.9' BGS<br><br>EOB @ 54' IN CLAY |                                      |

## SOIL BORING / WELL CONSTRUCTION LOG

|   |   |                                 |                            |                      |
|---|---|---------------------------------|----------------------------|----------------------|
|  <b>Lakeshore Environmental, Inc.</b><br>Scientists   Engineers   Planners | DRILLING METHOD:<br>GEOPROBE – DIRECT PUSH<br>2-1/4" OUTSIDE DIAMETER |                                 | BORING NO. <b>LMW-2</b>    |                      |
|   | SAMPLING METHOD:<br>5' ACETATE LINERS                                 |                                 | SHEET <b>1</b> OF <b>1</b> |                      |
| SITE NAME: <b>MELCHING INC.</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b>  |   | WATER LEVEL: <b>11.85' BTOC</b> | DRILLING                   |                      |
|   |   | TIME                            | START TIME                 | FINISH TIME          |
| DRILL RIG: <b>GEOPROBE</b> OPERATOR: <b>R. LUBERDA</b>  |   | DATE                            | DATE                       |                      |
|   |   | CASING DEPTH                    | <b>APRIL 4, 2012</b>       | <b>APRIL 4, 2012</b> |
| DRILLING CONTRACTOR: <b>ALLUVIAL EARTH</b>  |   | SURFACE CONDITIONS:             |                            |                      |
| ELEVATION: <b>592.43</b> DATUM: <b>USGS</b>   |   | GROUT:                          |                            |                      |
| SUPERVISED BY: <b>KWP-LAKESHORE ENVIRONMENTAL, INC</b>  |   | LEI PROJECT #: <b>10-339-01</b> |                            |                      |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH  | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY  | DESCRIPTION OF OPERATION AND REMARKS               |
|---------------------------|---|---|----------|---------|-----------|--|--|
| 5'                        |    | DARK BROWN <b>SAND</b> , FINE GRAINED.<br>FILL <b>SAND</b> :<br>TRACES BRICK, COAL AND WOOD<br>CRUSHED COAL |          |         |           |    | SCREENED INTERVAL<br>@ 10-15' BGS<br><br>EOB @ 16' |
| 10'                       |   | FILL <b>SAND</b> :<br>TRACES BRICK, COAL AND WOOD   |          |         |           |   |  |
| 15'                       |  | WOOD AND PEAT   |          |         |           |  |  |
| 15'                       |  | GRAY <b>SAND</b> ,<br>FINE TO MEDIUM GRAINED.   |          |         |           |  |  |
| 20'                       |   |   |          |         |           |  |  |
| 25'                       |   |   |          |         |           |  |  |
| 30'                       |   |   |          |         |           |  |  |
| 35'                       |   |   |          |         |           |  |  |
| 40'                       |   |   |          |         |           |  |  |
| 45'                       |   |   |          |         |           |  |  |
| 50'                       |   |   |          |         |           |  |  |

## SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE – DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-3s**  
 SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING  
 START TIME: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL: **13.44' BTOC**  
 TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DATE: **APRIL 4, 2012**      DATE: **APRIL 4, 2012**

DRILL RIG: **GEOPROBE**      OPERATOR: **R. LUBERDA**

CASING DEPTH: \_\_\_\_\_

DRILLING CONTRACTOR: **ALLUVIAL EARTH**

SURFACE CONDITIONS: \_\_\_\_\_

ELEVATION: **587.54**      DATUM: **USGS**

GROUT: \_\_\_\_\_

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                        | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|--------------------------------------|
| 5'                        |            | DARK BROWN <u>SAND</u> , FINE GRAINED.         |          |         |           |                           |                                      |
| 10'                       |            | FILL <u>SAND</u> ;<br>TRACES BRICK, COAL, WOOD |          |         |           |                           |                                      |
| 15'                       |            |  |          |         |           |                           | SCREENED INTERVAL<br>@ 10-15' BGS    |
| 20'                       |            |  |          |         |           |                           | EOB @ 15'                            |
| 25'                       |            |  |          |         |           |                           |                                      |
| 30'                       |            |  |          |         |           |                           |                                      |
| 35'                       |            |  |          |         |           |                           |                                      |
| 40'                       |            |  |          |         |           |                           |                                      |
| 45'                       |            |  |          |         |           |                           |                                      |
| 50'                       |            |  |          |         |           |                           |                                      |

## SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE – DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-3i**  
 SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING  
 START TIME: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL: **13.32' BTOC**  
 TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DATE: **APRIL 4, 2012**  
 DATE: **APRIL 4, 2012**

DRILL RIG: **GEOPROBE** OPERATOR: **R. LUBERDA**

CASING DEPTH: \_\_\_\_\_

DRILLING CONTRACTOR: **ALLUVIAL EARTH**

SURFACE CONDITIONS: \_\_\_\_\_

ELEVATION: **587.62** DATUM: **USGS**

GROUT: \_\_\_\_\_

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                        | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS  |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|---------------------------------------|
|                           |            | DARK BROWN <u>SAND</u> , FINE GRAINED.         |          |         |           |                           |                                       |
| 5'                        |            | FILL <u>SAND</u> :<br>TRACES BRICK, COAL, WOOD |          |         |           |                           |                                       |
| 10'                       |            |  |          |         |           |                           |                                       |
| 15'                       |            |  |          |         |           |                           |                                       |
| 20'                       |            | WOOD AND PEAT                                  |          |         |           |                           |                                       |
| 25'                       |            | GRAY <u>SAND</u> .<br>FINE TO MEDIUM GRAINED.  |          |         |           |                           |                                       |
| 30'                       |            |  |          |         |           |                           | SCREENED INTERVAL<br>@ 26.3-31.3' BGS |
| 35'                       |            |  |          |         |           |                           | EOB @ 31' IN SAND                     |
| 40'                       |            |  |          |         |           |                           |                                       |
| 45'                       |            |  |          |         |           |                           |                                       |
| 50'                       |            |  |          |         |           |                           |                                       |

## SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE - DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-3d**  
 SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING  
 START TIME: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL: **12.58' BTOC**  
 TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

DATE: **APRIL 4, 2012**      DATE: **APRIL 4, 2012**

DRILL RIG: **GEOPROBE**      OPERATOR: **R. LUBERDA**

CASING DEPTH: \_\_\_\_\_

DRILLING CONTRACTOR: **ALLUVIAL EARTH**

SURFACE CONDITIONS: \_\_\_\_\_

ELEVATION: **586.91**      DATUM: **USGS**

GROUT: \_\_\_\_\_

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                        | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS  |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|---------------------------------------|
|                           |            | DARK BROWN <u>SAND</u> , FINE GRAINED.         |          |         |           |                           |                                       |
| 5'                        |            | FILL <u>SAND</u> ;<br>TRACE BRICK, COAL, WOOD. |          |         |           |                           |                                       |
| 10'                       |            |  |          |         |           |                           |                                       |
| 15'                       |            |  |          |         |           |                           |                                       |
| 20'                       |            | WOOD AND PEAT                                  |          |         |           |                           |                                       |
| 25'                       |            | GRAY <u>SAND</u> ,<br>FINE TO MEDIUM GRAINED.  |          |         |           |                           |                                       |
| 30'                       |            |  |          |         |           |                           |                                       |
| 35'                       |            |  |          |         |           |                           |                                       |
| 40'                       |            |  |          |         |           |                           |                                       |
| 45'                       |            |  |          |         |           |                           | SCREENED INTERVAL<br>@ 42.3-47.3' BGS |
| 50'                       |            | GRAY <u>CLAY</u>                               |          |         |           |                           | EOB @ 60' IN CLAY                     |

## SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE - DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-4s**

SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING

|               |                |
|---------------|----------------|
| START<br>TIME | FINISH<br>TIME |
|---------------|----------------|

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL **11.93' BTOC**

TIME  
 DATE

|                              |                              |
|------------------------------|------------------------------|
| DATE<br><b>APRIL 4, 2012</b> | DATE<br><b>APRIL 4, 2012</b> |
|------------------------------|------------------------------|

DRILL RIG: **GEOPROBE** OPERATOR: **R. LUBERDA**

CASING DEPTH

DRILLING CONTRACTOR: **ALLUVIAL EARTH**

SURFACE CONDITIONS:

ELEVATION: **586.92**

DATUM: **USGS**

GROUT:

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                         | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|---|----------|---------|-----------|---------------------------|--------------------------------------|
|                           |            | DARK BROWN <u>SAND</u> , FINE GRAINED.          |          |         |           |                           | SCREENED INTERVAL<br>@ 7-12' BGS     |
| 5'                        |            | FILL <u>SAND</u> ;<br>TRACES BRICK, COAL, WOOD. |          |         |           |                           |                                      |
| 10'                       |            | LT GRAY <u>SAND</u> ; WELL SORTED.              |          |         |           |                           |                                      |
| 15'                       |            |   |          |         |           |                           | EOB @ 12'                            |
| 20'                       |            |   |          |         |           |                           |                                      |
| 25'                       |            |   |          |         |           |                           |                                      |
| 30'                       |            |   |          |         |           |                           |                                      |
| 35'                       |            |   |          |         |           |                           |                                      |
| 40'                       |            |   |          |         |           |                           |                                      |
| 45'                       |            |   |          |         |           |                           |                                      |
| 50'                       |            |   |          |         |           |                           |                                      |



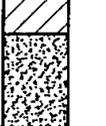
## SOIL BORING / WELL CONSTRUCTION LOG



|  |                    |                                 |             |
|--|--------------------|---------------------------------|-------------|
| DRILLING METHOD:<br>DIRECT PUSH (GEOPROBE)   |                    | BORING NO. <b>LMW-4i2</b>       |             |
|  |                    | SHEET <b>1</b> OF <b>1</b>      |             |
| SAMPLING METHOD:<br>5' ACETATE LINERS  |                    | DRILLING                        |             |
|  |                    | START TIME                      | FINISH TIME |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b> |                    | 925                             | 1405        |
|  |                    | DATE                            | DATE        |
| DRILL RIG: <b>GEOPROBE</b>   | OPERATOR: <b>-</b> | CASING DEPTH                    | <b>47'</b>  |
| DRILLING CONTRACTOR: <b>-</b>  |                    | SURFACE CONDITIONS:             |             |
| ELEVATION: <b>587.19</b>   | DATUM: <b>USGS</b> | GROUT:                          |             |
| SUPERVISED BY: <b>KWP</b>  |                    | LEI PROJECT #: <b>10-339-01</b> |             |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|---|----------|---------|-----------|---------------------------|--------------------------------------|
| 0'                        |            | LIGHT GRAY SILTY SAND W. STONES AND ROOTS. LOOSE, DRY, NO ODOR. (FILL)  |          |         |           |                           | T.O.C. = 591.56                      |
| 10'                       |            | DARK BROWN SILTY FINE SAND. SOME WOOD CHIPS, BRICKS, AND STONES. LOOSE, DRY TO 11', THEN WET. NO ODOR. (FILL) |          |         |           |                           | 1" DIAMETER PVC CASING AND SCREEN    |
| 20'                       |            | DARK BROWN SILT & WOOD WITH GLASS. LOOSE, WET. BURNT WOOD ODOR. (FILL)  |          |         |           |                           |                                      |
| 30'                       |            | LIGHT GRAY FINE SAND. LOOSE, WET. NO ODOR. (LACUSTRINE SEDIMENT)  |          |         |           |                           | SCREENED INTERVAL @ 29.9-34.9' BGS   |
| 40'                       |            | LIGHT GRAY MEDIUM SAND, WITH SOME SHELLS. LOOSE, WET. NO ODOR. (LACUSTRINE SEDIMENT)                          |          |         |           |                           |                                      |
| 50'                       |            | GRAY SILTY CLAY. HARD, DRY. NO ODOR.  |          |         |           |                           |                                      |
| 60'                       |            | EOB @ 60' IN SAME   |          |         |           |                           | EOB @ 60'                            |

## SOIL BORING / WELL CONSTRUCTION LOG

|  <b>Lakeshore Environmental, Inc.</b><br>Scientists   Engineers   Planners |   | DRILLING METHOD:<br>DIRECT PUSH (GEOPROBE)  |          | BORING NO. <b>LMW-4d</b>       |           |  |                                       |
|---|---|---|----------|--------------------------------|-----------|--|---------------------------------------|
|   |   | SAMPLING METHOD:<br>5' ACETATE LINERS   |          | SHEET<br>1 OF 1                |           |  |                                       |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b>  |   | WATER LEVEL <b>12.35' BTOC</b>  |          | DRILLING                       |           |  |                                       |
|   |   | TIME  |          | START                          |           |  |                                       |
|   |   | DATE  |          | FINISH                         |           |  |                                       |
| DRILL RIG: <b>GEOPROBE</b> OPERATOR: <b>-</b>   |   | CASING DEPTH <b>47'</b>   |          | TIME<br><b>925</b> <b>1405</b> |           |  |                                       |
| DRILLING CONTRACTOR: <b>-</b>   |   | SURFACE CONDITIONS:   |          |                                |           |  |                                       |
| ELEVATION: <b>587.07</b> DATUM: <b>USGS</b>   |   | GROUT:  |          |                                |           |  |                                       |
| SUPERVISED BY: <b>KWP</b>   |   | LEI PROJECT #: <b>10-339-01</b>   |          |                                |           |  |                                       |
| DEPTH IN FEET (ELEVATION)   | SOIL GRAPH  | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER                        | PID (ppm) | WELL CONSTRUCTION SUMMARY  | DESCRIPTION OF OPERATION AND REMARKS  |
| 10'   |    | LIGHT GRAY SILTY <u>SAND</u> W. STONES AND ROOTS. LOOSE, DRY, NO ODOR. (FILL)                                       |          |                                |           |    | T.O.C. = 590.44                       |
| 20'   |   | DARK BROWN FINE <u>SILTY SAND</u> SOME WOOD CHIPS, BRICKS, AND STONES. LOOSE, DRY TO 11', THEN WET. NO ODOR. (FILL) |          |                                |           |   |                                       |
| 30'   |  | DARK BROWN <u>SILT &amp; WOOD</u> WITH GLASS. LOOSE, WET. BURNT WOOD ODOR. (FILL)                                   |          |                                |           |  |                                       |
| 40'   |  | LIGHT GRAY FINE <u>SAND</u> . LOOSE, WET. NO ODOR. (LACUSTRINE SEDIMENT)  |          |                                |           |  | 1" DIAMETER PVC CASING AND SCREEN     |
| 50'   |  | LIGHT GRAY MEDIUM <u>SAND</u> , WITH SOME SHELLS. LOOSE, WET. NO ODOR. (LACUSTRINE SEDIMENT)                        |          |                                |           |  | SCREENED INTERVAL<br>⊙ 41.6-46.6' BGS |
| 60'   |  | GRAY <u>SILTY CLAY</u> . HARD, DRY. NO ODOR.  |          |                                |           |  |                                       |
|   |   | EOB ⊙ 60' IN SAME   |          |                                |           |  | EOB ⊙ 60'                             |

## SOIL BORING / WELL CONSTRUCTION LOG

|   |  |   |
|---|--|---|
|  <b>Lakeshore Environmental, Inc.</b><br>Scientists   Engineers   Planners | DRILLING METHOD:<br>GEOPROBE<br>2-1/4" DPR | BORING NO. <b>LMW-5s</b>                      |
|   | SAMPLING METHOD:<br>5' ACETATE LINERS      | SHEET <b>1</b> OF <b>1</b>                    |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b>  | WATER LEVEL: <b>13.54' BTOC</b>            | DRILLING START TIME: _____ FINISH TIME: _____ |
| DRILL RIG: <b>GEOPROBE</b> OPERATOR: <b>R. LUBERDA</b>  | CASING DEPTH: _____                        | DATE: <b>APRIL 4, 2012</b>                    |

|  |                                 |
|--|---------------------------------|
| DRILLING CONTRACTOR: <b>ALLUVIAL EARTH</b>             | SURFACE CONDITIONS: _____       |
| ELEVATION: <b>589.08</b> DATUM: <b>USGS</b>            | GROUT: _____                    |
| SUPERVISED BY: <b>KWP-LAKESHORE ENVIRONMENTAL, INC</b> | LEI PROJECT #: <b>10-339-01</b> |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH   | DESCRIPTION OF MATERIAL                         | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY  | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|--|---|----------|---------|-----------|--|--------------------------------------|
| 5'                        |   | DARK BROWN <b>SAND</b> , FINE GRAINED.          |          |         |           |    |                                      |
| 5'                        |   | FILL <b>SAND</b> ;<br>TRACES BRICK, COAL, WOOD. |          |         |           |    |                                      |
| 10'                       |  | LT GRAY <b>SAND</b> ; WELL SORTED.              |          |         |           |   | SCREENED INTERVAL<br>⊙ 7-12' BGS     |
| 15'                       |  |   |          |         |           |  | EOB ⊙ 12'                            |
| 20'                       |  |   |          |         |           |  |                                      |
| 25'                       |  |   |          |         |           |  |                                      |
| 30'                       |  |   |          |         |           |  |                                      |
| 35'                       |  |   |          |         |           |  |                                      |
| 40'                       |  |   |          |         |           |  |                                      |
| 45'                       |  |   |          |         |           |  |                                      |
| 50'                       |  |   |          |         |           |  |                                      |

## SOIL BORING / WELL CONSTRUCTION LOG



|  |                    |                                 |                    |
|--|--------------------|---------------------------------|--------------------|
| DRILLING METHOD:<br>DIRECT PUSH (GEOPROBE)   |                    | BORING NO. <b>LMW-5d</b>        |                    |
|  |                    | SHEET <b>1</b> OF <b>1</b>      |                    |
| SAMPLING METHOD:<br>5' ACETATE LINERS  |                    | DRILLING                        |                    |
|  |                    | START TIME                      | FINISH TIME        |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b> |                    | WATER LEVEL                     | <b>13.43' BTOC</b> |
|  |                    | TIME                            |                    |
|  |                    | DATE                            |                    |
| DRILL RIG: <b>GEOPROBE</b>   | OPERATOR: <b>-</b> | CASING DEPTH                    |                    |
| DRILLING CONTRACTOR: <b>-</b>  |                    | SURFACE CONDITIONS:             |                    |
| ELEVATION: <b>588.42</b>   | DATUM: <b>-</b>    | GROUT:                          |                    |
| SUPERVISED BY: <b>-</b>  |                    | LEI PROJECT #: <b>10-339-01</b> |                    |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|---|----------|---------|-----------|---------------------------|--------------------------------------|
|                           |            | LT. BROWN FINE SAND, W. GRAVEL & STONE. HARD, DRY; NO ODOR. (FILL)  |          |         |           |                           | T.O.C. =592.00                       |
| 10'                       |            | LIGHT BROWN SILTY FINE SAND, WITH TRACE GRAVEL AND BRICKS. LOOSE, DRY TO 10.5', THEN WET. NO ODOR. (FILL) |          |         |           |                           |                                      |
| 20'                       |            | BROWN WOOD, WITH SILT. VERY HARD, DRY ON INSIDE; WET WOOD ODOR. (FILL)                                    |          |         |           |                           |                                      |
| 30'                       |            | GRAY SAND, COARSE WITH SOME SHELLS. LOOSE, WET. NO ODOR. (LACUSTRINE SEDIMENT)                            |          |         |           |                           | 1" DIAMETER PVC CASING               |
| 40'                       |            |   |          |         |           |                           |                                      |
| 50'                       |            |   |          |         |           |                           | SCREENED INTERVAL @ 50.1-55.1' BGS   |
| 60'                       |            | GRAY CLAY.  |          |         |           |                           |                                      |
| 70'                       |            | EOB @ 70' IN SAME   |          |         |           |                           | EOB @ 70'                            |

## SOIL BORING / WELL CONSTRUCTION LOG



DRILLING METHOD:  
 GEOPROBE – DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-6**

SHEET **1** OF **1**

SAMPLING METHOD:  
 5' ACETATE LINERS

DRILLING

START TIME

FINISH TIME

DATE

DATE

APRIL 4, 2012

APRIL 4, 2012

SITE NAME: **MELCHING INC.**  
 LOCATION: **2400 LAKESHORE DRIVE,  
 MUSKEGON, MI**

WATER LEVEL **6.19' BTOC**

TIME

DATE

CASING DEPTH

DRILLING CONTRACTOR: **ALLUVIAL EARTH**

SURFACE CONDITIONS:

ELEVATION: **586.02**

DATUM: **USGS**

GROUT:

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                        | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|--------------------------------------|
| 5'                        |            | CONCRETE                                       |          |         |           |                           |                                      |
| 5'                        |            | FILL SAND;<br>TRACES BRICK, CONCRETE, PEBBLES. |          |         |           |                           |                                      |
| 10'                       |            | DARK BROWN SAND, FINE GRAINED;<br>WITH WOOD.   |          |         |           |                           | SCREENED INTERVAL<br>⊕ 4.9-9.9' BGS  |
| 10'                       |            |  |          |         |           |                           | EOB ⊕ 10'                            |
| 15'                       |            |  |          |         |           |                           |                                      |
| 20'                       |            |  |          |         |           |                           |                                      |
| 25'                       |            |  |          |         |           |                           |                                      |
| 30'                       |            |  |          |         |           |                           |                                      |
| 35'                       |            |  |          |         |           |                           |                                      |
| 40'                       |            |  |          |         |           |                           |                                      |
| 45'                       |            |  |          |         |           |                           |                                      |
| 50'                       |            |  |          |         |           |                           |                                      |

## SOIL BORING / WELL CONSTRUCTION LOG



|  |                             |                            |   |
|--|-----------------------------|----------------------------|---|
| DRILLING METHOD:<br>GEOPROBE – DIRECT PUSH<br>2-1/4" OUTSIDE DIAMETER                      |                             | BORING NO. <b>LMW-7</b>    |   |
|  |                             | SHEET <b>1</b> OF <b>1</b> |   |
| SAMPLING METHOD:<br>5' ACETATE LINERS  |                             | DRILLING                   |   |
|  |                             | START                      | FINISH                                    |
| SITE NAME: <b>MELCHING INC.</b><br>LOCATION: <b>2400 LAKESHORE DRIVE,<br/>MUSKEGON, MI</b> |                             | TIME                       | TIME                                      |
|  |                             | DATE                       | DATE                                      |
| DRILL RIG: <b>GEOPROBE</b>   | OPERATOR: <b>R. LUBERDA</b> | CASING DEPTH               | <b>APRIL 4, 2012</b> <b>APRIL 4, 2012</b> |

|  |                    |                                 |  |
|--|--------------------|---------------------------------|--|
| DRILLING CONTRACTOR: <b>ALLUVIAL EARTH</b>             |                    | SURFACE CONDITIONS:             |  |
| ELEVATION: <b>587.43</b>                               | DATUM: <b>USGS</b> | GROUT:                          |  |
| SUPERVISED BY: <b>KWP-LAKESHORE ENVIRONMENTAL, INC</b> |                    | LEI PROJECT #: <b>10-339-01</b> |  |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL                                | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|--------------------------------------|
| 5'                        |            | <b>FILL SAND;</b><br>TRACES BRICK, CONCRETE, PEBBLES.  |          |         |           |                           | SCREENED INTERVAL<br>⊕ 2-7' BGS      |
| 10'                       |            | <b>DARK BROWN SAND,</b><br>FINE GRAINED;<br>WITH WOOD. |          |         |           |                           |                                      |
| 15'                       |            |  |          |         |           |                           | EOB ⊕ 15'                            |
| 20'                       |            |  |          |         |           |                           |                                      |
| 25'                       |            |  |          |         |           |                           |                                      |
| 30'                       |            |  |          |         |           |                           |                                      |
| 35'                       |            |  |          |         |           |                           |                                      |
| 40'                       |            |  |          |         |           |                           |                                      |
| 45'                       |            |  |          |         |           |                           |                                      |
| 50'                       |            |  |          |         |           |                           |                                      |

## SOIL BORING / WELL CONSTRUCTION LOG



**Lakeshore Environmental, Inc.**  
Scientists | Engineers | Planners

DRILLING METHOD:  
GEOPROBE – DIRECT PUSH  
2-1/4" OUTSIDE DIAMETER

BORING NO. **LMW-8s**  
SHEET **1** OF **1**

SAMPLING METHOD:  
5' ACETATE LINERS

DRILLING  
START TIME: \_\_\_\_\_ FINISH TIME: \_\_\_\_\_

SITE NAME: **MELCHING INC.**  
LOCATION: **2400 LAKESHORE DRIVE,  
MUSKEGON, MI**

WATER LEVEL: **12.40' BTOC**  
TIME: \_\_\_\_\_  
DATE: \_\_\_\_\_

DATE: **JULY 25, 2012**  
DATE: **JULY 25, 2012**

DRILL RIG: **GEOPROBE** OPERATOR: **-**

CASING DEPTH: \_\_\_\_\_

DRILLING CONTRACTOR: **LAKESHORE ENVIRONMENTAL, INC.** SURFACE CONDITIONS: **GRASS & WEEDS**

ELEVATION: **587.21** DATUM: **USGS**

GROUT: \_\_\_\_\_

SUPERVISED BY: **KWP-LAKESHORE ENVIRONMENTAL, INC**

LEI PROJECT #: **10-339-01**

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL  | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|--------------------------------------|
| 5'                        |            | LIGHT GRAY <u>SILTY SAND</u><br>WITH STONES.<br>LOOSE, DRY. NO ODOR. (FILL)                            |          |         |           |                           | T.O.C. =590.21                       |
| 10'                       |            | DARK BROWN FINE <u>SILTY SAND</u><br>SOME WOOD CHIPS BRICKS AND STONES.<br>LOOSE, DRY. NO ODOR. (FILL) |          |         |           |                           | 1" DIAMETER PVC CASING AND SCREEN    |
| 15'                       |            | EOB @ 15' ON <u>WOOD</u>   |          |         |           |                           | SCREENED INTERVAL @ 104-15.4' BGS    |

## SOIL BORING / WELL CONSTRUCTION LOG

|   |  |  |  |  |
|---|--|--|--|--|
|  <b>Lakeshore Environmental, Inc.</b><br>Scientists   Engineers   Planners | DRILLING METHOD:<br>DIRECT PUSH (GEOPROBE) |  | BORING NO. <b>LMW-8d</b><br>SHEET <b>1</b> OF <b>1</b>   |  |
|   | SAMPLING METHOD:<br>5' ACETATE LINERS      |  | DRILLING<br>START TIME: _____ FINISH TIME: _____<br>DATE: _____ DATE: _____<br>JULY 27, 2012 JULY 27, 2012 |  |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b>  |  | WATER LEVEL: <b>11.43' BTOC</b>                  |  |  |
|   |  | TIME: <b>--</b>                                  |  |  |
|   |  | DATE: <b>--</b>                                  |  |  |
| DRILL RIG: <b>DT-66</b>   | OPERATOR: <b>JOHN</b>                      | CASING DEPTH: <b>--</b>                          |  |  |
| DRILLING CONTRACTOR: <b>PEARSON</b>   |  | SURFACE CONDITIONS: <b>GRASS AND WEEDS</b>       |  |  |
| ELEVATION: <b>587.01</b>  | DATUM: <b>USGS</b>                         | GROUT: <b>BENSEAL 2' ABOVE SCREEN TO SURFACE</b> |  |  |
| SUPERVISED BY: <b>KWP</b>   |  | LEI PROJECT #: <b>10-339-01</b>                  |  |  |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH  | DESCRIPTION OF MATERIAL  | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY  | DESCRIPTION OF OPERATION AND REMARKS |
|---------------------------|---|--|----------|---------|-----------|--|--------------------------------------|
| 10'                       |    | LIGHT GRAY <u>SILTY SAND</u><br>WITH STONES. LOOSE, DRY.<br>NO ODOR. (FILL)                            |          |         |           |    | T.O.C. =592.39                       |
| 10'                       |    | DARK BROWN FINE <u>SILTY SAND</u><br>SOME WOOD CHIPS BRICKS AND STONES.<br>LOOSE, DRY. NO ODOR. (FILL) |          |         |           |    |                                      |
| 20'                       |   | DARK BROWN <u>SILT AND WOOD</u><br>WITH GLASS; LOOSE, WET.<br>BURNT WOOD ODOR. (FILL)                  |          |         |           |   |                                      |
| 20'                       |  | LIGHT GRAY COARSE <u>SAND</u> .<br>LOOSE, WET. NO ODOR.<br>(LACUSTRINE SEDIMENT)                       |          |         |           |  | 1" DIAMETER PVC CASING AND SCREEN    |
| 30'                       |  | GRAY <u>SAND</u> W. SHELLS<br>LOOSE, WET. NO ODOR.   |          |         |           |  |                                      |
| 40'                       |  | GRAY <u>SILT</u> W. SHELLS<br>LOOSE, WET. NO ODOR.   |          |         |           |  |                                      |
| 50'                       |  | GRAY <u>CLAY</u> .   |          |         |           |  |                                      |
| 60'                       |  | EOB @ 67' IN SAME  |          |         |           |  | SCREENED INTERVAL @ 43.1-48.1' BGS   |
| 70'                       |  |  |          |         |           |  | EOB @ 55'                            |



## SOIL BORING / WELL CONSTRUCTION LOG



|  |                       |  |             |
|--|-----------------------|--|-------------|
| DRILLING METHOD:<br>DIRECT PUSH (GEOPROBE)   |                       | BORING NO. <b>LMW-9d</b>                         |             |
|  |                       | SHEET <b>1</b> OF <b>1</b>                       |             |
| SAMPLING METHOD:<br>5' ACETATE LINERS  |                       | DRILLING   |             |
|  |                       | START TIME                                       | FINISH TIME |
| SITE NAME: <b>MELCHING DEMOLITION</b><br>LOCATION: <b>2400 LAKESHORE DRIVE, MUSKEGON, MI</b> |                       | 0945   | 1400        |
|  |                       | DATE   | DATE        |
| DRILL RIG: <b>DT-66</b>  | OPERATOR: <b>JOHN</b> | CASING DEPTH                                     | <b>60'</b>  |
| DRILLING CONTRACTOR: <b>PEARSON</b>  |                       | SURFACE CONDITIONS: <b>GRASS AND WEEDS</b>       |             |
| ELEVATION: <b>588.72</b>   | DATUM: <b>USGS</b>    | GROUT: <b>BENSEAL 2' ABOVE SCREEN TO SURFACE</b> |             |
| SUPERVISED BY: <b>KWP</b>  |                       | LEI PROJECT #: <b>10-339-01</b>                  |             |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL  | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS  |
|---------------------------|------------|--|----------|---------|-----------|---------------------------|---------------------------------------|
| 10'                       |            | SEE SB-1/(9s) FOR DETAILED SOILS DESCRIPTIONS  |          |         |           |                           | T.O.C. =592.04                        |
| 20'                       |            | LIGHT GRAY FINE SAND W. SHELLS<br>LOOSE, WET. SLIGHT FISH ODOR.<br>(LACUSTRINE SEDIMENT) |          |         |           |                           | 1" DIAMETER PVC CASING AND SCREEN     |
| 30'                       |            |  |          |         |           |                           |                                       |
| 40'                       |            |  |          |         |           |                           |                                       |
| 50'                       |            |  |          |         |           |                           |                                       |
| 60'                       |            | GRAY CLAY.   |          |         |           |                           | SCREENED INTERVAL<br>⊙ 55.3-60.3' BGS |
| 70'                       |            | EOB ⊙ 67' IN SAME  |          |         |           |                           | EOB ⊙ 67'                             |

# SOIL BORING LOG



DRILLING METHOD:  
HAND AUGER

BORING NO. MW-1  
SHEET 1 OF 1

SAMPLING METHOD:  
-

DRILLING  
START TIME: - FINISH TIME: -

SITE NAME: MELCHING INC.  
LOCATION: 2400 LAKESHORE DRIVE,  
MUSKEGON, MI

WATER LEVEL: -  
TIME: -  
DATE: -

DATE: FEB. 18, 2004  
DATE: FEB. 18, 2004

DRILL RIG: - OPERATOR: MC

CASING DEPTH: 10.0'

DRILLING CONTRACTOR: HORIZON ENVIRONMENTAL

SURFACE CONDITIONS: -

ELEVATION: - DATUM: -

GROUT: CUTTINGS, 5' TO SURFACE

SUPERVISED BY: MP-HORIZON ENVIRONMENTAL

LEI PROJECT #: 10-339-01

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS   |
|---------------------------|------------|---|----------|---------|-----------|---------------------------|--|
| 2'                        | SOIL GRAPH | BROWN FINE TO MEDIUM SAND, MOIST, WET AT 7.5' WHILE AUGERING, DIESEL ODOR AT 7.5' |          |         | N.D.      |                           | CASING 3' ABOVE GROUND SURFACE W/ J-PLUG<br><br>2" DIAMETER PVC CASING AND SCREEN<br><br>FILTER SAND @ 5.0' - 10.0' BGS<br><br>SCREENED INTERVAL @ 7.0' - 9.5' BGS |
| 4'                        |            |   | N.D.     |         |           |                           |  |
| 6'                        |            |   | N.D.     |         |           |                           |  |
| 8'                        |            |   | N.D.     |         |           |                           |  |
| 10'                       |            |   | N.D.     |         |           |                           |  |
| 12'                       |            |   | N.D.     |         |           |                           |  |
| 14'                       |            | EOB @ 10'   |          |         | N.D.      |                           |  |

## SOIL BORING LOG



|   |              |                 |               |
|---|--------------|-----------------|---------------|
| DRILLING METHOD:<br>HAND AUGER  |              | BORING NO. MW-2 |               |
|   |              | SHEET 1 OF 1    |               |
| SAMPLING METHOD:<br>-   |              | DRILLING        |               |
|   |              | START           | FINISH        |
| SITE NAME: MELCHING INC.<br>LOCATION: 2400 LAKESHORE DRIVE,<br>MUSKEGON, MI |              | TIME            | TIME          |
|   |              | DATE            | DATE          |
| DRILL RIG: -  | OPERATOR: MC | CASING DEPTH    | 10.0'         |
|   |              | FEB. 18, 2004   | FEB. 18, 2004 |

|  |          |   |  |
|--|----------|---|--|
| DRILLING CONTRACTOR: HORIZON ENVIRONMENTAL |          | SURFACE CONDITIONS: -                   |  |
| ELEVATION: -                               | DATUM: - | GROUT: NATURAL BACKFILL, 10' TO SURFACE |  |
| SUPERVISED BY: MP-HORIZON ENVIRONMENTAL    |          | LEI PROJECT #: 10-339-01                |  |

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH         | DESCRIPTION OF MATERIAL                        | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS   |
|---------------------------|--------------------|--|----------|---------|-----------|---------------------------|--|
|                           | [Stippled Pattern] | BROWN SAND, MOIST, TRACE GRAVEL                |          |         |           |                           | CASING 4' ABOVE GROUND SURFACE W/ GALVANIZED, THREADED CAP<br><br>2" DIAMETER GALVANIZED CASING AND STAINLESS STEEL SCREEN<br><br>NATURAL BACKFILL 10.0' BGS TO GROUND SURFACE<br><br>SCREENED INTERVAL @ 6.0' - 10.0' BGS |
| 2'                        | [Stippled Pattern] | BROWN SAND, FINE TO MEDIUM, MOIST, WET AT 7.5' |          |         | N.D.      |                           |  |
| 4'                        | [Stippled Pattern] |  |          |         | N.D.      |                           |  |
| 6'                        | [Stippled Pattern] |  |          |         | N.D.      |                           |  |
| 8'                        | [Stippled Pattern] |  |          |         | N.D.      |                           |  |
| 10'                       |                    | EOB @ 10'                                      |          |         | N.D.      |                           |  |
| 12'                       |                    |  |          |         | N.D.      |                           |  |
| 14'                       |                    |  |          |         | N.D.      |                           |  |



## SOIL BORING LOG



DRILLING METHOD:  
 GEOPROBE - DIRECT PUSH  
 2-1/4" OUTSIDE DIAMETER

BORING NO. **MW-4**  
 SHEET **1** OF **1**

SAMPLING METHOD:  
 4' ACETATE LINERS (CORES)

DRILLING  
 START TIME: 1020  
 FINISH TIME: 1055  
 DATE: JULY 12, 2012

SITE NAME: **MELCHING INC.**  
 LOCATION: 2400 LAKESHORE DRIVE,  
 MUSKEGON, MI

WATER LEVEL: 8.31'  
 TIME: 1320  
 DATE: 7/13/12  
 CASING DEPTH: 12.2'

DRILL RIG: DT-66 OPERATOR: AWG

DRILLING CONTRACTOR: LEI

SURFACE CONDITIONS: LOOSE SAND FILL

ELEVATION: 587.26 DATUM: USGS

GROUT: BENSEAL

SUPERVISED BY: AWG-LAKESHORE ENVIRONMENTAL, INC

LEI PROJECT #: 10-339-01

| DEPTH IN FEET (ELEVATION) | SOIL GRAPH | DESCRIPTION OF MATERIAL   | RECOVERY | SAMPLER | PID (ppm) | WELL CONSTRUCTION SUMMARY | DESCRIPTION OF OPERATION AND REMARKS  |
|---------------------------|------------|---|----------|---------|-----------|---------------------------|---|
| 2'                        |            | LIGHT BROWN FINE TO MEDIUM SAND,<br>LOOSE. DRY TO 7.7', THEN WET.<br>NO ODOR.<br>(FILL FOR TANKS) |          |         | N.D.      |                           | FLUSH PROTECTIVE COVER<br>T.O.C. 587.26<br><br>1" DIAMETER PVC CASING AND SCREEN<br><br>SCREENED INTERVAL<br>@ 7.2' - 12.2' BGS |
| 4'                        |            |   | N.D.     |         |           |                           |   |
| 6'                        |            |   | N.D.     |         |           |                           |   |
| 8'                        |            |   | N.D.     |         |           |                           |   |
| 10'                       |            |   | N.D.     |         |           |                           |   |
| 12'                       |            |   | N.D.     |         |           |                           |   |
| 14'                       |            | EOB @ 12' IN MEDIUM SAND  |          |         |           |                           |   |

**Attachment D**

**Laboratory Data for Groundwater Samples**

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-01

**Client Sample ID:** LMW-4s  
**Collection Date:** 7/31/2012 10:30:00 AM  
**Matrix:** WATER

| Analyses                            | Result      | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution Factor     | Date Analyzed |
|-------------------------------------|-------------|--------------|--------------------------|------|-------------|---------------------|---------------|
| <b>MERCURY BY CVAA</b>              |             |              | <b>SW7470</b>            |      |             | Prep Date: 8/3/2012 | Analyst: RH   |
| Mercury                             | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/3/2012      |
| <b>METALS BY ICP-MS</b>             |             |              | <b>SW6020A</b>           |      |             | Prep Date: 8/2/2012 | Analyst: RH   |
| Arsenic                             | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/2/2012      |
| <b>Barium</b>                       | <b>0.12</b> | <b>0.10</b>  | <b>0.10</b>              |      | <b>mg/L</b> | 1                   | 8/2/2012      |
| Cadmium                             | ND          | 0.0010       | 0.0010                   |      | mg/L        | 1                   | 8/2/2012      |
| Chromium                            | ND          | 0.010        | 0.010                    |      | mg/L        | 1                   | 8/2/2012      |
| Copper                              | ND          | 0.0040       | 0.0040                   |      | mg/L        | 1                   | 8/2/2012      |
| Lead                                | ND          | 0.0030       | 0.0030                   |      | mg/L        | 1                   | 8/2/2012      |
| Selenium                            | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/3/2012      |
| Silver                              | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/2/2012      |
| <b>Sodium</b>                       | <b>260</b>  | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                  | 8/3/2012      |
| Zinc                                | ND          | 0.050        | 0.050                    |      | mg/L        | 1                   | 8/2/2012      |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |             |              | <b>SW9056</b>            |      |             |                     | Analyst: ED   |
| Sulfate                             | 1.5         | 1.0          | 1.0                      |      | mg/L        | 1                   | 8/1/2012      |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-02

**Client Sample ID:** LMW-4i1  
**Collection Date:** 7/31/2012 10:40:00 AM  
**Matrix:** WATER

| Analyses                            | Result       | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution<br>Factor  | Date Analyzed |
|-------------------------------------|--------------|--------------|--------------------------|------|-------------|---------------------|---------------|
| <b>MERCURY BY CVAA</b>              |              |              | <b>SW7470</b>            |      |             | Prep Date: 8/3/2012 | Analyst: RH   |
| Mercury                             | ND           | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/3/2012      |
| <b>METALS BY ICP-MS</b>             |              |              | <b>SW6020A</b>           |      |             | Prep Date: 8/2/2012 | Analyst: RH   |
| Arsenic                             | ND           | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/2/2012      |
| Barium                              | ND           | 0.10         | 0.10                     |      | mg/L        | 1                   | 8/2/2012      |
| Cadmium                             | ND           | 0.0010       | 0.0010                   |      | mg/L        | 1                   | 8/2/2012      |
| <b>Chromium</b>                     | <b>0.017</b> | <b>0.010</b> | <b>0.010</b>             |      | <b>mg/L</b> | 1                   | 8/2/2012      |
| Copper                              | ND           | 0.0040       | 0.0040                   |      | mg/L        | 1                   | 8/2/2012      |
| Lead                                | ND           | 0.0030       | 0.0030                   |      | mg/L        | 1                   | 8/2/2012      |
| Selenium                            | ND           | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/3/2012      |
| Silver                              | ND           | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/2/2012      |
| <b>Sodium</b>                       | <b>300</b>   | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                  | 8/3/2012      |
| Zinc                                | ND           | 0.050        | 0.050                    |      | mg/L        | 1                   | 8/2/2012      |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |              |              | <b>SW9056</b>            |      |             |                     | Analyst: ED   |
| Sulfate                             | 14           | 1.0          | 1.0                      |      | mg/L        | 1                   | 8/1/2012      |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-03

**Client Sample ID:** LMW-4i2  
**Collection Date:** 7/31/2012 10:50:00 AM  
**Matrix:** WATER

| Analyses                            | Result | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution Factor     | Date Analyzed |
|-------------------------------------|--------|--------------|--------------------------|------|-------|---------------------|---------------|
| <b>MERCURY BY CVAA</b>              |        |              | <b>SW7470</b>            |      |       | Prep Date: 8/3/2012 | Analyst: RH   |
| Mercury                             | ND     | 0.00020      | 0.00020                  |      | mg/L  | 1                   | 8/3/2012      |
| <b>METALS BY ICP-MS</b>             |        |              | <b>SW6020A</b>           |      |       | Prep Date: 8/2/2012 | Analyst: RH   |
| Arsenic                             | 0.033  | 0.0050       | 0.0050                   |      | mg/L  | 1                   | 8/2/2012      |
| Barium                              | 0.16   | 0.10         | 0.10                     |      | mg/L  | 1                   | 8/2/2012      |
| Cadmium                             | ND     | 0.0010       | 0.0010                   |      | mg/L  | 1                   | 8/2/2012      |
| Chromium                            | 0.11   | 0.010        | 0.010                    |      | mg/L  | 1                   | 8/2/2012      |
| Copper                              | ND     | 0.0040       | 0.0040                   |      | mg/L  | 1                   | 8/2/2012      |
| Lead                                | ND     | 0.0030       | 0.0030                   |      | mg/L  | 1                   | 8/2/2012      |
| Selenium                            | ND     | 0.0050       | 0.0050                   |      | mg/L  | 1                   | 8/3/2012      |
| Silver                              | ND     | 0.00020      | 0.00020                  |      | mg/L  | 1                   | 8/2/2012      |
| Sodium                              | 730    | 2.0          | 1.0                      |      | mg/L  | 10                  | 8/3/2012      |
| Zinc                                | ND     | 0.050        | 0.050                    |      | mg/L  | 1                   | 8/2/2012      |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |        |              | <b>SW9056</b>            |      |       |                     | Analyst: ED   |
| Sulfate                             | 18     | 1.0          | 1.0                      |      | mg/L  | 1                   | 8/1/2012      |

Note: See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-04

**Client Sample ID:** LMW-4d  
**Collection Date:** 7/31/2012 11:00:00 AM  
**Matrix:** WATER

| Analyses                            | Result  | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution<br>Factor  | Date Analyzed |
|-------------------------------------|---------|--------------|--------------------------|------|-------|---------------------|---------------|
| <b>MERCURY BY CVAA</b>              |         |              | <b>SW7470</b>            |      |       | Prep Date: 8/3/2012 | Analyst: RH   |
| Mercury                             | ND      | 0.00020      | 0.00020                  |      | mg/L  | 1                   | 8/3/2012      |
| <b>METALS BY ICP-MS</b>             |         |              | <b>SW6020A</b>           |      |       | Prep Date: 8/2/2012 | Analyst: RH   |
| Arsenic                             | 0.13    | 0.0050       | 0.0050                   |      | mg/L  | 1                   | 8/2/2012      |
| Barium                              | 0.21    | 0.10         | 0.10                     |      | mg/L  | 1                   | 8/2/2012      |
| Cadmium                             | ND      | 0.0010       | 0.0010                   |      | mg/L  | 1                   | 8/2/2012      |
| Chromium                            | 0.15    | 0.010        | 0.010                    |      | mg/L  | 1                   | 8/2/2012      |
| Copper                              | 0.0040  | 0.0040       | 0.0040                   |      | mg/L  | 1                   | 8/2/2012      |
| Lead                                | ND      | 0.0030       | 0.0030                   |      | mg/L  | 1                   | 8/2/2012      |
| Selenium                            | ND      | 0.0050       | 0.0050                   |      | mg/L  | 1                   | 8/3/2012      |
| Silver                              | 0.00023 | 0.00020      | 0.00020                  |      | mg/L  | 1                   | 8/2/2012      |
| Sodium                              | 1,100   | 2.0          | 1.0                      |      | mg/L  | 10                  | 8/3/2012      |
| Zinc                                | ND      | 0.050        | 0.050                    |      | mg/L  | 1                   | 8/2/2012      |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |         |              | <b>SW9056</b>            |      |       |                     | Analyst: ED   |
| Sulfate                             | 180     | 5.0          | 1.0                      |      | mg/L  | 5                   | 8/1/2012      |

Note: See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-05

**Client Sample ID:** LMW-5d  
**Collection Date:** 7/31/2012 4:00:00 PM  
**Matrix:** WATER

| Analyses                            | Result     | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution<br>Factor | Date Analyzed                                  |
|-------------------------------------|------------|--------------|--------------------------|------|-------------|--------------------|--|
| <b>MERCURY BY CVAA</b>              |            |              | <b>SW7470</b>            |      |             |                    |  |
| Mercury                             | ND         | 0.00020      | 0.00020                  |      | mg/L        | 1                  | Prep Date: 8/3/2012<br>Analyst: RH<br>8/3/2012 |
| <b>METALS BY ICP-MS</b>             |            |              | <b>SW6020A</b>           |      |             |                    |  |
| Arsenic                             | ND         | 0.0050       | 0.0050                   |      | mg/L        | 1                  | Prep Date: 8/2/2012<br>Analyst: RH<br>8/2/2012 |
| Barium                              | ND         | 0.10         | 0.10                     |      | mg/L        | 1                  | 8/2/2012                                       |
| Cadmium                             | ND         | 0.0010       | 0.0010                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Chromium                            | ND         | 0.010        | 0.010                    |      | mg/L        | 1                  | 8/2/2012                                       |
| Copper                              | ND         | 0.0040       | 0.0040                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Lead                                | ND         | 0.0030       | 0.0030                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Selenium                            | ND         | 0.0050       | 0.0050                   |      | mg/L        | 1                  | 8/3/2012                                       |
| Silver                              | ND         | 0.00020      | 0.00020                  |      | mg/L        | 1                  | 8/2/2012                                       |
| <b>Sodium</b>                       | <b>120</b> | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                 | 8/3/2012                                       |
| Zinc                                | ND         | 0.050        | 0.050                    |      | mg/L        | 1                  | 8/2/2012                                       |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |            |              | <b>SW9056</b>            |      |             |                    |  |
| Sulfate                             | 12         | 1.0          | 1.0                      |      | mg/L        | 1                  | Analyst: ED<br>8/1/2012                        |

Note: See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-06

**Client Sample ID:** LMW-8s  
**Collection Date:** 7/31/2012 1:00:00 PM  
**Matrix:** WATER

| Analyses                            | Result       | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution<br>Factor         | Date Analyzed      |
|-------------------------------------|--------------|--------------|--------------------------|------|-------------|----------------------------|--------------------|
| <b>MERCURY BY CVAA</b>              |              |              |                          |      |             |                            |                    |
|                                     |              |              | <b>SW7470</b>            |      |             | Prep Date: <b>8/3/2012</b> | Analyst: <b>RH</b> |
| Mercury                             | ND           | 0.00020      | 0.00020                  |      | mg/L        | 1                          | 8/3/2012           |
| <b>METALS BY ICP-MS</b>             |              |              |                          |      |             |                            |                    |
|                                     |              |              | <b>SW6020A</b>           |      |             | Prep Date: <b>8/2/2012</b> | Analyst: <b>RH</b> |
| Arsenic                             | ND           | 0.0050       | 0.0050                   |      | mg/L        | 1                          | 8/2/2012           |
| <b>Barium</b>                       | <b>0.12</b>  | <b>0.10</b>  | <b>0.10</b>              |      | <b>mg/L</b> | 1                          | 8/2/2012           |
| Cadmium                             | ND           | 0.0010       | 0.0010                   |      | mg/L        | 1                          | 8/2/2012           |
| <b>Chromium</b>                     | <b>0.016</b> | <b>0.010</b> | <b>0.010</b>             |      | <b>mg/L</b> | 1                          | 8/2/2012           |
| Copper                              | ND           | 0.0040       | 0.0040                   |      | mg/L        | 1                          | 8/2/2012           |
| Lead                                | ND           | 0.0030       | 0.0030                   |      | mg/L        | 1                          | 8/2/2012           |
| Selenium                            | ND           | 0.0050       | 0.0050                   |      | mg/L        | 1                          | 8/3/2012           |
| Silver                              | ND           | 0.00020      | 0.00020                  |      | mg/L        | 1                          | 8/2/2012           |
| <b>Sodium</b>                       | <b>580</b>   | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                         | 8/3/2012           |
| Zinc                                | ND           | 0.050        | 0.050                    |      | mg/L        | 1                          | 8/2/2012           |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |              |              |                          |      |             |                            |                    |
|                                     |              |              | <b>SW9056</b>            |      |             |                            | Analyst: <b>ED</b> |
| Sulfate                             | 62           | 2.0          | 1.0                      |      | mg/L        | 2                          | 8/1/2012           |

Note: See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-07

**Client Sample ID:** LMW-8d  
**Collection Date:** 7/31/2012 1:30:00 PM  
**Matrix:** WATER

| Analyses                            | Result      | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution<br>Factor  | Date Analyzed |
|-------------------------------------|-------------|--------------|--------------------------|------|-------------|---------------------|---------------|
| <b>MERCURY BY CVAA</b>              |             |              | <b>SW7470</b>            |      |             | Prep Date: 8/3/2012 | Analyst: RH   |
| Mercury                             | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/3/2012      |
| <b>METALS BY ICP-MS</b>             |             |              | <b>SW6020A</b>           |      |             | Prep Date: 8/2/2012 | Analyst: RH   |
| Arsenic                             | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/2/2012      |
| <b>Barium</b>                       | <b>0.21</b> | <b>0.10</b>  | <b>0.10</b>              |      | <b>mg/L</b> | 1                   | 8/2/2012      |
| Cadmium                             | ND          | 0.0010       | 0.0010                   |      | mg/L        | 1                   | 8/2/2012      |
| Chromium                            | ND          | 0.010        | 0.010                    |      | mg/L        | 1                   | 8/2/2012      |
| Copper                              | ND          | 0.0040       | 0.0040                   |      | mg/L        | 1                   | 8/2/2012      |
| Lead                                | ND          | 0.0030       | 0.0030                   |      | mg/L        | 1                   | 8/2/2012      |
| Selenium                            | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                   | 8/3/2012      |
| Silver                              | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                   | 8/2/2012      |
| <b>Sodium</b>                       | <b>390</b>  | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                  | 8/3/2012      |
| Zinc                                | ND          | 0.050        | 0.050                    |      | mg/L        | 1                   | 8/2/2012      |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |             |              | <b>SW9056</b>            |      |             |                     | Analyst: ED   |
| Sulfate                             | 10          | 1.0          | 1.0                      |      | mg/L        | 1                   | 8/1/2012      |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-08

**Client Sample ID:** LMW-9s  
**Collection Date:** 7/31/2012 2:00:00 PM  
**Matrix:** WATER

| Analyses                            | Result      | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units       | Dilution<br>Factor | Date Analyzed                                  |
|-------------------------------------|-------------|--------------|--------------------------|------|-------------|--------------------|--|
| <b>MERCURY BY CVAA</b>              |             |              | <b>SW7470</b>            |      |             |                    |  |
| Mercury                             | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                  | Prep Date: 8/3/2012<br>Analyst: RH<br>8/3/2012 |
| <b>METALS BY ICP-MS</b>             |             |              | <b>SW6020A</b>           |      |             |                    |  |
| Arsenic                             | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                  | Prep Date: 8/2/2012<br>Analyst: RH<br>8/2/2012 |
| <b>Barium</b>                       | <b>0.21</b> | <b>0.10</b>  | <b>0.10</b>              |      | <b>mg/L</b> | 1                  | 8/2/2012                                       |
| Cadmium                             | ND          | 0.0010       | 0.0010                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Chromium                            | ND          | 0.010        | 0.010                    |      | mg/L        | 1                  | 8/2/2012                                       |
| Copper                              | ND          | 0.0040       | 0.0040                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Lead                                | ND          | 0.0030       | 0.0030                   |      | mg/L        | 1                  | 8/2/2012                                       |
| Selenium                            | ND          | 0.0050       | 0.0050                   |      | mg/L        | 1                  | 8/3/2012                                       |
| Silver                              | ND          | 0.00020      | 0.00020                  |      | mg/L        | 1                  | 8/2/2012                                       |
| <b>Sodium</b>                       | <b>410</b>  | <b>2.0</b>   | <b>1.0</b>               |      | <b>mg/L</b> | 10                 | 8/3/2012                                       |
| Zinc                                | ND          | 0.050        | 0.050                    |      | mg/L        | 1                  | 8/2/2012                                       |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |             |              | <b>SW9056</b>            |      |             |                    |  |
| Sulfate                             | ND          | 1.0          | 1.0                      |      | mg/L        | 1                  | Analyst: ED<br>8/1/2012                        |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 06-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208020  
**Project:** Melching 7.31.12  
**Lab ID:** 1208020-09

**Client Sample ID:** LMW-9d  
**Collection Date:** 7/31/2012 2:30:00 PM  
**Matrix:** WATER

| Analyses                            | Result | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution<br>Factor | Date Analyzed                                  |
|-------------------------------------|--------|--------------|--------------------------|------|-------|--------------------|--|
| <b>MERCURY BY CVAA</b>              |        |              | <b>SW7470</b>            |      |       |                    |  |
| Mercury                             | ND     | 0.00020      | 0.00020                  |      | mg/L  | 1                  | Prep Date: 8/3/2012<br>Analyst: RH<br>8/3/2012 |
| <b>METALS BY ICP-MS</b>             |        |              | <b>SW6020A</b>           |      |       |                    |  |
| Arsenic                             | ND     | 0.0050       | 0.0050                   |      | mg/L  | 1                  | Prep Date: 8/2/2012<br>Analyst: RH<br>8/2/2012 |
| Barium                              | 0.26   | 0.10         | 0.10                     |      | mg/L  | 1                  | 8/2/2012                                       |
| Cadmium                             | ND     | 0.0010       | 0.0010                   |      | mg/L  | 1                  | 8/2/2012                                       |
| Chromium                            | ND     | 0.010        | 0.010                    |      | mg/L  | 1                  | 8/2/2012                                       |
| Copper                              | ND     | 0.0040       | 0.0040                   |      | mg/L  | 1                  | 8/2/2012                                       |
| Lead                                | ND     | 0.0030       | 0.0030                   |      | mg/L  | 1                  | 8/2/2012                                       |
| Selenium                            | ND     | 0.0050       | 0.0050                   |      | mg/L  | 1                  | 8/5/2012                                       |
| Silver                              | ND     | 0.00020      | 0.00020                  |      | mg/L  | 1                  | 8/2/2012                                       |
| Sodium                              | 260    | 2.0          | 1.0                      |      | mg/L  | 10                 | 8/3/2012                                       |
| Zinc                                | ND     | 0.050        | 0.050                    |      | mg/L  | 1                  | 8/2/2012                                       |
| <b>ANIONS BY ION CHROMATOGRAPHY</b> |        |              | <b>SW9056</b>            |      |       |                    |  |
| Sulfate                             | 17     | 1.0          | 1.0                      |      | mg/L  | 1                  | Analyst: ED<br>8/1/2012                        |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 31-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208795  
**Project:** Melching, Inc. 10-339-01 8/27/12  
**Lab ID:** 1208795-01

**Client Sample ID:** LMW-4i2  
**Collection Date:** 8/27/2012 1:35:00 PM  
**Matrix:** WATER

| Analyses                    | Result | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution<br>Factor   | Date Analyzed |
|-----------------------------|--------|--------------|--------------------------|------|-------|----------------------|---------------|
| <b>METALS BY ICP-MS</b>     |        |              | <b>SW6020A</b>           |      |       | Prep Date: 8/30/2012 | Analyst: RH   |
| Arsenic                     | 0.033  | 0.0050       | 0.0050                   |      | mg/L  | 1                    | 8/30/2012     |
| Chromium                    | 0.099  | 0.010        | 0.010                    |      | mg/L  | 1                    | 8/30/2012     |
| Sodium                      | 720    | 1.0          | 1.0                      |      | mg/L  | 10                   | 8/31/2012     |
| <b>CHROMIUM, HEXAVALENT</b> |        |              | <b>SW7196A</b>           |      |       |                      | Analyst: MB   |
| Chromium, Hexavalent        | ND     | 0.050        | 0.010                    |      | mg/L  | 10                   | 8/28/2012     |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 31-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208795  
**Project:** Melching, Inc. 10-339-01 8/27/12  
**Lab ID:** 1208795-02

**Client Sample ID:** LMW-4d  
**Collection Date:** 8/27/2012 12:30:00 PM  
**Matrix:** WATER

| Analyses                    | Result  | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution<br>Factor          | Date Analyzed      |
|-----------------------------|---------|--------------|--------------------------|------|-------|-----------------------------|--------------------|
| <b>METALS BY ICP-MS</b>     |         |              | <b>SW6020A</b>           |      |       | Prep Date: <b>8/30/2012</b> | Analyst: <b>RH</b> |
| Arsenic                     | 0.12    | 0.0050       | 0.0050                   |      | mg/L  | 1                           | 8/31/2012          |
| Chromium                    | 0.13    | 0.010        | 0.010                    |      | mg/L  | 1                           | 8/31/2012          |
| Silver                      | 0.00021 | 0.00020      | 0.00020                  |      | mg/L  | 1                           | 8/31/2012          |
| Sodium                      | 940     | 1.0          | 1.0                      |      | mg/L  | 10                          | 8/31/2012          |
| <b>CHROMIUM, HEXAVALENT</b> |         |              | <b>SW7196A</b>           |      |       |                             | Analyst: <b>MB</b> |
| Chromium, Hexavalent        | ND      | 0.050        | 0.010                    |      | mg/L  | 10                          | 8/28/2012          |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**ALS Group USA, Corp**

Date: 31-Aug-12

**Client:** Lakeshore Environmental, Inc.  
**Work Order:** 1208795  
**Project:** Melching, Inc. 10-339-01 8/27/12  
**Lab ID:** 1208795-03

**Client Sample ID:** LMW-8d  
**Collection Date:** 8/27/2012 1:35:00 PM  
**Matrix:** WATER

| Analyses                | Result | Report Limit | MDEQ<br>OP Memo 2<br>TDL | Qual | Units | Dilution<br>Factor          | Date Analyzed      |
|-------------------------|--------|--------------|--------------------------|------|-------|-----------------------------|--------------------|
| <b>METALS BY ICP-MS</b> |        |              | <b>SW6020A</b>           |      |       | Prep Date: <b>8/30/2012</b> | Analyst: <b>RH</b> |
| Sodium                  | 360    | 1.0          | 1.0                      |      | mg/L  | 10                          | 8/31/2012          |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.