

November 21, 2012

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



Re: *Notice of Alternate Monitoring Points*
Melching, Inc (Former Sappi Fine Paper), Muskegon, Michigan
Facility ID No. 61000359

Ms. Hopkins:

Lakeshore Environmental, Inc. (Lakeshore) has prepared this documentation to provide a 30 day sampling notice for alternate monitoring points at the above described site. Lakeshore has selected this option for demonstrating compliance at the Groundwater Surface Water Interface (GSI) based on the November 1, 2012 presentation by the Michigan Department of Environmental Quality (DEQ) title "Part 201 Amendments Groundwater/Surface Water Interface Update." As a result, Lakeshore will not be submitting a "Request to MDEQ for Mixing Zone-Based GSI Criteria", as stated in the September 25, 2012 investigation update.

INFORMATION REQUIRED FOR ALTERNATE MONITORING POINTS

Location of Venting Groundwater

Lakeshore has completed numerous soil borings for the specific purpose of collecting hydrogeological information relating to the GSI at Melching. Many of these soil borings were utilized to install GSI monitoring wells for the collection of groundwater samples and to determine the horizontal and vertical components of groundwater flow. Based on the collected data, the GSI was determined to be the subsurface slope of Muskegon Lake extending from the Melching shoreline to a maximum depth of 48 feet. Data from the near-GSI monitoring wells was also utilized to define the sole near-GSI location (LMW-4) where groundwater was found to exceed Generic GSI Criteria. The exceedances of GSI generic criteria at LMW-4 were for arsenic, total chromium and pH. All data from other near-GSI sampling locations are below Generic GSI Criteria. Figure 1 (Attachment A) illustrates the area where groundwater above the Generic GSI Criteria ultimately enters Muskegon Lake. An east to west cross section of the GSI is provided in Figure 2, and a south to north cross section is provided in Figure 3. Boring log information and analytical data for the GSI wells was previously submitted to the DEQ in a September 25, 2012 report.

GSI Sampling for Due Care Purposes

As reported in the May 2012 Baseline Assessment and Response Plan (BARP), Melching previously collected water samples from Muskegon Lake at the GSI discharge point on March 29, 2012 and April 23, 2012 for due care purposes. An additional set of water samples from Muskegon Lake was also collected on September 26, 2012. To collect these samples, Melching utilized methods approved for use in other states, which the DEQ now recognizes as one of the GSI options available for use in Michigan.



Western Michigan Office (Main):
803 VerHoeks Street
Grand Haven, Michigan 49417
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Western Michigan

Mid-Michigan

Northern Ohio

During all of the sampling events, samples were collected from Muskegon Lake adjacent to the LMW-4 near-GSI well location. The data from all of the collected samples verifies that there is no measurable impact to Muskegon Lake from groundwater leaving the Melching site. The locations of the sampling points are provided in Figure 1. The data from the September 26, 2012 sampling event is summarized in Table 1 (Attachment B). The laboratory report for the data is provided in Attachment C.

Proposed Alternate Monitoring Points

Melching will collect water samples semi-annually at the locations illustrated in Figures 1 through 3. Each sampling event will consist of two (2) separate sample locations directly off-shore of the LMW-4 wells. The first sample will be collected at a depth of 25 feet, followed by a sample collected at 35 feet in depth. These locations correlate to the highest concentrations of compounds identified in the near-GSI wells. Similar to prior sampling events, samples will be collected by lowering a horizontal water sampler until it rests on the bottom of the lake at the specified depth, allowing the bottle to stabilize in the sediment for a few minutes, then closing the bottle with the messenger and raising the sample to the surface. At the surface, the sample will be transferred to the appropriate sample bottles for submittal to the laboratory, with a portion utilized to immediately measure temperature, specific conductance, pH, ORP, dissolved oxygen and turbidity. Samples submitted to the laboratory will be analyzed for total arsenic and chromium.

Sentinel Monitoring Points

Melching will utilize the existing near-GSI wells at the LMW-4i2, LMW 4d, LMW-8d, and LMW-9d locations as sentinel monitoring points. LMW-8d and LMW-9d are adjacent to LMW-4, to the west and east, respectively. Although the groundwater at LMW-8d and LMW-9d is below the Generic GSI Criteria, the wells will verify that the groundwater above the criteria is not migrating laterally. The four (4) wells referenced above at these three (3) locations will be sampled semi-annually in conjunction with the sampling of the alternate monitoring points. The sentinel monitoring points will be analyzed for the same parameters as the alternate monitoring points. The data from these wells will be evaluated to determine if the locations of the alternate monitoring points are representative, or if they require relocation.

Contingency Plan

If the evaluation of data collected from alternate monitoring points and sentinel monitoring points does not verify compliance with applicable criteria at the GSI, Lakeshore will submit a "Request to MDEQ for Mixing Zone-Based GSI Criteria."

CONCLUSIONS

Melching will utilize alternate monitoring points to demonstrate compliance with the GSI criteria. Melching, through extensive hydrogeological studies, has identified only one narrow area of concern in groundwater located at the LMW-4 near GSI well location. This groundwater enters Muskegon Lake in an area where Melching has already collected numerous water samples from the bottom and found no measurable impact to Lake Muskegon from the Melching site. Since the DEQ concern is directed to groundwater leaving the Melching site that ultimately becomes surface water in Muskegon Lake, Lakeshore concludes that the most practical and logical means to address this concern is to utilize alternate monitoring points.

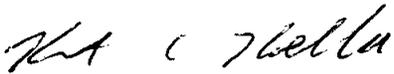
Ms. Heather Hopkins
November 21, 2012
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RECOMMENDATIONS

Lakeshore recommends that the semi-annual sampling proposed above be completed in May and September of each year (until further notice) to collect data during the typical seasonal high and low water levels, respectively, in Muskegon Lake.

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



LEGEND

- ▲^{AP} ALTERNATE MONITORING POINT
 - ◆^W WATER SAMPLE LOCATION 9-26-2012 (ALL SEDIMENT/WATER INTERFACE SAMPLES BELOW CRITERIA)
 - ◆^W WATER SAMPLE LOCATION 3-29-2012 (ALL SEDIMENT/WATER INTERFACE SAMPLES BELOW CRITERIA)
 - ⊕ 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



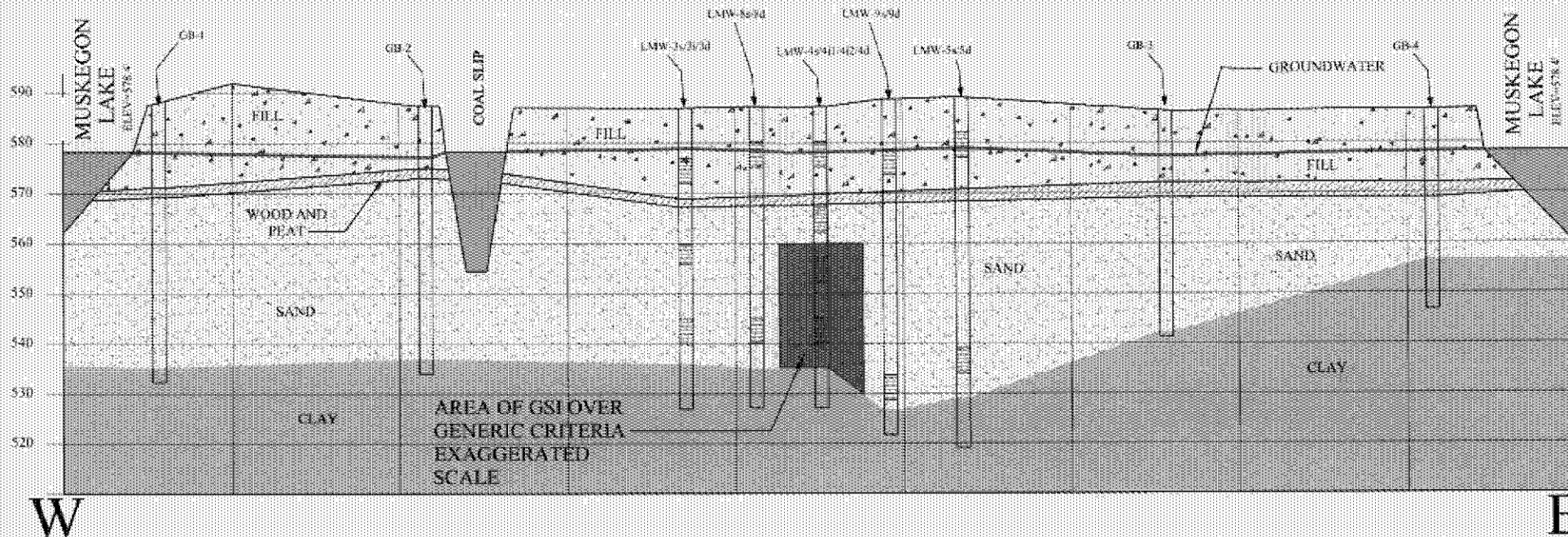
SAMPLING LOCATION MAP

2400 LAKESHORE DRIVE
 MUSKEGON, MICHIGAN

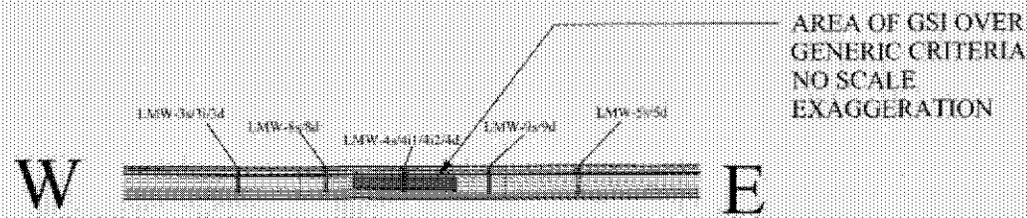
JOB # 10-139-01

NOVEMBER, 2012

FIGURE 1



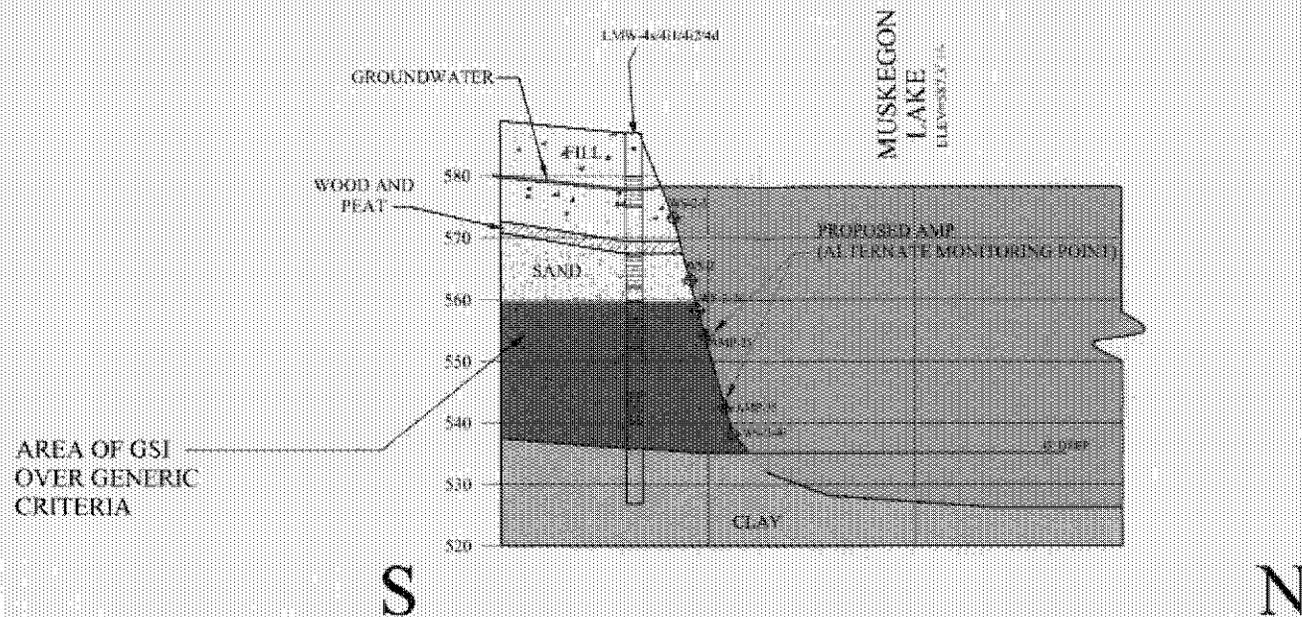
HORIZONTAL SCALE: 1" = 300'
 VERTICAL SCALE: 1" = 20'
 15X EXAGGERATION



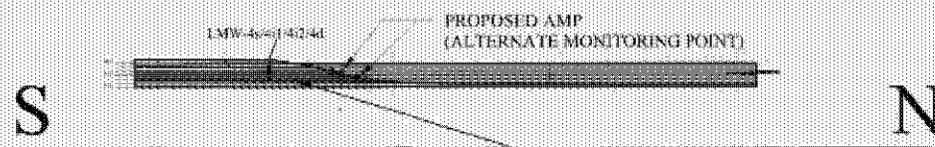
HORIZONTAL SCALE: 1" = 300'
 VERTICAL SCALE: 1" = 300'
 NO EXAGGERATION



CROSS SECTION
 EAST-WEST
 2400 LAKESHORE DRIVE
 MUSKEGON, MICHIGAN
 JOB # 10-139 NOVEMBER 2012 FIGURE 2



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



HORIZONTAL SCALE: 1" = 300'
 VERTICAL SCALE: 1" = 300'
 NO EXAGGERATION

AREA OF GSI OVER
 GENERIC CRITERIA
 NO SCALE
 EXAGGERATION



Lakeshore
 Environmental, Inc.
 Scientists | Engineers | Planners

CROSS SECTION NORTH-SOUTH		
2400 LAKESHORE DRIVE MUSKEGON, MICHIGAN		
JOB # 10-039	NOVEMBER 2012	FIGURE 3

Attachment B

Table 1

Table 1
Muskegon Lake Analytical Data
9/26/2012

Constituent	Non Residential Cleanup Criteria		WS-2 5' 9/26/2012	WS-2 20' 9/26/2012	WS-2 40' 9/26/2012
	Groundwater Surface Water Interface Criteria & RSBLs	Groundwater Contact Criteria &RSBLs			
Field Parameters					
pH	6.5 to 9.0	ID	8.40	8.49	8.47
Conductivity (uS/cm)	NC	NC	320	321	326
ORP (mV)		NA	79	59	42
Dissolved Oxygen (mg/L)		NA	9.39	8.97	8.58
Temperature (degrees C)	NA	NA	18.6	17.5	17.1
Metals (mg/L)					
Arsenic	0.01	4,300	ND	ND	ND
Barium	0.68	1.40E+07	ND	ND	ND
Cadmium	0.0025	1.90E+05	ND	ND	ND
Chromium	0.1	2.90E+08	ND	ND	ND
Copper	0.013	7.40E+06	ND	ND	ND
Lead	0.014	ID	ND	ND	ND
Mercury (Total)	0.0000013	56 (S)	ND	ND	ND
Selenium	0.005	9.70E+05	ND	ND	ND
Silver	0.001	1.50E+06	ND	ND	ND
Zinc	0.17	1.10E+08	ND	ND	ND
Sulfate	NA	ID	ND	ND	ND

No Samples Exceeded the Criteria

ND - Not Detected

NA- Criterion or value is not available

NC - No Criteria Developed

ID - Inadequate data to develop criterion

(Revised 11/21/2012)

Attachment C
Laboratory Data for Water Samples

Muskegon Mt. 9/28/2012
SAPP 10-339

Partly Cloudy 70° wind S-10NW

On muskegon lake

RVS, sc

Sample lake in front of Sapp:

Arrive to launch 1245pm

Take MS-2 5' 1315

Take MS-2 20' 1330

Take MS-2 40' 1345

Leave site 1405

Muskogon, MI

9/26/2012

Sappi

10-339

Sample Time / pH DO O₂ CD COND Temp

S-WS2 8.40 9.39 79 320 18.6

~~01345/135~~

WS 2-20

01330 8.49 8.97 59 321 17.5

WS 2-40

01345 8.47 8.58 42 326 17.1



09-Oct-2012

Steve Czadzeck
Lakeshore Environmental, Inc.
803 VerHoeks St
Grand Haven, MI 49417

Re: **Melching/Sappi 10-339 9/26/12**

Work Order: **1209762**

Dear Steve,

ALS Environmental received 3 samples on 27-Sep-2012 09:55 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: MN331938

ALS Environmental, 803 VerHoeks St, Grand Haven, MI 49417-4203, Phone: 616-891-6070, FAX: 616-891-6180
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Environmental

www.alsglobal.com

RIGHT SOLUTIONS. BETTER. FASTER. EASIER.

Client: Lakeshore Environmental, Inc.
Project: Melching/Sappi 10-339 9/26/12
Work Order: 1209762

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1209762-01	WS-2-5'	Water		9/26/2012 13:15	9/27/2012 09:55	<input type="checkbox"/>
1209762-02	WS-2-20'	Water		9/26/2012 13:30	9/27/2012 09:55	<input type="checkbox"/>
1209762-03	WS-2-40'	Water		9/26/2012 13:45	9/27/2012 09:55	<input type="checkbox"/>

ALS Group USA, Corp

Date: 09-Oct-12

Client: Lakeshore Environmental, Inc.
Project: Melching/Sappi 10-339 9/26/12
WorkOrder: 1209762

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 09-Oct-12

Client: Lakeshore Environmental, Inc.
Work Order: 1209762
Project: Melching/Sappi 10-339 9/26/12
Lab ID: 1209762-01

Client Sample ID: WS-2-5'
Collection Date: 9/26/2012 1:15:00 PM
Matrix: WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			SW7470				
Mercury	ND	0.00020	0.00020		mg/L	1	10/1/2012
METALS BY ICP-MS			SW6020A				
Arsenic	ND	0.0050	0.0050		mg/L	1	10/2/2012
Barium	ND	0.10	0.10		mg/L	1	10/2/2012
Cadmium	ND	0.0010	0.0010		mg/L	1	10/2/2012
Chromium	ND	0.010	0.010		mg/L	1	10/2/2012
Copper	ND	0.0040	0.0040		mg/L	1	10/2/2012
Lead	ND	0.0030	0.0030		mg/L	1	10/2/2012
Selenium	ND	0.0050	0.0050		mg/L	1	10/2/2012
Silver	ND	0.00020	0.00020		mg/L	1	10/2/2012
Zinc	ND	0.050	0.050		mg/L	1	10/2/2012
ANIONS BY ION CHROMATOGRAPHY			SW9056				
Sulfate	ND	20	1.0		mg/L	20	10/5/2012

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

ALS Group USA, Corp

Date: 09-Oct-12

Client: Lakeshore Environmental, Inc.
Work Order: 1209762
Project: Melching/Sappi 10-339 9/26/12
Lab ID: 1209762-02

Client Sample ID: WS-2-20'
Collection Date: 9/26/2012 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			SW7470			Prep Date: 9/29/2012	Analyst: LR
Mercury	ND	0.00020	0.00020		mg/L	1	10/2/2012
METALS BY ICP-MS			SW6020A			Prep Date: 9/30/2012	Analyst: CES
Arsenic	ND	0.0050	0.0050		mg/L	1	10/2/2012
Barium	ND	0.10	0.10		mg/L	1	10/2/2012
Cadmium	ND	0.0010	0.0010		mg/L	1	10/2/2012
Chromium	ND	0.010	0.010		mg/L	1	10/2/2012
Copper	ND	0.0040	0.0040		mg/L	1	10/2/2012
Lead	ND	0.0030	0.0030		mg/L	1	10/2/2012
Selenium	ND	0.0050	0.0050		mg/L	1	10/2/2012
Silver	ND	0.00020	0.00020		mg/L	1	10/2/2012
Zinc	ND	0.050	0.050		mg/L	1	10/2/2012
ANIONS BY ION CHROMATOGRAPHY			SW9056				Analyst: ED
Sulfate	ND	20	1.0		mg/L	20	10/5/2012

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

ALS Group USA, Corp

Date: 09-Oct-12

Client: Lakeshore Environmental, Inc.
 Work Order: 1209762
 Project: Melching/Sappi 10-339 9/26/12
 Lab ID: 1209762-03

Client Sample ID: WS-2-40'
 Collection Date: 9/26/2012 1:45:00 PM
 Matrix: WATER

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			SW7470			Prep Date: 9/29/2012	Analyst: LR
Mercury	ND	0.00020	0.00020		mg/L	1	10/2/2012
METALS BY ICP-MS			SW6020A			Prep Date: 9/30/2012	Analyst: CES
Arsenic	ND	0.0050	0.0050		mg/L	1	10/2/2012
Barium	ND	0.10	0.10		mg/L	1	10/2/2012
Cadmium	ND	0.0010	0.0010		mg/L	1	10/2/2012
Chromium	ND	0.010	0.010		mg/L	1	10/2/2012
Copper	ND	0.0040	0.0040		mg/L	1	10/2/2012
Lead	ND	0.0030	0.0030		mg/L	1	10/2/2012
Selenium	ND	0.0050	0.0050		mg/L	1	10/2/2012
Silver	ND	0.00020	0.00020		mg/L	1	10/2/2012
Zinc	ND	0.050	0.050		mg/L	1	10/2/2012
ANIONS BY ION CHROMATOGRAPHY			SW9056				Analyst: ED
Sulfate	ND	20	1.0		mg/L	20	10/5/2012

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

ALS Group USA, Corp

Date: 09-Oct-12

Client: Lakeshore Environmental, Inc.
Work Order: 1209762
Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: 43837 Instrument ID HG1 Method: SW7470

MBLK	Sample ID: MBLK-43837-43837			Units: mg/L	Analysis Date: 10/1/2012 02:07 PM					
Client ID:		Run ID: HG1_121001A		SeqNo: 2097578	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: LCS-43837-43837			Units: mg/L	Analysis Date: 10/1/2012 02:09 PM					
Client ID:		Run ID: HG1_121001A		SeqNo: 2097580	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002029	0.00020	0.002	0	101	80-120		0		

MS	Sample ID: 1209762-01AMS			Units: mg/L	Analysis Date: 10/1/2012 03:03 PM					
Client ID: WS-2-5'		Run ID: HG1_121001A		SeqNo: 2097897	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001957	0.00020	0.002	-0.000008	98.2	75-125		0		

MSD	Sample ID: 1209762-01AMSD			Units: mg/L	Analysis Date: 10/1/2012 03:05 PM					
Client ID: WS-2-5'		Run ID: HG1_121001A		SeqNo: 2097899	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00201	0.00020	0.002	-0.000008	101	75-125	0.001957	2.67	20	

The following samples were analyzed in this batch: 1209762-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
 Work Order: 1209762
 Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: 43838 Instrument ID HG1 Method: SW7470

MBLK	Sample ID: MBLK-43838-43838					Units: mg/L	Analysis Date: 10/2/2012 11:57 AM			
Client ID:	Run ID: HG1_121002A			SeqNo: 2098991	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: LCS-43838-43838					Units: mg/L	Analysis Date: 10/2/2012 11:59 AM			
Client ID:	Run ID: HG1_121002A			SeqNo: 2098992	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002032	0.00020	0.002		0	102	80-120	0		

MS	Sample ID: 1209774-11DMS					Units: mg/L	Analysis Date: 10/2/2012 12:21 PM			
Client ID:	Run ID: HG1_121002A			SeqNo: 2099003	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001857	0.00020	0.002	-0.000002	93	75-125		0		

MSD	Sample ID: 1209774-11DMSD					Units: mg/L	Analysis Date: 10/2/2012 12:23 PM			
Client ID:	Run ID: HG1_121002A			SeqNo: 2099004	Prep Date: 9/29/2012	DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001838	0.00020	0.002	-0.000002	92	75-125	0.001857	1.03	20	

The following samples were analyzed in this batch:

1209762-02A	1209762-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
 Work Order: 1209762
 Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: 43840 Instrument ID ICPMS1 Method: SW6020A

MBLK Sample ID: **MBLK-43840-43840** Units: mg/L Analysis Date: 10/1/2012 09:33 PM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098477 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.001579	0.0050								J
Barium	0.0003644	0.0050								J
Cadmium	ND	0.0020								
Chromium	0.0001025	0.0050								J
Copper	0.0002301	0.0050								J
Lead	0.0004045	0.0050								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	0.0006529	0.010								J

LCS Sample ID: **LCS-43840-43840** Units: mg/L Analysis Date: 10/1/2012 09:39 PM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098478 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1092	0.0050	0.1	0	109	80-120	0			
Barium	0.09309	0.0050	0.1	0	93.1	80-120	0			
Cadmium	0.1019	0.0020	0.1	0	102	80-120	0			
Chromium	0.09946	0.0050	0.1	0	99.5	80-120	0			
Copper	0.1016	0.0050	0.1	0	102	80-120	0			
Lead	0.09319	0.0050	0.1	0	93.2	80-120	0			
Selenium	0.1107	0.0050	0.1	0	111	80-120	0			
Silver	0.09812	0.0050	0.1	0	98.1	80-120	0			
Zinc	0.1111	0.010	0.1	0	111	80-120	0			

MS Sample ID: **1209760-10BMS** Units: mg/L Analysis Date: 10/2/2012 12:06 AM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098502 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.2318	0.0050	0.1	0.1331	98.7	75-125	0			
Barium	0.3404	0.0050	0.1	0.2407	99.7	75-125	0			
Cadmium	0.1004	0.0020	0.1	-6.444E-06	100	75-125	0			
Chromium	0.08947	0.0050	0.1	0.0003821	89.1	75-125	0			
Copper	0.0907	0.0050	0.1	0.002848	87.9	75-125	0			
Lead	0.09554	0.0050	0.1	0.0004917	95	75-125	0			
Selenium	0.09823	0.0050	0.1	0.0009068	97.3	75-125	0			
Silver	0.0886	0.0050	0.1	-0.0000342	88.6	75-125	0			
Zinc	0.09323	0.010	0.1	0.001226	92	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
Work Order: 1209762
Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: **43840** Instrument ID **ICPMS1** Method: **SW6020A**

MSD		Sample ID: 1209760-10BMSD				Units: mg/L		Analysis Date: 10/2/2012 12:12 AM		
Client ID:		Run ID: ICPMS1_121001A			SeqNo: 2098503		Prep Date: 9/30/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.2248	0.0050	0.1	0.1331	91.7	75-125	0.2318	3.07	20	
Barium	0.3294	0.0050	0.1	0.2407	88.7	75-125	0.3404	3.28	20	
Cadmium	0.1009	0.0020	0.1	-6.444E-06	101	75-125	0.1004	0.497	20	
Chromium	0.08967	0.0050	0.1	0.0003821	89.3	75-125	0.08947	0.223	20	
Copper	0.09143	0.0050	0.1	0.002848	88.6	75-125	0.0907	0.802	20	
Lead	0.09595	0.0050	0.1	0.0004917	95.5	75-125	0.09554	0.428	20	
Selenium	0.09717	0.0050	0.1	0.0009068	96.3	75-125	0.09823	1.08	20	
Silver	0.08835	0.0050	0.1	-0.0000342	88.4	75-125	0.0886	0.283	20	
Zinc	0.09351	0.010	0.1	0.001226	92.3	75-125	0.09323	0.3	20	

The following samples were analyzed in this batch:

1209762-01A 1209762-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
 Work Order: 1209762
 Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: 43841 Instrument ID ICPMS1 Method: SW6020A

MBLK Sample ID: **MBLK-43841-43841** Units: mg/L Analysis Date: 10/2/2012 03:20 AM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098573 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	0.00005447	0.0050								J
Copper	ND	0.0050								
Lead	ND	0.0050								
Selenium	0.0005101	0.0050								J
Silver	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **LCS-43841-43841** Units: mg/L Analysis Date: 10/2/2012 03:26 AM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098574 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09996	0.0050	0.1	0	100	80-120	0			
Barium	0.09343	0.0050	0.1	0	93.4	80-120	0			
Cadmium	0.1031	0.0020	0.1	0	103	80-120	0			
Chromium	0.09629	0.0050	0.1	0	96.3	80-120	0			
Copper	0.09869	0.0050	0.1	0	98.7	80-120	0			
Lead	0.09415	0.0050	0.1	0	94.2	80-120	0			
Selenium	0.09931	0.0050	0.1	0	99.3	80-120	0			
Silver	0.09459	0.0050	0.1	0	94.6	80-120	0			
Zinc	0.1046	0.010	0.1	0	105	80-120	0			

MS Sample ID: **1209779-03AMS** Units: mg/L Analysis Date: 10/2/2012 05:20 AM

Client ID: Run ID: ICPMS1_121001A SeqNo: 2098597 Prep Date: 9/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0961	0.0050	0.1	0.000852	95.2	75-125	0			
Barium	0.6836	0.0050	0.1	0.606	77.6	75-125	0			O
Cadmium	0.1007	0.0020	0.1	0.00000225	101	75-125	0			
Chromium	0.09199	0.0050	0.1	0.001167	90.8	75-125	0			
Copper	0.09313	0.0050	0.1	0.001262	91.9	75-125	0			
Lead	0.09469	0.0050	0.1	0.0003404	94.3	75-125	0			
Selenium	0.09528	0.0050	0.1	0.0002372	95	75-125	0			
Silver	0.09025	0.0050	0.1	-0.00001661	90.3	75-125	0			
Zinc	0.1021	0.010	0.1	0.00501	97.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
Work Order: 1209762
Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: **43841** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **1209779-03AMSD** Units: **mg/L** Analysis Date: **10/2/2012 05:26 AM**

Client ID: Run ID: **ICPMS1_121001A** SeqNo: **2098598** Prep Date: **9/30/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1008	0.0050	0.1	0.000852	99.9	75-125	0.0961	4.77	20	
Barium	0.7054	0.0050	0.1	0.606	99.4	75-125	0.6836	3.14	20	O
Cadmium	0.1025	0.0020	0.1	0.00000225	102	75-125	0.1007	1.77	20	
Chromium	0.09663	0.0050	0.1	0.001167	95.5	75-125	0.09199	4.92	20	
Copper	0.09643	0.0050	0.1	0.001262	95.2	75-125	0.09313	3.48	20	
Lead	0.09687	0.0050	0.1	0.0003404	96.5	75-125	0.09469	2.28	20	
Selenium	0.09673	0.0050	0.1	0.0002372	96.5	75-125	0.09528	1.51	20	
Silver	0.09335	0.0050	0.1	-0.00001661	93.4	75-125	0.09025	3.38	20	
Zinc	0.1037	0.010	0.1	0.00501	98.7	75-125	0.1021	1.55	20	

The following samples were analyzed in this batch:

1209762-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lakeshore Environmental, Inc.
 Work Order: 1209762
 Project: Melching/Sappi 10-339 9/26/12

QC BATCH REPORT

Batch ID: **R110839** Instrument ID **IC3** Method: **SW9056**

MBLK Sample ID: **MBLK-R110839** Units: **mg/L** Analysis Date: **10/5/2012 01:30 PM**
 Client ID: Run ID: **IC3_121005B** SeqNo: **2104793** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	1.0								

LCS Sample ID: **LCS-R110839** Units: **mg/L** Analysis Date: **10/5/2012 01:50 PM**
 Client ID: Run ID: **IC3_121005B** SeqNo: **2104794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	9.448	1.0	10	0	94.5	85-110	0			

MS Sample ID: **1209827-02B MS** Units: **mg/L** Analysis Date: **10/5/2012 02:51 PM**
 Client ID: Run ID: **IC3_121005B** SeqNo: **2104797** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	64.95	5.0	10	54.15	108	75-125	0			O

MSD Sample ID: **1209827-02B MSD** Units: **mg/L** Analysis Date: **10/5/2012 03:11 PM**
 Client ID: Run ID: **IC3_121005B** SeqNo: **2104798** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	65.98	5.0	10	54.15	118	75-125	64.95	1.57	20	O

The following samples were analyzed in this batch:

1209762-01A	1209762-02A	1209762-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
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Fax. +1 281 530 5887

Chain of Custody Form

Page 1 of 1

ALS Laboratory Group

3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

ALS Project Manager: _____ ALS Work Order #: 1209762

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order		Project Name	MELCHING / SAPP	A	MI 10 METALS											
Work Order		Project Number	10.339	B	FDS SULFATE											
Company Name	LAKEHORE ENVIRONMENTAL	Bill To Company	LET	C												
Send Report To	STEVE C	Invoice Attn	-	D												
Address	803 VERHOEVS GRAND HAVEN	Address	-	E												
				F												
City/State/Zip	MI 49417	City/State/Zip	-	G												
Phone	616-844-5050	Phone	-	H												
Fax		Fax	-	I												
e-Mail Address	STEVE@LAKEHOREENVIRONMENTAL	e-Mail Address	-	J												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WS-2-5'	9/26/12	1315	WATER	HNO ₃	2	X	X									
2	WS-2-20'	9/26/12	1330	WATER	HNO ₃	2	X	X									
3	WS-2-40'	9/26/12	1345	WATER	HNO ₃	2	X	X									
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [Signature] Shipment Method: _____ Required Turnaround Time: (Check Box) Other _____ STD 10 Wk Days 5 Wk Days 2 Wk Days 24 Hour Results Due Date: _____

Relinquished by:	Date:	Time:	Received by:	Notes:
Relinquished by:	Date: 9/27/12	Time: 0955	Received by (Laboratory): <u>[Signature]</u>	Cooler ID:
Logged by (Laboratory): <u>DES</u>	Date: 9/27/12	Time: 1045	Checked by (Laboratory): <u>[Signature]</u>	Cooler Temp: 4.0 C
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				QC Package: (Check One Box Below)
				<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Date <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other _____

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: LAKESHOREENV

Date/Time Received: 27-Sep-12 09:55

Work Order: 1209762

Received by: KRW

Checklist completed by *Diane Shaw*
eSignature

27-Sep-12
Date

Reviewed by: *Ann Preston*
eSignature

28-Sep-12
Date

Matrices: Water

Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.0 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>9/27/2012 10:53:42 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: