

LABORATORY REPORT

This report contains ⁶ pages.
(including the cover page)

If you have any questions concerning this report, please do not hesitate to call us at
(800) 332-4345 or (574) 233-4777.

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Laboratory Report

Client: Superior Watershed Partnership & Land Trust
 Attn: Geraldine Grant
 2 Peter White Drive
 Presque Isle Park
 Marquette, MI 49855
 Copies to: None

Report: 319289
 Priority: Standard Written
 Status: Final
 PWS ID: Not Supplied

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3043455	EM-HTDF	335.4	06/11/14 11:05	Client	06/12/14 09:15
3043456	EM-HTDF	300.0	06/11/14 11:05	Client	06/12/14 09:15
3043456	EM-HTDF	4500-F- C	06/11/14 11:05	Client	06/12/14 09:15
3043456	EM-HTDF	2540 C	06/11/14 11:05	Client	06/12/14 09:15
3043456	EM-HTDF	2540 D	06/11/14 11:05	Client	06/12/14 09:15
3043457	EM-HTDF	200.8	06/11/14 11:05	Client	06/12/14 09:15
3043458	EM-HTDF	4500-NH3 D	06/11/14 11:05	Client	06/12/14 09:15
3043459	EM-HTDF	4500-P E	06/11/14 11:05	Client	06/12/14 09:15

Report Summary

Project: CEMP

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call James Van Fleit at (574) 233-4777.

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 Authorized Signature Title Date

Client Name: Superior Watershed Partnership & Land Trust
 Report #: 319289

Sampling Point: EM-HTDF

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
---	Solids, Dissolved	2540 C	500 ^	10	290	mg/L	---	06/13/14 18:35	3043456
---	Solids, Suspended	2540 D	---	10	< 10	mg/L	---	06/13/14 18:35	3043456
14808-79-8	Sulfate	300.0	250 ^	5.0	110	mg/L	---	06/20/14 11:04	3043456
57-12-5	Cyanide, Total	335.4	0.2 *	0.01	< 0.01	mg/L	06/23/14 11:20	06/23/14 15:14	3043455
16984-48-8	Fluoride	4500-F- C	4 *	0.1	0.1	mg/L	---	06/19/14 17:07	3043456
7664-41-7	Nitrogen, Ammonia	4500-NH3 D	---	0.1	< 0.1	mg/L	---	06/23/14 17:21	3043458
7723-14-0	Phosphorus	4500-P E	---	0.05	< 0.05	mg P/L	---	06/13/14 16:55	3043459

Metals									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
7440-36-0	Antimony	200.8	6 *	1.0	3.7	ug/L	---	06/16/14 16:59	3043457
7440-38-2	Arsenic	200.8	10 *	1.0	1.1	ug/L	---	06/16/14 16:59	3043457
7440-39-3	Barium	200.8	2000 *	2.0	9.6	ug/L	---	06/16/14 16:59	3043457
7440-41-7	Beryllium	200.8	4 *	0.3	< 0.3	ug/L	---	06/16/14 16:59	3043457
7440-42-8	Boron	200.8	---	5.0	69	ug/L	---	06/18/14 19:07	3043457
7440-43-9	Cadmium	200.8	5 *	1.0	< 1.0	ug/L	---	06/16/14 16:59	3043457
7440-47-3	Chromium	200.8	100 *	0.9	< 0.9	ug/L	---	06/16/14 16:59	3043457
7440-48-4	Cobalt	200.8	---	2.0	2.9	ug/L	---	06/16/14 16:59	3043457
7440-50-8	Copper	200.8	1300 !	1.0	2.0	ug/L	---	06/16/14 16:59	3043457
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	06/16/14 16:59	3043457
7439-93-2	Lithium	200.8	---	2.0	3.0	ug/L	---	06/16/14 16:59	3043457
7439-96-5	Manganese	200.8	50 ^	2.0	380	ug/L	---	06/16/14 16:59	3043457
7439-98-7	Molybdenum	200.8	---	2.0	8.1	ug/L	---	06/16/14 16:59	3043457
7440-02-0	Nickel	200.8	---	1.0	14	ug/L	---	06/16/14 16:59	3043457
7782-49-2	Selenium	200.8	50 *	2.0	< 2.0	ug/L	---	06/16/14 16:59	3043457
7440-22-4	Silver	200.8	100 ^	2.0	< 2.0	ug/L	---	06/16/14 16:59	3043457
7440-24-6	Strontium	200.8	---	2.0	180	ug/L	---	06/16/14 16:59	3043457
7440-28-0	Thallium	200.8	2 *	0.3	< 0.3	ug/L	---	06/16/14 16:59	3043457
7440-66-6	Zinc	200.8	5000 ^	5.0	9.9	ug/L	---	06/16/14 16:59	3043457

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.



110 S. Hill Street
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246662
 Order #
 Batch #

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CHAIN OF CUSTODY RECORD

319289

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REPORT TO: Geri Grant			SAMPLER (Signature) C. Hunter			PWS ID #	STATE (sample origin) MI	PROJECT NAME CEMP	PO#	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
BILL TO: 2 Peter White Drive Marquette MI 49855			COMPLIANCE MONITORING		Yes	No	POPULATION SERVED	SOURCE WATER				
LAB Number (For UL use only)	COLLECTION			SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED		# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME	
	DATE	TIME	AM PM				YES	NO				
1		6/11/2014	11:05	x	EM-H 2 DF	Table included			x	5	SW	SW
2	3043 455					T.CN						
3	456					IOC						
4	457					metals						
5	458					NH ₃						
6	459					T.Phos						
7												
8												
9												
10												
11												
12												
13												
14												

RELINQUISHED BY:(Signature) C. Hunter	DATE 6/11/14	TIME 7:15	RECEIVED BY:(Signature)	DATE	TIME	LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT
		AM PM				
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME	
		AM PM				
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME	CONDITIONS UPON RECEIPT (check one):
		AM PM	S. Hagan	6/12/14	0919	<input checked="" type="checkbox"/> Iced: Wet/Blue Ambient 3.8 °C Upon Receipt <input type="checkbox"/> N/A

MATRIX CODES: DW-DRINKING WATER RW-REAGENT WATER GW-GROUND WATER EW-EXPOSURE WATER SW-SURFACE WATER PW-POOL WATER WW-WASTE WATER	TURN-AROUND TIME (TAT) - SURCHARGES SW = Standard Written: (15 working days) 0% RV* = Rush Verbal: (5 working days) 50% RW* = Rush Written: (5 working days) 75% IV* = Immediate Verbal: (3 working days) 100% IW* = Immediate Written: (3 working days) 125% SP* = Weekend, Holiday CALL STAT* = Less than 48 hours CALL	* Please call, expedited service not available for all testing 06-LO-F0435 Issue 3.0 Effective Date: 2013-09-11	Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.
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Sample analysis will be provided according to the standard UL GSA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by UL.

- a. pH
- b. Dissolved Oxygen
- c. TSS ✓
- d. Ammonia Nitrogen (as N) ✓
- e. Total Phosphorous ✓
- f. TDS ✓
- g. Total Antimony
- h. Total Arsenic
- i. Total Barium
- j. Total Beryllium
- k. Total Boron
- l. Total Cadmium
- m. Total Chromium
- n. Total Cobalt
- o. Total Copper
- p. Total Fluoride ✓
- q. Total Lead
- r. Total Lithium
- s. Total Manganese
- t. Total Mercury
- u. Total Molybdenum
- v. Total Nickel
- w. Total Selenium
- x. Total Silver
- y. Total Strontium
- z. Total Sulfate ✓
- aa. Total Thallium
- bb. Total Zinc
- cc. Total Cyanide ✓