

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: 324050
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3090178	EM-HTDF CEM-10010201	300.0	08/22/14 12:25	Client	08/23/14 09:00
3090178	EM-HTDF CEM-10010201	4500-F- C	08/22/14 12:25	Client	08/23/14 09:00
3090178	EM-HTDF CEM-10010201	2540 C	08/22/14 12:25	Client	08/23/14 09:00
3090178	EM-HTDF CEM-10010201	2540 D	08/22/14 12:25	Client	08/23/14 09:00
3090179	EM-HTDF CEM-10010201	335.4	08/22/14 12:25	Client	08/23/14 09:00
3090180	EM-HTDF CEM-10010201	4500-NH3 D	08/22/14 12:25	Client	08/23/14 09:00
3090181	EM-HTDF CEM-10010201	200.8	08/22/14 12:25	Client	08/23/14 09:00
3090182	EM-HTDF CEM-10010201	4500-P E	08/22/14 12:25	Client	08/23/14 09:00

Report Summary

Note: The sample submitted for Method 4500-P E analysis was preserved by laboratory personnel upon receipt.

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 #: 324050

Sampling Point: EM-HTDF CEM-10010201

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	310	mg/L	---	08/28/14 19:08	3090178
---	Solids, Suspended	2540 D	---	10	< 10	mg/L	---	08/28/14 19:15	3090178
14808-79-8	Sulfate	300.0	250 ^	5.0	130	mg/L	---	09/04/14 11:30	3090178
57-12-5	Cyanide, Total	335.4	0.2 *	0.01	< 0.01	mg/L	09/03/14 09:17	09/03/14 11:21	3090179
16984-48-8	Fluoride	4500-F- C	4 *	0.1	0.1	mg/L	---	08/26/14 18:34	3090178
7664-41-7	Nitrogen, Ammonia	4500-NH3 D	---	0.1	< 0.1	mg/L	---	09/03/14 13:14	3090180
7723-14-0	Phosphorus	4500-P E	---	0.05	0.05	mg P/L	---	08/29/14 17:19	3090182

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	---	09/04/14 01:03	3090181
7440-38-2	Arsenic	200.8	10 *	1.0	1.1	ug/L	---	09/04/14 01:03	3090181
7440-39-3	Barium	200.8	2000 *	2.0	8.2	ug/L	---	09/04/14 01:03	3090181
7440-41-7	Beryllium	200.8	4 *	0.3	< 0.3	ug/L	---	09/04/14 01:03	3090181
7440-42-8	Boron	200.8	---	5.0	65	ug/L	---	09/04/14 01:03	3090181
7440-43-9	Cadmium	200.8	5 *	1.0	< 1.0	ug/L	---	09/04/14 01:03	3090181
7440-47-3	Chromium	200.8	100 *	0.9	< 0.9	ug/L	---	09/04/14 01:03	3090181
7440-48-4	Cobalt	200.8	---	2.0	< 2.0	ug/L	---	09/04/14 01:03	3090181
7440-50-8	Copper	200.8	1300 !	1.0	1.4	ug/L	---	09/04/14 01:03	3090181
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	09/04/14 01:03	3090181
7439-93-2	Lithium	200.8	---	2.0	3.1	ug/L	---	09/04/14 01:03	3090181
7439-96-5	Manganese	200.8	50 ^	2.0	95	ug/L	---	09/04/14 01:03	3090181
7439-98-7	Molybdenum	200.8	---	2.0	7.9	ug/L	---	09/04/14 01:03	3090181
7440-02-0	Nickel	200.8	---	1.0	7.5	ug/L	---	09/04/14 01:03	3090181
7782-49-2	Selenium	200.8	50 *	2.0	< 2.0	ug/L	---	09/04/14 01:03	3090181
7440-22-4	Silver	200.8	100 ^	2.0	< 2.0	ug/L	---	09/04/14 01:03	3090181
7440-24-6	Strontium	200.8	---	2.0	180	ug/L	---	09/04/14 01:03	3090181
7440-28-0	Thallium	200.8	2 *	0.3	< 0.3	ug/L	---	09/04/14 01:03	3090181
7440-66-6	Zinc	200.8	5000 ^	5.0	10	ug/L	---	09/04/14 01:03	3090181

† 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.



Order # 246662

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Order #
Batch #

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CHAIN OF CUSTODY RECORD

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REPORT TO: Gerri Grant				SAMPLER (Signature) <i>C. Hunter Kiz</i>				PWS ID #	STATE (sample origin) MI	PROJECT NAME	PO#	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
BILL TO: 2 Peter White Dr Marquette MI 49855				COMPLIANCE MONITORING Yes <input type="checkbox"/> No <input type="checkbox"/>		POPULATION SERVED	SOURCE WATER	CEMP						
LAB Number	COLLECTION				SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED		# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME		
	DATE	TIME	AM	PM				YES	NO					
1		8/22/14	12:35		X EM-HDGF CEM-1001201	Table Included			X	5	SW	SW		
2	3090178					IOC								
3	179					T-CN								
4	180					NH3								
5	181					metals								
6	182					T-Phos	pH adjusted upon receipt							
7							OK per Jim VF							

RELINQUISHED BY:(Signature) <i>C. Hunter Kiz</i>	DATE 8/22/14	TIME 2:30	RECEIVED BY:(Signature)	DATE	TIME	LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT LAB COMMENTS NH3 - pH < 2 P - pH > 2 - bottle fall to the top. dm 8.23.14
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME	
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY: <i>dmartis</i>	DATE 8/23/14	TIME 0900	
CONDITIONS UPON RECEIPT (check one): <input checked="" type="checkbox"/> Ice: Wet/Blue <input type="checkbox"/> Ambient <input type="checkbox"/> 4.2 °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	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.

HTDF Discharge Parameters - 308(a) Reporting

Parameter	Method	Reporting Limit	Unit
pH	SM 4500	NA	pH units
Dissolved Oxygen	SM 4500	0.08	mg/L
Total Suspended Solids	SM 2540	10	mg/L
Ammonia	EPA 350.1	0.01	mg/L
Phosphorus	SM 4500	0.01	mg/L
Total Dissolved Solids	SM 2540	10	mg/L
Antimony	EPA 200.8	1.0	µg/L
Arsenic	EPA 200.8	1.0	µg/L
Barium	EPA 200.8	5.0	µg/L
Beryllium	EPA 200.8	1.0	µg/L
Boron	EPA 200.7	80	µg/L
Cadmium	EPA 200.8	0.2	µg/L
Chromium	EPA 200.8	10	µg/L
Cobalt	EPA 200.8	2.0	µg/L
Copper	EPA 200.8	1.0	µg/L
Fluoride	EPA 300.0	0.1	mg/L
Lead	EPA 200.8	1.0	µg/L
Lithium	EPA 200.7	0.025	mg/L
Manganese	EPA 200.8	1.0	µg/L
Mercury	EPA 1631E	0.5	ng/L
Molybdenum	EPA 200.8	1.0	µg/L
Nickel	EPA 200.8	5.0	µg/L
Selenium	EPA 200.8	1.0	µg/L
Silver	EPA 200.8	0.5	µg/L
Strontium	EPA 200.7	0.05	mg/L
Sulfate (as SO4)	EPA 300.0	2.5	mg/L
Thallium	EPA 200.8	1.0	µg/L
Zinc	EPA 200.8	10	µg/L
Cyanide	ASTM D7511	0.005	mg/L