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LABORATORY REPORT

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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South Bend, IN 46617
Tel: (574) 233-4777
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1 800 332 4345

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: 333539
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3181595	HMWTP-Eff CEM 1001022a	300.0	02/04/15 11:30	Client	02/05/15 09:15
3181595	HMWTP-Eff CEM 1001022a	4500-F- C	02/04/15 11:30	Client	02/05/15 09:15
3181595	HMWTP-Eff CEM 1001022a	2540 C	02/04/15 11:30	Client	02/05/15 09:15
3181595	HMWTP-Eff CEM 1001022a	2540 D	02/04/15 11:30	Client	02/05/15 09:15
3181596	HMWTP-Eff CEM 1001022a	4500-NH3 D	02/04/15 11:30	Client	02/05/15 09:15
3181597	HMWTP-Eff CEM 1001022a	4500-P E	02/04/15 11:30	Client	02/05/15 09:15
3181601	HMWTP-Eff CEM 1001022a	200.8	02/04/15 11:30	Client	02/05/15 09:15

Report Summary

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.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Jim Van Fleit ASM

Authorized Signature | Title | 03/02/2015 Date

Client Name: Superior Watershed Partnership & Land Trust
Report #: 333539

Client Name: Superior Watershed Partnership & Land Trust Report #: 333539

Sampling Point: HMWTP-Eff CEM 1001022a 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	**320**	mg/L	---	02/11/15 17:24	3181595
---	Solids, Suspended	2540 D	---	10	< 10	mg/L	---	02/11/15 16:54	3181595
14808-79-8	Sulfate	300.0	250 ^	5.0	**140**	mg/L	---	02/13/15 20:35	3181595
16984-48-8	Fluoride	4500-F- C	4 *	0.1	**0.2**	mg/L	---	02/06/15 16:58	3181595
7664-41-7	Nitrogen, Ammonia	4500-NH3 D	---	0.1	< 0.1	mg/L	---	02/10/15 15:56	3181596
7723-14-0	Phosphorus	4500-P E	---	0.05	< 0.05	mg P/L	---	02/18/15 11:11	3181597

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	**3.8**	ug/L	---	02/10/15 18:03	3181601
7440-38-2	Arsenic	200.8	10 *	1.0	< 1.0	ug/L	---	02/10/15 18:03	3181601
7440-39-3	Barium	200.8	2000 *	2.0	**8.6**	ug/L	---	02/10/15 18:03	3181601
7440-42-8	Boron	200.8	---	5.0	**74**	ug/L	---	02/10/15 18:03	3181601
7440-43-9	Cadmium	200.8	5 *	1.0	< 1.0	ug/L	---	02/10/15 18:03	3181601
7440-47-3	Chromium	200.8	100 *	0.9	< 0.9	ug/L	---	02/10/15 18:03	3181601
7440-48-4	Cobalt	200.8	---	2.0	**2.6**	ug/L	---	02/10/15 18:03	3181601
7440-50-8	Copper	200.8	1300 !	1.0	**1.1**	ug/L	---	02/10/15 18:03	3181601
7439-92-1	Lead	200.8	15 !	1.0	< 1.0	ug/L	---	02/10/15 18:03	3181601
7439-93-2	Lithium	200.8	---	2.0	**3.1**	ug/L	---	02/10/15 18:03	3181601
7439-96-5	Manganese	200.8	50 ^	2.0	**220**	ug/L	---	02/10/15 18:03	3181601
7439-98-7	Molybdenum	200.8	---	2.0	**8.5**	ug/L	---	02/10/15 18:03	3181601
7440-02-0	Nickel	200.8	---	1.0	**17**	ug/L	---	02/10/15 18:03	3181601
7782-49-2	Selenium	200.8	50 *	2.0	< 2.0	ug/L	---	02/10/15 18:03	3181601
7440-24-6	Strontium	200.8	---	2.0	**200**	ug/L	---	02/10/15 18:03	3181601
7440-66-6	Zinc	200.8	5000 ^	5.0	< 5.0	ug/L	---	02/10/15 18:03	3181601

† 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.

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Order # 261516
Batch # 333539

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Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page _____ of _____

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Geri Grant	C Hunter		MI	CEMP	

BILL TO:

COMPLIANCE MONITORING: Yes / No

POPULATION SERVED	SOURCE WATER

LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1 3181595	2/4/15	11:30	X		HMWTP-EFF CEM10010229	Table Included, Weekly, 2x Monthly, IOC metals NH3 P	pH<2		X	4	EFF	SW
2 596												
3 597												
4 598												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
C Hunter	2/4/15	2:00 PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
		AM PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
		AM PM	dmartes	2/5/15	0913 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): ✓ Iced/ Wet/Blue ____ Ambient ____ °C Upon Receipt 1.2 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%	IV* = Immediate Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	IW* =Immediate Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

WTP Effluent	Frequency of Analysis*	Sample Type	Analytical Methods	Maximum Daily Limit	Quantitation/ Reporting Limit	Max Daily Limit & Quantitation Units
Field						
Dissolved Oxygen	Daily	Grab	Field	Report	NA	mg/l
pH	Daily	Grab	Field	6.5 - 9	NA	S.U.
Outfall Observation	Daily	Grab	Field	**	NA	NA
Other						
Total Suspended Solids	Weekly	Grab	2540D	30	NA	mg/L
Total Dissolved Solids	Weekly	Grab	2540C	Report	NA	mg/L
Biochemical Oxygen Demand (BOD)	2 x Month	Grab	5210B	Report	NA	mg/l
Acute Toxicity	Monthly	Grab		1	NA	TU_A
Chronic Toxicity	Monthly	Grab		1	NA	TU_C
Anions						
Ammonia Nitrogen	2 x Month	Grab	4500-NH3 G	Report	0.05	mg/l
Total Phosphorus	Weekly	Grab	4500-P **E**	Report	0.01	mg/l
Fluoride	2 x Month	Grab	4500-F C	Report	100	ug/l
Sulfate	Weekly	Grab	ASTMD516-90(02)	Report	5	mg/l
Metals						
Total Antimony	2 x Month	Grab	200.7/**200.8**	Report	1.0	ug/l
Total Arsenic	Weekly	Grab	200.7/**200.8**	10	1.0	ug/l
Total Barium	2 x Month	Grab	200.7/**200.8**	Report	5.0	ug/l
Total Boron	2 x Month	Grab	200.7/**200.8**	250	20.0	ug/l
Total Cadmium	Weekly	Grab	200.7/**200.8**	5	0.2	ug/l
Total Chromium	2 x Month	Grab	200.7/**200.8**	Report	1.0	ug/l
Total Cobalt	Weekly	Grab	200.7/**200.8**	Report	15.0	ug/l
Total Copper	Weekly	Grab	200.7/**200.8**	21	1.0	ug/l
Total Lead	Weekly	Grab	200.7/**200.8**	Report	1.0	ug/l
Total Lithium	2 x Month	Grab	**200.7**/200.8	Report	8.0	ug/l
Total Manganese	Weekly	Grab	200.7/**200.8**	Report	5.0	ug/l
Total Mercury	Weekly	Grab	1631E	2.1	0.5	ng/L
Total Molybdenum	2 x Month	Grab	200.7/**200.8**	Report	25.0	ug/l
Total Nickel	Weekly	Grab	200.7/**200.8**	Report	2.0	ug/l
Total Selenium	Weekly	Grab	200.7/**200.8**	25	1.0	ug/l
Total Strontium	2 x Month	Grab	200.7/**200.8**	Report	5.0	ug/l
Total Zinc	Weekly	Grab	200.7/**200.8**	Report	10.0	ug/l