



429 River Lane • PO Box 27 Amasa, MI 49903 • Ph (906) 822-7889 • Fax -7977

Cover Page

Client: Superior Watershed Partnership

WWA Job #: 58274

Project: Groundwater Monitoring

Date Received: 7/8/2015

Date Reported: 8/25/2015

Sample Number	Client Sample ID	Date Sampled	Sample Matrix
58274-001	EMWTP-EFF	07/07/15	Water
58274-002	HMWTP-EFF	07/08/15	Water



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Cover Page...continued

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Comments (if any):

Key to Laboratory Flags:

- *: RPD exceeds limits.
- B: The analyte was found in the associated blank as well as in the sample.
- J: The quantitation is an estimated value because the result is less than the sample quantitation limit but greater than the detection limit.
- M: A matrix effect was present.
- Q: Batch QC data associated with the analysis does not meet the stated objectives
- H: Indicates analytical holding time exceedance.
- U: The analyte was analyzed for, but not detected.
- P: A manual peak selection or manual integration was performed to correct an erroneous software selection.

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit
ppm = mg/L (liquid) or mg/kg (solid), ppb = ug/L (liquid) or ug/kg (solid)
For coliform, Negative = No coliform bacteria detected, Positive = Coliform bacteria detected

Sample Types:

S = Solids, DW = Drinking water, D = Dissolved, T = Total, TC = TCLP extract, SP = SPLP extract

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without the written approval of this laboratory. The Chain of Custody is attached.

This report satisfies the requirements of your project but has not been prepared to comply with NELAP reporting requirements.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and White Water Associates Standard Operating Procedures. Exceptions, if any, are discussed in the accompanying sample narrative. Release of this Final Report is authorized by White Water Associates management, as is verified by the following signature.

Approved By:

A handwritten signature in black ink, appearing to read "B. J. Rem", is written over a horizontal line.

WI DNR Lab Certification Number: 999971280
MI DEQ Certification Number: 9306
DoD-ELAP Accreditation Number: 65802
ISO/IEC 17025:2005 Accredited



WHITE WATER ASSOCIATES, INC.

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Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
58274-001 / EMWTP-EFF / CEM-10010257 / Water							
General Chemistry Parameters							
Ammonia-N	0.36		mg/L	7/13/2015	350.1	0.01	0.04
BOD	ND		mg/L	7/9/2015	5210B	2	2
Chloride	4	J	mg/L	7/9/2015	4500-Cl- E	3	10
Conductivity	24		umho/cm	7/9/2015	2510B	1	2
Fluoride	0.020	J	mg/L	7/14/2015	300.0	0.017	0.10
Nitrate-N	ND		mg/L	7/15/2015	4500-NO3- F	0.06	0.20
Nitrite-N	ND		mg/L	7/9/2015	4500-NO3- F	0.01	0.02
pH	7.5		pH Units	7/8/2015	4500H+ B	0.10	0.20
Sulfate	ND		mg/L	7/10/2015	4500-SO4- E	3.0	6.0
Total Dissolved Solids	17		mg/L	7/13/2015	2540C	10	10
Total Phosphorus (t)	ND		mg/L	7/14/2015	365.4	0.02	0.04
Total Suspended Solids	ND		mg/L	7/10/2015	2540D	1	1
Trace Metals - Total							
Aluminum (t)	ND		mg/L	7/23/2015	200.7	0.10	0.40
Antimony (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Arsenic (t)	ND		ug/L	8/12/2015	200.8	1.0	10
Barium (t)	ND		ug/L	7/13/2015	200.7	0.20	1.0
Beryllium (t)	ND		ug/L	7/13/2015	200.7	0.40	2.0
Boron (t)	ND		ug/L	7/24/2015	200.7	40	100
Cadmium (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Chromium (t)	1.5	J	ug/L	7/13/2015	200.7	1.5	3.5
Cobalt (t)	ND		ug/L	7/13/2015	200.7	8.0	20
Copper (t)	ND		ug/L	7/13/2015	200.7	4.5	10
Iron (t)	ND		ug/L	7/23/2015	200.7	10	30

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/l (liquid) or mg/kg (solid), ppb = ug/l (liquid) or ug/kg (solid)



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Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	SQL
58274-001 / EMWTP-EFF / CEM-10010257 / Water							
Lead (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Lithium (t)	ND		ug/L	7/24/2015	200.7	6.0	30
Manganese (t)	ND		ug/L	7/23/2015	200.7	0.50	2.0
Mercury (LL)	0.23	J	ng/L	7/21/2015	1631E	0.16	0.50
Molybdenum (t)	3.2	J	ug/L	7/24/2015	200.7	3.0	10
Nickel (t)	ND		ug/L	7/13/2015	200.7	13	30
Potassium (t)	0.18	J	mg/L	7/23/2015	200.7	0.10	0.40
Selenium (t)	ND		ug/L	8/12/2015	200.8	1.0	10
Silver (t)	ND		ug/L	8/12/2015	200.8	0.20	3.0
Strontium (t)	ND		ug/L	7/24/2015	200.7	0.10	0.60
Thallium (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Vanadium (t)	ND		ug/L	8/12/2015	200.8	0.30	3.0
Zinc (t)	ND		ug/L	7/13/2015	200.7	10	30



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Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
58274-002 / HMWTP-EFF / CEM-10010258 / Water							
General Chemistry Parameters							
Ammonia-N	0.37		mg/L	7/13/2015	350.1	0.01	0.04
BOD	ND		mg/L	7/9/2015	5210B	2	2
Chloride	23		mg/L	7/9/2015	4500-Cl- E	3	10
Conductivity	530		umho/cm	7/9/2015	2510B	1	2
Fluoride	0.14		mg/L	7/14/2015	300.0	0.017	0.10
Nitrate-N	0.94		mg/L	7/15/2015	4500-NO3- F	0.06	0.20
Nitrite-N	ND		mg/L	7/9/2015	4500-NO3- F	0.01	0.02
pH	7.8		pH Units	7/8/2015	4500H+ B	0.10	0.20
Sulfate	130		mg/L	7/10/2015	4500-SO4- E	15	30
Total Dissolved Solids	370		mg/L	7/13/2015	2540C	10	10
Total Phosphorus (t)	ND		mg/L	7/14/2015	365.4	0.02	0.04
Total Suspended Solids	ND		mg/L	7/10/2015	2540D	1	1
Trace Metals - Total							
Antimony (t)	2.7		ug/L	8/12/2015	200.8	0.10	1.0
Arsenic (t)	ND		ug/L	8/12/2015	200.8	1.0	10
Barium (t)	13		ug/L	7/13/2015	200.7	0.20	1.0
Boron (t)	85	J	ug/L	7/24/2015	200.7	40	100
Cadmium (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Chromium (t)	12		ug/L	7/13/2015	200.7	1.5	3.5
Cobalt (t)	ND		ug/L	7/13/2015	200.7	8.0	20
Copper (t)	7.2	J	ug/L	7/13/2015	200.7	4.5	10
Lead (t)	ND		ug/L	8/12/2015	200.8	0.10	1.0
Lithium (t)	15	J	ug/L	7/24/2015	200.7	6.0	30
Manganese (t)	96		ug/L	7/23/2015	200.7	0.50	2.0

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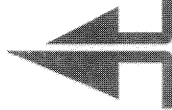
Sample Results

Sample No. / ID / Description / Matrix	Result	Flags	Units	Date	Method	MDL	MQL
58274-002 / HMWTP-EFF / CEM-10010258 / Water							
Mercury (LL)	ND		ng/L	7/21/2015	1631E	0.16	0.50
Molybdenum (t)	8.5	J	ug/L	7/24/2015	200.7	3.0	10
Nickel (t)	ND		ug/L	7/13/2015	200.7	13	30
Selenium (t)	ND		ug/L	8/12/2015	200.8	1.0	10
Strontium (t)	200		ug/L	7/24/2015	200.7	0.10	0.60
Zinc (t)	ND		ug/L	7/13/2015	200.7	10	30

ND = Not Detected, MDL = Method Detection Limit, MQL = Method Quantitation Limit,
ppm = mg/l (liquid) or mg/kg (solid), ppb = ug/l (liquid) or ug/kg (solid)

Job # (WWA office use): 58274

CHAIN-OF-CUSTODY RECORD



**WHITE WATER
ASSOCIATES, INC.**

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Web: white-water-associates.com

[illegible]

Comments / Sample temperature on receipt:

8.7.0

WHITE - RETURN W/ REPORT

CANARY - W/ SAMPLES

PINK - CUSTOMER

Table 5
Groundwater Discharge Permit WTP Effluent Monitoring
Parameters, Frequency, Analytical Methods, and Reporting Limits

Parameters	Units	Frequency of Analysis	Analytical Method ¹	Reporting Limit
Influent Flow	GPD	Daily	--	--
Effluent Flow	GPD	Daily	--	--
Biochemical Oxygen	mg/l	Weekly	--	--
Dissolved Oxygen	mg/l	Monthly	--	--
Ammonia Nitrogen	mg/l	Monthly	--	--
Nitrate Nitrogen	mg/l	Monthly	--	--
Nitrite Nitrogen	mg/l	Monthly	--	--
pH (Minimum)	S.U.	Continuous Measurement	--	--
pH (Maximum)	S.U.	Continuous Measurement	--	--
Total Phosphorus	mg/l	Monthly	--	--
Specific Conductance	umhos/cm	Continuous Measurement	--	--
Total Aluminum	mg/l	Monthly	--	--
Total Antimony	ug/l	Monthly	200.8/6020	1
Total Arsenic	ug/l	Weekly	200.8/6020	1
Total Barium	ug/l	Monthly	200.8/6020	5
Total Beryllium	ug/l	Monthly	200.8/6020	1
Total Boron	ug/l	Weekly	200.8/6020	20
Total Cadmium	ug/l	Weekly	200.8/6020	0.2
Total Chloride	mg/l	Monthly	--	--
Total Chromium	ug/l	Monthly	200.8/6020	1
Total Cobalt	ug/l	Monthly	200.8/6020	15
Total Copper	ug/l	Weekly	200.8/6020	1
Total Fluoride	ug/l	Monthly	--	--
Total Iron	ug/l	Monthly	--	--
Total Lead	ug/l	Monthly	200.8/6020	1
Total Lithium	ug/l	Monthly	200.8/6020	8
Total Manganese	ug/l	Monthly	200.8/6020	5
Total Mercury	ug/l	Weekly	1631/----	0.0005
Total Molybdenum	ug/l	Monthly	200.8/6020	25
Total Nickel	ug/l	Monthly	200.8/6020	2
Total Potassium	ug/l	Monthly	--	--
Total Selenium	ug/l	Weekly	200.8/6020	1
Total Silver	ug/l	Weekly	200.8/6020	0.2
Total Sodium	mg/l	Monthly	--	--
Total Strontium	ug/l	Monthly	200.8/6020	5
Total Sulfate	ug/l	Monthly	--	--
Total Thallium	ug/l	Monthly	200.8/6020	2
Total Vanadium	ug/l	Monthly	200.8/6020	2
Total Zinc	ug/l	Monthly	200.8/6020	10

¹ Acceptable to use equivalent or improved analytical methods.

-- Indicates the permit does not specify this information.

TABLE 1

Humboldt Mill WTP Effluent Monthly List						
	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	Monthly	Grab	2540D	30	NA	mg/L
Total Dissolved Solids	Monthly	Grab	2540C	Report	NA	mg/L
Biochemical Oxygen Demand (BOD)	Monthly	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	Monthly	Grab	4500-NH ₃ G	Report	0.05	mg/l
Total Phosphorus	Monthly	Grab	4500-P E	Report	0.01	mg/l
Fluoride	Monthly	Grab	4500-F C	Report	100	ug/l
Sulfate	Monthly	Grab	ASTMD516-90(02)	Report	5	mg/l
Metals						
Total Antimony	Monthly	Grab	200.7/200.8	Report	1.0	ug/l
Total Arsenic	Monthly	Grab	200.7/200.8	10	1.0	ug/l
Total Barium	Monthly	Grab	200.7/200.8	Report	5.0	ug/l
Total Boron	Monthly	Grab	200.7/200.8	250	20.0	ug/l
Total Cadmium	Monthly	Grab	200.7/200.8	5	0.2	ug/l
Total Chromium	Monthly	Grab	200.7/200.8	Report	1.0	ug/l
Total Cobalt	Monthly	Grab	200.7/200.8	Report	15.0	ug/l
Total Copper	Monthly	Grab	200.7/200.8	21	1.0	ug/l
Total Lead	Monthly	Grab	200.7/200.8	Report	1.0	ug/l
Total Lithium	Monthly	Grab	200.7/200.8	Report	8.0	ug/l
Total Manganese	Monthly	Grab	200.7/200.8	Report	5.0	ug/l
Total Mercury	Monthly	Grab	1631E	2.1	0.5	ng/L
Total Molybdenum	Monthly	Grab	200.7/200.8	Report	25.0	ug/l
Total Nickel	Monthly	Grab	200.7/200.8	Report	2.0	ug/l
Total Selenium	Monthly	Grab	200.7/200.8	25	1.0	ug/l
Total Strontium	Monthly	Grab	200.7/200.8	Report	5.0	ug/l
Total Zinc	Monthly	Grab	200.7/200.8	Report	10.0	ug/l