Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Client: T. J. NEWKIRK
OTTER TAIL POWER CO. - BIG STONE
P O BOX 496
FERGUS FALLS MN 56538-0496

Sample ID: H1OX **Sample Date:** 4/22/2009 **SampleTime:** 12:21
Era Project Number: 048879-1

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	905	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	3.3	mg/L	5/12/2009	12:59	SM 4500-Cl E	0.2	0.4	
Nitrogen, Nitrate + Nitrite	6.7	mg/L	5/5/2009	13:02	353.2	0.1	0.3	
pH - Lab	7.0	SU	4/29/2009	15:45	150.1			
Specific Conductance	1970	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	369	mg/L	5/7/2009	3:18	300.0	5	15	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	50	µg/L	5/1/2009	8:08	6010B	10	40	
Boron, Dissolved	4100	µg/L	5/1/2009	8:08	6010B	100	400	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	484	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1390	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	5/1/2009	9:47	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total	3.1	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved	< 1	µg/L	5/19/2009	8:34	6010B	1	4	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H1OX **Sample Date:** 4/22/2009 **SampleTime:** 12:21
Era Project Number: 048879-1

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Sodium, Total		39	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved		490	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	<	2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	17	

Sample ID: S-3 **Sample Date:** 4/22/2009 **SampleTime:** 13:33
Era Project Number: 048879-2

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		357	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		280	mg/L	5/8/2009	6:49	300.0	10	30	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	5/5/2009	13:03	353.2	0.1	0.3	
pH - Lab		6.8	SU	4/29/2009	15:45	150.1			
Specific Conductance		2560	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		876	mg/L	5/8/2009	6:49	300.0	30	80	
Arsenic, Dissolved		20	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved		120	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		1140	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1710	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		950	µg/L	5/5/2009	12:51	6010B	10	40	
Potassium, Total		8.3	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total		14.9	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved		1210	µg/L	4/30/2009	15:01	6010B	10	40	

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: S-6 **Sample Date:** 4/22/2009 **SampleTime:** 14:37

Era Project Number: 048879-3

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		431	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		12	mg/L	5/12/2009	12:58	SM 4500-Cl E	0.4	0.8	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	5/14/2009	11:00	353.2	0.01	0.03	
pH - Lab		6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance		1520	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		478	mg/L	5/7/2009	3:51	300.0	5	15	
Arsenic, Dissolved		4	µg/L	5/1/2009	9:47	6010B	3	11	J
Boron, Dissolved		160	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		659	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		996	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		520	µg/L	5/1/2009	9:47	6010B	100	400	
Potassium, Total		6.8	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total		15.7	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved		940	µg/L	4/30/2009	15:01	6010B	10	40	

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H4OX **Sample Date:** 4/22/2009 **SampleTime:** 15:59

Era Project Number: 048879-4

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	487	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	59	mg/L	5/8/2009	7:05	300.0	10	30	
Nitrogen, Nitrate + Nitrite	0.17	mg/L	5/5/2009	13:11	353.2	0.01	0.03	
pH - Lab	6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance	2810	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	1420	mg/L	5/8/2009	7:05	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	10	µg/L	5/1/2009	8:08	6010B	10	40	J
Boron, Dissolved	190	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	1080	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	2080	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	20	µg/L	5/1/2009	9:47	6010B	10	40	J
Mercury, Dissolved	0.14	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total	5.8	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved	2	µg/L	5/19/2009	8:34	6010B	1	4	J
Sodium, Total	24.5	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved	900	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	17	

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H4INT **Sample Date:** 4/22/2009 **SampleTime:** 16:15

Era Project Number: 048879-5

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		439	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		10	mg/L	5/7/2009	21:22	300.0	2	6	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	5/5/2009	13:14	353.2	0.01	0.03	
pH - Lab		6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance		2460	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		236	mg/L	5/7/2009	21:22	300.0	5	15	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved		10	µg/L	5/1/2009	8:08	6010B	10	40	J
Boron, Dissolved		160	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	<	2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		985	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1740	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		340	µg/L	5/1/2009	9:47	6010B	50	200	
Mercury, Dissolved	<	0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total		12.6	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved		5	µg/L	5/1/2009	15:50	6010B	3	7	J
Silver, Dissolved	<	1	µg/L	5/19/2009	8:34	6010B	1	4	
Sodium, Total		31	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved		1180	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	<	2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved		9	µg/L	5/1/2009	9:47	6010B	5	17	J

MN Certification # 027-137-152

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: WELL 10 **Sample Date:** 4/22/2009 **SampleTime:** 17:20

Era Project Number: 048879-6

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	316	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	14	mg/L	5/7/2009	22:09	300.0	2	6	
Nitrogen, Nitrate + Nitrite	9.7	mg/L	5/14/2009	11:03	353.2	0.1	0.3	
pH - Lab	7.2	SU	4/29/2009	15:45	150.1			
Specific Conductance	950	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	175	mg/L	5/7/2009	22:09	300.0	5	15	
Hardness, Calcium	267	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	578	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	2.8	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total	4.6	mg/L	5/20/2009	8:30	6010B	0.2	0.8	

Sample ID: WELL 11 **Sample Date:** 4/22/2009 **SampleTime:** 17:49

Era Project Number: 048879-7

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	384	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	61	mg/L	5/7/2009	22:25	300.0	10	30	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:17	353.2	0.01	0.03	
pH - Lab	6.8	SU	4/29/2009	15:45	150.1			
Specific Conductance	1760	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	629	mg/L	5/7/2009	22:25	300.0	30	80	
Hardness, Calcium	836	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1160	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	8.4	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total	13.5	mg/L	5/20/2009	8:30	6010B	0.2	0.8	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H3INT **Sample Date:** 4/22/2009 **SampleTime:** 18:47

Era Project Number: 048879-8

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	509	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	70	mg/L	5/7/2009	22:42	300.0	10	30	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:18	353.2	0.01	0.03	
pH - Lab	6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance	2250	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	858	mg/L	5/7/2009	22:42	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	30	µg/L	5/1/2009	8:08	6010B	10	40	J
Boron, Dissolved	540	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	970	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1480	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	100	µg/L	5/1/2009	9:47	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total	12.1	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved	1	µg/L	5/19/2009	8:34	6010B	1	4	J
Sodium, Total	44	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved	920	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	17	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H3OX **Sample Date:** 4/22/2009 **SampleTime:** 19:00

Era Project Number: 048879-9

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	678	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	77	mg/L	5/7/2009	22:58	300.0	10	30	
Nitrogen, Nitrate + Nitrite	0.07	mg/L	5/5/2009	13:19	353.2	0.01	0.03	
pH - Lab	7.1	SU	4/29/2009	15:45	150.1			
Specific Conductance	4150	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	2080	mg/L	5/7/2009	22:58	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	10	µg/L	5/1/2009	8:08	6010B	10	40	J
Boron, Dissolved	13100	µg/L	5/1/2009	8:08	6010B	200	800	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	5	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	970	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1980	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	5/1/2009	9:47	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total	6.4	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved	< 1	µg/L	5/19/2009	8:34	6010B	1	4	
Sodium, Total	475	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved	1060	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	17	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H2OX **Sample Date:** 4/23/2009 **SampleTime:** 9:21

Era Project Number: 048879-10

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		461	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	<	20	mg/L	5/7/2009	23:15	300.0	20	60	
Nitrogen, Nitrate + Nitrite		0.75	mg/L	5/5/2009	13:20	353.2	0.01	0.03	
pH - Lab		6.8	SU	4/29/2009	15:45	150.1			
Specific Conductance		4000	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		2770	mg/L	5/7/2009	23:15	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	<	10	µg/L	5/1/2009	8:08	6010B	10	40	
Boron, Dissolved		320	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	<	2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved		4	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		1350	mg/L	5/14/2009	8:25	6010B	20	40	
Hardness, Total (as CaCO3)		2970	mg/L	5/14/2009	8:25	6010B	20	38	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		30	µg/L	5/1/2009	9:47	6010B	10	40	J
Mercury, Dissolved	<	0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total		15.4	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved		32	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved		1	µg/L	5/19/2009	8:34	6010B	1	4	J
Sodium, Total		117	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved		2590	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	<	2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: COOLING POND **Sample Date:** 4/23/2009 **SampleTime:** 9:25

Era Project Number: 048879-11

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	208	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	55	mg/L	5/7/2009	23:31	300.0	10	30	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:22	353.2	0.01	0.03	
pH - Lab	8.8	SU	4/29/2009	15:45	150.1			
Specific Conductance	2130	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	1070	mg/L	5/7/2009	23:31	300.0	30	80	
Hardness, Calcium	495	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1130	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	26	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	130	mg/L	5/14/2009	13:25	6010B	2	5	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: ASH RUNOFF POND **Sample Date:** 4/23/2009 **SampleTime:** 9:40

Era Project Number: 048879-12

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		276	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		420	mg/L	5/7/2009	23:47	300.0	20	60	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	5/5/2009	13:23	353.2	0.01	0.03	
pH - Lab		9.2	SU	4/29/2009	15:45	150.1			
Specific Conductance		13000	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		6890	mg/L	5/7/2009	23:47	300.0	50	150	
Arsenic, Total		18	µg/L	5/8/2009	10:20	6010B	3	11	
Barium, Total		80	µg/L	5/9/2009	11:38	6010B	10	40	
Boron, Total		26700	µg/L	5/9/2009	11:38	6010B	500	2000	
Cadmium, Total	<	1	µg/L	5/8/2009	10:20	6010B	1	4	
Chromium, Total		4	µg/L	5/8/2009	10:20	6010B	2	7	J
Copper, Total		2	µg/L	5/8/2009	10:20	6010B	1	4	J
Hardness, Calcium		294	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1770	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Total	<	5	µg/L	5/8/2009	10:20	6010B	5	18	
Manganese, Total		200	µg/L	5/9/2009	8:58	6010B	10	40	
Mercury, Total		0.07	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total		152	mg/L	5/15/2009	8:27	6010B	3	10	
Selenium, Total		15	µg/L	5/8/2009	10:20	6010B	3	10	
Silver, Total	<	1	µg/L	5/19/2009	8:34	6010B	1	4	
Sodium, Total		2920	mg/L	5/14/2009	13:25	6010B	20	43	
Strontium, Total		3490	µg/L	5/9/2009	8:58	6010B	10	40	
Vanadium, Total		31	µg/L	5/8/2009	10:20	6010B	2	8	NG
Zinc, Total		9	µg/L	5/8/2009	10:20	6010B	5	17	J

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: H1INT **Sample Date:** 4/23/2009 **SampleTime:** 10:44

Era Project Number: 048879-13

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	386	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	8	mg/L	5/8/2009	0:04	300.0	2	6	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:24	353.2	0.01	0.03	
pH - Lab	7.1	SU	4/29/2009	15:45	150.1			
Specific Conductance	1180	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	320	mg/L	5/8/2009	0:04	300.0	5	15	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Barium, Dissolved	20	µg/L	5/1/2009	8:08	6010B	10	40	J
Boron, Dissolved	140	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	7	
Copper, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	451	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	715	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	680	µg/L	5/1/2009	9:47	6010B	100	400	
Mercury, Dissolved	< 0.04	µg/L	5/7/2009	9:45	7470	0.04	0.05	
Potassium, Total	6.0	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	5/1/2009	15:50	6010B	3	7	
Silver, Dissolved	< 1	µg/L	5/19/2009	8:34	6010B	1	4	
Sodium, Total	12.9	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved	600	µg/L	4/30/2009	15:01	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	5/1/2009	9:47	6010B	2	8	NG
Zinc, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC101 **Sample Date:** 4/23/2009 **SampleTime:** 11:18

Era Project Number: 048879-14

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		512	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	<	10	mg/L	5/8/2009	0:20	300.0	10	30	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	5/5/2009	13:32	353.2	0.01	0.03	
pH - Lab		6.7	SU	4/29/2009	15:45	150.1			
Specific Conductance		2300	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		1080	mg/L	5/8/2009	0:20	300.0	30	80	
Arsenic, Dissolved		9	µg/L	5/1/2009	9:47	6010B	3	11	J
Boron, Dissolved		130	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		1100	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1660	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		1400	µg/L	5/1/2009	9:47	6010B	100	400	
Potassium, Total		7.3	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total		15.0	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved		880	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC1 **Sample Date:** 4/23/2009 **SampleTime:** 11:37

Era Project Number: 048879-15

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		392	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		200	mg/L	5/8/2009	11:27	300.0	50	150	
Nitrogen, Nitrate + Nitrite		0.64	mg/L	5/5/2009	13:35	353.2	0.01	0.03	
pH - Lab		7.3	SU	4/29/2009	15:45	150.1			
Specific Conductance		2150	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		1050	mg/L	5/20/2009	20:48	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved		4000	µg/L	5/1/2009	8:08	6010B	100	400	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		368	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1110	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		10	µg/L	5/1/2009	9:47	6010B	10	40	J
Potassium, Total		1.8	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total		159	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved		520	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC6 **Sample Date:** 4/23/2009 **SampleTime:** 12:16

Era Project Number: 048879-16

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	419	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	67	mg/L	5/8/2009	2:11	300.0	4	12	
Nitrogen, Nitrate + Nitrite	0.16	mg/L	5/5/2009	13:37	353.2	0.01	0.03	
pH - Lab	7.1	SU	4/29/2009	15:45	150.1			
Specific Conductance	3020	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	1800	mg/L	5/19/2009	8:21	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved	2150	µg/L	5/1/2009	8:08	6010B	50	200	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	765	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1960	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	5/1/2009	9:47	6010B	10	40	
Potassium, Total	5.5	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total	145	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved	570	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC5 **Sample Date:** 4/23/2009 **SampleTime:** 12:45

Era Project Number: 048879-17

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		729	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		390	mg/L	5/8/2009	9:32	300.0	40	120	
Nitrogen, Nitrate + Nitrite		0.04	mg/L	5/5/2009	13:38	353.2	0.01	0.03	
pH - Lab		6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance		10300	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		6060	mg/L	5/20/2009	19:18	300.0	100	300	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved		15400	µg/L	5/1/2009	8:08	6010B	200	800	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		1100	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		4390	mg/L	5/14/2009	8:25	6010B	20	38	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		1300	µg/L	5/1/2009	9:47	6010B	100	400	
Potassium, Total		65	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total		1420	mg/L	5/14/2009	13:25	6010B	20	43	
Strontium, Dissolved		760	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: S1 **Sample Date:** 4/23/2009 **SampleTime:** 13:10

Era Project Number: 048879-18

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	1400	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	2800	mg/L	5/8/2009	10:05	300.0	100	300	
Nitrogen, Nitrate + Nitrite	0.05	mg/L	5/5/2009	13:39	353.2	0.01	0.03	
pH - Lab	7.0	SU	4/29/2009	15:45	150.1			
Specific Conductance	38200	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	236	mg/L	5/19/2009	8:53	300.0	5	15	
Arsenic, Dissolved	6	µg/L	5/8/2009	10:20	6010B	3	11	J
Boron, Dissolved	23900	µg/L	5/9/2009	11:38	6010B	200	800	
Cadmium, Dissolved	2	µg/L	5/21/2009	12:06	6010B	1	4	J
Hardness, Calcium	1270	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	29400	mg/L	5/14/2009	8:25	6010B	50	150	
Lead, Dissolved	< 5	µg/L	5/8/2009	10:20	6010B	5	18	
Manganese, Dissolved	4090	µg/L	5/9/2009	8:58	6010B	10	40	
Potassium, Total	64	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	5850	mg/L	5/14/2009	13:25	6010B	30	85	
Strontium, Dissolved	3470	µg/L	5/9/2009	8:58	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: S2 **Sample Date:** 4/23/2009 **SampleTime:** 13:30

Era Project Number: 048879-19

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	1400	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	3200	mg/L	5/8/2009	10:22	300.0	100	300	
Nitrogen, Nitrate + Nitrite	0.08	mg/L	5/14/2009	11:04	353.2	0.01	0.03	
pH - Lab	7.1	SU	4/29/2009	15:45	150.1			
Specific Conductance	47500	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	44900	mg/L	5/20/2009	19:36	300.0	500	1500	
Arsenic, Dissolved	13	µg/L	5/8/2009	10:20	6010B	3	11	
Boron, Dissolved	49700	µg/L	5/9/2009	11:38	6010B	500	2000	
Cadmium, Dissolved	1	µg/L	5/21/2009	12:06	6010B	1	4	J
Hardness, Calcium	1260	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	34800	mg/L	5/14/2009	8:25	6010B	50	150	
Lead, Dissolved	< 5	µg/L	5/8/2009	10:20	6010B	5	18	
Manganese, Dissolved	8940	µg/L	5/9/2009	8:58	6010B	10	40	
Potassium, Total	77	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	9190	mg/L	5/14/2009	13:25	6010B	30	85	
Strontium, Dissolved	3080	µg/L	5/9/2009	8:58	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
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Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: S4 **Sample Date:** 4/23/2009 **SampleTime:** 13:48

Era Project Number: 048879-20

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	345	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	290	mg/L	5/8/2009	12:13	300.0	40	120	
Nitrogen, Nitrate + Nitrite	0.03	mg/L	5/5/2009	13:40	353.2	0.01	0.03	
pH - Lab	6.9	SU	4/29/2009	15:45	150.1			
Specific Conductance	3370	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	1740	mg/L	5/19/2009	6:45	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved	730	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium	1510	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	2410	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	< 5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	5/1/2009	9:47	6010B	10	40	
Potassium, Total	5.6	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total	115	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved	500	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: S5 **Sample Date:** 4/23/2009 **SampleTime:** 13:55

Era Project Number: 048879-21

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		408	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		90	mg/L	5/8/2009	12:30	300.0	40	120	J
Nitrogen, Nitrate + Nitrite		0.53	mg/L	5/5/2009	13:41	353.2	0.01	0.03	
pH - Lab		7.0	SU	4/29/2009	15:45	150.1			
Specific Conductance		2220	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		1040	mg/L	5/19/2009	7:33	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved		150	µg/L	5/1/2009	8:08	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		1090	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		1530	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		730	µg/L	5/1/2009	9:47	6010B	100	400	
Potassium, Total		8.3	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total		13.5	mg/L	5/20/2009	8:30	6010B	0.2	0.8	
Strontium, Dissolved		1040	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC2 **Sample Date:** 4/23/2009 **SampleTime:** 14:28

Era Project Number: 048879-22

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	789	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	1900	mg/L	5/8/2009	12:46	300.0	40	120	
Nitrogen, Nitrate + Nitrite	0.04	mg/L	5/14/2009	11:05	353.2	0.01	0.03	
pH - Lab	7.2	SU	4/29/2009	15:45	150.1			
Specific Conductance	34400	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	27200	mg/L	5/20/2009	20:32	300.0	300	800	
Arsenic, Dissolved	8	µg/L	5/8/2009	10:20	6010B	3	11	J
Boron, Dissolved	69400	µg/L	5/9/2009	11:38	6010B	1000	4000	
Cadmium, Dissolved	< 1	µg/L	5/21/2009	12:06	6010B	1	4	
Hardness, Calcium	1140	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	19700	mg/L	5/14/2009	8:25	6010B	50	150	
Lead, Dissolved	< 5	µg/L	5/8/2009	10:20	6010B	5	18	
Manganese, Dissolved	10300	µg/L	5/9/2009	8:58	6010B	100	400	
Potassium, Total	300	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	6240	mg/L	5/14/2009	13:25	6010B	30	85	
Strontium, Dissolved	4200	µg/L	5/9/2009	8:58	6010B	100	400	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC3 **Sample Date:** 4/23/2009 **SampleTime:** 14:45

Era Project Number: 048879-23

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	1300	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	2100	mg/L	5/8/2009	13:03	300.0	40	120	
Nitrogen, Nitrate + Nitrite	0.04	mg/L	5/5/2009	13:45	353.2	0.01	0.03	
pH - Lab	6.8	SU	4/29/2009	15:45	150.1			
Specific Conductance	25900	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	19100	mg/L	5/20/2009	21:41	300.0	300	800	
Arsenic, Dissolved	< 3	µg/L	5/8/2009	10:20	6010B	3	11	
Boron, Dissolved	23000	µg/L	5/9/2009	11:38	6010B	200	800	
Cadmium, Dissolved	< 1	µg/L	5/21/2009	12:06	6010B	1	4	
Hardness, Calcium	1200	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	15400	mg/L	5/14/2009	8:25	6010B	50	150	
Lead, Dissolved	< 5	µg/L	5/8/2009	10:20	6010B	5	18	
Manganese, Dissolved	2630	µg/L	5/9/2009	8:58	6010B	10	40	
Potassium, Total	26	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	3600	mg/L	5/14/2009	13:25	6010B	30	85	
Strontium, Dissolved	1370	µg/L	5/9/2009	8:58	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: BC4 **Sample Date:** 4/23/2009 **SampleTime:** 15:05

Era Project Number: 048879-24

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		327	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride		100	mg/L	5/8/2009	13:19	300.0	40	120	J
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	5/5/2009	13:54	353.2	0.1	0.3	
pH - Lab		7.4	SU	4/29/2009	15:45	150.1			
Specific Conductance		4550	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate		2770	mg/L	5/20/2009	18:59	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	5/1/2009	9:47	6010B	3	11	
Boron, Dissolved		8500	µg/L	5/1/2009	8:08	6010B	100	400	
Cadmium, Dissolved	<	1	µg/L	5/1/2009	9:47	6010B	1	4	
Hardness, Calcium		938	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)		2030	mg/L	5/14/2009	8:25	6010B	3	8	
Lead, Dissolved	<	5	µg/L	5/1/2009	9:47	6010B	5	18	
Manganese, Dissolved		1200	µg/L	5/1/2009	9:47	6010B	100	400	
Potassium, Total		60	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total		634	mg/L	5/14/2009	13:25	6010B	2	5	
Strontium, Dissolved		2990	µg/L	4/30/2009	15:01	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: WELL 12 **Sample Date:** 4/23/2009 **SampleTime:** 16:00
Era Project Number: 048879-25

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	398	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	3.4	mg/L	5/12/2009	10:07	SM 4500-Cl E	0.2	0.4	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:58	353.2	0.01	0.03	
pH - Lab	7.5	SU	4/29/2009	15:45	150.1			
Specific Conductance	1360	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	461	mg/L	5/8/2009	5:29	300.0	5	15	
Hardness, Calcium	473	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	820	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	7.3	mg/L	5/20/2009	8:30	6010B	0.1	0.4	
Sodium, Total	20.0	mg/L	5/20/2009	8:30	6010B	0.2	0.8	

Sample ID: EVAPORATION POND **Sample Date:** 4/23/2009 **SampleTime:** 16:17
Era Project Number: 048879-26

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	157	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	100	mg/L	5/8/2009	13:36	300.0	40	120	J
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	13:59	353.2	0.01	0.03	
pH - Lab	8.6	SU	4/29/2009	15:45	150.1			
Specific Conductance	3730	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	2280	mg/L	5/8/2009	13:36	300.0	100	300	
Hardness, Calcium	577	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1680	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	41	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	363	mg/L	5/14/2009	13:25	6010B	2	5	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	048879
COC Number:	725276
Date Received:	4/29/2009
Report Date:	6/23/2009

Sample ID: HOLDING POND **Sample Date:** 4/23/2009 **SampleTime:** 16:25

Era Project Number: 048879-27

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	189	mg/L	5/6/2009	9:49	SM 2320-B	1	3	
Chloride	100	mg/L	5/8/2009	13:53	300.0	40	120	J
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	5/5/2009	14:00	353.2	0.01	0.03	
pH - Lab	8.6	SU	4/29/2009	15:45	150.1			
Specific Conductance	4030	µmhos/cm	5/5/2009	15:15	120.1	1	10	
Sulfate	2480	mg/L	5/8/2009	13:53	300.0	100	300	
Hardness, Calcium	718	mg/L	5/14/2009	8:25	6010B	3	8	
Hardness, Total (as CaCO3)	1980	mg/L	5/14/2009	8:25	6010B	3	8	
Potassium, Total	48	mg/L	5/15/2009	8:27	6010B	3	10	
Sodium, Total	366	mg/L	5/14/2009	13:25	6010B	2	5	

Results are reported on an as received basis.

<	Not detected. Less than LOD.
J	Estimate. Result between LOD and LOQ.
NG	Not certified for this parameter in this program.

Report Approved By:

Temperature upon arrival (°C): 1.7

MN Certification # 027-137-152

Test results in this report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from Era Laboratories, Inc. All tests were performed in-house by Era Labs.

D&L ENTERPRISES
3017 Manchester ST., Bismarck, ND 58504

April 28, 2009

Beverly Rund
Ottertail Power Company
PO Box 496
Fergus Falls, MN 56537

RE: Spring Ground Water Sampling at the Big Stone Plant, Big Stone, SD 2009

Dear Bev,

On April 22-23, 2009 D&L Enterprises of Bismarck, ND conducted a ground water monitoring event at the Big Stone plant.

All wells were found in good physical condition. No samples were collected at Well 2INT because of insufficient volume. Samples were collected from all of the scheduled wells and kept on ice. The samples were packed on ice in coolers and shipped to ERA Laboratories on April 27, 2009.

At Well 12 we had difficulty getting the pump to work. We tried to prime the pump by pouring DI water in it hoping to flush the screen. That didn't work as well as hoped. The well was pumping at a very reduced rate. I decided to check the conductivity and it was reasonably close to previous readings at this well. I then decided to collect a sample although the well had not been pumped to stabilization.

Thank you for selecting D&L Enterprises and ERA Laboratories to help you meet your monitoring requirements. If you have any questions regarding my field activities please call me at 701-226-8646.

Sincerely,
D&L Enterprises

Dennis Foss

Dennis Foss

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: Dennis Foss
Brian Foss

Date: 4-23-09

Sample ID: **Cooling Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? Yes No

Sample Collected at Designated Sample Point? Yes No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: Yes No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : ND Temperature: 50 Windspeed: 20 mph Wind Direction: South

Sampling Method: Grab Other:

Dedicated Equipment? Yes No

Sampling Depth: Sample TAP

Time of Sampling: 09:25 am / pm

Sample Appearance: General: clear Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
09:25	8.46	2170	20.20			2 L	

Comments:

Sample collected by OTP personnel.

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-23-09

Sample ID: **Evaporation Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : No Temperature: 80 Windspeed: 35 mph Wind Direction: S

Sampling Method: Grab Other:

Dedicated Equipment? (Yes) No

Sampling Depth: Just below Surface

Time of Sampling: 16:17 am / pm

Sample Appearance: General: Clear Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:17	8.51	3850	14.77				

Comments:

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-23-09

Sample ID: **Holding Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? Yes No

Sample Collected at Designated Sample Point? Yes No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: Yes No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : No Temperature: 80 Windspeed: 35 mph Wind Direction: South

Sampling Method: Grab Other:

Dedicated Equipment? Yes No

Sampling Depth: Just below Surface

Time of Sampling: 16:25 am / pm

Sample Appearance: General: Clear Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:25	8.70	4140	13.83				

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-23-09

Well Number: **Well 12**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 112.40

Constructed Depth: 112.40

Casing Diameter (Inches): 4

Water Level Before Purge: 65.82

Well Volume: 115.5 (TDS 7,000) Gallons (Liters)

Well Casing Elevation: 1071.89

Static Water Level: 1006.07

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 80 Windspeed: 35 mph Wind Direction: South

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other:) Submersible

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 0.25 gpm (lpm)

Time Purge Began: 15:28

Time of Sampling: 16:00

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
~~15:31~~						60	
~~15:34~~						120	
~~15:37~~						180	
16:00	7.53	1422	14.68			2L	

Stabilized? Yes (No)

Total Water Removed: 3L Gallons (Liters)

Comments:

~~3min/tol~~ Pump Performance Poor/pumping a very small amount of water collect what sample we can. Notify Plant Personnel

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]
[illegible]

Date: 4-22-09

Well Number: **Well 11**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 127.22

Constructed Depth: 127.22

Casing Diameter (Inches): 4

Water Level Before Purge: 98.35

Well Volume: Gallons Liters 22 71.6 Liters

Well Casing Elevation: 1104.00

Static Water Level: 1005.65

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 60 Windspeed: 15 mph Wind Direction: SE

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other:) Submersible

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 28 gpm (lpm)

Time Purge Began: 17:43

Time of Sampling: 17:49

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:45	7.01	1850	10.28			56L	
17:47	6.95	1800	9.82			112L	
17:49	6.94	1800	9.81			168L	

Stabilized? (Yes) No

Total Water Removed: 174 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well 10**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 48.00

Constructed Depth: 47.43

Casing Diameter (Inches): 4

Water Level Before Purge: 15.45

Well Volume: 71 Gallons (Liters)

Well Casing Elevation: 1098.70

Static Water Level: 1083.25

Previous Static:

Water Level After Sample: 27.76

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 60 Windspeed: 25 mph Wind Direction: SE

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 8 gpm (lpm)

Time Purge Began: 16:50

Time of Sampling: 17:20

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:00	7.12	981	11.73			80L	
17:10	7.10	948	11.24			160L	
17:20	7.10	944	11.71			240L	

Stabilized? (Yes) No

Total Water Removed: 244 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-22-09

Well Number: **Well BC4**

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No grout about 2" above SL

Repairs Necessary:

Well Information

Well Depth: 34.82

Constructed Depth: 34.00

Casing Diameter (Inches): 2

Water Level Before Purge: 20.15

Well Volume: 9.1 Gallons Liters

Well Casing Elevation: 1113.86

Static Water Level: 1093.71

Previous Static: 1093.25

Water Level After Sample: 26.11

Measurement Method: Electric WLI Other

Sampling Information

Precipitation : No Temperature: 80 ~~50~~ Windspeed: 35 mph ~~20~~ mph Wind Direction: South SE

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry:

Duplicate Sample? Yes No

Pumping Rate: gpm lpm

Time Purge Began: 20:23

Time of Sampling: 15:05

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
20:24	7.38	5420	9.21			1.5L	
20:33						16.5L	WL @ 34.12
15:05	7.37	8760	12.30			3L	WL @ 20.10

Stabilized? Yes No

Total Water Removed: 19.5 Gallons Liters

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fom, Brian Fom

Date: 4-22-09

Well Number: **Well BC3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 35.08

Constructed Depth: 35.00

Casing Diameter (Inches): 2

Water Level Before Purge: 19.87

Well Volume: 9.4 Gallons (Liters)

Well Casing Elevation: 1114.42

Static Water Level: 1094.55

Previous Static: 1091.94

Water Level After Sample: 23.60

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: No Temperature: 52 Windspeed: 20 mph Wind Direction: SE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 20:16

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 20:06

Time of Sampling: 14:45

Duplicate ID:

Sample Appearance: General: clear Color: yellow Phase: none Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
20:07	6.67	24200	9.91			1.5	
20:16						23.5	WL@ 34.69
14:45	6.87	26100	11.80			3L	WL@ 19.81

Stabilized? Yes (No)

Total Water Removed: 26.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-22-09

Well Number: **Well BC2**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) cracked

Repairs Necessary:

Well Information

Well Depth: 32.42

Constructed Depth: 32.00

Casing Diameter (Inches): 2

Water Level Before Purge: 17.35

Well Volume: 9.3 Gallons (Liters)

Well Casing Elevation: 1115.28

Static Water Level: 1097.93

Previous Static: 1097.22

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 80 50 Windspeed: 35 20 mph Wind Direction: South SE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 20:00

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 19:49

Time of Sampling: 14:28 (4-23-09)

Duplicate ID:

Sample Appearance: General: clear Color: yellow Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
19:50	7.88	32400	8.21			1.5L	
20:00						27.0L	WL @ 31.82
14:28	7.44	34900	11.05			3L	WL @ 17.45

Stabilized? Yes (No)

Total Water Removed: 30 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-22-09

Well Number: **Well S5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 47.30

Constructed Depth: 46.72

Casing Diameter (Inches): 2

Water Level Before Purge: 45.54

Well Volume: 1.1 Gallons (Liters)

Well Casing Elevation: 1091.40

Static Water Level: 1045.86

Previous Static:

Water Level After Sample: 47.00

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 60 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 14:34

Duplicate Sample? Yes No

Pumping Rate: gpm lpm

Time Purge Began: 14:28

Time of Sampling: 13:55 (4-23-09)

Duplicate ID:

Sample Appearance: General: Turbid Color: Light Brown Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:29	6.79	2260	10.27			.75	
14:34						1.25L	WL @ 42.88
(4-23) 13:55	7.00	2340	11.25			1.25L	WL @ 45.48

Stabilized? Yes (No)

Total Water Removed: 2.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well S4**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 29.74

Constructed Depth: 27.70

Casing Diameter (Inches): 2

Water Level Before Purge: 9.00

Well Volume: 12.8 Gallons (Liters)

Well Casing Elevation: 1090.57

Static Water Level: 1081.57

Previous Static:

Water Level After Sample: 21.57

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: NO Temperature: 80 60 Windspeed: 20 10 mph Wind Direction: South East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 14:29

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 14:16

Time of Sampling: 13:48 (4-23-09)

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:17	6.98	2890	7.36			1.5	
14:29						25.5	WL @ 29.21
(4-23) 13:48	6.77	3520	10.68			3 L	WL @ 14.57
			~~10.~~				

Stabilized? Yes (No)

Total Water Removed: 28.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]
[illegible]

Date: 4-22-09

Well Number: **Well S2**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 43.56

Constructed Depth: 43.12

Casing Diameter (Inches): 2

Water Level Before Purge: 11.05

Well Volume: 20.1 Gallons Liters

Well Casing Elevation: 1102.39

Static Water Level: 1091.34

Previous Static:

Water Level After Sample: 20.92

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 55 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) (No)

Time Purged Dry: 12:39

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 12:18

Time of Sampling: 13:30 (4-23-09)

Duplicate ID:

Sample Appearance: General: clear Color: yellow Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:20	7.13	47100	10.71			3L	
12:39						40.5	WL @ 42.99
(4-23) 13:30	7.02	49500	11.67			3L	WL @ 16.32

Stabilized? Yes (No)

Total Water Removed: 43.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well S1**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.80

Constructed Depth: 32.50

Casing Diameter (Inches): 2

Water Level Before Purge: 8.35

Well Volume: 15.1 Gallons (Liters)

Well Casing Elevation: 1102.17

Static Water Level: 1093.82

Previous Static:

Water Level After Sample: 25.60

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : No Temperature: 55 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: 13:13

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 12:55

Time of Sampling: 13:10 (4-23-09)

Duplicate ID:

Sample Appearance: General: Color: Phase: Odor:

	Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
	12:56	7.24	36200	10.63			1.5	
	13:13						34.5L	WL @ 32.05
4-23	13:10	6.97	39200	12.39			3	WL @ ~~16.32~~ ~~21.52~~ 21.52

Stabilized? Yes (No)

Total Water Removed: 37.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-23-09

Well Number: **Well BC5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 37.25

Constructed Depth: 37.00

Casing Diameter (Inches): 2

Water Level Before Purge: 25.38

Well Volume: 7.4 Gallons (Liters)

Well Casing Elevation: 1123.02

Static Water Level: 1097.64

Previous Static: 1095.11

Water Level After Sample: 28.96

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: No Temperature: 70 Windspeed: 20 mph Wind Direction: S

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 2.0 gpm (lpm)

Time Purge Began: 12:33

Time of Sampling: 12:45

Duplicate ID:

Sample Appearance: General: clear Color: none Phase: none Odor: none

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:37	6.95	9810	22.45			8 L	
12:41	6.91	9830	22.30			16 L	WL @ 28.56
12:45	6.90	9960	22.16			24 L	WL @ 28.96

Stabilized? (Yes) No

Total Water Removed: 26 Gallons (Liters)

Comments:

Set 29'
150 ml HCl
2L/min

Set at 32' next event

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-23-09

Well Number: **Well BC6**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 33.73

Constructed Depth: 33.50

Casing Diameter (Inches): 2

Water Level Before Purge: 21.78

Well Volume: 7.4 Gallons (Liters)

Well Casing Elevation: 1121.58

Static Water Level: 1099.80

Previous Static: 1097.88

Water Level After Sample: 24.60

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: NO Temperature: 65 Windspeed: 20 mph Wind Direction: S

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 2.0 gpm (lpm)

Time Purge Began: 12:00

Time of Sampling: 12:16

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:04	7.15	2230	18.12			8.0	
12:08	6.96	3100	20.02			16.0	WL @ 24.02
12:12	6.94	3120	18.75			24.0	
12:16	6.95	3110	18.50			32.0	WL @ 24.60

Stabilized? (Yes) No

Total Water Removed: 34 Gallons (Liters)

Comments:

Pump set @ 30' 2L/min

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-23-09

Well Number: **Well BC1**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 16.13

Constructed Depth: 16.00

Casing Diameter (Inches): 2

Water Level Before Purge: 4.46

Well Volume: 7.2 L Gallons (Liters)

Well Casing Elevation: 1118.46

Static Water Level: 1113.54

Previous Static: 1113.77

Water Level After Sample: 5.45

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: NO Temperature: 65 Windspeed: 20 mph Wind Direction: S

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 2 gpm (lpm)

Time Purge Began: 11:25

Time of Sampling: 11:37

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: none Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:29	7.08	2160	15.30			8	WL @ 5.45
11:33	7.16	2200	15.46			16	
11:37	7.18	2210	15.16			24	WL @ 5.45

Stabilized? (Yes) No

Total Water Removed: 27 Gallons (Liters)

Comments:

pump @ 9'
130 MHZ
2 L/min

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well BC101** Note: it's a "zero" not an "O"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Grout Seal About 2" Above M.L.

Repairs Necessary:

Well Information

Well Depth: 39.19

Constructed Depth: 39.00

Casing Diameter (Inches): 2

Water Level Before Purge: 6.55

Well Volume: 20.2 Gallons (Liters)

Well Casing Elevation: 1118.70

Static Water Level: 1112.15

Previous Static: 1111.32

Water Level After Sample: 22.46

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: NO Temperature: 55 Windspeed: 20 mph Wind Direction: SE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 19:40

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 19:19

Time of Sampling: 11:18 (4-23-09)

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

	Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
	19:20	7.30	2310	7.12			1.5	
	19:40						50.25	WL @ 38.79
			~~2420~~					
4-23	11:18	6.96	2420	10.30			3	WL @ 13.69

Stabilized? Yes (No)

Total Water Removed: 53.25 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss
Brian Foss

Date: 4-22-09
Well Number: **Well S6**
Unique Well Number:

Well Condition

Well Locked? (Yes) No
Well Labeled? (Yes) No
Casing Straight? (Yes) No
Protective Posts? Yes (No)
State ID Tag? Yes (No)
Grout Seal Intact? (Yes) No
Repairs Necessary:

Well Information

Well Depth: 62.90
Constructed Depth: 33.56 ?
Casing Diameter (Inches): 2
Water Level Before Purge: 47.21
Well Volume: 9.7 Gallons (Liters)
Well Casing Elevation: 1090.71
Static Water Level: 1043.50
Previous Static:
Water Level After Sample: 47.62
Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No Temperature: 60 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)
Well Purged Dry? Yes (No)
Time Purged Dry:
Duplicate Sample? Yes (No)
Pumping Rate: 2.0 gpm (lpm)
Time Purge Began: 14:22
Time of Sampling: 14:37
Duplicate ID:

Sample Appearance: General: clear Color: none Phase: none Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:27	6.89	1700	17.19			10 L	
14:32	6.83	1680	14.60			20 L	
14:37	6.81	1610	14.52			30 L	

Stabilized? (Yes) No
Total Water Removed: 34 Gallons (Liters)

Comments:

65' (Hose)
7.0 L/m
5 vol/vol, 180MHZ

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible] Foss, Brian Foss

Date: 4-22-09

Well Number: **Well S3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 62.70

Constructed Depth: 62.5

Casing Diameter (Inches): 2

Water Level Before Purge: 45.35

Well Volume: 10.7 L Gallons (Liters)

Well Casing Elevation: 1102.65

Static Water Level: 1057.30

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: NO Temperature: 55 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 200 gpm (lpm)

Time Purge Began: 13:15

Time of Sampling: 13:33

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:24	6.65	2510	14.60	~~[illegible]~~		12	
13:27	6.65	2540	14.91			24	
13:33	6.64	2570	14.02			36	

Stabilized? (Yes) No

Total Water Removed: 38 Gallons (Liters)

Comments:

65'
2 1/4"
180 mm Hg

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well H2INT**

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No cracked

Repairs Necessary:

Well Information

Well Depth: 62.58

Constructed Depth: 62.30

Casing Diameter (Inches): 2

Water Level Before Purge: 61.74

Well Volume: 0.5 Gallons Liters

Well Casing Elevation: 1103.91

Static Water Level: 1042.17

Previous Static:

Water Level After Sample:

Measurement Method: Electric WLI Other

Sampling Information

Precipitation : No Temperature: 45 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry:

Duplicate Sample? Yes No

Pumping Rate: gpm lpm

Time Purge Began:

Time of Sampling:

Duplicate ID:

Sample Appearance: General: Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:18							Insufficient Vol.

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

Insufficient Volume – No Sample

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]
Brian [illegible]

Date: 4-23-09

Sample ID: **Ash Runoff Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : No Temperature: 55 Windspeed: 15 mph Wind Direction: S

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No)

Sampling Depth: Just below Surface

Time of Sampling: 09:40 (am) / pm

Sample Appearance: General: Slight Turbidity Color: Light yellow Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
09:40	9.04	13160	13.08			2L	

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-23-09

Well Number: **Well H1INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) cracked

Repairs Necessary:

Well Information

Well Depth: 60.25

Constructed Depth: 60.11

Casing Diameter (Inches): 2

Water Level Before Purge: 21.61

Well Volume: 23.9 Gallons (Liters)

Well Casing Elevation: 1115.82

Static Water Level: 1094.21

Previous Static:

Water Level After Sample: 45.62

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: NO Temperature: 55 Windspeed: 20 mph Wind Direction: S

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 3L gpm (lpm)

Time Purge Began: 10:20

Time of Sampling: 10:44

Duplicate ID:

Sample Appearance: General: Clear Color: none Phase: none Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:28	6.84	1265	14.69			24L	
10:36	6.83	1235	15.03			48L	
10:44	6.84	1225	15.50			72L	

Stabilized? (Yes) No

Total Water Removed: 74 Gallons (Liters)

Comments:

Set @ 50' (63)
180 MHZ
3L/min
8min/vol

(Set at 55' Next event)

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well H2OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) Cracked

Repairs Necessary:

Well Information

Well Depth: 32.90

Constructed Depth: 32.20

Casing Diameter (Inches): 2

Water Level Before Purge: 5.17

Well Volume: 17.1 Gallons (Liters)

Well Casing Elevation: 1103.91

Static Water Level: 1098.74

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

4-23 NO 55 15

Precipitation : NO Temperature: 45 Windspeed: 10 mph Wind Direction: South East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 11:37

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 11:24

Time of Sampling: 09:21 (4-23-09)

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:25	6.52	3930	6.64			1.5L	
11:37						27.0L	WL @ 32.30
(4-23) 09:21	6.55	4240	9.94			3L	WL @ 25.95

Stabilized? Yes (No)

Total Water Removed: 30 Gallons (Liters)

Comments:

middle of 3

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well H3OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 22.65

Constructed Depth: 22.50

Casing Diameter (Inches): 2

Water Level Before Purge: 7.64

Well Volume: 9.3 Gallons (Liters)

Well Casing Elevation: 1095.19

Static Water Level: 1087.55

Previous Static:

Water Level After Sample: 15.65

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 58 Windspeed: 20 mph Wind Direction: SE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 18:22

Time of Sampling:

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:23	6.94	4110	8.37			1.5	
18:31						15 L	WL @ 22.02
19:00	7.01	4210	9.16			3 L	WL @ 11.25

Stabilized? Yes (No)

Total Water Removed: 18 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-22-09

Well Number: **Well H4INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) (No) Crack Rad

Repairs Necessary:

Well Information

Well Depth: 60.28

Constructed Depth: 60.00

Casing Diameter (Inches): 2

Water Level Before Purge: 16.37

Well Volume: 27.1 Gallons (Liters)

Well Casing Elevation: 1108.61

Static Water Level: 1092.24

Previous Static:

Water Level After Sample: 42.14

Measurement Method: Electric WLI Other

Sampling Information

Precipitation : NO Temperature: 60 Windspeed: 15 mph Wind Direction: SE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 15:46

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 15:26

Time of Sampling: 16:15

Duplicate ID:

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:27	7.11	2560	9.01			1.0 L	
15:46						29.0 L	WL @ 59.04
(4-22) 16:15	6.81	2500	9.59			3 L	WL @ 37.14

Stabilized? Yes (No)

Total Water Removed: 32 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fosse, Brian Fosse

Date: 4-22-09

Well Number: **Well H3INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 54.00

Constructed Depth: 54.00

Casing Diameter (Inches): 2

Water Level Before Purge: 28.14

Well Volume: 16.0 Gallons (Liters)

Well Casing Elevation: 1095.17

Static Water Level: 1067.03

Previous Static:

Water Level After Sample: 28.30

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: (N/A) Temperature: 58 Windspeed: 20 mph Wind Direction: SE

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 4.0 gpm (lpm)

Time Purge Began: 18:35

Time of Sampling: 18:47

Duplicate ID:

Sample Appearance: General: clear Color: none Phase: none Odor: none

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:39	6.63	2260	14.61			16.0	
18:43	6.60	2280	14.41			32.0	
18:47	6.58	2260	14.13			48L	

Stabilized? (Yes) No

Total Water Removed: 50 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss, Brian Foss

Date: 4-22-08

Well Number: **Well H4OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 27.42

Constructed Depth: 27.00

Casing Diameter (Inches): 2

Water Level Before Purge: 15.76

Well Volume: 7.2 Gallons (Liters)

Well Casing Elevation: 1108.22

Static Water Level: 1092.46

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 60 Windspeed: 15 mph Wind Direction: SE

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 1.0 gpm (lpm)

Time Purge Began: 15:35

Time of Sampling: 15:59

Duplicate ID:

Sample Appearance: General: clear Color: None Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:43	6.80	2690	18.53			8L	
15:51	6.72	2810	18.51			16L	
15:59	6.70	2820	17.34			24L	

Stabilized? (Yes) No

Total Water Removed: 26 Gallons (Liters)

Comments:

34' onhole
1L/min
~~130~~ mH2
125 8min/vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox, Brian Fox

Date: 4-22-09

Well Number: **Well H1OX** Note: it is an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.04

Constructed Depth: 32.91

Casing Diameter (Inches): 2

Water Level Before Purge: 21.49

Well Volume: 6.5 Gallons (Liters)

Well Casing Elevation: 1115.89

Static Water Level: 1094.40

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: No Temperature: 50 Windspeed: 10 mph Wind Direction: East

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: gpm lpm

Time Purge Began: 12:05

Time of Sampling: 12:21

Duplicate ID:

Sample Appearance: General: Slight turbidity Color: Light Brown Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:06	6.72	1740	10.47			1L	
12:11	6.76	2070	10.21			7L	
12:16	6.83	1988	10.21			14L	
12:21	6.85	1940	10.29			21L	

Stabilized? (Yes) No

Total Water Removed: 23L Gallons (Liters)

Comments:

Era Laboratories, Inc.
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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Client: T. J. NEWKIRK
OTTER TAIL POWER CO. - BIG STONE
P O BOX 496
FERGUS FALLS MN 56538-0496

Sample ID: S-3 **Sample Date:** 7/16/2009 **SampleTime:** 14:02

Era Project Number: 051003-1

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		362	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride		250	mg/L	7/30/2009	11:24	SM 4500-Cl E	5	15	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	8/6/2009	17:46	353.2	0.1	0.3	
pH - Lab		6.7	SU	7/23/2009	11:25	150.1			
Specific Conductance		2560	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		892	mg/L	8/8/2009	3:16	300.0	30	80	
Arsenic, Dissolved		21	µg/L	8/25/2009	10:03	6010B	3	11	
Boron, Dissolved		120	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium		976	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		1500	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	<	5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved		990	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total		8.0	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		14.9	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved		1160	µg/L	8/13/2009	9:02	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: S-6 **Sample Date:** 7/16/2009 **SampleTime:** 16:42

Era Project Number: 051003-2

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		430	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride		9	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	8/6/2009	17:11	353.2	0.1	0.3	
pH - Lab		6.9	SU	7/23/2009	11:25	150.1			
Specific Conductance		1490	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		480	mg/L	8/8/2009	3:31	300.0	30	80	
Arsenic, Dissolved		5	µg/L	8/25/2009	10:03	6010B	3	11	J
Boron, Dissolved		160	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium		600	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)		906	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Lead, Dissolved	<	5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved		510	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total		6.8	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		16.5	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved		910	µg/L	8/13/2009	9:02	6010B	10	40	

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H4INT **Sample Date:** 7/16/2009 **SampleTime:** 18:28

Era Project Number: 051003-3

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	438	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride	48	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	8/6/2009	16:51	353.2	0.01	0.03	
pH - Lab	6.8	SU	7/23/2009	11:25	150.1			
Specific Conductance	2500	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	1140	mg/L	8/10/2009	21:34	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	10	µg/L	7/28/2009	9:21	6010B	10	40	J
Boron, Dissolved	160	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	2	µg/L	8/25/2009	10:03	6010B	1	4	J
Hardness, Calcium	959	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1680	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	290	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	12.0	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	7/29/2009	8:55	6010B	1	4	
Sodium, Total	30.1	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	1080	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	29	µg/L	8/25/2009	10:03	6010B	5	17	

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H4OX **Sample Date:** 7/16/2009 **SampleTime:** 18:11

Era Project Number: 051003-4

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	506	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride	58	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	0.17	mg/L	8/6/2009	17:27	353.2	0.01	0.03	
pH - Lab	6.9	SU	7/23/2009	12:15	150.1			
Specific Conductance	2830	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	1440	mg/L	8/8/2009	4:01	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	10	µg/L	7/28/2009	9:21	6010B	10	40	J
Boron, Dissolved	190	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium	1020	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1980	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	10	µg/L	8/13/2009	9:02	6010B	10	40	J
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	6.1	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	7/29/2009	8:55	6010B	1	4	
Sodium, Total	24.8	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	790	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC1 **Sample Date:** 7/16/2009 **SampleTime:** 19:43

Era Project Number: 051003-5

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		370	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride		37	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite		0.33	mg/L	8/6/2009	17:31	353.2	0.01	0.03	
pH - Lab		7.3	SU	7/23/2009	12:15	150.1			
Specific Conductance		2300	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		1080	mg/L	8/8/2009	4:16	300.0	30	80	
Arsenic, Dissolved	<	3	µg/L	8/25/2009	10:03	6010B	3	11	
Boron, Dissolved		4210	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium		343	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)		1090	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Lead, Dissolved	<	5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	<	10	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total		1.5	mg/L	8/29/2009	10:10	6010B	0.1	0.4	
Sodium, Total		153	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved		520	µg/L	8/13/2009	9:02	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC6 **Sample Date:** 7/16/2009 **SampleTime:** 20:22

Era Project Number: 051003-6

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	416	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride	60	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	0.32	mg/L	8/6/2009	17:32	353.2	0.01	0.03	
pH - Lab	7.2	SU	7/23/2009	12:15	150.1			
Specific Conductance	3030	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	1590	mg/L	8/8/2009	5:20	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Boron, Dissolved	1870	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium	676	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1780	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total	5.2	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total	132	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	470	µg/L	8/13/2009	9:02	6010B	10	40	

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC5 **Sample Date:** 7/16/2009 **SampleTime:** 20:52

Era Project Number: 051003-7

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		648	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride		180	mg/L	7/30/2009	11:24	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite		0.12	mg/L	8/6/2009	17:33	353.2	0.01	0.03	
pH - Lab		7.0	SU	7/23/2009	12:15	150.1			
Specific Conductance		7470	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		4000	mg/L	8/8/2009	6:06	300.0	500	1500	
Arsenic, Dissolved	<	3	µg/L	8/25/2009	10:03	6010B	3	11	
Boron, Dissolved		9700	µg/L	7/28/2009	9:21	6010B	100	400	
Cadmium, Dissolved		1	µg/L	8/25/2009	10:03	6010B	1	4	J
Hardness, Calcium		930	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		3130	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	<	5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved		2120	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total		51.3	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		973	mg/L	9/4/2009	15:25	6010B	5	20	
Strontium, Dissolved		510	µg/L	8/13/2009	9:02	6010B	10	40	

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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H3INT **Sample Date:** 7/17/2009 **SampleTime:** 10:14

Era Project Number: 051003-8

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	508	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride	69	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	8/6/2009	17:34	353.2	0.01	0.03	
pH - Lab	6.8	SU	7/23/2009	12:15	150.1			
Specific Conductance	2290	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	925	mg/L	8/8/2009	6:21	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	30	µg/L	7/28/2009	9:21	6010B	10	40	J
Boron, Dissolved	590	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	1	µg/L	8/25/2009	10:03	6010B	1	4	J
Hardness, Calcium	953	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1430	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	80	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	11.9	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	7/29/2009	8:55	6010B	1	4	
Sodium, Total	45.0	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	810	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H3OX **Sample Date:** 7/17/2009 **SampleTime:** 10:37

Era Project Number: 051003-9

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	686	mg/L	7/29/2009	15:30	SM 2320-B	1	3	
Chloride	72	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	0.07	mg/L	8/6/2009	17:36	353.2	0.01	0.03	
pH - Lab	7.1	SU	7/23/2009	12:15	150.1			
Specific Conductance	4160	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	2050	mg/L	8/8/2009	6:37	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	10	µg/L	7/28/2009	9:21	6010B	10	40	J
Boron, Dissolved	12000	µg/L	7/28/2009	9:21	6010B	100	400	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	3	µg/L	8/25/2009	10:03	6010B	1	4	J
Hardness, Calcium	987	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1860	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	7.5	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	7/29/2009	8:55	6010B	1	4	
Sodium, Total	93	mg/L	8/27/2009	15:54	6010B	1	4	
Strontium, Dissolved	950	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: COOLING POND **Sample Date:** 7/17/2009 **SampleTime:** 10:00

Era Project Number: 051003-10

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	226	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	60	mg/L	7/30/2009	11:24	SM 4500-Cl E	2	6	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	8/6/2009	17:37	353.2	0.01	0.03	
pH - Lab	8.7	SU	7/23/2009	12:15	150.1			
Specific Conductance	2350	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	1140	mg/L	8/8/2009	6:52	300.0	50	150	
Hardness, Calcium	480	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)	1140	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Potassium, Total	24.8	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total	140	mg/L	8/27/2009	15:54	6010B	0.5	2	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H2OX **Sample Date:** 7/17/2009 **SampleTime:** 11:25

Era Project Number: 051003-11

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	470	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	2	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	J
Nitrogen, Nitrate + Nitrite	1.8	mg/L	8/6/2009	17:48	353.2	0.1	0.3	
pH - Lab	6.8	SU	7/23/2009	12:15	150.1			
Specific Conductance	4100	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	2710	mg/L	8/8/2009	7:07	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	< 10	µg/L	7/28/2009	9:21	6010B	10	40	
Boron, Dissolved	280	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	4	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium	1250	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	2720	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	6	µg/L	8/25/2009	10:03	6010B	5	18	J
Manganese, Dissolved	< 10	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	13.6	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	27	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	3	µg/L	7/29/2009	8:55	6010B	1	4	J
Sodium, Total	113	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	2430	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: ASH RUNOFF POND **Sample Date:** 7/17/2009 **SampleTime:** 11:51

Era Project Number: 051003-12

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		507	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		750	mg/L	7/30/2009	11:24	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	8/6/2009	17:51	353.2	0.1	0.3	
pH - Lab		9.3	SU	7/23/2009	12:15	150.1			
Specific Conductance		27500	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		17700	mg/L	8/8/2009	7:23	300.0	500	1500	
Arsenic, Total		41	µg/L	9/3/2009	9:44	6010B	3	11	
Barium, Total		110	µg/L	9/5/2009	8:27	6010B	10	40	
Boron, Total		58000	µg/L	9/2/2009	9:51	6010B	500	2000	
Cadmium, Total	<	1	µg/L	9/3/2009	9:44	6010B	1	4	
Chromium, Total	<	2	µg/L	9/3/2009	9:44	6010B	2	7	
Copper, Total		2	µg/L	9/3/2009	9:44	6010B	1	4	J
Hardness, Calcium		517	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)		3570	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Total	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Total		200	µg/L	9/1/2009	14:42	6010B	10	40	
Mercury, Total		0.13	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total		32.8	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Total		18	µg/L	9/3/2009	9:44	6010B	3	7	
Silver, Total	<	1	µg/L	9/2/2009	16:10	6010B	1	4	
Sodium, Total		6800	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Total		5590	µg/L	9/1/2009	14:42	6010B	10	40	
Vanadium, Total		29	µg/L	9/3/2009	9:44	6010B	2	8	
Zinc, Total		15	µg/L	9/3/2009	9:44	6010B	5	17	J

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H1OX **Sample Date:** 7/17/2009 **SampleTime:** 12:01

Era Project Number: 051003-13

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	796	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	2	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	J
Nitrogen, Nitrate + Nitrite	4.9	mg/L	8/6/2009	17:43	353.2	0.1	0.3	
pH - Lab	7.2	SU	7/23/2009	12:15	150.1			
Specific Conductance	1710	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	200	mg/L	8/8/2009	7:38	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	50	µg/L	7/28/2009	9:21	6010B	10	40	
Boron, Dissolved	4220	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	1	µg/L	8/25/2009	10:03	6010B	1	4	J
Hardness, Calcium	333	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)	1050	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	3.0	mg/L	8/29/2009	10:10	6010B	0.1	0.4	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	7/29/2009	8:55	6010B	1	4	
Sodium, Total	50.6	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	370	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: S1 **Sample Date:** 7/17/2009 **SampleTime:** 12:41

Era Project Number: 051003-14

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		1300	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		2600	mg/L	7/30/2009	11:24	SM 4500-Cl E	100	300	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	8/6/2009	18:10	353.2	0.1	0.3	
pH - Lab		7.1	SU	7/23/2009	13:00	150.1			
Specific Conductance		40300	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		860	mg/L	8/10/2009	22:20	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	9/3/2009	9:44	6010B	3	11	
Boron, Dissolved		23900	µg/L	9/2/2009	9:51	6010B	500	2000	
Cadmium, Dissolved	<	1	µg/L	9/3/2009	9:44	6010B	1	4	
Hardness, Calcium		1120	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		26800	mg/L	8/27/2009	9:10	6010B	50	150	
Lead, Dissolved	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Dissolved		2770	µg/L	9/1/2009	14:42	6010B	10	40	
Potassium, Total		57.6	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		5840	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Dissolved		2420	µg/L	9/1/2009	14:42	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: S2 **Sample Date:** 7/17/2009 **SampleTime:** 13:10

Era Project Number: 051003-15

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		1400	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		2800	mg/L	7/30/2009	11:24	SM 4500-Cl E	100	300	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	8/6/2009	18:13	353.2	0.1	0.3	
pH - Lab		7.1	SU	7/23/2009	13:00	150.1			
Specific Conductance		48800	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		52000	mg/L	8/8/2009	8:10	300.0	3000	8000	
Arsenic, Dissolved		10	µg/L	9/3/2009	9:44	6010B	3	11	J
Boron, Dissolved		50700	µg/L	9/2/2009	9:51	6010B	500	2000	
Cadmium, Dissolved		2	µg/L	9/3/2009	9:44	6010B	1	4	J
Hardness, Calcium		1180	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		32500	mg/L	8/27/2009	9:10	6010B	50	150	
Lead, Dissolved	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Dissolved		6240	µg/L	9/1/2009	14:42	6010B	10	40	
Potassium, Total		74.7	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		9250	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Dissolved		2150	µg/L	9/1/2009	14:42	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
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Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: WELL 10 **Sample Date:** 7/17/2009 **SampleTime:** 14:29
Era Project Number: 051003-16

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	312	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	15	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	6.8	mg/L	8/6/2009	17:55	353.2	0.5	1.5	
pH - Lab	7.3	SU	7/23/2009	13:00	150.1			
Specific Conductance	1050	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	242	mg/L	8/8/2009	9:14	300.0	10	30	
Hardness, Calcium	289	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)	615	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Potassium, Total	2.7	mg/L	8/29/2009	10:10	6010B	0.1	0.4	
Sodium, Total	10.7	mg/L	8/27/2009	15:54	6010B	0.5	2	

Sample ID: WELL 11 **Sample Date:** 7/17/2009 **SampleTime:** 15:05
Era Project Number: 051003-17

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	381	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	60	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	< 0.1	mg/L	8/6/2009	18:16	353.2	0.1	0.3	
pH - Lab	6.9	SU	7/23/2009	13:00	150.1			
Specific Conductance	1820	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	640	mg/L	8/8/2009	9:59	300.0	50	150	
Hardness, Calcium	826	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1140	mg/L	8/27/2009	9:10	6010B	5	15	
Potassium, Total	9.0	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total	12.5	mg/L	8/27/2009	15:54	6010B	0.5	2	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: S4 **Sample Date:** 7/17/2009 **SampleTime:** 15:47

Era Project Number: 051003-18

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		358	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		250	mg/L	7/30/2009	11:24	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite		0.36	mg/L	8/6/2009	18:02	353.2	0.01	0.03	
pH - Lab		6.9	SU	7/23/2009	13:00	150.1			
Specific Conductance		3810	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		1840	mg/L	8/8/2009	10:14	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	8/25/2009	10:03	6010B	3	11	
Boron, Dissolved		4280	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium		1480	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		2200	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	<	5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	<	10	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total		5.8	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		84.3	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved		410	µg/L	8/13/2009	9:02	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: H1INT **Sample Date:** 7/17/2009 **SampleTime:** 16:44

Era Project Number: 051003-19

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	404	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	7	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	8/6/2009	18:03	353.2	0.01	0.03	
pH - Lab	7.1	SU	7/23/2009	13:00	150.1			
Specific Conductance	1250	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	330	mg/L	8/8/2009	10:29	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	11	
Barium, Dissolved	20	µg/L	7/28/2009	9:21	6010B	10	40	J
Boron, Dissolved	1050	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	7	
Copper, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium	469	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)	738	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	850	µg/L	8/13/2009	9:02	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	8/8/2009	9:45	7470	0.04	0.05	
Potassium, Total	5.7	mg/L	8/28/2009	9:48	6010B	0.5	2	
Selenium, Dissolved	< 3	µg/L	8/25/2009	10:03	6010B	3	7	
Silver, Dissolved	< 1	µg/L	8/19/2009	14:37	6010B	1	4	
Sodium, Total	12.9	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	560	µg/L	8/13/2009	9:02	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	8/25/2009	10:03	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC101 **Sample Date:** 7/17/2009 **SampleTime:** 17:03

Era Project Number: 051003-20

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	521	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	4	mg/L	7/30/2009	11:24	SM 4500-Cl E	1	3	
Nitrogen, Nitrate + Nitrite	0.04	mg/L	8/6/2009	18:04	353.2	0.01	0.03	
pH - Lab	6.7	SU	7/23/2009	13:00	150.1			
Specific Conductance	2330	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	1060	mg/L	8/8/2009	10:44	300.0	50	150	
Arsenic, Dissolved	7	µg/L	8/25/2009	10:03	6010B	3	11	J
Boron, Dissolved	110	µg/L	7/28/2009	9:21	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	8/25/2009	10:03	6010B	1	4	
Hardness, Calcium	1030	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1530	mg/L	8/27/2009	9:10	6010B	5	15	
Lead, Dissolved	< 5	µg/L	8/25/2009	10:03	6010B	5	18	
Manganese, Dissolved	1290	µg/L	8/13/2009	9:02	6010B	10	40	
Potassium, Total	7.1	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total	14.1	mg/L	8/27/2009	15:54	6010B	0.5	2	
Strontium, Dissolved	780	µg/L	8/13/2009	9:02	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC2 **Sample Date:** 7/17/2009 **SampleTime:** 17:20

Era Project Number: 051003-21

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		736	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		1300	mg/L	7/30/2009	11:24	SM 4500-Cl E	100	300	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	8/6/2009	18:05	353.2	0.01	0.03	
pH - Lab		7.2	SU	7/23/2009	13:00	150.1			
Specific Conductance		32000	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		27400	mg/L	8/8/2009	11:01	300.0	500	1500	
Arsenic, Dissolved		3	µg/L	9/3/2009	9:44	6010B	3	11	J
Boron, Dissolved		63000	µg/L	9/2/2009	9:51	6010B	500	2000	
Cadmium, Dissolved	<	1	µg/L	9/3/2009	9:44	6010B	1	4	
Hardness, Calcium		1060	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		17300	mg/L	8/27/2009	9:10	6010B	50	150	
Lead, Dissolved	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Dissolved		6520	µg/L	9/1/2009	14:42	6010B	10	40	
Potassium, Total		233	mg/L	8/28/2009	9:48	6010B	5	20	
Sodium, Total		5900	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Dissolved		2960	µg/L	9/1/2009	14:42	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC3 **Sample Date:** 7/17/2009 **SampleTime:** 17:36

Era Project Number: 051003-22

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		1300	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		1500	mg/L	7/30/2009	11:24	SM 4500-Cl E	100	300	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	8/6/2009	18:07	353.2	0.01	0.03	
pH - Lab		7.0	SU	7/23/2009	13:00	150.1			
Specific Conductance		30400	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		24800	mg/L	8/8/2009	11:17	300.0	500	1500	
Arsenic, Dissolved		4	µg/L	9/3/2009	9:44	6010B	3	11	J
Boron, Dissolved		36300	µg/L	9/2/2009	9:51	6010B	500	2000	
Cadmium, Dissolved	<	1	µg/L	9/3/2009	9:44	6010B	1	4	
Hardness, Calcium		1130	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		17000	mg/L	8/27/2009	9:10	6010B	50	150	
Lead, Dissolved	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Dissolved		2790	µg/L	9/1/2009	14:42	6010B	10	40	
Potassium, Total		27.9	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total		5110	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Dissolved		1150	µg/L	9/1/2009	14:42	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: BC4 **Sample Date:** 7/17/2009 **SampleTime:** 17:51

Era Project Number: 051003-23

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		621	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride		690	mg/L	8/7/2009	14:06	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite		0.02	mg/L	8/6/2009	18:08	353.2	0.01	0.03	J
pH - Lab		7.4	SU	7/23/2009	13:00	150.1			
Specific Conductance		34000	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate		24300	mg/L	8/10/2009	22:36	300.0	500	1500	
Arsenic, Dissolved	<	3	µg/L	9/3/2009	9:44	6010B	3	11	
Boron, Dissolved		126000	µg/L	9/2/2009	9:51	6010B	1000	4000	
Cadmium, Dissolved	<	1	µg/L	9/3/2009	9:44	6010B	1	4	
Hardness, Calcium		955	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)		7220	mg/L	8/27/2009	9:10	6010B	50	150	
Lead, Dissolved	<	5	µg/L	9/3/2009	9:44	6010B	5	18	
Manganese, Dissolved		5570	µg/L	9/1/2009	14:42	6010B	10	40	
Potassium, Total		470	mg/L	8/28/2009	9:48	6010B	5	20	
Sodium, Total		9050	mg/L	8/27/2009	15:54	6010B	50	200	
Strontium, Dissolved		2550	µg/L	9/1/2009	14:42	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	051003
COC Number:	722187
Date Received:	7/22/2009
Report Date:	9/22/2009

Sample ID: EVAPORATION POND **Sample Date:** 7/17/2009 **SampleTime:** 18:19
Era Project Number: 051003-24

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	68	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	120	mg/L	7/30/2009	11:24	SM 4500-Cl E	5	15	
Nitrogen, Nitrate + Nitrite	0.05	mg/L	8/6/2009	18:19	353.2	0.01	0.03	
pH - Lab	9.5	SU	7/23/2009	13:00	150.1			
Specific Conductance	4360	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	2680	mg/L	8/8/2009	11:48	300.0	50	150	
Hardness, Calcium	562	mg/L	8/27/2009	9:10	6010B	0.5	1.5	
Hardness, Total (as CaCO3)	1850	mg/L	8/27/2009	9:10	6010B	5	15	
Potassium, Total	52.3	mg/L	8/28/2009	9:48	6010B	0.5	2	
Sodium, Total	526	mg/L	8/27/2009	15:54	6010B	5	20	

Sample ID: HOLDING POND **Sample Date:** 7/17/2009 **SampleTime:** 18:26
Era Project Number: 051003-25

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	159	mg/L	7/29/2009	15:30	SM 2320-B	2	6	
Chloride	120	mg/L	7/30/2009	11:24	SM 4500-Cl E	5	15	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	8/6/2009	18:23	353.2	0.01	0.03	
pH - Lab	8.6	SU	7/23/2009	13:00	150.1			
Specific Conductance	4230	µmhos/cm	7/27/2009	9:15	120.1	1	10	
Sulfate	2530	mg/L	8/8/2009	12:19	300.0	50	150	
Hardness, Calcium	693	mg/L	8/27/2009	9:10	6010B	5	15	
Hardness, Total (as CaCO3)	1950	mg/L	8/27/2009	9:10	6010B	5	15	
Potassium, Total	483	mg/L	8/28/2009	9:48	6010B	5	20	
Sodium, Total	392	mg/L	8/27/2009	15:54	6010B	5	20	

MN Certification # 027-137-152

4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Results are reported on an as received basis.

<	Not detected. Less than LOD.
J	Estimate. Result between LOD and LOQ.

Report Approved By:

Temperature upon arrival (°C): 4.7

MN Certification # 027-137-152

Test results in this report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from Era Laboratories, Inc. All tests were performed in-house by Era Labs.

D&L ENTERPRISES
3017 Manchester ST., Bismarck, ND 58504

July 25, 2009

T. J. Newkirk
Ottertail Power Company
PO Box 496
Fergus Falls, MN 56537

RE: Summer Ground Water Sampling at the Big Stone Plant, Big Stone, SD 2009

Dear T. J.,

On July 16-17, 2009 D&L Enterprises of Bismarck, ND conducted a ground water monitoring event at the Big Stone plant.

All wells were found in good physical condition. No samples were collected at Well H-2INT and Well S-5 because of insufficient volume. The pump was not working at Well 12, no sample collected. Samples were collected from all other scheduled wells and kept on ice. The samples were packed on ice in coolers and shipped to ERA Laboratories on July 20, 2009.

Thank you for selecting D&L Enterprises and ERA Laboratories to help you meet your monitoring requirements. If you have any questions regarding my field activities please call me at 701-226-8646.

Sincerely,
D&L Enterprises

Dennis Foss

Dennis Foss

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Sample ID: **Cooling Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : NO Temperature: 58 Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No)

Sampling Depth: Sample tap

Time of Sampling: 09:00 am / pm

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:00	8.55	2560	22.10			2L	

Comments:

Sample collected by OTP Personnel

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 7-12-09

Sample ID: **Holding Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation: —

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : NO Temperature: 64 Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes No

Sampling Depth: Just below Surface

Time of Sampling: am / pm

Sample Appearance: General: Clear Color: none Phase: — Odor: none

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:26	8.84	4650	20.24			2L	

Comments:

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Sample ID: **Evaporation Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : NO Temperature: 64 Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes No

Sampling Depth: Just below Surface

Time of Sampling: am / pm

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:19	8.57	4800	19.49			2L	

Comments:

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Sample ID: **Ash Runoff Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : NO Temperature: 58° Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes No

Sampling Depth: Just below Surface

Time of Sampling: 12:01 am / pm

Sample Appearance: General: Slight turb. Color: Light yellow Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:51	9.31	28600	20.16			2L	

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 7-16-09

Well Number: **Well 12**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 112.40

Constructed Depth: 112.40

Casing Diameter (Inches): 4

Water Level Before Purge: 66.67

Well Volume: 114.3 Gallons (Liters)

Well Casing Elevation: 1071.89

Static Water Level:

Previous Static:

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 64 Windspeed: 25/35 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other:)

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: — gpm lpm

Time Purge Began: 15:20

Time of Sampling: —

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:23							
							Pump wont work

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

No Sample

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well S5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 47.30

Constructed Depth: 46.72

Casing Diameter (Inches): 2

Water Level Before Purge: 45.89

Well Volume: 0.9 Gallons (Liters)

Well Casing Elevation: 1091.40

Static Water Level: 1045.51

Previous Static: 1045.86

Water Level After Sample:

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: cldy No Temperature: 65° Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Pumping Rate: NA gpm lpm

Well Purged Dry? ~~Yes No~~

Time Purge Began: —

Time Purged Dry: —

Time of Sampling: —

Duplicate Sample? Yes (No)

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:35							
							Insufficient Volume

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

Insufficient Volume - Less Than 1L - No Sample

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well H2INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) cracked

Repairs Necessary:

Well Information

Well Depth: 62.58

Constructed Depth: 62.30

Casing Diameter (Inches): 2

Water Level Before Purge: 61.38

Well Volume: 0.7 Gallons (Liters)

Well Casing Elevation: 1103.91

Static Water Level: 1042.53

Previous Static: 1042.17

Water Level After Sample: —

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 58° Windspeed: 20-25 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: N/A gpm lpm

Time Purge Began: —

Time of Sampling: —

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:00							Insufficient Vol

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

Insufficient Volume - NO SAmple

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Well Number: **Well H1INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 60.25

Constructed Depth: 60.11

Casing Diameter (Inches): 2

Water Level Before Purge: 27.14

Well Volume: 20.5 Gallons (Liters)

Well Casing Elevation: 1115.82

Static Water Level: 1088.68

Previous Static: 1094.21

Water Level After Sample: 45.80

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 64 Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 3 gpm (lpm)

Time Purge Began: 16:16

Time of Sampling: 16:44

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:23	6.73	1390	17.16			21	
16:30	6.71	1376	16.21			42	WL@ 35.40
16:37	6.70	1377	16.28			63	
16:44	6.70	1373	16.31			84	WL@ 45.80

Stabilized? Yes No

Total Water Removed: Gallons (Liters)

Comments:

55'

180 ~~140~~ MH2

3L/min

7 min/vol

+13

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 7-16-09

Well Number: **Well H1OX** Note: it is an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.04

Constructed Depth: 32.91

Casing Diameter (Inches): 2

Water Level Before Purge: 26.16

Well Volume: 3.6 Gallons (Liters)

Well Casing Elevation: 1115.89

Static Water Level: 1089.73

Previous Static: 1094.40

Water Level After Sample: 30.99

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : NO Temperature: 60 Windspeed: 20/30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) (No)

Time Purged Dry: 12:02

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 11:53

Time of Sampling: 12:01 7-17-09

Duplicate ID: —

Sample Appearance: General: Slight Turb. Color: Light Brown Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:56	7.05	1830	10.13			1L	
11:59	6.84	1870	10.21			2L	
12:02	—	—	—			~~12L~~ 13.75	WL @ 31.45
7-17 12:01	6.88	1920	9.97			2L	WL @ 26.21

Stabilized? Yes (No)

Total Water Removed: 13.75 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well H2OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) Cracked

Repairs Necessary:

Well Information

Well Depth: 32.90

Constructed Depth: 32.20

Casing Diameter (Inches): 2

Water Level Before Purge: 9.10

Well Volume: 14.7 Gallons (Liters)

Well Casing Elevation: 1103.91

Static Water Level: 1094.81

Previous Static: 1098.74

Water Level After Sample: 31.40

Measurement Method: (Electric WLI) Other

Sampling Information

(7-17) NO 58° 25-35 NW

Precipitation : NO Temperature: 58° Windspeed: 20-25 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 11:31

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 11:19

Time of Sampling: 11:25 (7-17-09)

Duplicate ID: —

Sample Appearance: General: Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:20	6.44	4510	9.55			1.5L	
11:26	6.55	4420	8.56			15L	
11:31	—	—	—			25L	WL @ 32.31
(7-17) 11:25	6.64	4690	9.89			3L	WL @ 26.95

Stabilized? Yes (No)

Total Water Removed: 28 Gallons (Liters)

Comments:

middle of 3

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well H4INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) Cracked

Repairs Necessary:

Well Information

Well Depth: 60.28

Constructed Depth: 60.00

Casing Diameter (Inches): 2

Water Level Before Purge: 18.97

Well Volume: 25.5 Gallons (Liters)

Well Casing Elevation: 1108.61

Static Water Level: 1089.64

Previous Static: 1092.24

Water Level After Sample: 42.88

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Partly cloudy No Temperature: 64 Windspeed: 20/30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 17:38

Time of Sampling: 18:28

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:39	7.12	2820	9.20			1.0 L	
17:58	—	—	—			27 L	WL@ 59.14
			~~9.4~~				
18:28	6.90	2830	9.16			2 L	WL@ 37.98

Stabilized? Yes (No)

Total Water Removed: 29 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well H4OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No

Repairs Necessary:

Well Information

Well Depth: 27.42

Constructed Depth: 27.00

Casing Diameter (Inches): 2

Water Level Before Purge: 18.35

Well Volume: 5.6 Gallons Liters

Well Casing Elevation: 1108.22

Static Water Level: 1089.87

Previous Static: 1092.46

Water Level After Sample: 22.35

Measurement Method: Electric WLI Other

Sampling Information

Precipitation: Pcly cldy No Temperature: 64 Windspeed: 20/30 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry: —

Duplicate Sample? Yes No

Pumping Rate: 1.0 gpm lpm

Time Purge Began: 17:53

Time of Sampling: 18:11

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:59	6.83	3210	9.28			6	
18:05	6.80	3180	9.31			12	
18:11	6.79	3180	9.23			18	WL @ 22.35

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

23'

~~[illegible]~~

1 L/min

6 min vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Well Number: **Well H3INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 54.00

Constructed Depth: 54.00

Casing Diameter (Inches): 2

Water Level Before Purge: ~~28.32~~ 28.32

Well Volume: 15.9 Gallons (Liters)

Well Casing Elevation: 1095.17

Static Water Level: 1066.85

Previous Static: 1067.03

Water Level After Sample: 28.50

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No Temperature: ~~60~~ 57°F Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: ——

Duplicate Sample? Yes (No)

Pumping Rate: 4.0 gpm (lpm)

Time Purge Began: 10:02

Time of Sampling: 10:14

Duplicate ID: ——

Sample Appearance: General: Clear Color: None Phase: —— Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:06	6.56	2550	12.20			16 L	
10:10	6.55	2540	12.24			32 L	
10:14	6.53	2550	12.21			48 L	WL @ 28.50

Stabilized? (Yes) No

Total Water Removed: 52 Gallons (Liters)

Comments:

Pump set @ 30'
High setting
4 L/min

4/min vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Well Number: **Well H3OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 22.65

Constructed Depth: 22.50

Casing Diameter (Inches): 2

Water Level Before Purge: 8.46

Well Volume: 8.8 Gallons (Liters)

Well Casing Elevation: 1095.19

Static Water Level: 1086.73

Previous Static: 1087.55

Water Level After Sample: 15.20

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : No Temperature: ~~60~~ 57 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 10:00

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 9:50

Time of Sampling: 10:37

Duplicate ID: —

Sample Appearance: General: clear Color: none Phase: — Odor: ~~Clear~~ None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
9:51	6.95	4560	10.21			1.5	
10:00	—	—	—			14.5	WL @ 22.13
10:37	6.86	4620	10.58			3 L	WL @ 10.71

Stabilized? Yes (No)

Total Water Removed: 17.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 7-16-09

Well Number: **Well BC4**

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No — grout About 2" Above GL

Repairs Necessary:

Well Information

Well Depth: 34.82

Constructed Depth: 34.00

Casing Diameter (Inches): 2

Water Level Before Purge: 20.23

Well Volume: 9.0 Gallons Liters

Well Casing Elevation: 1113.86

Static Water Level: 1093.63

Previous Static: 1093.71

Water Level After Sample: 24.90

Measurement Method: Electric WLI Other

Sampling Information

Precipitation: No Temperature: 60 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry: 22:12

Duplicate Sample? Yes No

Pumping Rate: NA gpm lpm

Time Purge Began: 22:01

Time of Sampling: 17:51

Duplicate ID: —

Sample Appearance: General: clear Color: yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
22:02	7.22	33700	9.25			1.5	
22:12	—	—	—	—		16.5	WL@ 34.14
17:51	6.93	40100	9.56			3	WL@ 20.40

Stabilized? Yes No

Total Water Removed: 19.5 Gallons Liters

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well BC3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 35.08

Constructed Depth: 35.00

Casing Diameter (Inches): 2

Water Level Before Purge: 22.01

Well Volume: 8.1 Gallons (Liters)

Well Casing Elevation: 1114.42

Static Water Level: 1092.41

Previous Static: 1094.95

Water Level After Sample: 26.59

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No Temperature: 60 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 21:51

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm (lpm)

Time Purge Began: 21:40

Time of Sampling: 17:36

Duplicate ID: —

Sample Appearance: General: clear Color: yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
21:41	6.85	33500	9.37			1.5	
21:51	—	—	—	—		22L	WL @ 34.71
17:36	6.78	33200	9.94			3L	WL @ 22.09
		~~33~~	~~9.94~~				

Stabilized? Yes (No)

Total Water Removed: 25 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 7-16-09

Well Number: **Well BC2**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.42

Constructed Depth: 32.00

Casing Diameter (Inches): 2

Water Level Before Purge: 18.18

Well Volume: 8.8 Gallons (Liters)

Well Casing Elevation: 1115.28

Static Water Level: 1097.10

Previous Static: 1097.93

Water Level After Sample: 22.93

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No Temperature: 62 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 21:31

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 21:21

Time of Sampling: 17:20

Duplicate ID: —

Sample Appearance: General: Clear Color: Yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
21:22	7.08	38400	9.91			1.5	
21:31						24L	WL@ 31.79
17:20	6.67	34700	9.73			32	WL@ 18.43

Stabilized? Yes (No)

Total Water Removed: 27 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well BC101** Note: it's a "zero" not an "O"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) Grout Seal About 2" Above GL

Repairs Necessary:

Well Information

Well Depth: 39.19

Constructed Depth: 39.00

Casing Diameter (Inches): 2

Water Level Before Purge: 8.21

Well Volume: 19.2 Gallons (Liters)

Well Casing Elevation: 1118.70

Static Water Level: 1110.49

Previous Static: 1112.15

Water Level After Sample: 17.97

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No (Pretty cloudy) Temperature: 64 Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 19:15

Time of Sampling: 17:03

Duplicate ID: —

Sample Appearance: General: Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
19:16	6.77	2710	9.95			1.5	
19:23	6.58	2730	10.20			21	
19:31	6.58	2710	10.15			42	
19:33	—	—	—	—		48	WL @ 38.75
17:03	6.72	2600	10.19			3	WL @ 13.47

Stabilized? Yes (No)

Total Water Removed: 51 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 7-16-09

Well Number: **Well S4**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 29.74

Constructed Depth: 27.70

Casing Diameter (Inches): 2

Water Level Before Purge: 14.83

Well Volume: 9.2 Gallons (Liters)

Well Casing Elevation: 1090.57

Static Water Level: 1075.74

Previous Static: 1081.57

Water Level After Sample: 26.10

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: cldy NO Temperature: 65° Windspeed: 20/30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 16:01

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: ~~15:40~~ 15:50

Time of Sampling: 15:47 ~~7-16~~ (7-17-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:51	6.91	3750	8.49			1.5	
15:55	6.86	3300	8.68			10.5	
16:00	6.77	3600	8.42			21.0	
16:01	—	—	—			22.5	WL @ 29.30
(7-17) 15:47	6.68	4530	8.64			3.0	WL @ 21.60

Stabilized? Yes (No)

Total Water Removed: 25.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 7-16-09

Well Number: **Well S2**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 43.56

Constructed Depth: 43.12

Casing Diameter (Inches): 2

Water Level Before Purge: 15.07

Well Volume: 17.6 Gallons (Liters)

Well Casing Elevation: 1102.39

Static Water Level: 1087.32

Previous Static: 1091.34

Water Level After Sample: 24.60

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: partly cldy Temperature: 65° Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 13:25

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 13:05

Time of Sampling: 13:10 (7-17-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:06	6.92	52700	10.18			1.5	
13:14	7.04	52300	9.99			18	
13:23	6.87	53000	10.04			36	
13:25	—	—	—			39.5	WL @ 42.80
(7-17) 13:10	6.86	53500	10.05			3	WL @ 20.15

Stabilized? Yes (No)

Total Water Removed: 42.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well S1**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.80

Constructed Depth: 32.50

Casing Diameter (Inches): 2

Water Level Before Purge: 12.66

Well Volume: 12.5 Gallons (Liters)

Well Casing Elevation: 1102.17

Static Water Level: 1089.51

Previous Static: 1093.82

Water Level After Sample: 30.98

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Prev Cldy No Temperature: 68° Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 12:58

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 12:40

Time of Sampling: 12:41 (7-17-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:41	6.69	43600	10.31			1.5	
12:48	6.82	42600	10.32			15 L	
12:56	6.82	43700	9.81			30 L	
12:58	—	—	—			33 L	WL @ 31.91
(7-17) 12:41	6.73	43800	10.21			3 L	WL @ 26.50

Stabilized? Yes (No)

Total Water Removed: 36 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well S3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 62.70

Constructed Depth: 62.5

Casing Diameter (Inches): 2

Water Level Before Purge: 45.69

Well Volume: 10.5 Gallons (Liters)

Well Casing Elevation: 1102.65

Static Water Level: 1056.96

Previous Static: 1057.30

Water Level After Sample: 47.25

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: pt ly cldy No Temperature: 65° Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2.0 gpm (lpm)

Time Purge Began: 13:32

Time of Sampling: 14:02

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:38	6.74	2770	16.71			12	
13:44	6.73	2830	15.35			24	
13:50	6.73	2870	14.66			36	
13:56	6.72	2870	14.67			48	
14:02	6.72	2870	14.52			60	WL @ 47.25

Stabilized? (Yes) No

Total Water Removed: Gallons (Liters)

Comments:

52' 19 outlet 2 L/m 6 min/vol

+13

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 7-16-09

Well Number: **Well S6**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 62.90

Constructed Depth: 33.56 ?

Casing Diameter (Inches): 2

Water Level Before Purge: 47.40

Well Volume: 9.6 Gallons (Liters)

Well Casing Elevation: 1090.71

Static Water Level: 1043.31

Previous Static: 1043.50

Water Level After Sample: 48.62

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: cldy no Temperature: 65 Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2.0 gpm (lpm)

Time Purge Began: 16:17

Time of Sampling: 16:42

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:22	—	—	—			10	Change Batteries In meter
16:27	7.38	1950	17.36			20	
16:32	6.98	1740	13.75			30	
16:37	6.95	1716	13.58			40	
16:42	6.94	1700	13.61			50	WL @ 48.62

Stabilized? (Yes) No

Total Water Removed: 54 Gallons (Liters)

Comments:

52' 2+/m 190 mHz 5 min/vol

+13

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well BC1**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) (No) [illegible]

Repairs Necessary:

Well Information

Well Depth: 16.13

Constructed Depth: 16.00

Casing Diameter (Inches): 2

Water Level Before Purge: 5.80

Well Volume: 6.4 Gallons (Liters)

Well Casing Elevation: 1118.46

Static Water Level: 1112.66

Previous Static: 1113.54

Water Level After Sample: 6.91

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No Temperature: 64 Windspeed: 20-30 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 3 gpm (lpm)

Time Purge Began: 19:34

Time of Sampling: 19:43

Duplicate ID: —

Sample Appearance: General: Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
19:37	7.10	2580	12.80			9	
19:40	7.14	2560	12.65			18	
19:43	7.15	2560	12.58			27	WL @ 6.91

Stabilized? (Yes) No

Total Water Removed: Gallons (Liters)

Comments:

Pump set @ 10'
3 L/min (med setting)

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well BC6**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 33.73

Constructed Depth: 33.50

Casing Diameter (Inches): 2

Water Level Before Purge: 23.14

Well Volume: 6.6 Gallons (Liters)

Well Casing Elevation: 1121.58

Static Water Level: 1098.44

Previous Static: 1099.80

Water Level After Sample: 25.93

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Partly cldy No Temperature: 64° Windspeed: 20/30 mph Wind Direction: Northwest

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2L gpm (lpm)

Time Purge Began: 20:10

Time of Sampling:

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
20:14	7.09	3370	9.90			8	
20:18	7.09	3370	9.91			16	
20:22	7.06	3360	9.89			24	WL @ 25.93

Stabilized? (Yes) No

Total Water Removed: 26 Gallons (Liters)

Comments:

Pump set a 30'
2L/min (med set.)

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-16-09

Well Number: **Well BC5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 37.25

Constructed Depth: 37.00

Casing Diameter (Inches): 2

Water Level Before Purge: 27.94

Well Volume: 5.8 Gallons (Liters)

Well Casing Elevation: 1123.02

Static Water Level:

Previous Static: 1097.64

Water Level After Sample:

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : No Temperature: 60 Windspeed: 15-25 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry:

Duplicate Sample? Yes (No)

Pumping Rate: 2 gpm (lpm)

Time Purge Began: 20:43

Time of Sampling: 20:52

Duplicate ID: —

Sample Appearance: General: Slight Turb. Color: Light Brown Phase: ~~None~~ Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
20:46	6.80	8920	9.31			6	
20:49	6.80	8880	9.32			12	
20:52	6.75	8720	9.29			18	

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

Set a 32' med setting 2L/min

Use Grundfos NEXT event

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel:

Date: 7-17-09

Well Number: **Well 11**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Repairs Necessary:

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Well Information

Well Depth: 127.22

Constructed Depth: 127.22

Casing Diameter (Inches): 4

Water Level Before Purge: 98.53

Well Volume: 71.7 Gallons (Liters)

Well Casing Elevation: 1104.00

Static Water Level:

Previous Static:

Water Level After Sample: 98.92

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : no Temperature: 65 Windspeed: 25/35 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other:)

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 28 gpm (lpm)

Time Purge Began: 14:55

Time of Sampling: 15:05

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:58	6.95	2070	10.01			84	
15:02	6.94	2040	9.91			168	
15:05	6.90	2040	9.93			252	

Stabilized? Yes No

Total Water Removed: Gallons Liters

Comments:

3 min/Vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 7-17-09

Well Number: **Well 10**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 48.00

Constructed Depth: 47.43

Casing Diameter (Inches): 4

Water Level Before Purge: 18.00

Well Volume: 75 Gallons (Liters)

Well Casing Elevation: 1098.70

Static Water Level: 1080.70

Previous Static: 1083.25

Water Level After Sample: 33.70

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : No Temperature: 62 Windspeed: 25-35 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 8 gpm (lpm)

Time Purge Began: 13:59

Time of Sampling: 14:29

Duplicate ID: —

Sample Appearance: General: Color: Phase: Odor:

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:09	6.98	1131	11.05			80 L	
14:19	6.97	1135	10.94			160 L	WL @ 31.35
14:29	6.93	1156	11.01			240 L	WL @ 33.70

Stabilized? (Yes) No

Total Water Removed: Gallons (Liters)

Comments:

pump @ 35'

25 watt

8 L/min

2.5 L/FT

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Client: T. J. NEWKIRK
OTTER TAIL POWER CO. - BIG STONE
P O BOX 496
FERGUS FALLS MN 56538-0496

Sample ID: H1OX **Sample Date:** 10/21/2009 **SampleTime:** 16:15
Era Project Number: 053364-1

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	883	mg/L	11/2/2009	10:07	SM 2320-B	1	3	
Chloride	4.22	mg/L	11/17/2009	13:27	SM 4500-Cl E	0.02	0.06	
Nitrogen, Nitrate + Nitrite	5.4	mg/L	11/10/2009	17:39	353.2	0.1	0.3	
pH - Lab	7.1	SU	10/28/2009	18:05	150.1			
Specific Conductance	1740	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	229	mg/L	11/14/2009	21:12	300.0	5	15	
Arsenic, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved	50	µg/L	11/6/2009	12:40	6010B	10	40	
Boron, Dissolved	4290	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	1	µg/L	11/5/2009	9:39	6010B	1	4	J
Hardness, Calcium	330	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	1100	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	11/4/2009	8:58	7470	0.04	0.05	
Potassium, Total	2.7	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	

MN Certification # 027-137-152

Era Laboratories, Inc.
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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H1OX **Sample Date:** 10/21/2009 **SampleTime:** 16:15
Era Project Number: 053364-1

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Sodium, Total		39.6	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved		410	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	<	2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	17	

Sample ID: S-3 **Sample Date:** 10/22/2009 **SampleTime:** 12:08
Era Project Number: 053364-2

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		371	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride		510	mg/L	11/17/2009	14:38	SM 4500-Cl E	2	6	
Nitrogen, Nitrate + Nitrite	<	0.1	mg/L	11/16/2009	16:18	353.2	0.1	0.3	MI
pH - Lab		6.9	SU	10/28/2009	18:05	150.1			
Specific Conductance		2560	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		951	mg/L	11/14/2009	21:33	300.0	10	40	
Arsenic, Dissolved		22	µg/L	11/5/2009	9:39	6010B	3	11	
Boron, Dissolved		120	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium		1080	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		1620	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved		950	µg/L	11/6/2009	8:40	6010B	10	40	
Potassium, Total		7.9	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		14.9	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved		1200	µg/L	11/6/2009	8:40	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: S1 **Sample Date:** 10/22/2009 **SampleTime:** 12:28

Era Project Number: 053364-3

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		1280	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride		2940	mg/L	11/17/2009	13:50	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite		0.04	mg/L	11/10/2009	17:14	353.2	0.01	0.03	
pH - Lab		7.2	SU	10/28/2009	18:05	150.1			
Specific Conductance		38700	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		34500	mg/L	11/20/2009	0:03	300.0	500	1500	
Arsenic, Dissolved	<	3	µg/L	11/5/2009	9:39	6010B	3	11	
Boron, Dissolved		22500	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium		130	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		2790	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved		3230	µg/L	11/6/2009	8:40	6010B	10	40	
Potassium, Total		67.4	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		5920	mg/L	11/24/2009	8:50	6010B	20	80	
Strontium, Dissolved		2820	µg/L	11/6/2009	8:40	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: S2 **Sample Date:** 10/22/2009 **SampleTime:** 12:48

Era Project Number: 053364-4

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		1430	mg/L	11/2/2009	10:07	SM 2320-B	5	15	
Chloride		3330	mg/L	11/17/2009	13:55	SM 4500-Cl E	10	30	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	11/16/2009	16:20	353.2	0.01	0.03	
pH - Lab		7.3	SU	10/28/2009	18:05	150.1			
Specific Conductance		48400	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		52300	mg/L	11/14/2009	22:16	300.0	1000	4000	
Arsenic, Dissolved		21	µg/L	11/5/2009	9:39	6010B	3	11	
Boron, Dissolved		46600	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	<	1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium		133	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		3450	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved		7390	µg/L	11/6/2009	8:40	6010B	10	40	
Potassium, Total		84.8	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		9500	mg/L	11/24/2009	8:50	6010B	20	80	
Strontium, Dissolved		2580	µg/L	11/6/2009	8:40	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H2OX **Sample Date:** 10/22/2009 **SampleTime:** 14:45

Era Project Number: 053364-5

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	518	mg/L	11/2/2009	10:07	SM 2320-B	5	15	
Chloride	3.41	mg/L	11/17/2009	13:34	SM 4500-Cl E	0.02	0.06	
Nitrogen, Nitrate + Nitrite	2	mg/L	11/10/2009	17:41	353.2	0.1	0.3	
pH - Lab	6.8	SU	10/28/2009	18:05	150.1			
Specific Conductance	4200	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	2790	mg/L	11/17/2009	6:07	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved	< 10	µg/L	11/6/2009	12:40	6010B	10	40	
Boron, Dissolved	320	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	3	µg/L	11/5/2009	9:39	6010B	1	4	J
Hardness, Calcium	1350	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	3180	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	570	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	11/18/2009	14:27	7470	0.04	0.05	
Potassium, Total	15.5	mg/L	11/24/2009	8:50	6010B	0.2	0.8	
Selenium, Dissolved	9	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total	93.3	mg/L	11/24/2009	8:50	6010B	0.2	0.8	
Strontium, Dissolved	2750	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: ASH RUNOFF POND **Sample Date:** 10/22/2009 **SampleTime:** 14:30

Era Project Number: 053364-6

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	491	mg/L	11/2/2009	10:07	SM 2320-B	5	15	
Chloride	864	mg/L	11/17/2009	14:00	SM 4500-Cl E	4	12	
Nitrogen, Nitrate + Nitrite	0.02	mg/L	11/10/2009	17:29	353.2	0.01	0.03	J
pH - Lab	9.1	SU	10/28/2009	18:05	150.1			
Specific Conductance	25200	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	16800	mg/L	11/17/2009	6:29	300.0	300	800	
Arsenic, Total	40	µg/L	11/23/2009	8:42	6010B	3	11	
Barium, Total	90	µg/L	11/20/2009	15:13	6010B	10	40	
Boron, Total	54000	µg/L	11/20/2009	15:13	6010B	100	400	
Cadmium, Total	< 1	µg/L	11/23/2009	8:42	6010B	1	4	
Chromium, Total	3	µg/L	11/23/2009	8:42	6010B	2	7	J
Copper, Total	< 1	µg/L	11/23/2009	8:42	6010B	1	4	
Hardness, Calcium	619	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	3590	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Total	< 5	µg/L	11/23/2009	8:42	6010B	5	18	
Manganese, Total	210	µg/L	11/20/2009	16:17	6010B	10	40	
Mercury, Total	0.10	µg/L	11/18/2009	14:27	7470	0.04	0.05	
Potassium, Total	349	mg/L	11/19/2009	10:55	6010B	2	8	
Selenium, Total	19	µg/L	11/23/2009	8:42	6010B	3	7	
Silver, Total	< 1	µg/L	11/20/2009	14:09	6010B	1	4	
Sodium, Total	6900	mg/L	11/19/2009	10:55	6010B	20	80	
Strontium, Total	7200	µg/L	11/20/2009	16:17	6010B	100	400	
Vanadium, Total	30	µg/L	11/23/2009	8:42	6010B	2	8	
Zinc, Total	13	µg/L	11/23/2009	8:42	6010B	5	17	J

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H1INT **Sample Date:** 10/22/2009 **SampleTime:** 16:04

Era Project Number: 053364-7

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	415	mg/L	11/2/2009	10:07	SM 2320-B	5	15	
Chloride	11.5	mg/L	11/17/2009	14:02	SM 4500-Cl E	0.04	0.12	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	11/10/2009	17:30	353.2	0.01	0.03	
pH - Lab	7.0	SU	10/28/2009	18:05	150.1			
Specific Conductance	1250	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	344	mg/L	11/20/2009	0:25	300.0	5	15	
Arsenic, Dissolved	6	µg/L	11/5/2009	9:39	6010B	3	11	J
Barium, Dissolved	20	µg/L	11/6/2009	12:40	6010B	10	40	J
Boron, Dissolved	100	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium	472	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	749	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	720	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	11/12/2009	14:09	7470	0.04	0.05	
Potassium, Total	6.0	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total	12.8	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved	590	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	7	µg/L	11/5/2009	9:39	6010B	5	17	J

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: COOLING POND **Sample Date:** 10/23/2009 **SampleTime:** 10:45

Era Project Number: 053364-8

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	240	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride	76.9	mg/L	11/17/2009	13:41	SM 4500-Cl E	0.2	0.6	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	11/10/2009	17:31	353.2	0.01	0.03	
pH - Lab	9.1	SU	10/28/2009	18:05	150.1			
Specific Conductance	2650	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	1320	mg/L	11/19/2009	23:01	300.0	50	150	
Hardness, Calcium	570	mg/L	11/10/2009	8:43	6010B	1	3	
Hardness, Total (as CaCO3)	1340	mg/L	11/10/2009	8:43	6010B	1	3	
Potassium, Total	31.9	mg/L	11/11/2009	13:22	6010B	0.1	0.4	
Sodium, Total	178	mg/L	11/11/2009	13:22	6010B	0.5	1.7	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: S4 **Sample Date:** 10/23/2009 **SampleTime:** 11:07

Era Project Number: 053364-9

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		336	mg/L	11/2/2009	10:07	SM 2320-B	5	15	
Chloride		334	mg/L	11/17/2009	13:43	SM 4500-Cl E	2	6	
Nitrogen, Nitrate + Nitrite		0.45	mg/L	11/10/2009	17:33	353.2	0.01	0.03	
pH - Lab		6.8	SU	10/28/2009	18:05	150.1			
Specific Conductance		3510	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		2050	mg/L	11/20/2009	9:20	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	11/5/2009	9:39	6010B	3	11	
Boron, Dissolved		880	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium		1500	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		2240	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	<	10	µg/L	11/6/2009	8:40	6010B	10	40	
Potassium, Total		6.4	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		86.5	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved		490	µg/L	11/6/2009	8:40	6010B	10	40	

MN Certification # 027-137-152

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: S-6 **Sample Date:** 10/23/2009 **SampleTime:** 11:15

Era Project Number: 053364-10

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		439	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride		11.5	mg/L	11/17/2009	14:06	SM 4500-Cl E	0.08	0.24	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	11/16/2009	16:21	353.2	0.01	0.03	
pH - Lab		7.0	SU	10/28/2009	18:05	150.1			
Specific Conductance		1500	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		450	mg/L	11/17/2009	5:07	300.0	30	80	
Arsenic, Dissolved		3	µg/L	11/5/2009	9:39	6010B	3	11	J
Boron, Dissolved		160	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium		623	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		955	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved		480	µg/L	11/6/2009	8:40	6010B	10	40	
Potassium, Total		6.9	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		17.1	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved		970	µg/L	11/6/2009	8:40	6010B	10	40	

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Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H3INT **Sample Date:** 10/23/2009 **SampleTime:** 12:48

Era Project Number: 053364-11

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	523	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride	74	mg/L	11/17/2009	14:11	SM 4500-Cl E	0.2	0.6	
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	11/10/2009	17:54	353.2	0.01	0.03	
pH - Lab	6.8	SU	10/28/2009	18:05	150.1			
Specific Conductance	2310	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	857	mg/L	11/17/2009	6:49	300.0	30	80	
Arsenic, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved	30	µg/L	11/6/2009	12:40	6010B	10	40	J
Boron, Dissolved	560	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium	926	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	1410	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	80	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	11/12/2009	14:09	7470	0.04	0.05	
Potassium, Total	12.3	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total	48.7	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved	920	µg/L	11/6/2009	8:40	6010B	50	200	
Vanadium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H3OX **Sample Date:** 10/23/2009 **SampleTime:** 13:02

Era Project Number: 053364-12

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	675	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride	78.1	mg/L	11/17/2009	14:14	SM 4500-Cl E	0.2	0.6	
Nitrogen, Nitrate + Nitrite	0.1	mg/L	11/10/2009	17:55	353.2	0.01	0.03	
pH - Lab	7.1	SU	10/28/2009	18:05	150.1			
Specific Conductance	4220	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	2540	mg/L	11/17/2009	7:10	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved	10	µg/L	11/6/2009	12:40	6010B	10	40	J
Boron, Dissolved	14000	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	4	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium	878	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	1780	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	< 0.04	µg/L	11/12/2009	14:09	7470	0.04	0.05	
Potassium, Total	6.7	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total	477	mg/L	11/19/2009	10:55	6010B	2	8	
Strontium, Dissolved	1030	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H4OX **Sample Date:** 10/23/2009 **SampleTime:** 14:21

Era Project Number: 053364-13

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	493	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride	62.4	mg/L	11/17/2009	14:16	SM 4500-Cl E	0.2	0.6	
Nitrogen, Nitrate + Nitrite	0.14	mg/L	11/10/2009	17:56	353.2	0.01	0.03	
pH - Lab	6.9	SU	10/28/2009	18:05	150.1			
Specific Conductance	2850	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	1770	mg/L	11/17/2009	7:32	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved	10	µg/L	11/6/2009	12:40	6010B	10	40	J
Boron, Dissolved	220	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	1	µg/L	11/5/2009	9:39	6010B	1	4	J
Hardness, Calcium	1070	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	2070	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved	10	µg/L	11/6/2009	8:40	6010B	10	40	J
Mercury, Dissolved	< 0.04	µg/L	11/12/2009	14:09	7470	0.04	0.05	
Potassium, Total	6.2	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	< 3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	< 1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total	26.1	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved	920	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	< 2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved	< 5	µg/L	11/5/2009	9:39	6010B	5	17	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: H4INT **Sample Date:** 10/23/2009 **SampleTime:** 14:58

Era Project Number: 053364-14

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		419	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride		50.4	mg/L	11/17/2009	14:19	SM 4500-Cl E	0.2	0.6	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	11/10/2009	17:57	353.2	0.01	0.03	
pH - Lab		6.9	SU	10/28/2009	18:05	150.1			
Specific Conductance		2530	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		1510	mg/L	11/17/2009	8:15	300.0	50	150	
Arsenic, Dissolved	<	3	µg/L	11/5/2009	9:39	6010B	3	11	
Barium, Dissolved		10	µg/L	11/6/2009	12:40	6010B	10	40	J
Boron, Dissolved		160	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Chromium, Dissolved	<	2	µg/L	11/5/2009	9:39	6010B	2	7	
Copper, Dissolved	<	1	µg/L	11/5/2009	9:39	6010B	1	4	
Hardness, Calcium		974	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		1750	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/5/2009	9:39	6010B	5	18	
Manganese, Dissolved		270	µg/L	11/6/2009	8:40	6010B	10	40	
Mercury, Dissolved	<	0.04	µg/L	11/12/2009	14:09	7470	0.04	0.05	
Potassium, Total		13.2	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Selenium, Dissolved	<	3	µg/L	11/5/2009	9:39	6010B	3	7	
Silver, Dissolved	<	1	µg/L	11/6/2009	11:47	6010B	1	4	
Sodium, Total		33.6	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Strontium, Dissolved		1180	µg/L	11/6/2009	8:40	6010B	10	40	
Vanadium, Dissolved	<	2	µg/L	11/5/2009	9:39	6010B	2	8	
Zinc, Dissolved		12	µg/L	11/5/2009	9:39	6010B	5	17	J

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: WELL 10 **Sample Date:** 10/23/2009 **SampleTime:** 15:52
Era Project Number: 053364-15

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	323	mg/L	11/2/2009	10:07	SM 2320-B	2	6	
Chloride	10	mg/L	11/15/2009	4:57	300.0	4	12	J
Nitrogen, Nitrate + Nitrite	7.4	mg/L	11/16/2009	16:23	353.2	0.1	0.3	
pH - Lab	7.2	SU	10/28/2009	18:05	150.1			
Specific Conductance	971	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	190	mg/L	11/17/2009	8:36	300.0	5	15	
Hardness, Calcium	266	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	589	mg/L	11/19/2009	8:23	6010B	2	6	
Potassium, Total	2.7	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total	6.0	mg/L	11/19/2009	10:55	6010B	0.2	0.8	

Sample ID: WELL 11 **Sample Date:** 10/23/2009 **SampleTime:** 16:15
Era Project Number: 053364-16

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	389	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	73	mg/L	11/15/2009	5:59	300.0	4	12	
Nitrogen, Nitrate + Nitrite	0.03	mg/L	11/16/2009	16:25	353.2	0.01	0.03	
pH - Lab	6.9	SU	10/28/2009	18:05	150.1			
Specific Conductance	1820	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	703	mg/L	11/17/2009	10:02	300.0	10	30	
Hardness, Calcium	821	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	1160	mg/L	11/19/2009	8:23	6010B	2	6	
Potassium, Total	9.1	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total	14.2	mg/L	11/19/2009	10:55	6010B	0.2	0.8	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC2 **Sample Date:** 10/23/2009 **SampleTime:** 16:50

Era Project Number: 053364-17

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	785	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	1900	mg/L	11/15/2009	6:20	300.0	200	600	
Nitrogen, Nitrate + Nitrite	0.02	mg/L	11/16/2009	16:26	353.2	0.01	0.03	J
pH - Lab	7.2	SU	10/28/2009	18:05	150.1			
Specific Conductance	33300	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	29600	mg/L	11/17/2009	10:24	300.0	500	1500	
Arsenic, Dissolved	5	µg/L	11/11/2009	9:21	6010B	3	11	J
Boron, Dissolved	61900	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	< 1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium	1110	mg/L	11/19/2009	8:23	6010B	20	60	
Hardness, Total (as CaCO3)	19500	mg/L	11/19/2009	8:23	6010B	20	60	
Lead, Dissolved	< 5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved	7040	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total	277	mg/L	11/24/2009	8:50	6010B	1	4	
Sodium, Total	6290	mg/L	11/19/2009	10:55	6010B	20	80	
Strontium, Dissolved	3280	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC3 **Sample Date:** 10/23/2009 **SampleTime:** 17:06

Era Project Number: 053364-18

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		527	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride		600	mg/L	11/15/2009	6:41	300.0	200	600	
Nitrogen, Nitrate + Nitrite		1.2	mg/L	11/16/2009	16:39	353.2	0.02	0.06	
pH - Lab		7.1	SU	10/28/2009	18:05	150.1			
Specific Conductance		10570	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		5900	mg/L	11/20/2009	1:07	300.0	500	1500	
Arsenic, Dissolved	<	3	µg/L	11/11/2009	9:21	6010B	3	11	
Boron, Dissolved		14300	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	<	1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium		1010	mg/L	11/19/2009	8:23	6010B	20	60	
Hardness, Total (as CaCO3)		8450	mg/L	11/19/2009	8:23	6010B	20	60	
Lead, Dissolved	<	5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved		930	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total		19	mg/L	11/24/2009	8:50	6010B	1	4	
Sodium, Total		2530	mg/L	11/19/2009	10:55	6010B	20	80	
Strontium, Dissolved		1950	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC4 **Sample Date:** 10/23/2009 **SampleTime:** 17:25

Era Project Number: 053364-19

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	353	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	33	mg/L	11/17/2009	14:21	SM 4500-Cl E	2	6	
Nitrogen, Nitrate + Nitrite	0.03	mg/L	11/16/2009	16:32	353.2	0.01	0.03	
pH - Lab	7.3	SU	10/28/2009	18:05	150.1			
Specific Conductance	1420	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	390	mg/L	11/20/2009	1:27	300.0	50	150	
Arsenic, Dissolved	4	µg/L	11/11/2009	9:21	6010B	3	11	J
Boron, Dissolved	3000	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium	252	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)	545	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	< 5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved	730	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total	28.4	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total	132	mg/L	11/19/2009	10:55	6010B	2	8	
Strontium, Dissolved	830	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC6 **Sample Date:** 10/23/2009 **SampleTime:** 17:56

Era Project Number: 053364-20

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		424	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride		70	mg/L	11/15/2009	7:24	300.0	20	60	
Nitrogen, Nitrate + Nitrite		2.2	mg/L	11/16/2009	16:33	353.2	0.1	0.3	
pH - Lab		7.1	SU	10/28/2009	18:05	150.1			
Specific Conductance		2990	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		1500	mg/L	11/20/2009	4:38	300.0	100	300	
Arsenic, Dissolved	<	3	µg/L	11/11/2009	9:21	6010B	3	11	
Boron, Dissolved		1840	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium		705	mg/L	11/19/2009	8:23	6010B	2	6	
Hardness, Total (as CaCO3)		1900	mg/L	11/19/2009	8:23	6010B	2	6	
Lead, Dissolved	<	5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved	<	10	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total		5.4	mg/L	11/19/2009	10:55	6010B	0.2	0.8	
Sodium, Total		140	mg/L	11/19/2009	10:55	6010B	2	8	
Strontium, Dissolved		500	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC5 **Sample Date:** 10/23/2009 **SampleTime:** 18:36

Era Project Number: 053364-21

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	575	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	200	mg/L	11/15/2009	7:48	300.0	40	120	
Nitrogen, Nitrate + Nitrite	0.61	mg/L	11/16/2009	16:34	353.2	0.01	0.03	
pH - Lab	6.9	SU	10/28/2009	18:05	150.1			
Specific Conductance	6440	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	3770	mg/L	11/20/2009	5:42	300.0	100	400	
Arsenic, Dissolved	< 3	µg/L	11/11/2009	9:21	6010B	3	11	
Boron, Dissolved	7710	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	< 1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium	829	mg/L	11/20/2009	11:05	6010B	1	3	
Hardness, Total (as CaCO3)	2730	mg/L	11/20/2009	11:05	6010B	1	3	
Lead, Dissolved	< 5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved	1500	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total	47	mg/L	11/20/2009	8:20	6010B	1	4	
Sodium, Total	820	mg/L	11/20/2009	8:20	6010B	10	40	
Strontium, Dissolved	660	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC1 **Sample Date:** 10/23/2009 **SampleTime:** 19:04

Era Project Number: 053364-22

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	382	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	40	mg/L	11/15/2009	8:09	300.0	20	60	J
Nitrogen, Nitrate + Nitrite	0.21	mg/L	11/16/2009	16:35	353.2	0.01	0.03	
pH - Lab	7.2	SU	10/28/2009	18:05	150.1			
Specific Conductance	2470	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	1430	mg/L	11/20/2009	6:04	300.0	50	150	
Arsenic, Dissolved	< 3	µg/L	11/11/2009	9:21	6010B	3	11	
Boron, Dissolved	4200	µg/L	11/6/2009	12:40	6010B	100	400	
Cadmium, Dissolved	< 1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium	401	mg/L	11/20/2009	11:05	6010B	1	3	
Hardness, Total (as CaCO3)	1270	mg/L	11/20/2009	11:05	6010B	1	3	
Lead, Dissolved	< 5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved	< 10	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total	1.8	mg/L	11/20/2009	8:20	6010B	0.1	0.4	
Sodium, Total	176	mg/L	11/20/2009	8:20	6010B	1	4	
Strontium, Dissolved	590	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: BC101 **Sample Date:** 10/23/2009 **SampleTime:** 19:17

Era Project Number: 053364-23

Parameter:		Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)		519	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride		5.35	mg/L	11/17/2009	14:23	SM 4500-Cl E	0.02	0.06	
Nitrogen, Nitrate + Nitrite	<	0.01	mg/L	11/16/2009	16:37	353.2	0.01	0.03	
pH - Lab		6.7	SU	10/28/2009	18:05	150.1			
Specific Conductance		2340	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate		1330	mg/L	11/20/2009	6:25	300.0	50	150	
Arsenic, Dissolved		8	µg/L	11/11/2009	9:21	6010B	3	11	J
Boron, Dissolved		140	µg/L	11/6/2009	12:40	6010B	10	40	
Cadmium, Dissolved	<	1	µg/L	11/11/2009	9:21	6010B	1	4	
Hardness, Calcium		993	mg/L	11/20/2009	11:05	6010B	10	30	
Hardness, Total (as CaCO3)		1560	mg/L	11/20/2009	11:05	6010B	10	30	
Lead, Dissolved	<	5	µg/L	11/11/2009	9:21	6010B	5	18	
Manganese, Dissolved		1150	µg/L	11/7/2009	7:44	6010B	10	40	
Potassium, Total		7.1	mg/L	11/20/2009	8:20	6010B	0.1	0.4	
Sodium, Total		16.3	mg/L	11/20/2009	8:20	6010B	0.1	0.4	
Strontium, Dissolved		790	µg/L	11/7/2009	7:44	6010B	10	40	

MN Certification # 027-137-152

Era Laboratories, Inc.
4730 Oneota Street Duluth MN 55806-2017 Telephone: (218)727-6380 Fax: (218)727-3049

Laboratory Report

Project Number:	053364
COC Number:	728037
Date Received:	10/28/2009
Report Date:	12/3/2009

Sample ID: EVAPORATION POND **Sample Date:** 10/23/2009 **SampleTime:** 19:50
Era Project Number: 053364-24

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	99	mg/L	11/4/2009	9:00	SM 2320-B	2	6	
Chloride	100	mg/L	11/15/2009	8:54	300.0	40	120	J
Nitrogen, Nitrate + Nitrite	< 0.01	mg/L	11/16/2009	16:41	353.2	0.01	0.03	
pH - Lab	8.3	SU	10/28/2009	18:05	150.1			
Specific Conductance	4080	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	3020	mg/L	11/20/2009	6:46	300.0	50	150	
Hardness, Calcium	489	mg/L	11/20/2009	11:05	6010B	1	3	
Hardness, Total (as CaCO3)	1290	mg/L	11/20/2009	11:05	6010B	1	3	
Potassium, Total	50	mg/L	11/20/2009	8:20	6010B	1	4	
Sodium, Total	422	mg/L	11/20/2009	8:20	6010B	1	4	

Sample ID: HOLDING POND **Sample Date:** 10/23/2009 **SampleTime:** 19:57
Era Project Number: 053364-25

Parameter:	Results:	Units:	Analysis Date/Time:		Method:	LOD:	LOQ:	QC Comments:
Alkalinity (as CaCO3)	121	mg/L	11/4/2009	9:00	SM 2320-B	1	3	
Chloride	142	mg/L	11/17/2009	14:25	SM 4500-Cl E	2	6	
Nitrogen, Nitrate + Nitrite	0.06	mg/L	11/16/2009	16:42	353.2	0.01	0.03	
pH - Lab	8.5	SU	10/28/2009	18:05	150.1			
Specific Conductance	4080	µmhos/cm	11/17/2009	10:30	120.1	1	10	
Sulfate	3150	mg/L	11/20/2009	7:31	300.0	50	150	
Hardness, Calcium	545	mg/L	11/20/2009	11:05	6010B	1	3	
Hardness, Total (as CaCO3)	1810	mg/L	11/20/2009	11:05	6010B	1	3	
Potassium, Total	51	mg/L	11/20/2009	8:20	6010B	1	4	
Sodium, Total	385	mg/L	11/20/2009	8:20	6010B	1	4	

MN Certification # 027-137-152

Results are reported on an as received basis.

<	Not detected. Less than LOD.
J	Estimate. Result between LOD and LOQ.
MI	Reporting limit raised. Sample diluted due to matrix intereference.

Report Approved By:

Temperature upon arrival (°C): 1.7

MN Certification # 027-137-152

Test results in this report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from Era Laboratories, Inc. All tests were performed in-house by Era Labs.

D&L ENTERPRISES
3017 Manchester ST., Bismarck, ND 58504

October 29, 2009

Mr. T. J. Newkirk
Ottertail Power Company
PO Box 496
Fergus Falls, MN 56537

RE: Fall Ground Water Sampling at the Big Stone Plant, Big Stone, SD 2009

Dear Mr. Newkirk:

On October 21-23, 2009 D&L Enterprises of Bismarck, ND conducted a ground water monitoring event at the Big Stone plant.

All wells were found in good physical condition. No samples were collected at Well H-2INT and Well S-5 because of insufficient volume. The pump was not working at Well 12, no sample was collected. Samples were collected from all other scheduled wells and kept on ice. The samples were packed on ice in coolers and shipped to ERA Laboratories on October 26, 2009.

At Wells BC3 and BC4 a noticeable change in the conductivity was noticed:

BC3	7-16-09	EC=33200	10-22-09	EC=10730
BC4	7-16-09	EC=40100	10-22-09	EC=1438

I checked the EC calibration and it was fine.

Thank you for selecting D&L Enterprises and ERA Laboratories to help you meet your monitoring requirements. If you have any questions regarding my field activities please call me at 701-226-8646.

Sincerely,
D&L Enterprises

Dennis Foss

Dennis Foss

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-21-09

Well Number: **Well H2INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Repairs Necessary:

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Well Information

Well Depth: 62.58

Constructed Depth: 62.30

Casing Diameter (Inches): 2

Water Level Before Purge: 61.21

Well Volume: 0.85 Gallons (Liters)

Well Casing Elevation: 1103.91

Static Water Level: 1042.70

Previous Static: 1042.53

Water Level After Sample: NA

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : Yes/Rain Temperature: 38° Windspeed: 10-15 mph Wind Direction: NE

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 14:58

Time of Sampling: —

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:58							Insufficient Volume

Stabilized? Yes (No)

Total Water Removed: 0 Gallons Liters

Comments:

Insufficient Volume - No Sample

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-22-09

Well Number: **Well S5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 47.30

Constructed Depth: 46.72

Casing Diameter (Inches): 2

Water Level Before Purge: 45.80

Well Volume: 0.9 Gallons (Liters)

Well Casing Elevation: 1091.40

Static Water Level: 1045.60

Previous Static: 1045.51

Water Level After Sample: 45.80

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/cldy Temperature: 43 Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: Whale ~~Bailer~~ Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: Insuf. Vol

Time of Sampling: —

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:26							
							NO SAMPLE

Stabilized? Yes (No)

Total Water Removed: — Gallons Liters

Comments:

Insufficient Vol. - Less Than 1L / NO SAMPLE

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well 12**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Repairs Necessary:

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Well Information

Well Depth: 112.40

Constructed Depth: 112.40

Casing Diameter (Inches): 4

Water Level Before Purge: 65.64

Well Volume: 116.9 Gallons (Liters)

Well Casing Elevation: 1071.89

Static Water Level: 1006.25

Previous Static: 1005.22

Water Level After Sample: —

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 45 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other: Submersible)

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: — gpm lpm

Time Purge Began: 16:30

Time of Sampling: —

Duplicate ID: —

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:35							
							Pump wont work

Stabilized? Yes (No)

Total Water Removed: 0 Gallons Liters

Comments:

Pump NOT Working
Tried several times to get it to pump.
2.54/ft.

NO SAMPLE

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-21-09

Well Number: **Well H1OX** Note: it is an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.04

Constructed Depth: 32.91

Casing Diameter (Inches): 2

Water Level Before Purge: 25.51

Well Volume: 4.0 Gallons (Liters)

Well Casing Elevation: 1115.89

Static Water Level: 1090.38

Previous Static: 1089.73

Water Level After Sample: 26.20

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : Yes/Rain Temperature: 38° Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? ~~Yes~~ (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 15:57

Time of Sampling: 16:15 ~~10-22-09~~

Duplicate ID: —

Sample Appearance: General: slightly turbid Color: very light Brown Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:00	7.05	1700	9.72			4.0	
16:06	6.94	1810	9.73			8.0	
16:11	6.94	1750	9.77			12.0	
16:15	6.93	1730	9.77			16.0	WL @ 26.20

Stabilized? (Yes) ~~No~~

Total Water Removed: 180 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-22-09

Well Number: **Well S3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 62.70

Constructed Depth: 62.5

Casing Diameter (Inches): 2

Water Level Before Purge: 45.52

Well Volume: 10.6 Gallons (Liters)

Well Casing Elevation: 1102.65

Static Water Level: 1057.13

Previous Static: 1056.96

Water Level After Sample: 47.12

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/cldy Temperature: 36° Windspeed: 10-15 mph Wind Direction: NE

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2 L gpm (lpm)

Time Purge Began: 11:44

Time of Sampling: 12:08

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
11:50	6.56	2530	7.01			12	
11:56	6.68	2620	9.53			24	
12:02	6.72	2650	9.91			36	
12:08	6.74	2650	10.00			48	
							WL @ 47.12

Stabilized? (Yes) No

Total Water Removed: 50 Gallons (Liters)

Comments:

52' 19 gallons 24 min 6 min vol

#13

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-21-09

Well Number: **Well S1**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 32.80

Constructed Depth: 32.50

Casing Diameter (Inches): 2

Water Level Before Purge: 6.80

Well Volume: 16.1 Gallons (Liters)

Well Casing Elevation: 1102.17

Static Water Level: 1095.37

Previous Static: 1088.51

Water Level After Sample: 30.72

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Yes/Rain Temperature: 38° Windspeed: 10/20 mph Wind Direction: NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 18:21

Duplicate Sample? Yes (No)

Pumping Rate: N/A gpm lpm

Time Purge Began: 18:00

Time of Sampling: 12:28 (10-22-09)

Duplicate ID: —

Sample Appearance: General: clear Color: yellow Phase: — Odor: none

	Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
	18:01	6.71	38200	9.98			1.5	
	18:10	6.85	38800	9.82			18.0	
	18:19	6.83	38800	9.80			36.0	
	18:21	—	—	—			38.5	
(10-22)	12:28	6.94	38900	8.77			3	

Stabilized? Yes (No)

Total Water Removed: 41.5 Gallons (Liters)

Comments:

NW of 3

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-22-09

Well Number: **Well S2**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 43.56

Constructed Depth: 43.12

Casing Diameter (Inches): 2

Water Level Before Purge: 9.46

Well Volume: 21.1 Gallons (Liters)

Well Casing Elevation: 1102.39

Static Water Level: ~~1058.83~~ 1092.93 (DN)

Previous Static: 1087.32

Water Level After Sample: 42.50

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation yes/Rain Temperature: 38° Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 11:22

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 10:57

Time of Sampling: 12:48

Duplicate ID: —

Sample Appearance: General: Clear Color: yellow Phase: ~~Non~~ Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:58	6.78	48700	9.60			1.5	
11:08	6.93	48200	10.67			22.5	
11:19	6.89	49100	9.57			45.0	
11:22	—	—	—			48.5	WL@ 42.90
12:48	7.12	48900	9.18			2.0	WL@ 38.60

Stabilized? Yes (No)

Total Water Removed: 50.5 Gallons (Liters)

Comments:

3 of 3

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-21-09

Well Number: **Well H2OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) cracked

Repairs Necessary:

Well Information

Well Depth: 32.90

Constructed Depth: 32.20

Casing Diameter (Inches): 2

Water Level Before Purge: 5.83

Well Volume: 16.72 Gallons (Liters)

Well Casing Elevation: 1103.91

Static Water Level: 1098.08

Previous Static: 1094.81

Water Level After Sample: 31.01

Measurement Method: (Electric WLI) Other

Sampling Information

10-22-09 No / Clay 40°

Precipitation: Yes/Rain Temperature: 39° Windspeed: 10-15 / 10-15 mph Wind Direction: NE / NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 15:36

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 15:21

Time of Sampling: 14:45 (10-22-09)

Duplicate ID: —

Sample Appearance: General: clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:22	6.51	4030	10.35			1.5L	
15:28	6.50	4130	10.26			18L	
15:36	—	—	—			29.5	WL @ 32.01
(10-22) 14:45	6.87	4180	8.29			3.0	WL @ 25.77

Stabilized? Yes (No)

Total Water Removed: 32.5 Gallons (Liters)

Comments:

middle of 3

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: Dennis Foss

Date: 10-22-09

Sample ID: **Ash Runoff Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation: —

Open Water: (Yes) No

Measurement Method: Surveyed Other

Sampling Information

Precipitation : No/cldy Temperature: 40 Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No)

Sampling Depth: Just below surface

Time of Sampling: 14:30 am / pm

Sample Appearance: General: Clear Color: Very light yellow Phase: None Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:30	9.03	25700	6.50			2L	

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-22-09

Well Number: **Well H1INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 60.25

Constructed Depth: 60.11

Casing Diameter (Inches): 2

Water Level Before Purge: 26.02

Well Volume: 21.2 Gallons (Liters)

Well Casing Elevation: 1115.82

Static Water Level: 1089.80

Previous Static: 1088.68

Water Level After Sample: 45.10

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/cldy Temperature: 38° Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 3 gpm (lpm)

Time Purge Began: 15:32

Time of Sampling: 16:04

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:40	7.06	1332	9.00			24	
15:48	7.01	1293	10.45			48	
15:56	7.01	1276	10.42			72	
16:04	7.02	1270	10.80			~~72~~ 96	wl@ 45.10

Stabilized? (Yes) No

Total Water Removed: 98 Gallons (Liters)

Comments:

55'

180 mHz

3L/min

8 min/vol

+3

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: Dennis Fom

OTP Personnel

Date: 10-23-09

Sample ID: **Cooling Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation:

Open Water: (Yes) No

Measurement Method: ~~Surveyed~~ ~~Other~~

Sampling Information

Precipitation : No/cldy Temperature: 38° Windspeed: 10-20 mph Wind Direction: N NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No) Sampling Depth: NA

Time of Sampling: 10:45 (am) / pm

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:45	8.63	2700	16.78				

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-22-09

Well Number: **Well S4**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 29.74

Constructed Depth: 27.70

Casing Diameter (Inches): 2

Water Level Before Purge: 8.29

Well Volume: 13.3 Gallons (Liters)

Well Casing Elevation: 1090.57

Static Water Level: 1082.28

Previous Static: 1075.74

Water Level After Sample: 19.20

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/cldy Temperature: 40° Windspeed: 10-20 mph Wind Direction: NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 13:41

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 13:26

Time of Sampling: 11:07 (10-23-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:27	7.06	3080	10.67			1.5	
13:32	6.78	3980	8.88			13.5	
13:39	6.73	3800	8.58			27.0	
13:41	—	—	—			30.0	WL @ 29.32
(10/23) 11:07	6.86	3630	8.68			3	WL @ 14.80

Stabilized? Yes (No)

Total Water Removed: 33 Gallons (Liters)

Comments:

9/001

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-23-09

Well Number: **Well S6**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 62.90

Constructed Depth: 33.56

Casing Diameter (Inches): 2

Water Level Before Purge: 47.23

Well Volume: 9.7 Gallons (Liters)

Well Casing Elevation: 1090.71

Static Water Level: 1043.48

Previous Static: 1043.31

Water Level After Sample: 48.51

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: Nodly Temperature: 32° Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2.0 gpm (lpm)

Time Purge Began: 10:50

Time of Sampling: 11:15

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
10:55	7.17	1790	5.88			10L	
11:00	6.99	1650	7.83			20L	
11:05	6.95	1580	9.17			30L	
11:10	6.95	1570	9.39			40L	
11:15	6.93	1570	9.49			50L	WL @ 48.51

Stabilized? (Yes) No

Total Water Removed: 52 Gallons (Liters)

Comments:

52'

2L/min 190 mHZ

F13

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well H3INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 54.00

Constructed Depth: 54.00

Casing Diameter (Inches): 2

Water Level Before Purge: 28.37

Well Volume: 15.9 Gallons (Liters)

Well Casing Elevation: 1095.17

Static Water Level: 1066.80

Previous Static: 1066.85

Water Level After Sample: 28.61

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/cldy Temperature: 38° Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 4.0 gpm (lpm)

Time Purge Began: 12:36

Time of Sampling: 12:48

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:40	6.79	2370	11.44			16L	
12:44	6.76	2350	11.53			32L	
12:48	6.76	2360	11.53			48L	WL @ 28.61

Stabilized? (Yes) No

Total Water Removed: 50 Gallons (Liters)

Comments:

Pump Set @ 30'
High 4L/min 4 min/vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-23-09

Well Number: **Well H3OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 22.65

Constructed Depth: 22.50

Casing Diameter (Inches): 2

Water Level Before Purge: 6.71

Well Volume: 9.9 L Gallons (Liters)

Well Casing Elevation: 1095.19

Static Water Level: 1088.48

Previous Static: 1086.73

Water Level After Sample: 12.42

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation : No/cldy Temperature: 38° Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 12:27

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 12:20

Time of Sampling: 13:02

Duplicate ID: —

Sample Appearance: General: Clear Color: none Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
12:21	7.01	4230	11.98			1.5	
12:27	—	—	—			17.25	WL@ 22.17
13:02	7.03	4270	11.59			3.0	WL@ 8.87

Stabilized? Yes (No)

Total Water Removed: 20.25 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well H4OX** Note: it's an "O" not a "zero"

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 27.42

Constructed Depth: 27.00

Casing Diameter (Inches): 2

Water Level Before Purge: 16.59

Well Volume: 6.7 Gallons (Liters)

Well Casing Elevation: 1108.22

Static Water Level: 1091.63

Previous Static: 1089.87

Water Level After Sample: 21.90

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation : No precipitation Temperature: 40 Windspeed: 10-20 mph Wind Direction: N

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 200 gpm (lpm)

Time Purge Began: 14:09

Time of Sampling: 14:21

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

	Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
14:13	~~14:15~~	6.88	2940	8.76			8L	
14:17	~~14:25~~	6.89	2950	8.52			16L	
14:21	~~14:30~~	6.88	2940	8.52			24L	WL @ 21.90

Stabilized? (Yes) No

Total Water Removed: 26 Gallons (Liters)

Comments:

23' 1L/min med set. 8min/vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well H4INT**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) cracked

Repairs Necessary:

Well Information

Well Depth: 60.28

Constructed Depth: 60.00

Casing Diameter (Inches): 2

Water Level Before Purge: 17.03

Well Volume: 26.7 Gallons (Liters)

Well Casing Elevation: 1108.61

Static Water Level: 1091.58

Previous Static: 1089.64

Water Level After Sample: 41.91

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No/pty cldy Temperature: 40° Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 14:28

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 13:55

Time of Sampling: 14:58

Duplicate ID: —

Sample Appearance: General: clear Color: none Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
13:56	7.11	2590	8.56			1.0	
14:28	—	—	—			29.5	WL@ 59.17
14:58	6.96	2610	8.38			2	WL@ 37.28

Stabilized? Yes (No)

Total Water Removed: 31.5 Gallons (Liters)

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well 10**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 48.00

Constructed Depth: 47.43

Casing Diameter (Inches): 4

Water Level Before Purge: 13.96

Well Volume: 85.1 Gallons (Liters)

Well Casing Elevation: 1098.70

Static Water Level: 1084.74

Previous Static: 1080.70

Water Level After Sample: 31.51

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: No Temperature: 43 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 8 gpm (lpm)

Time Purge Began: 15:19

Time of Sampling: 15:52

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
15:30	7.20	967	9.64			88	WL @ 26.40
15:41	7.20	978	9.68			176	WL @ 29.52
15:52	7.20	984	9.70			264	WL @ 31.51

Stabilized? (Yes) No

Total Water Removed: 266 Gallons (Liters)

Comments:

Pump @ 40'
250 mtHZ
8L/min
11 min/vol

2.5L/FT.

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Damien Fox

Date: 10-23-09

Well Number: **Well 11**

Unique Well Number:

Well Condition

Well Locked? Yes (No)

Well Labeled? Yes (No)

Casing Straight? (Yes) No

Protective Posts? (Yes) No

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No)

Repairs Necessary:

Well Information

Well Depth: 127.22

Constructed Depth: 127.22

Casing Diameter (Inches): 4

Water Level Before Purge: 97.85

Well Volume: 73.4 Gallons (Liters)

Well Casing Elevation: 1104.00

Static Water Level: 1006.15

Previous Static: 1005.47

Water Level After Sample: 98.01

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: NO Temperature: 45 Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic (Other:) Submersible

Dedicated Equipment? (Yes) No

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 28 gpm (lpm)

Time Purge Began: 16:06

Time of Sampling: 16:15

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:09	7.06	1910	9.45			84	
16:12	6.93	1890	9.51			168	
16:15	6.91	1890	9.50			252	WL @ 98.01

Stabilized? (Yes) No

Total Water Removed: 280 Gallons (Liters)

Comments:

3 min / Vol

2.5 L/ft

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-22-09

Well Number: **Well BC2**

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No

Repairs Necessary:

Well Information

Well Depth: 32.42

Constructed Depth: 32.00

Casing Diameter (Inches): 2

Water Level Before Purge: 17.49

Well Volume: 9.2 Gallons Liters

Well Casing Elevation: 1115.28

Static Water Level: 1097.79

Previous Static: 1097.10

Water Level After Sample: 21.90

Measurement Method: Electric WLI Other

Sampling Information

Precipitation: 10-23-09 Clear No/cloudy Temperature: 45 38° Windspeed: 10-20 mph Wind Direction: NW NE

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry: 17:00

Duplicate Sample? Yes No

Pumping Rate: N/A gpm lpm

Time Purge Began: 16:49

Time of Sampling: 16:50 10-23-09

Duplicate ID: —

Sample Appearance: General: Clear Color: Light yellow Phase: — Odor: none

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
16:50	7.19	30300	10.93			1.5	
17:00	—	—	—			23.5	WL @ 31.52
(10-23) 16:50	7.14	33300	10.67			3.0	WL @ 17.42

Stabilized? Yes No

Total Water Removed: 26.5 Gallons Liters

Comments:

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-22-09

Well Number: **Well BC3**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 35.08

Constructed Depth: 35.00

Casing Diameter (Inches): 2

Water Level Before Purge: 20.47

Well Volume: 9.0 Gallons (Liters)

Well Casing Elevation: 1114.42

Static Water Level: 1093.95

Previous Static: 1092.41

Water Level After Sample: 24.70

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Clear No/cldy

Temperature: 40 38°

Windspeed: 10-20 mph

Wind Direction: NW NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 17:28

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 17:19

Time of Sampling: 17:06 (10-23-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: Very Light yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:20	7.02	10,280	9.94			1.5	
17:28	—	—	—			17.25	WL @ 34.65
(10-23) 17:06	7.13	10730	9.95			3.0	WL @ 20.29

Stabilized? Yes (No)

Total Water Removed: 20.25 Gallons (Liters)

Comments:

CK EC Calib / 1412 = 1412

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-22-09

Well Number: **Well BC4**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Repairs Necessary:

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? Yes (No) grout About 2" Above GL

Well Information

Well Depth: 34.82

Constructed Depth: 34.00

Casing Diameter (Inches): 2

Water Level Before Purge: 18.67

Well Volume: 10.0 L Gallons (Liters)

Well Casing Elevation: 1113.86

Static Water Level: 1095.19

Previous Static: 1093.63

Water Level After Sample: 23.02

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: Clear No Clouds Temperature: 45 40 Windspeed: 10-15 mph Wind Direction: NW NE

Sampling Method: Whale (Bailer) Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? (Yes) No

Well Purged Dry? (Yes) No

Time Purged Dry: 18:16

Duplicate Sample? Yes (No)

Pumping Rate: NA gpm lpm

Time Purge Began: 18:01

Time of Sampling: 17:25 (10-23-09)

Duplicate ID: —

Sample Appearance: General: Clear Color: Very Light Yellow Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:02	7.58	2970	10.49			1.5	
18:16	—	—	—			18.5	WL @ 34.16
17:25	7.36	1438	11.04			3	WL @ 18.58

Stabilized? Yes (No)

Total Water Removed: 21.5 Gallons (Liters)

Comments:

CK EC calib / 1412 = 1412

Well surrounded by water.

Big difference in Conductivity from previous event.

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well BC6**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 33.73

Constructed Depth: 33.50

Casing Diameter (Inches): 2

Water Level Before Purge: 21.14

Well Volume: 7.8 Gallons (Liters)

Well Casing Elevation: 1121.58

Static Water Level: 1100.44

Previous Static: 1098.44

Water Level After Sample: 23.60

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: clear Temperature: 40 Windspeed: 10-15 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 2L gpm (lpm)

Time Purge Began: 17:44

Time of Sampling: 17:56

Duplicate ID: —

Sample Appearance: General: clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
17:48	7.10	3090	10.31			8L	
17:52	7.09	3080	10.21			16L	
17:56	7.09	3080	10.19			24L	WL @ 23.60

Stabilized? (Yes) No

Total Water Removed: 26 Gallons (Liters)

Comments:

Pump set @ 30'
med sat. 4 min/vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Well Number: **Well BC5**

Unique Well Number:

Well Condition

Well Locked? (Yes) No

Well Labeled? (Yes) No

Casing Straight? (Yes) No

Protective Posts? Yes (No)

State ID Tag? Yes (No)

Grout Seal Intact? (Yes) No

Repairs Necessary:

Well Information

Well Depth: 37.25

Constructed Depth: 37.00

Casing Diameter (Inches): 2

Water Level Before Purge: 26.34

Well Volume: 6.7 Gallons (Liters)

Well Casing Elevation: 1123.02

Static Water Level: 1096.68

Previous Static: 1095.08

Water Level After Sample: 28.80

Measurement Method: (Electric WLI) Other

Sampling Information

Precipitation: clear Temperature: 38° Windspeed: 10-15 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder (Grundfos) Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 1 gpm lpm

Time Purge Began: 18:15

Time of Sampling: ~~[illegible]~~ 18:36

Duplicate ID: —

Sample Appearance: General: slight turb. Color: Light brown Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:22	6.97	6250	8.33			7	
18:29	6.95	6260	8.32			14	
18:36	6.94	6280	8.42			21	WL @ 28.80

Stabilized? (Yes) No

Total Water Removed: 23 Gallons (Liters)

Comments:

Set @ 35' 1.35 unit 2 1 L/min 7 min/Vol

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Fox

Date: 10-23-09

Well Number: **Well BC1**

Unique Well Number:

Well Condition

Well Locked?	Yes	No	Protective Posts?	Yes	No
Well Labeled?	Yes	No	State ID Tag?	Yes	No
Casing Straight?	Yes	No	Grout Seal Intact?	Yes	No

Repairs Necessary:

Well Information

Well Depth: 16.13

Constructed Depth: 16.00

Casing Diameter (Inches): 2

Water Level Before Purge: 2.00

Well Volume: 8.7 Gallons (Liters)

Well Casing Elevation: 1118.46

Static Water Level: 1116.46

Previous Static: 1112.66

Water Level After Sample: 2.95

Measurement Method: (Electric WL) Other

Sampling Information

Precipitation: Clear Temperature: 38 Windspeed: 5-10 mph Wind Direction: NW

Sampling Method: (Whale) Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes (No)

Well Purged Dry? Yes (No)

Time Purged Dry: —

Duplicate Sample? Yes (No)

Pumping Rate: 3.0 gpm (lpm)

Time Purge Began: 18:55

Time of Sampling: 19:04

Duplicate ID: —

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
18:58	7.24	2510	12.23			9L	
19:01	7.21	2520	12.14			18L	
19:04	7.19	2520	12.30			27L	WL @ 2.95

Stabilized? (Yes) No

Total Water Removed: 30 Gallons (Liters)

Comments:

Pump set at 10'
3L/min (med set)

Otter Tail Power Company - Big Stone Plant

Groundwater Assessment

Sampling Personnel: Dennis Foss

Date: 10-23-09

Well Number: **Well BC101** Note: it's a "zero" not an "O"

Unique Well Number:

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Protective Posts? Yes No

State ID Tag? Yes No

Grout Seal Intact? Yes No Grout Seal About 2" Above GL

Repairs Necessary:

Well Information

Well Depth: 39.19

Constructed Depth: 39.00

Casing Diameter (Inches): 2

Water Level Before Purge: 4.50

Well Volume: 21.4 Gallons Liters

Well Casing Elevation: 1118.70

Static Water Level: 1114.20

Previous Static: 1110.49

Water Level After Sample: 14.55

Measurement Method: Electric WLI Other

Sampling Information

Precipitation: No cldy Temperature: 29° Windspeed: 10-20 mph Wind Direction: NW

Sampling Method: Whale Bailer Bladder Grundfos Keck Grab Peristaltic Other:

Dedicated Equipment? Yes No

Well Purged Dry? Yes No

Time Purged Dry: 10:04

Duplicate Sample? Yes No

Pumping Rate: NA gpm lpm

Time Purge Began: 09:43

Time of Sampling: 19:17

Duplicate ID: —

Sample Appearance: General: Clear Color: none Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
09:44	6.62	2330	11.39			1.5	
10:04	—	—	—			45.5	WL @ 38.71
19:17	6.76	2400	10.35			3.0	WL @ 14.55

Stabilized? Yes No

Total Water Removed: 57.5 Gallons Liters

Comments:

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Sample ID: **Evaporation Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation: —

Open Water: (Yes) No

Measurement Method: ~~Surveyed~~ ~~Other~~

Sampling Information

Precipitation : No Temperature: 38 Windspeed: 5-10 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No)

Sampling Depth: 7 ft below Surface

Time of Sampling: 19:50 am / pm

Sample Appearance: General Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
19:50	~~7.87~~	4180	5.04			2L	

Comments: 8.17

Otter Tail Power Company - Big Stone Plant

Surface Water Assessment

Sampling Personnel: [illegible]

Date: 10-23-09

Sample ID: **Holding Pond**

Unique Station Number:

Sample Point Condition

Sample Point Clear of Obstructions? (Yes) No

Sample Collected at Designated Sample Point? (Yes) No

Repairs Necessary:

Sample Point Information

Depth to Water: NA

Surveyed Elevation: —

Open Water: (Yes) No

Measurement Method: ~~Surveyed~~ ~~Other~~

Sampling Information

Precipitation : ND Temperature: 38 Windspeed: 5-10 mph Wind Direction: NW

Sampling Method: (Grab) Other:

Dedicated Equipment? Yes (No)

Sampling Depth: Just below surface

Time of Sampling: 19:57 am / pm

Sample Appearance: General: Clear Color: None Phase: — Odor: None

Time	pH	Specific Conductivity (uS/cm)	Temp °C	D.O. mg/L	Turbidity NTU	Cum. Volume Removed	Comments:
19:57	8.38	4180	5.31			2L	

Comments:

№ 728037

CHAIN OF CUSTODY RECORD

Era Laboratories, Inc.
4730 Oneota Street
Duluth, Minnesota 55807-2719
(218) 727-6380

Era Project # 053364
Priority
Carrier Spee Dee

Client Name OTP - Big Stone
Client Address Fergus Falls M.
Client Contact T.J. NewKirk
Phone( ) Fax( )

Report to OTP- T.J. NewKirk
Bill to SAme
Client P.O. #
Sampled by Dennis Foss
Representing D+L Enterprises

Item #	Sample I.D./Description	Matrix	Date	Time	# of Containers	Preservatives: Unpreserved	Nutrient (H_2SO_4)	Metals (HNO_3)	HCl	NaOH				Analyses Request	Lab #
1	Well H2INT	W	10-21-09	14:58	—	—	—	—						Insufficient Volume -No Sample	
2	well H1OX	W	10-21-09	16:15	4	1	1	2						List C	-1
3	well S3	W	10-22-09	12:08	4	1	1	2						List B	-2
4	well S1	W	10-22-09	12:28	4	1	1	2						List B	-3
5	well S2	W	10-22-09	12:48	4	1	1	2						List B	-4
6	well S5	W	10-22-09	13:26	—	—	—	—						Insufficient Volume -No Sample	
7	well H2OX	W	10-22-09	14:45	4	1	1	2						List C	-5
8	Ash Run Off	W	10-22-09	14:30	4	1	1	2						List C	-6
9	well H1INT	W	10-22-09	16:04	4	1	1	2						List C	-7
10	~~well~~ Cooling Pond	W	10-23-09	10:45	4	1	1	2						List A	-8

Sample disposal
return to client _____ disposal by lab X

Item #	Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	°C
	Dennis Foss	10-26-09	09:00	Connie Anderson/Era	10-28-09	10:45	1.7

Additional Comments:

10 of 3

Please submit top two copies with your samples. Original will be returned with lab report.

№ 728039

CHAIN OF CUSTODY RECORD

Era Laboratories, Inc.
4730 Oneota Street
Duluth, Minnesota 55807-2719
(218) 727-6380

Era Project # 053364
Priority
Carrier Spee Dee

Client Name OTP- Big Stone
Client Address Fergus Falls, MN
Client Contact T. J. New Kirk
Phone( ) Fax( )

Report to OTP-TJ. New Kirk
Bill to SAME
Client P.O. #
Sampled by Dennis Ford
Representing D&L Enterprises

Item #	Sample I.D./Description	Matrix	Date	Time	# of Containers	Preservatives: Unpreserved	Nutrient (H_2SO_4)	Metals (HNO_3)	HCl	NaOH				Analyses Request	Lab #
1	Well S4	W	10-23-09	11:07	4	1	1	2						List B	-9
2	Well S6	W	10-23-09	11:15	4	1	1	2						List B	-10
3	Well H3INT	W	10-23-09	12:48	4	1	1	2						List C	-11
4	Well H3OX	W	10-23-09	13:02	4	1	1	2						List C	-12
5	Well H4OX	W	10-23-09	14:21	4	1	1	2						List C	-13
6	Well H4INT	W	10-23-09	14:58	4	1	1	2						List C	-14
7	Well 10	W	10-23-09	15:52	4	1	1	2						List A	-15
8	Well 11	W	10-23-09	16:15	4	1	1	2						List A	-16
9	Well 12	W	10-23-09	16:35	—	—	—	—						Pump Inoperable/No Sample	
10	Well BC2	W	10-23-09	16:50	4	1	1	2						List B	-17

Sample disposal
return to client _____ disposal by lab X

Item #	Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	°C
	Dennis Ford	10-26-09	09:00	Connie Anderson/Era	10-28-09	10:45	1.7

Additional Comments:

2 of 3

Please submit top two copies with your samples. Original will be returned with lab report.

№ 728038

CHAIN OF CUSTODY RECORD

Era Laboratories, Inc.
4730 Oneota Street
Duluth, Minnesota 55807-2719
(218) 727-6380

Era Project # 053364
Priority
Carrier Spee Dee

Client Name OTP - Big Stone
Client Address Fergus Falls, MN
Client Contact T.J. New Kirk
Phone( ) Fax( )

Report to OTP Tim. New Kirk
Bill to Same
Client P.O. #
Sampled by Dennis Fox
Representing D+L Enterprises

Item #	Sample I.D./Description	Matrix	Date	Time	# of Containers	Preservatives: Unpreserved	Nutrient (H_2SO_4)	Metals (HNO_3)	HCl	NaOH				Analyses Request	Lab #
1	Well BC3	W	10-23-09	17:06	4	1	1	2						List B	-18
2	Well BC4	W	10-23-09	17:25	4	1	1	2						List B	-19
3	Well BC6	W	10-23-09	17:56	4	1	1	2						List B	-20
4	Well BC5	W	10-23-09	18:36	4	1	1	2						List B	-21
5	Well BC1	W	10-23-09	19:04	4	1	1	2						List B	-22
6	Well BC101	W	10-23-09	19:17	4	1	1	2						List B	-23
7	Evaporation Pond	W	10-23-09	19:50	4	1	1	2						List A	-24
8	Holding Pond	W	10-23-09	19:57	4	1	1	2						List A	-25
9															
10															

Sample disposal
return to client _____ disposal by lab X

Item #	Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	°C
	Dennis Fox	10-28-09	09:00	Connie Anderson/Era	10-28-09	10:45	1.7

Additional Comments:

3 of 3

Please submit top two copies with your samples. Original will be returned with lab report.