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December 20, 2010

Mr. Karl F. Beaster, P.G.
Environmental Analyst, Liquids Pipelines Environment
Enbridge Energy
119 North 25th Street East
Superior, Wisconsin 54880

RE: Status Update/Groundwater Monitoring Report; Enbridge's South Cass Lake Pumping Station, Cass Lake, Minnesota

Dear Mr. Beaster:

This letter report documents groundwater monitoring well installation and sampling activities conducted for the above referenced site in June and December 2010. Figure 1 shows the site location, and Figure 2 depicts the layout of the station, property boundaries, and monitoring well network (from hereon simply referred to as the "Site"). Consistent with previous sampling events, both Enbridge and USGS wells were incorporated into the monitoring network in June and December 2010. The sampling plan (locations, frequency, parameters) is consistent with previous sampling events and was developed in consultation with Enbridge's Environment Department.

<u>2010 Activities:</u>

- *Monitoring Well Installation*

In June 2010, NREC personnel provided oversight for the installation of five groundwater monitoring wells at Enbridge's South Cass Lake Pumping Station in Cass Lake, Minnesota. The five additional monitoring wells were installed to further delineate groundwater quality downgradient of the Site. Four of the monitoring wells (MW-16A, -17, -18, and -19) were designed to intersect the water table, which varied from approximately 21 – 25 feet below ground surface. Monitoring well MW-16B was screened below the water table approximately 45 feet below ground surface and serves to nest MW-16A. Monitoring well MW-16B was screened from approximately 36 – 46 feet below grade. Figure 2 depicts the locations of monitoring wells associated with the Site. Following monitoring well installation activities, each well was developed via a surge and purge technique using a Brainerd-Killman pump until water quality was stable. The wells were surveyed using a known elevation from monitoring well USGS-4A. The known elevation was tied to an MNDOT benchmark. Table 1 summarizes the top of inner casing elevations for all monitoring wells associated with the Site. Boring logs and well construction specifics for monitoring wells MW-16A, -16B, -17, -18, and -19 are included in Appendix A.

- *Aquifer Hydraulics*

Prior to purging and sample collection activities, depth to groundwater measurements were collected. A comprehensive summary of groundwater elevation data is included in Table 1. Figure 3 depicts the groundwater flow regime as observed during the most recent sampling event in December 2010. Locally, the piezometric surface and distribution of compounds dissolved in the groundwater indicate groundwater flows under unconfined conditions with a southeast to east flow direction. Regionally, groundwater flow is to the southeast toward Fox Creek (part of the Pike Bay drainage), a local sink for shallow groundwater flow.

- *Non-Aqueous Phase Liquid*

Crude oil thickness measurements were collected with an oil/water interface probe from monitoring wells MW-3, MW-5, MW-11 and MW-13. Table 1 provides a comprehensive summary of the crude oil thickness observed on the water table. During the most recent sampling event in December 2010, the crude oil thickness ranged from a sheen at monitoring well MW-13 to 0.89 feet at monitoring well MW-11. Figure 4 depicts the approximate lateral extent of crude oil observed on the water table at the Site. As previously discussed in a May 2004 submittal to the MPCA, the crude oil characteristics showed a wide range of viscosities ranging from 23 centistokes (cSt) at MW-13 to 421 cSt at MW-5 (both measured at 10°C).

During the June and December 2010 sampling events, crude oil was recovered with a disposable bailer from monitoring wells MW-3, MW-5, MW-11, and MW-13 and placed in a sealed drum located within the fenced station yard. Between the two sampling events in 2010, approximately two pints of crude oil (0.25 gallons) were recovered.

- *Groundwater Quality*

In June 2010, five monitoring wells at the Site (MW-10, USGS-1A, USGS-2A, USGS-3A, and USGS-4A) contained dissolved concentrations of crude oil related compounds (excluding wells containing crude oil). At these locations, benzene has been the only volatile organic compound detected at concentrations above 10 μg/L. During the most recent sampling event in December 2010, four wells detected benzene above 10 μg/L. The highest benzene concentration detected in December 2010 was at monitoring well USGS-1A (791 μg/L). Consistent with analytical results observed in June 2010, the five downgradient monitoring wells installed in June 2010 continue to show clean groundwater quality. Figure 5 depicts the inferred extent of dissolved phase benzene concentrations in exceedance of 10 μg/L (based on December 2010 analytical results).

ERDRO concentrations at the Site ranged from below the laboratory detection limit to 33,700 μg/L at MW-10 in June 2010. In December 2010, ERDRO concentrations at the Site ranged from below the laboratory detection limit to 28,100 μg/L at MW-10. Table 2 provides a comprehensive summary of groundwater analytical data collected at the Site. The complete analytical laboratory reports for the June and December 2010 sampling events are included in Appendix B.

Water samples collected from monitoring wells free of crude oil were also submitted for laboratory analysis of nitrate, sulfate, methane, and iron concentrations during the December 2010 sampling event. The sample analysis and measurement of dissolved oxygen concentrations were performed to evaluate the effectiveness of natural attenuation to mitigate off-site risk posed by the presence of crude oil constituents dissolved in the groundwater. Table 3 summarizes the natural attenuation parameter results of samples collected at the Site. The availability of dissolved oxygen in upgradient wells and along the peripheral edge of the plume indicates an aerobic environment. In the source area, dissolved oxygen readings were lower, averaging approximately 1.2 mg/L. Given these conditions, active biodegradation within the contaminant plume is occurring under aerobic conditions.

Recommendations:

To further evaluate dissolved phase contaminant trends as well as the process of natural attenuation, it is proposed that groundwater monitoring will continue on a semi-annual basis in 2011 (June and December of each year). Monitoring activities (locations and analytical parameters) will be consistent with previous groundwater sampling events. Natural attenuation parameters will continue to be collected on an annual basis in December of each year. In addition to groundwater sample collection, crude oil thickness measurements will continue to be collected from monitoring wells MW-3, -5, -11, and -13 and crude oil will be recovered via hand bailing on a semi-annual basis.

Please do not hesitate to call me if you have any comments or questions – I can be reached at (715) 399-3250.

Sincerely,

Barry Power

Barry Power, P.E.
President

TABLES

Table 1: Groundwater Elevations/Crude Oil Thickness Measurements
Enbridge Energy, Limited Partnership - South Cass Lake Station

Well ID	Unique Well No.	Date	Top of Inner Casing Elevation (feet NGVD)	Depth to Groundwater (feet)	Depth to Oil (feet)	Oil Thickness (feet)	Equivalent Depth to Groundwater (feet)	Groundwater Elevation (feet NGVD)	Top of Screen (feet NGVD)	Top of Screen Above Groundwater (feet)
MW-1	662109	06-Jun-01	100.00	26.29				73.71	77.00	3.29
		10-May-02	100.00	27.57				72.43	77.00	4.57
		14-May-02	100.00	27.60				72.40	77.00	4.60
		21-Jul-03	100.00	28.07				71.93	77.00	5.07
		06-Jan-04	100.00	28.50				71.50	77.00	5.50
		02-Apr-04	100.00	28.53				71.47	77.00	5.53
		12-May-04	100.00	28.55				71.45	77.00	5.55
		26-Aug-04	100.00	27.97				72.03	77.00	4.97
		30-Dec-04	100.00	27.00				73.00	77.00	4.00
		06-Apr-05	100.00	27.35				72.65	77.00	4.35
		26-Jun-08	100.00	27.33				72.67	77.00	4.33
		25-Nov-08	100.00	27.22				72.78	77.00	4.22
		04-Jun-09	100.00	26.75				73.25	77.00	3.75
		26-Oct-09	1340.19	27.25				1312.94	1317.19	4.25
		29-Jun-10	1340.19	27.52				1312.67	1317.19	4.52
		01-Dec-10	1340.19	27.10				1313.09	1317.19	4.10
MW-2	662110	06-Jun-01	99.57	25.87				73.70	77.07	3.37
		10-May-02	99.57	None Recorded						
		14-May-02	99.57	27.25				72.32	77.07	4.75
		21-Jul-03	99.57	27.71				71.86	77.07	5.21
		06-Jan-04	99.57	28.12				71.45	77.07	5.62
		02-Apr-04	99.57	28.11				71.46	77.07	5.61
		12-May-04	99.57	28.28				71.29	77.07	5.78
		26-Aug-04	99.57	27.60				71.97	77.07	5.10
		30-Dec-04	99.57	26.62				72.95	77.07	4.12
		06-Apr-05	99.57	26.92				72.65	77.07	4.42
		26-Jun-08	99.57	27.13				72.44	77.07	4.63
		25-Nov-08	99.57	26.86				72.71	77.07	4.36
		04-Jun-09	99.57	26.52				73.05	77.07	4.02
WELL ABANDONED										
MW-3	662111	06-Jun-01	99.60	25.92	25.32	0.60	25.37	74.23	78.10	3.87
		10-May-02	99.60	27.19	26.51	0.68	26.57	73.03	78.10	5.07
		14-May-02	99.60	27.22	26.6	0.62	26.66	72.94	78.10	5.16
		21-Jul-03	99.60	28.30	27.77	0.53	27.82	71.78	78.10	6.32
		5-Jan-04	99.60	29.12	28.05	1.07	28.15	71.45	78.10	6.65
		2-Apr-04	99.60	28.77	28.09	0.68	28.15	71.45	78.10	6.65
		12-May-04	99.60	29.15	28.2	0.95	28.29	71.31	78.10	6.79
		26-Aug-04	99.60	28.05	27.62	0.43	27.66	71.94	78.10	6.16
		30-Dec-04	99.60	26.99	26.7	0.29	26.73	72.87	78.10	5.23
		06-Apr-05	99.60	27.51	26.97	0.54	27.02	72.58	78.10	5.52
		26-Jun-08	99.60	27.29	27.15	0.14	27.16	72.44	78.10	5.66
		25-Nov-08	99.60	27.10	26.87	0.23	26.89	72.71	78.10	5.39
		06-Feb-09	99.60	27.92	27.67	0.25	27.69	71.91	78.10	6.19
		04-Jun-09	99.60	26.57	26.56	0.01	26.56	73.04	78.10	5.06
		26-Oct-09	1339.79	26.92	26.91	0.01	26.91	1312.88	1318.29	5.41
		29-Jun-10	1339.79	27.95	27.25	0.70	27.31	1312.48	1318.29	5.81
		02-Dec-10	1339.79	27.19	26.8	0.39	26.83	1312.96	1318.29	5.33
MW-4	662112	06-Jun-01	100.39	26.68				73.71	77.89	4.18
		10-May-02	100.39	27.92				72.47	77.89	5.42
		14-May-02	100.39	27.96				72.43	77.89	5.46
		21-Jul-03	100.39	28.35				72.04	77.89	5.85
		06-Jan-04	100.39	28.75				71.64	77.89	6.25
		02-Apr-04	100.39	28.80				71.59	77.89	6.30
		12-May-04	100.39	28.85				71.54	77.89	6.35
		26-Aug-04	100.39	28.22				72.17	77.89	5.72
		30-Dec-04	100.39	27.36				73.03	77.89	4.86
		06-Apr-05	100.39	27.71				72.68	77.89	5.21
		26-Jun-08	100.39	27.76				72.63	77.89	5.26
		25-Nov-08	100.39	27.56				72.83	77.89	5.06
		04-Jun-09	100.39	27.21				73.18	77.89	4.71
		26-Oct-09	1340.58	27.59				1312.99	1318.08	5.09
		29-Jun-10	1340.58	27.90				1312.68	1318.08	5.40
		01-Dec-10	1340.58	27.45				1313.13	1318.08	4.95
MW-5	705515	05-Jan-04	99.58	29.65	28.18	1.47	28.27	71.31	76.08	4.77
		2-Apr-04	99.58	29.72	28.47	1.25	28.55	71.03	76.08	5.05
		12-May-04	99.58	29.75	28.14	1.61	28.24	71.34	76.08	4.74
		26-Aug-04	99.58	28.05	27.6	0.45	27.63	71.95	76.08	4.13
		30-Dec-04	99.58	27.20	26.65	0.55	26.68	72.90	76.08	3.18
		06-Apr-05	99.58	28.03	26.94	1.09	27.01	72.57	76.08	3.51
		26-Jun-08	99.58	28.05	27.1	0.95	27.16	72.42	76.08	3.66
		25-Nov-08	99.58	27.17	26.9	0.27	26.92	72.66	76.08	3.42
		06-Feb-09	99.58	28.90	28.56	0.34	28.58	71.00	76.08	5.08
		04-Jun-09	99.58	26.82	26.56	0.26	26.58	73.00	76.08	3.08
		26-Oct-09	1339.78	27.11	26.9	0.21	26.91	1312.87	1316.28	3.41
		29-Jun-10	1339.78	28.86	27.24	1.62	27.34	1312.44	1316.28	3.84
		01-Dec-10	1339.78	26.95						

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Enbridge Energy, Limited Partnership - South Cass Lake Station

Well ID	Unique Well No.	Date	Top of Inner Casing Elevation (feet NGVD)	Depth to Groundwater (feet)	Depth to Oil (feet)	Oil Thickness (feet)	Equivalent Depth to Groundwater (feet)	Groundwater Elevation (feet NGVD)	Top of Screen (feet NGVD)	Top of Screen Above Groundwater (feet)
MW-6	680691	21-Jul-03	100.71	28.75				71.96	72.71	0.75
		06-Jan-04	100.71	29.05				71.66	72.71	1.05
		02-Apr-04	100.71	29.15				71.56	72.71	1.15
		12-May-04	100.71	29.15				71.56	72.71	1.15
		26-Aug-04	100.71	28.62				72.09	72.71	0.62
		30-Dec-04	100.71	27.76				72.95	72.71	-0.24
		06-Apr-05	100.71	28.09				72.62	72.71	0.09
		26-Jun-08	100.71	28.17				72.54	72.71	0.17
		25-Nov-08	100.71	28.43				72.28	72.71	0.43
		04-Jun-09	100.71	27.60				73.11	72.71	-0.40
		26-Oct-09	1340.90	27.98				1312.92	1311.90	-1.02
		29-Jun-10	1340.90	28.28				1312.62	1311.90	-0.72
		01-Dec-10	1340.90	27.89				1313.01	1311.90	-1.11
MW-7	680692	21-Jul-03	99.83	28.09				71.74	73.33	1.59
		06-Jan-04	99.83	28.34				71.49	73.33	1.84
		02-Apr-04	99.83	28.43				71.40	73.33	1.93
		12-May-04	99.83	28.46				71.37	73.33	1.96
		26-Aug-04	99.83	28.00				71.83	73.33	1.50
		30-Dec-04	99.83	27.05				72.78	73.33	0.55
		06-Apr-05	99.83	27.34				72.49	73.33	0.84
		26-Jun-08	99.83	27.15				72.68	73.33	0.65
		25-Nov-08	99.83	27.28				72.55	73.33	0.78
		04-Jun-09	99.83	26.87				72.96	73.33	0.37
		26-Oct-09	1340.03	27.24				1312.79	1313.53	0.74
		29-Jun-10	1340.03	27.61				1312.42	1313.53	1.11
		01-Dec-10	1340.03	27.21				1312.82	1313.53	0.71
MW-8	680693	21-Jul-03	101.00	29.37				71.63	74.50	2.87
		06-Jan-04	101.00	29.70				71.30	74.50	3.20
		02-Apr-04	101.00	29.77				71.23	74.50	3.27
		12-May-04	101.00	29.85				71.15	74.50	3.35
		26-Aug-04	101.00	29.21				71.79	74.50	2.71
		30-Dec-04	101.00	28.20				72.80	74.50	1.70
		06-Apr-05	101.00	28.54				72.46	74.50	2.04
		26-Jun-08	101.00	28.73				72.27	74.50	2.23
		25-Nov-08	101.00	28.45				72.55	74.50	1.95
		04-Jun-09	101.00	28.09				72.91	74.50	1.59
		26-Oct-09	1341.21	28.45				1312.76	1315.16	2.40
		29-Jun-10	1341.21	28.83				1312.38	1315.16	2.78
		01-Dec-10	1341.21	28.34				1312.87	1315.16	2.29
MW-9	680694	21-Jul-03	98.25	26.41				71.84	73.75	1.91
		21-Jul-03	98.25	26.79				71.46	73.75	2.29
		02-Apr-04	98.25	26.81				71.44	73.75	2.31
		12-May-04	98.25	26.91				71.34	73.75	2.41
		26-Aug-04	98.25	26.29				71.96	73.75	1.79
		30-Dec-04	98.25	25.35				72.90	73.75	0.85
		06-Apr-05	98.25	25.65				72.60	73.75	1.15
		26-Jun-08	98.25	25.83				72.42	73.75	1.33
		25-Nov-08	98.25	25.57				72.68	73.75	1.07
		04-Jun-09	98.25	25.22				73.03	73.75	0.72
		26-Oct-09	1338.45	25.59				1312.86	1314.38	1.52
		29-Jun-10	1338.45	25.94				1312.51	1314.38	1.87
		01-Dec-10	1338.45	25.49				1312.96	1314.38	1.42
MW-10	705513	05-Jan-04	99.66	28.38				71.28	77.16	5.88
		2-Apr-04	99.66	28.30				71.36	77.16	5.80
		12-May-04	99.66	28.36				71.30	77.16	5.86
		26-Aug-04	99.66	27.76				71.90	77.16	5.26
		30-Dec-04	99.66	27.72				71.94	77.16	5.22
		06-Apr-05	99.66	27.02				72.64	77.16	4.52
		26-Jun-08	99.66	27.20				72.46	77.16	4.70
		25-Nov-08	99.66	26.94				72.72	77.16	4.44
		04-Jun-09	99.66	26.61				73.05	77.16	4.11
		26-Oct-09	1339.87	26.96				1312.91	1317.87	4.96
		29-Jun-10	1339.87	27.33				1312.54	1317.87	5.33
		01-Dec-10	1339.87	26.84				1313.03	1317.87	4.84
MW-11	705514	17-Dec-04	99.99	28.66	28.5	0.16	28.51	71.48	76.49	5.01
		05-Jan-04	99.99	29.70	28.49	1.21	28.60	71.39	76.49	5.10
		2-Apr-04	99.99	29.78	28.45	1.33	28.57	71.42	76.49	5.07
		12-May-04	99.99	29.75	28.5	1.25	28.61	71.38	76.49	5.11
		26-Aug-04	99.99	28.68	27.94	0.74	28.01	71.98	76.49	4.51
		30-Dec-04	99.99	27.60	27.06	0.54	27.11	72.88	76.49	3.61
		06-Apr-05	99.99	28.07	27.38	0.69	27.44	72.55	76.49	3.94
		26-Jun-08	99.99	27.79	27.58	0.21	27.60	72.39	76.49	4.10
		25-Nov-08	99.99	27.59	27.28	0.31	27.31	72.68	76.49	3.81
		29-Jan-09	99.99	28.20	27.32	0.88	27.40	72.59	76.49	3.90
		06-Feb-09	99.99	28.28	27.53	0.75	27.60	72.39	76.49	4.10
		04-Jun-09	99.99	27.13	26.95	0.18	26.97	73.02	76.49	3.47
		26-Oct-09	1340.18	27.65	27.30	0.35	27.33	1312.85	1316.68	3.83
		29-Jun-10	1340.18	28.13	27.62	0.51	27.67	1312.51	1316.68	4.17
		02-Dec-10	1340.18	27.50	26.61	0.89	26.69	1313.49	1316.68	3.19

Table 1: Groundwater Elevations/Crude Oil Thickness Measurements
Enbridge Energy, Limited Partnership - South Cass Lake Station

Well ID	Unique Well No.	Date	Top of Inner Casing Elevation (feet NGVD)	Depth to Groundwater (feet)	Depth to Oil (feet)	Oil Thickness (feet)	Equivalent Depth to Groundwater (feet)	Groundwater Elevation (feet NGVD)	Top of Screen (feet NGVD)	Top of Screen Above Groundwater (feet)
MW-13	705516	05-Jan-04	101.02	29.92	29.52	0.40	29.58	71.44	74.52	3.08
		2-Apr-04	101.02	30.57	29.53	1.04	29.68	71.34	74.52	3.18
		12-May-04	101.02	31.22	29.59	1.63	29.83	71.19	74.52	3.33
		26-Aug-04	101.02	29.20	29.07	0.13	29.09	71.93	74.52	2.59
		30-Dec-04	101.02	28.20	28.11	0.09	28.12	72.90	74.52	1.62
		06-Apr-05	101.02	28.80	28.38	0.42	28.44	72.58	74.52	1.94
		26-Jun-08	101.02	28.70	28.62	0.08	28.63	72.39	74.52	2.13
		25-Nov-08	101.02	28.35	28.35	0.00	28.35	72.67	74.52	1.85
		06-Feb-09	101.02	28.62	28.61	0.01	28.61	72.41	74.52	2.11
		04-Jun-09	101.02	28.01	28.01	0.00	28.01	73.01	74.52	1.51
		26-Oct-09	1341.23	28.42	28.35	0.07	28.36	1312.87	1314.73	1.86
		29-Jun-10	1341.23	28.84	28.72	0.12	28.74	1312.49	1314.73	2.24
		02-Dec-10	1341.23	28.27	28.23	0.04	28.24	1312.99	1314.73	1.74
MW-14		26-Jun-08	98.73	26.93				71.80		
		25-Nov-08		25.99				72.74		
		04-Jun-09		26.31				72.42		
WELL ABANDONED										
MW-15		26-Jun-08	99.35	26.27				73.08		
		25-Nov-08	99.35	26.66				72.69		
		04-Jun-09	99.35	25.64				73.71		
		26-Oct-09	1339.61	26.70				1312.91		
		29-Jun-10	1339.61	27.05				1312.56		
		01-Dec-10	1339.61	not collected						
MW-16A		29-Jun-10	1338.97	26.70				1312.27	1315.47	3.20
		01-Dec-10	1338.97	26.20				1312.77	1315.47	2.70
MW-16B		29-Jun-10	1339.52	27.26				1312.26	1301.02	-11.24
		01-Dec-10	1339.52	26.78				1312.74	1301.02	-11.72
MW-17		29-Jun-10	1338.79	26.56				1312.23	1315.29	3.06
		01-Dec-10	1338.79	26.08				1312.71	1315.29	2.58
MW-18		29-Jun-10	1340.29	27.92				1312.37	1316.79	4.42
		01-Dec-10	1340.29	27.41				1312.88	1316.79	3.91
MW-19		29-Jun-10	1334.72	22.54				1312.18	1315.22	3.04
		01-Dec-10	1334.72	22.03				1312.69	1315.22	2.53
USGS 1A		26-Oct-09	1341.60	28.78				1312.82	1312.60	-0.22
		29-Jun-10	1341.60	29.15				1312.45	1312.60	0.15
		02-Dec-10	1341.60	28.70				1312.90	1312.60	-0.30
USGS 2A		26-Oct-09	1342.37	29.60				1312.77	1311.97	-0.80
		29-Jun-10	1342.37	29.97				1312.40	1311.97	-0.43
		02-Dec-10	1342.37	29.49				1312.88	1311.97	-0.91
USGS 3A		26-Oct-09	1341.26	28.54				1312.72	1311.92	-0.80
		29-Jun-10	1341.26	28.93				1312.33	1311.92	-0.41
		02-Dec-10	1341.26	28.44				1312.82	1311.92	-0.90
USGS 4A		26-Oct-09	1339.63	26.95				1312.68	1311.49	-1.19
		29-Jun-10	1339.63	27.32				1312.31	1311.49	-0.82
		02-Dec-10	1339.63	26.85				1312.78	1311.49	-1.29

* Note: A re-survey was conducted in August 2009 to tie in the Enbridge and USGS monitoring wells to a common benchmark (MNDOT). Prior to that, top of inner casing elevations were based on an assumed inner casing elevation of 100.00 at monitoring well MW-1.

** Note: In June 2010, monitoring wells MW-16A, -16B, -17, -18, and -19 were surveyed by NREC. The wells were tied into a known elevation from monitoring well USGS-4A.

Table 2: Groundwater Sampling Results - BTEX and ERDRO
Enbridge Energy, Limited Partnership - South Cass Lake Station

Location	Date	Benzene (ug/l)	Ethylbenzene (ug/l)	Toluene (ug/l)	Xylenes, -m, -p (ug/L)	Xylenes, -o (ug/L)	ERDRO (ug/L)
MW-1	6/6/2001	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 110
MW-1	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-1	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	< 100
MW-1	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	< 100
MW-1	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	91.6
MW-1	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	< 23.1
MW-1	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-1	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 76.9
MW-2	6/6/2001	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	140
MW-2	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-2	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	114
MW-2	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	242
MW-2	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	159
MW-2	10/26/2009	Well was abandoned due to new construction.					
MW-4	6/6/2001	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-4	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	< 100
MW-4	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	276
MW-4	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	137
MW-4	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	<23.1
MW-4	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-4	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-5	1/6/2004	**6,500**	530	<50	1,800	<50	
MW-6	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-6	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-6	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-6	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	130
MW-6	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-6	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-6	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	188
MW-6	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	128
MW-6	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	209
MW-6	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	<23.1
MW-6	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-6	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 76.9
MW-7	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-7	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	118
MW-7	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	< 100
MW-7	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	134
MW-7	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	<23.1
MW-7	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-7	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 76.9

Table 2: Groundwater Sampling Results - BTEX and ERDRO
Enbridge Energy, Limited Partnership - South Cass Lake Station

Location	Date	Benzene (ug/l)	Ethylbenzene (ug/l)	Toluene (ug/l)	Xylenes, -m, -p (ug/L)	Xylenes, -o (ug/L)	ERDRO (ug/L)
MW-8	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-8	1/6/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-8	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	150
MW-8	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-8	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-8	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-8	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	149
MW-8	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	< 100
MW-8	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	143
MW-8	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	<23.1
MW-8	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-8	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	114
MW-9	7/16/2003	0.51	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-9	1/6/2004	<1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-9	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
MW-9	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	210
MW-9	12/30/2004	7.5	3.7	< 1.0	< 2.0	< 1.0	260
MW-9	4/6/2005	**18**	< 1.0	< 1.0	< 2.0	< 1.0	230
MW-9	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	101
MW-9	11/25/2008	**25.7**	2.6	< 0.36	< 0.74	< 0.36	364
MW-9	6/4/2009	**132**	< 1.0	< 1.0	< 2.0	< 1.0	1,860
MW-9	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	831
MW-9	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-9	12/1/2010	**573**	95.4	< 5.0	18.1	< 5.0	3,690
MW-10	1/5/2004	**1,100**	110	<5.0	520	<5.0	30,000
MW-10	5/12/2004	**2,100**	210	< 10	350	< 10	6,500
MW-10	8/26/2004	**2,600**	240	< 25	180	< 25	7,800
MW-10	12/30/2004	**1,400**	160	< 10	61	< 10	6,500
MW-10	4/6/2005	**1,100**	220	< 10	62	< 10	6,500
MW-10	6/26/2008	**1,830**	44.2	< 3.6	< 7.4	< 3.6	9,000
MW-10	11/25/2008	**595**	18.1	< 0.71	3.3	< 0.72	65,900
MW-10	6/4/2009	**305**	15	<1.0	3.4	<1.0	50,800
MW-10	10/26/2009	**159**	5.6	< 0.36	3	< 0.36	22,400
MW-10	6/29/2010	**2,180**	< 25.0	< 25.0	< 50.0	< 25.0	33,700
MW-10	12/1/2010	**193**	4.8	< 1.0	10.5	< 1.0	28,100
MW-16A	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	234
MW-16A	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	1,150
MW-16B	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	1,310
MW-16B	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	9,470
MW-17	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	75.7
MW-17	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 76.2
MW-18	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 77.7
MW-18	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
MW-19	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	347
MW-19	12/1/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	843
USGS 1A	10/26/2009	**776**	142	< 1.8	< 3.7	< 1.8	4,930
USGS 1A	6/29/2010	**39.7**	< 1.0	< 1.0	< 2.0	< 1.0	2,990
USGS 1A	12/2/2010	**791**	< 10.0	< 10.0	< 20.0	< 10.0	5,370
USGS 2A	10/26/2009	**705**	< 2.0	< 1.8	< 3.7	< 1.8	5,520
USGS 2A	6/29/2010	**63.5**	< 1.0	< 1.0	< 2.0	< 1.0	2,150
USGS 2A	12/2/2010	**239**	< 1.0	< 1.0	< 2.0	< 1.0	3,370
USGS 3A	10/26/2009	**147**	0.74	< 0.36	1.5	< 0.36	4,060
USGS 3A	6/29/2010	**202**	< 1.0	< 1.0	< 2.0	< 1.0	2,470
USGS 3A	12/2/2010	6.2	< 1.0	< 1.0	< 2.0	< 1.0	1,810
USGS 4A	10/26/2009	**13.8**	< 0.40	< 0.36	< 0.74	< 0.36	1,670
USGS 4A	6/29/2010	**44.8**	< 1.0	< 1.0	< 2.0	< 1.0	4,130
USGS 4A	12/2/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	2,010
Field Blank	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
Field Blank	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 100
Field Blank	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	< 100
Field Blank	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	< 100
Field Blank	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	106
Field Blank	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	NA
Field Blank	6/29/2010	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 75.5
Field Blank	12/1/2010						389

Table 2: Groundwater Sampling Results - BTEX and ERDRO
Enbridge Energy, Limited Partnership - South Cass Lake Station

Location	Date	Benzene (ug/l)	Ethylbenzene (ug/l)	Toluene (ug/l)	Xylenes, -m, -p (ug/L)	Xylenes, -o (ug/L)	ERDRO (ug/L)
Trip Blank	7/16/2003	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	1/6/2004			Froze during the sampling event.			
Trip Blank	5/12/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	8/26/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	12/30/2004	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	4/6/2005	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	6/26/2008	< 0.14	< 0.40	< 0.36	< 0.74	< 0.36	
Trip Blank	11/25/2008	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	
Trip Blank	6/4/2009	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	
Trip Blank	10/26/2009	< 0.23	< 0.40	< 0.36	< 0.74	< 0.36	

Table 3: Groundwater Sampling Results: Natural Attenuation Parameters
Enbridge Energy, Limited Partnership - South Cass Lake Station

Location	Collection Date	Nitrate (mg/L)	Sulfate (mg/L)	Methane (ug/L)	Disolved Oxygen (mg/L)	Fe^{+2} (mg/L)
MW-1	7/16/2003				5.4	<0.1
	1/6/2004	2.1	6.3		5.2	<0.1
	5/12/2004				5.0	<0.1
	8/26/2004	0.69	< 4.0	< 10	7.0	<0.1
	12/30/2004	0.81	< 4.0	< 10	6.5	<0.1
	4/6/2005	0.58	< 4.0	< 10	6.0	<0.1
	11/25/2008	0.62	3.6	4.9	11.4	516
	10/26/2009	0.2	3.3	< 0.93	11.8	0.024
	12/1/2010	0.61	< 4.0	< 2.8	11.1	< 0.12
MW-2	7/16/2003				4.1	<0.1
	1/6/2004	4.1	< 4.0		4.5	<0.1
	5/12/2004				4.3	<0.1
	11/25/2008	9.7	9.8	< 2.0	7.0	1.52
	10/26/2009	Well was removed due to new construction				
MW-4	7/16/2003				3.8	<0.1
	1/6/2004	1.0	< 4.0		5.5	<0.1
	5/12/2004				5.7	<0.1
	11/25/2008	5.8	6.3	< 2.0	7.7	2.12
	10/26/2009	6.2	6.6	< 0.93	10.6	< 0.018
	12/1/2010	4.8	5.9	< 2.8	9.8	< 0.05
MW-6	7/16/2003				2.0	<0.1
	1/6/2004	1.9	5.4		2.6	<0.1
	5/12/2004				2.2	<0.1
	11/25/2008	2.8	7.0	4.2	9.3	22.9
	10/26/2009	2	5.9	< 0.93	11.4	< 0.018
	12/1/2010	1.8	4.9	< 2.8	10.7	< 0.12
MW-7	7/16/2003				3.4	<0.1
	1/6/2004	< 0.25	5.7		4.3	<0.1
	5/12/2004				5.5	<0.1
	11/25/2008	0.46	8.3	< 2.0	8.7	9.2
	10/26/2009	0.61	7.8	< 0.93	11.5	< 0.018
	12/1/2010	1.1	7.6	< 2.8	9.3	< 0.05
MW-8	7/16/2003				2.5	<0.1
	1/6/2004	0.34	5.5		2.8	<0.1
	5/12/2004				2.0	<0.1
	8/26/2004	0.31	5.2	< 10	6.0	<0.1
	12/30/2004	< 0.25	7.5	< 10	5.0	<0.1
	4/6/2005	< 0.25	11	< 10	5.0	<0.1
	11/25/2008	0.26	9.5	< 2.0	8.3	22.2
	10/26/2009	0.33	10	< 0.93	12.8	< 0.018
	12/1/2010	< 0.40	7.4	< 2.8	8.9	< 0.05
MW-9	7/16/2003				2.8	<0.1
	1/6/2004	< 0.25	6.3		2.0	<0.1
	5/12/2004				1.5	<0.1
	8/26/2004	< 0.25	7.2	< 10	1.5	<0.1
	12/30/2004	< 0.25	< 4.0	1,800	2.0	<0.1
	4/6/2005	< 0.25	4.7	280	2.0	<0.1
	11/25/2008	0.2	4.0	968	2.5	39.8
	10/26/2009	< 0.20	4.6	543	5.7	0.021
	12/1/2010	< 0.40	< 4.0	3,590	0.9	0.09

Table 3: Groundwater Sampling Results: Natural Attenuation Parameters
Enbridge Energy, Limited Partnership - South Cass Lake Station

Location	Collection Date	Nitrate (mg/L)	Sulfate (mg/L)	Methane (ug/L)	Disolved Oxygen (mg/L)	Fe^{+2} (mg/L)
MW-10	1/5/2004	< 0.25	< 4.0		1.5	<0.1
	5/12/2004				1.0	<0.1
	8/26/2004	< 0.25	< 4.0	4,900	0.8	<0.1
	12/30/2004	2.9	4.2	6,100	1.0	<0.1
	4/6/2005	0.51	< 4.0	2,600	1.5	<0.1
	11/25/2008	1.10	3.3	2,290	2.7	54.8
	10/26/2009	0.30	2.9	5,100	2.5	1.3
	12/1/2010	2.40	4.3	7,030	0.7	5.1
MW-16A	12/1/2010	< 0.40	< 4.0	528	1.4	0.09
MW-16B	12/1/2010	< 0.40	< 4.0	9.5	0.6	< 0.05
MW-17	12/1/2010	< 0.40	9.5	6.9	8.2	<0.12
MW-18	12/1/2010	4.20	5.8	4.4	10.0	<0.05
MW-19	12/1/2010	<0.40	5.2	187	2.1	<0.05
USGS-1A	10/26/2009	< 0.20	2.1	11,700	1.5	< 0.018
	12/2/2010	< 0.40	< 4.0	10,200	1.2	12.3
USGS-2A	10/26/2009	< 0.20	2.5	5,480	1.7	< 0.018
	12/2/2010	< 0.40	< 4.0	2,310	1.2	2.8
USGS-3A	10/26/2009	< 0.20	2.3	3,240	3.7	< 0.018
	12/2/2010	< 0.40	< 4.0	1,180	0.7	1.8
USGS-4A	10/26/2009	< 0.20	4.2	665	13.5	< 0.018
	12/2/2010	< 0.40	< 4.0	398	1.9	< 0.05
Field Blank	12/30/2004	< 0.25	< 4.0	< 10		
	4/6/2005	< 0.25	< 4.0	< 10		
	11/25/2008	< 0.085	< 0.51	< 2.0		0.0115

FIGURES

ENBRIDGE

N

Figure 1: Site Location Map
South Cass Lake Pumping Station

0 0.5 1 2 3 Miles

Legend
City/Town
Pipelines
U.S. Highway
County Hwy
County Road

Natural Resources Engineering Co.
715-395-5680

ENBRIDGE

Legend

- Enbridge Monitoring Wells
- USGS Monitoring Wells
- Pipelines

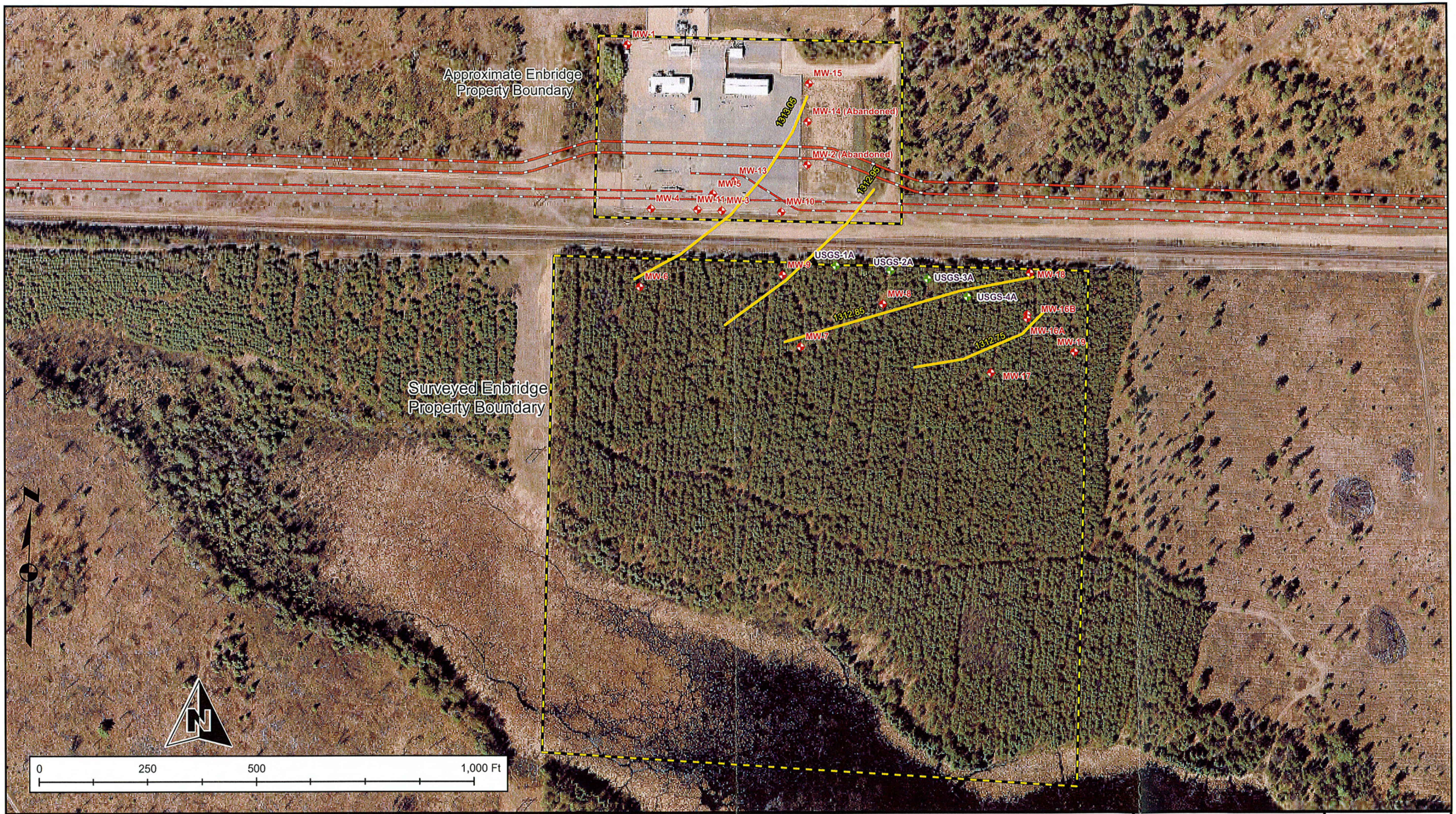
Figure 2: Site Layout Map

Enbridge's South Cass Lake Pumping Station

Cass Lake, Minnesota

DATE ISSUED:	December 16, 2010
DATE REVISED:	
SCALE:	1:2,500
DRAWN BY:	JPM
SERIES:	South Cass Lake

Natural Resources Engineering Co.
715-395-5680



ENBRIDGE

Legend

1312.45 Groundwater Elevation (NGVD ft)
- Piezometric Contour
- Enbridge Monitoring Wells
- USGS Monitoring Wells
- Pipeline

Figure 3: Groundwater Flow Map (December 2010)

Enbridge's South Cass Lake Pumping Station

Cass Lake, Minnesota

DATE ISSUED:	December 16, 2010
DATE REVISED:	
SCALE:	1:2,500
DRAWN BY:	JPM
SERIES:	South Cass Lake

Natural Resources Engineering Co.
715-395-5680

ENBRIDGE

Legend

- Enbridge Monitoring Wells
- USGS Monitoring Wells
- Pipelines
- Inferred Extent of Crude Oil (December 2010)

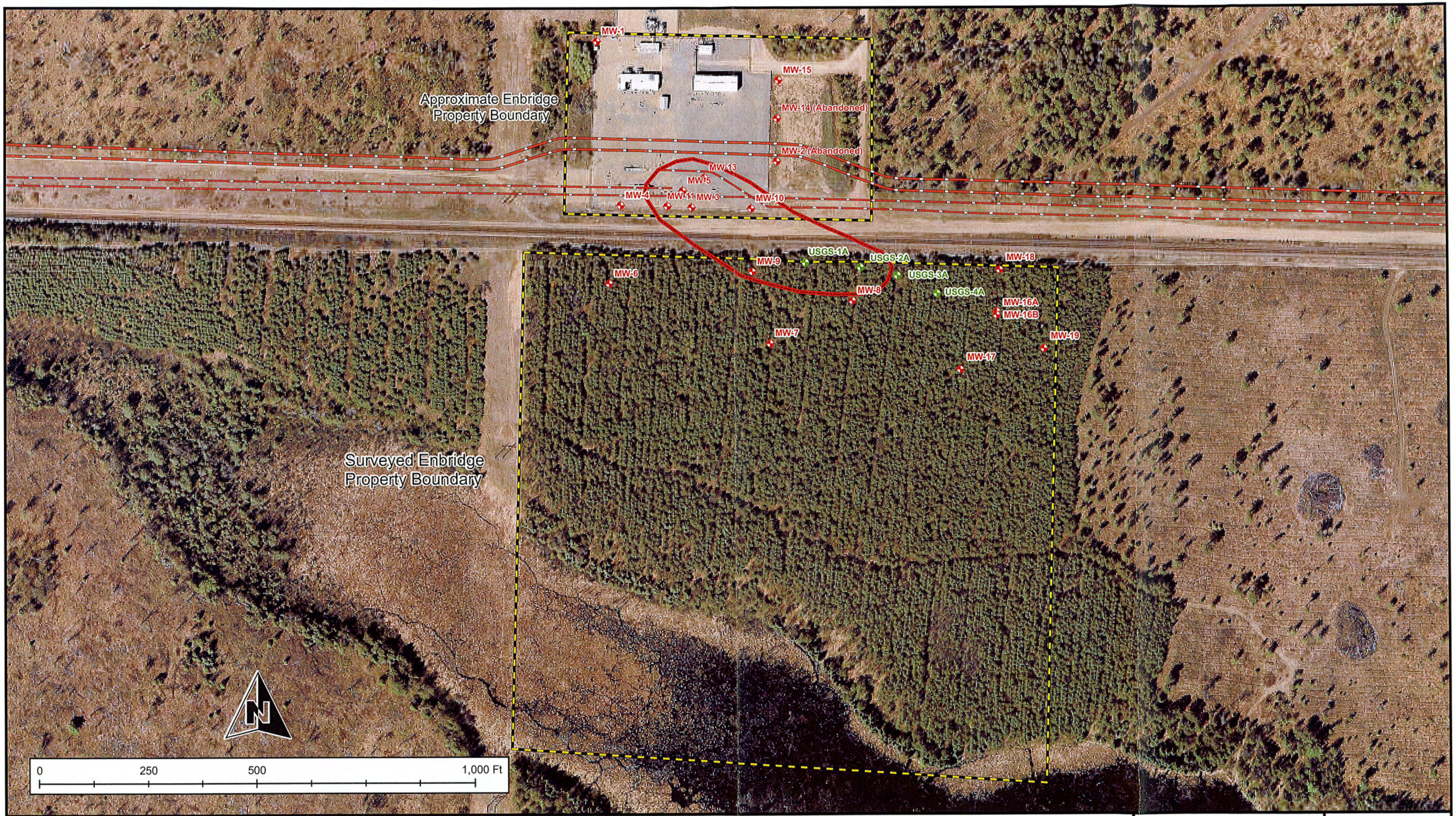
Figure 4: Inferred Extent of Crude Oil (December 2010)

Enbridge's South Cass Lake Pumping Station

Cass Lake, Minnesota

DATE ISSUED: December 10, 2010
DATE REVISED:
SCALE: 1:2,500
DRAWN BY: JPM
SERIES: South Cass Lake

Natural Resources Engineering Co.
715-395-5680



ENBRIDGE

Legend

- Pipelines
- Enbridge Monitoring Wells
- USGS Monitoring Wells
- Approximate Extent of Benzene >10 µg/L Based on Sampling Data December 2010

Figure 5: Dissolved Phase Benzene Concentrations in Groundwater >10 µg/L (December 2010)

Enbridge's South Cass Lake Pumping Station
Cass Lake, Minnesota

DATE ISSUED: December 16, 2010	
DATE REVISED:	
SCALE: 1:2,500	
DRAWN BY: JPM	
SERIES: South Cass Lake	

Natural Resources Engineering Co.
715-395-5680

APPENDICES

APPENDIX A – WELL CONSTRUCTION/BORING LOGS

NATURAL RESOURCES ENGINEERING COMPANY
1409 Hammond Avenue Suite 110, Superior, WI 54880

BORING LOG NO: **MW-16A**

PROJECT NAME: South Cass Lake Pumping Station | PROJ. NO.
PROJECT LOCATION: South Cass Lake Station, MN | CHECKED BY: BDH

SUBSURFACE PROFILE				SOIL SAMPLE DATA		
Interval (feet)	USCS	Description	Depth (Ft.)	OVM (ppm)	Analytical Sample Analysis	Blows/6"
1 to 5	SP	Brown, coarse sand.		< 5	None collected.	2,2,2
5 to 10	SP	Same as above.		< 5	None collected.	2,2,2
10 to 15	SP	Same as above.		< 5	None collected.	1,1,3
15 to 20	SP	Same as above.		< 5	None collected.	3,5,5
20 to 25	SP	Same as above.	▼	< 5	None collected.	6,12,14
25 to 31	SP/GW	Coarse sand with gravel		< 5	None collected.	6,11,8

EOB @ 31 ft bgs.

TOTAL DEPTH:	31 feet	DRILLING METHOD:	Hollow Stem Auger
DRILLING DATE:	6/1/2010		
INSPECTOR:	BDH	WATER LEVEL OBSERVATION:	25 feet
CONTRACTOR:	Braun Intertec		

NATURAL RESOURCES ENGINEERING COMPANY

1409 Hammond Avenue Suite 110, Superior, WI 54880

BORING LOG NO: **MW-16B**

PROJECT NAME: South Cass Lake Pumping Station — PROJ. NO.

PROJECT LOCATION: South Cass Lake Station, MN — CHECKED BY: BDH

SUBSURFACE PROFILE				SOIL SAMPLE DATA		
Interval (feet)	USCS	Description	Depth (Ft.)	OVM (ppm)	Analytical Sample Analysis	Blows/6"
1 to 5	SP	Brown, coarse sand.		< 5	None collected.	3,3,4
5 to 10	SP	Same as above.		< 5	None collected.	2,1,1
10 to 15	SP	Same as above.		< 5	None collected.	2,5,6
15 to 20	SP	Same as above.		< 5	None collected.	3,4,4
20 to 25	SP	Same as above.		< 5	None collected.	6,9,8
25 to 30	GW/SP	Coarse gravel with sand.		< 5	None collected.	4,7,8
30 to 35	GW/SP	Same as above.		< 5	None collected.	8,12,13
35 to 40	GW/SP	Same as above.		< 5	None collected.	4,6,6
40 to 46	SP/GW/MP	Sand with gravel, then gray silt with sand at 45' (hardpacked).		< 5	None collected.	14,12,14

EOB @ 46 ft bgs.

TOTAL DEPTH:	46 feet	DRILLING METHOD:	Hollow Stem Auger
DRILLING DATE:	6/2/2010		
INSPECTOR:	BDH	WATER LEVEL OBSERVATION:	25 feet
CONTRACTOR:	Braun Intertec		

NATURAL RESOURCES ENGINEERING COMPANY

1409 Hammond Avenue Suite 110, Superior, WI 54880

BORING LOG NO: **MW-17**

PROJECT NAME: South Cass Lake Pumping Station — PROJ. NO.

PROJECT LOCATION: South Cass Lake Station, MN — CHECKED BY: BDH

SUBSURFACE PROFILE				SOIL SAMPLE DATA		
Interval (feet)	USCS	Description	Depth (Ft.)	OVM (ppm)	Analytical Sample Analysis	Blows/6"
1 to 5	SP	Brown, coarse sand.		< 5	None collected.	4,5,4
5 to 10	SP	Same as above.		< 5	None collected.	2,1,1
10 to 15	SP	Light gray, coarse sand		11.2	None collected.	3,4,4
15 to 20	SP	Same as above.		< 5	None collected.	5,8,7
20 to 25	SP	Same as above.		< 5	None collected.	3,4,5
25 to 31.5	SP/GW	Coarse sand with gravel		< 5	None collected.	12,9,9

EOB @ 31.5 ft bgs.

TOTAL DEPTH:	31.5 feet	DRILLING METHOD:	Hollow Stem Auger
DRILLING DATE:	6/2/2010		
INSPECTOR:	BDH	WATER LEVEL OBSERVATION:	25 feet
CONTRACTOR:	Braun Intertec		

NATURAL RESOURCES ENGINEERING COMPANY

1409 Hammond Avenue Suite 110, Superior, WI 54880

BORING LOG NO: **MW-18**

PROJECT NAME: South Cass Lake Pumping Station — PROJ. NO.

PROJECT LOCATION: South Cass Lake Station, MN — CHECKED BY: BDH

SUBSURFACE PROFILE				SOIL SAMPLE DATA		
Interval (feet)	USCS	Description	Depth (Ft.)	OVM (ppm)	Analytical Sample Analysis	Blows/6"
1 to 5	SP	Brown, coarse sand.		< 5	None collected.	3,4,4
5 to 10	SP	Same as above.		< 5	None collected.	2,1,2
10 to 15	SP	Light gray, coarse sand.		< 5	None collected.	3,3,4
15 to 20	SP	Same as above.		< 5	None collected.	3,4,6
20 to 25	SP/GW	Same as above, then sand with gravel from 24'-25'.	▼	< 5	None collected.	4,4,4
25 to 31	GW/SP	Coarse gravel with sand.		< 5	None collected.	3,3,3

EOB @ 31 ft bgs.

TOTAL DEPTH:	31 feet	DRILLING METHOD:	Hollow Stem Auger
DRILLING DATE:	6/3/2010		
INSPECTOR:	BDH	WATER LEVEL OBSERVATION:	25 feet
CONTRACTOR:	Braun Intertec		

NATURAL RESOURCES ENGINEERING COMPANY

1409 Hammond Avenue Suite 110, Superior, WI 54880

BORING LOG NO: **MW-19**

PROJECT NAME: South Cass Lake Pumping Station — PROJ. NO.

PROJECT LOCATION: South Cass Lake Station, MN — CHECKED BY: BDH

SUBSURFACE PROFILE				SOIL SAMPLE DATA		
Interval (feet)	USCS	Description	Depth (Ft.)	OVM (ppm)	Analytical Sample Analysis	Blows/6"
1 to 5	SP	Brown, coarse sand.		39	None collected.	2,3,2
5 to 10	SP	Same as above.		< 5	None collected.	2,2,1
10 to 15	SP	Light gray, coarse sand.		< 5	None collected.	4,4,4
15 to 20	SP	Same as above.		< 5	None collected.	5,7,8
20 to 27	SP	Same as above.		< 5	None collected.	5,5,8

EOB @ 27 ft bgs.

TOTAL DEPTH:	27 feet	DRILLING METHOD:	Hollow Stem Auger
DRILLING DATE:	6/3/2010		
INSPECTOR:	BDH	WATER LEVEL OBSERVATION:	21 feet
CONTRACTOR:	Braun Intertec		

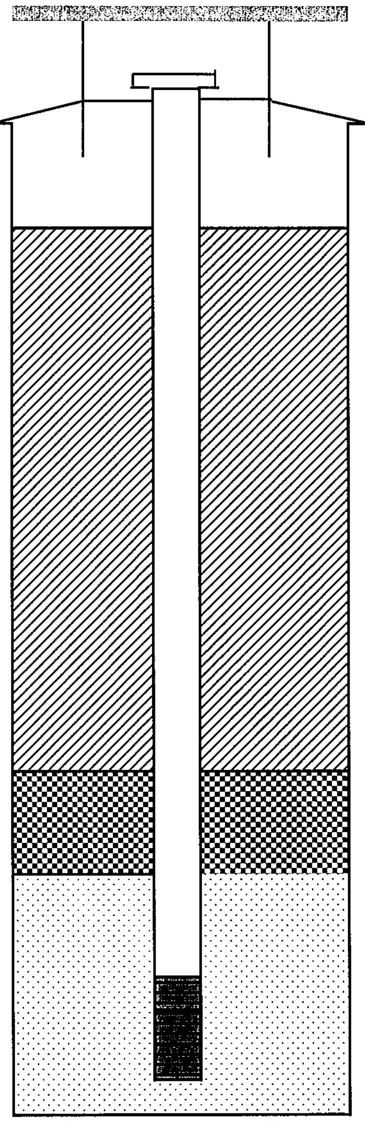
Monitoring Well Construction Information

WELL DESIGNATION MW-16A

PROJECT South Cass Lake

DRILLER Braun Intertec

COMPLETION DATE 6/1/2010



Elev.(± 0.01')
(Grade Elevation)

Elev.(± 0.01') 1338.97
(Top of Inner Casing w/o Cover)

State Plane Coord.: N
E

Method of Advance: Hollow Stem Auger

Borehole Diameter: 8 inches

Drilling Fluid: None

Depth to Bottom of Grout : 17 feet

Depth to Bottom of Seal : 19 feet

Depth to top of Screen : 21 feet

Depth to Bottom of Boring : 31 feet

Depth to First Water Encountered during Drilling : 25 feet

Depth to Water Level before Installation : 25 feet

**Note: All depths are from Ground Level

CONCRETE SURFACE SEAL:
Y/N Y

OUTER CASING:
Type: Carbon Steel
Diameter: 4 inches
Total Length: 5 feet
Lock: Yes

INNER CASING:
Type: PVC
Diameter: 2-inch
Total Length: 34 feet
Sections Used: 4
Joints: 3

GROUT ABOVE SEAL:
Neat Cement Grout

SEALING MATERIAL:
Bentonite Chips

FILTER MATERIAL:
30 Red Flint Sand

SCREEN:
Type: PVC
Length: 10 feet
Diameter: 2-inch
Slot Size: 0.01-inch

PUMP:
Type: N/A
Length: N/A
Diameter: N/A

METHOD OF DEVELOPMENT: Surged and purged with Brainard-Kilman Pump.

CONSTRUCTION NOTES:

Monitoring Well Construction Information

WELL DESIGNATION MW-16B

PROJECT South Cass Lake

DRILLER Braun Intertec

COMPLETION DATE 6/2/2010

Elev.(± 0.01')
(Grade Elevation)

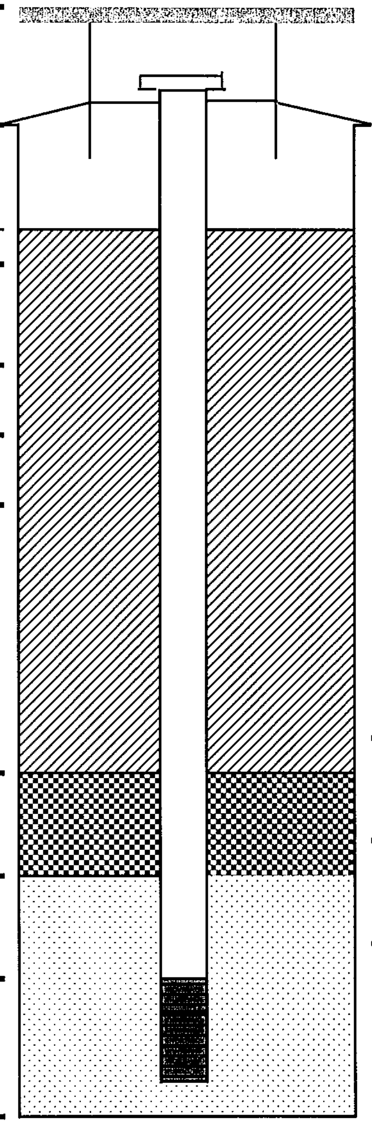
Elev.(± 0.01') 1339.52
(Top of Inner Casing w/o Cover)

State Plane Coord.: N
E

Method of Advance: Hollow Stem Auger

Borehole Diameter: 8 inches

Drilling Fluid: None



CONCRETE SURFACE SEAL:
Y/N Y

OUTER CASING:
Type Carbon Steel
Diameter 4 inches
Total Length 5 feet
Lock Yes

INNER CASING:
Type PVC
Diameter 2-inch
Total Length 48.5 feet
Sections Used 5
Joints 4

GROUT ABOVE SEAL: Neat Cement Grout

SEALING MATERIAL: Bentonite Chips

FILTER MATERIAL: # 30 Red Flint Sand

SCREEN:
Type PVC
Length 10 feet
Diameter 2-inch
Slot Size 0.01-inch

PUMP:
Type N/A
Length N/A
Diameter N/A

Depth to Bottom of Grout : 32 feet

Depth to Bottom of Seal : 34 feet

Depth to top of Screen : 36 feet

Depth to Bottom of Boring : 46 feet

Depth to First Water Encountered during Drilling : 25 feet

Depth to Water Level before Installation : 25 feet

**Note: All depths are from Ground Level

METHOD OF DEVELOPMENT: Surged and purged with weighted bailer.

CONSTRUCTION NOTES:

Monitoring Well Construction Information

WELL DESIGNATION MW-17

PROJECT South Cass Lake

DRILLER Braun Intertec

COMPLETION DATE 6/2/2010

Elev.(± 0.01')
(Grade Elevation)

Elev.(± 0.01') 1338.79
(Top of Inner Casing w/o Cover)

State Plane Coord.: N
E

Method of Advance: Hollow Stem Auger

Borehole Diameter: 8 inches

Drilling Fluid: None

Depth to Bottom of Grout : 17.5 feet

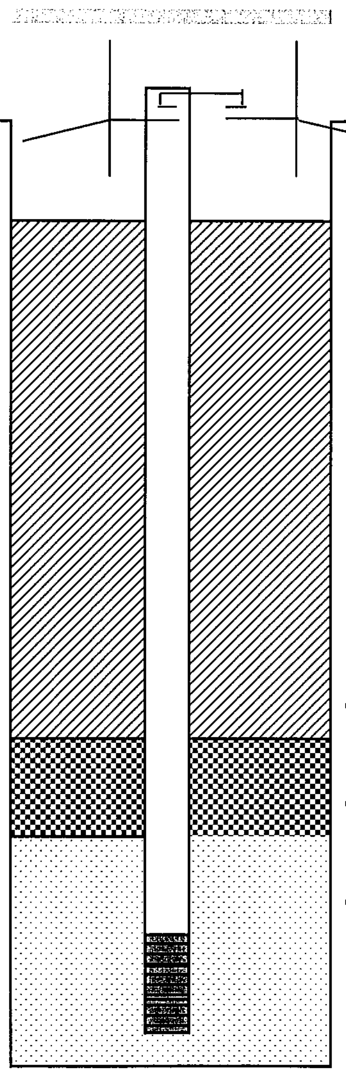
Depth to Bottom of Seal : 19.5 feet

Depth to top of Screen : 21.5 feet

Depth to Bottom of Boring : 31.5 feet

Depth to First Water Encountered during Drilling : 25 feet

Depth to Water Level before Installation : 25 feet



**Note: All depths are from Ground Level

CONCRETE SURFACE SEAL:
Y/N Y

OUTER CASING:

Type	Carbon Steel
Diameter	4 inches
Total Length	5 feet
Lock	Yes

INNER CASING:

Type	PVC
Diameter	2-inch
Total Length	34 feet
Sections Used	4
Joints	3

GROUT ABOVE SEAL:
Neat Cement Grout

SEALING MATERIAL:
Bentonite Chips

FILTER MATERIAL:
30 Red Flint Sand

SCREEN:

Type	PVC
Length	10 feet
Diameter	2-inch
Slot Size	0.01-inch

PUMP:

Type	N/A
Length	N/A
Diameter	N/A

METHOD OF DEVELOPMENT: Surged and purged with Brainard-Kilman Pump.

CONSTRUCTION NOTES:

Monitoring Well Construction Information

WELL DESIGNATION MW-18

PROJECT South Cass Lake

DRILLER Braun Intertec

COMPLETION DATE 6/3/2010

Elev.(± 0.01')
(Grade Elevation)

Elev.(± 0.01') 1340.29
(Top of Inner Casing w/o Cover)

State Plane Coord.: N
E

Method of Advance: Hollow Stem Auger

Borehole Diameter: 8 inches

Drilling Fluid: None

Depth to Bottom of Grout : 17 feet

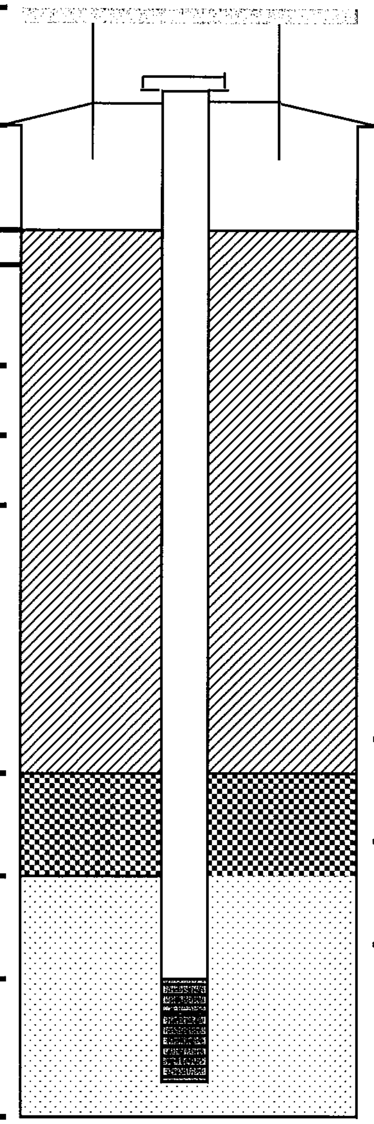
Depth to Bottom of Seal : 19 feet

Depth to top of Screen : 21 feet

Depth to Bottom of Boring : 31 feet

Depth to First Water Encountered during Drilling : 25 feet

Depth to Water Level before Installation : 25 feet



**Note: All depths are from Ground Level

CONCRETE SURFACE SEAL:
Y/N Y

OUTER CASING:
Type Carbon Steel
Diameter 4 inches
Total Length 5 feet
Lock Yes

INNER CASING:
Type PVC
Diameter 2-inch
Total Length 34 feet
Sections Used 4
Joints 3

GROUT ABOVE SEAL:
Neat Cement Grout

SEALING MATERIAL:
Bentonite Chips

FILTER MATERIAL:
30 Red Flint Sand

SCREEN:
Type PVC
Length 10 feet
Diameter 2-inch
Slot Size 0.01-inch

PUMP:
Type N/A
Length N/A
Diameter N/A

METHOD OF DEVELOPMENT: Surged and purged with Brainard-Kilman Pump.

CONSTRUCTION NOTES:

Monitoring Well Construction Information

WELL DESIGNATION MW-19

PROJECT South Cass Lake

DRILLER Braun Intertec

COMPLETION DATE 6/3/2010

Elev.(± 0.01') ______
(Grade Elevation)

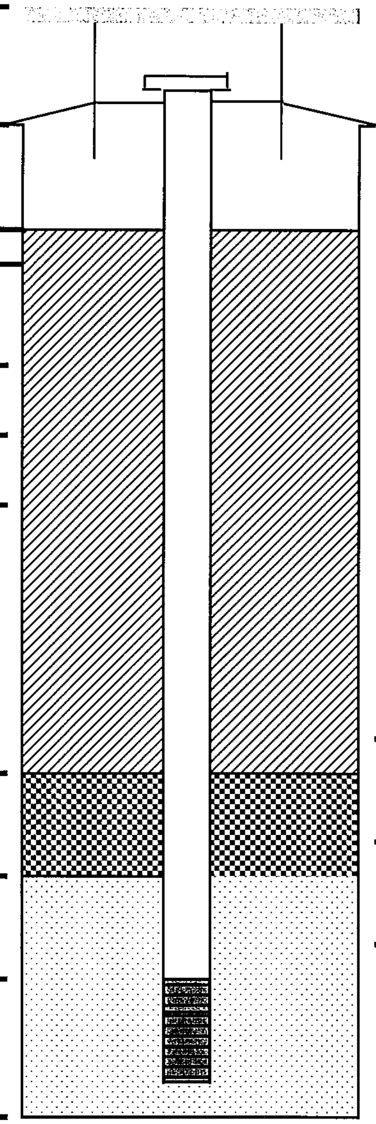
Elev.(± 0.01') 1334.72
(Top of Inner Casing w/o Cover)

State Plane Coord.: N ______ E ______

Method of Advance: Hollow Stem Auger

Borehole Diameter: 8 inches

Drilling Fluid: None



Depth to Bottom of Grout : 13 feet

Depth to Bottom of Seal : 15 feet

Depth to top of Screen : 17 feet

Depth to Bottom of Boring : 27 feet

Depth to First Water Encountered during Drilling : 21 feet

Depth to Water Level before Installation : 21 feet

**Note: All depths are from Ground Level

CONCRETE SURFACE SEAL:
Y/N Y

OUTER CASING:

Type	Carbon Steel
Diameter	4 inches
Total Length	5 feet
Lock	Yes

INNER CASING:

Type	PVC
Diameter	2-inch
Total Length	30 feet
Sections Used	3
Joints	2

GROUT ABOVE SEAL: Neat Cement Grout

SEALING MATERIAL: Bentonite Chips

FILTER MATERIAL: # 30 Red Flint Sand

SCREEN:

Type	PVC
Length	10 feet
Diameter	2-inch
Slot Size	0.01-inch

PUMP:

Type	N/A
Length	N/A
Diameter	N/A

METHOD OF DEVELOPMENT: Surged and purged with Brainard-Kilman Pump.

CONSTRUCTION NOTES: ______

APPENDIX B – ANALYTICAL LABORATORY REPORTS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

July 16, 2010

Barry Power
Natural Resources Engineering Co.
1409 Hammond Avenue
Suite 110
Superior, WI 54880

RE: Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Dear Barry Power:

Enclosed are the analytical results for sample(s) received by the laboratory on July 01, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com
Project Manager

Enclosures

Pace Analytical®
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Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project:	SOUTH CASS LAKE
Pace Project No.:	4033980

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
California Certification #: 09268CA
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 11888

New York Certification #: 11888
North Carolina Certification #: 503
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444

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Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4033980001	MW-1	Water	06/29/10 00:00	07/01/10 15:19
4033980002	MW-4	Water	06/29/10 00:00	07/01/10 15:19
4033980003	MW-6	Water	06/29/10 00:00	07/01/10 15:19
4033980004	MW-7	Water	06/29/10 00:00	07/01/10 15:19
4033980005	MW-8	Water	06/29/10 00:00	07/01/10 15:19
4033980006	MW-9	Water	06/29/10 00:00	07/01/10 15:19
4033980007	MW-10	Water	06/29/10 00:00	07/01/10 15:19
4033980008	MW-16A	Water	06/29/10 00:00	07/01/10 15:19
4033980009	MW-16B	Water	06/29/10 00:00	07/01/10 15:19
4033980010	MW-17	Water	06/29/10 00:00	07/01/10 15:19
4033980011	MW-18	Water	06/29/10 00:00	07/01/10 15:19
4033980012	MW-19	Water	06/29/10 00:00	07/01/10 15:19
4033980013	USGS-1A	Water	06/29/10 00:00	07/01/10 15:19
4033980014	USGS-2A	Water	06/29/10 00:00	07/01/10 15:19
4033980015	USGS-3A	Water	06/29/10 00:00	07/01/10 15:19
4033980016	USGS-4A	Water	06/29/10 00:00	07/01/10 15:19
4033980017	FIELD BLANK	Water	06/29/10 00:00	07/01/10 15:19

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Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4033980001	MW-1	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980002	MW-4	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980003	MW-6	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980004	MW-7	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980005	MW-8	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980006	MW-9	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980007	MW-10	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980008	MW-16A	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980009	MW-16B	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980010	MW-17	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980011	MW-18	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980012	MW-19	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980013	USGS-1A	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980014	USGS-2A	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980015	USGS-3A	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980016	USGS-4A	Extended Range DRO	DAL	1
		EPA 8021	SES	6
4033980017	FIELD BLANK	Extended Range DRO	DAL	1
		EPA 8021	SES	6

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Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: MW-1	Lab ID: 4033980001	Collected: 06/29/10 00:00	Received: 07/01/10 15:19	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 09:17		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 10:56	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 10:56	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 10:56	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 10:56	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 10:56	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 10:56	98-08-8	

Sample: MW-4	Lab ID: 4033980002	Collected: 06/29/10 00:00	Received: 07/01/10 15:19	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 09:28		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 11:22	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 11:22	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 11:22	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 11:22	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 11:22	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 11:22	98-08-8	

Sample: MW-6	Lab ID: 4033980003	Collected: 06/29/10 00:00	Received: 07/01/10 15:19	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 09:39		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 11:47	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 11:47	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 11:47	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 11:47	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 11:47	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 11:47	98-08-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: MW-7 | **Lab ID: 4033980004** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 09:50		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 12:13	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 12:13	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 12:13	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 12:13	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 12:13	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 12:13	98-08-8	

Sample: MW-8 | **Lab ID: 4033980005** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 10:00		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 12:39	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 12:39	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 12:39	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 12:39	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 12:39	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 12:39	98-08-8	

Sample: MW-9 | **Lab ID: 4033980006** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/10 08:00	07/13/10 10:11		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 13:05	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 13:05	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 13:05	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 13:05	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 13:05	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 13:05	98-08-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: MW-10 | **Lab ID: 4033980007** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**33700**	ug/L	1510	20	07/06/10 08:00	07/13/10 12:21		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**2180**	ug/L	25.0	25		07/08/10 18:12	71-43-2	
Ethylbenzene	**<25.0**	ug/L	25.0	25		07/08/10 18:12	100-41-4	
Toluene	**<25.0**	ug/L	25.0	25		07/08/10 18:12	108-88-3	
m&p-Xylene	**<50.0**	ug/L	50.0	25		07/08/10 18:12	179601-23-1	
o-Xylene	**<25.0**	ug/L	25.0	25		07/08/10 18:12	95-47-6	
a,a,a-Trifluorotoluene (S)	102	%	80-120	25		07/08/10 18:12	98-08-8	

Sample: MW-16A | **Lab ID: 4033980008** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**234**	ug/L	75.5	1	07/06/10 08:00	07/13/10 10:33		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 13:30	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 13:30	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 13:30	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 13:30	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 13:30	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 13:30	98-08-8	

Sample: MW-16B | **Lab ID: 4033980009** | Collected: 06/29/10 00:00 | Received: 07/01/10 15:19 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**1310**	ug/L	151	2	07/06/10 08:00	07/13/10 12:31		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 13:56	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 13:56	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 13:56	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 13:56	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 13:56	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 13:56	98-08-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: MW-17 **Lab ID: 4033980010** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**75.7**	ug/L	75.5	1	07/06/10 08:00	07/13/10 10:54		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 14:22	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 14:22	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 14:22	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 14:22	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 14:22	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 14:22	98-08-8	

Sample: MW-18 **Lab ID: 4033980011** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<77.7**	ug/L	77.7	1	07/06/10 08:00	07/13/10 11:05		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 15:39	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 15:39	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 15:39	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 15:39	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 15:39	95-47-6	
a,a,a-Trifluorotoluene (S)	102	%	80-120	1		07/08/10 15:39	98-08-8	

Sample: MW-19 **Lab ID: 4033980012** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**347**	ug/L	78.4	1	07/06/10 08:00	07/13/10 11:16		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 16:04	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 16:04	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 16:04	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 16:04	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 16:04	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 16:04	98-08-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: USGS-1A **Lab ID: 4033980013** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**2990**	ug/L	226	3	07/06/10 08:00	07/13/10 12:42		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**39.7**	ug/L	1.0	1		07/08/10 16:30	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 16:30	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 16:30	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 16:30	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 16:30	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 16:30	98-08-8	

Sample: USGS-2A **Lab ID: 4033980014** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**2150**	ug/L	151	2	07/06/10 08:00	07/13/10 12:53		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**63.5**	ug/L	1.0	1		07/08/10 16:56	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 16:56	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 16:56	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 16:56	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 16:56	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 16:56	98-08-8	

Sample: USGS-3A **Lab ID: 4033980015** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**2470**	ug/L	226	3	07/06/10 08:00	07/13/10 13:04		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**202**	ug/L	1.0	1		07/08/10 17:21	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 17:21	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 17:21	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 17:21	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 17:21	95-47-6	
a,a,a-Trifluorotoluene (S)	100	%	80-120	1		07/08/10 17:21	98-08-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

Sample: USGS-4A **Lab ID: 4033980016** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**4130**	ug/L	377	5	07/06/10 08:00	07/13/10 13:15		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**44.8**	ug/L	1.0	1		07/08/10 17:47	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 17:47	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 17:47	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 17:47	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 17:47	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		07/08/10 17:47	98-08-8	

Sample: FIELD BLANK **Lab ID: 4033980017** Collected: 06/29/10 00:00 Received: 07/01/10 15:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	07/06/08 00:00	07/13/10 12:10		L1
8021 GCV Short List	Analytical Method: EPA 8021							
Benzene	**<1.0**	ug/L	1.0	1		07/08/10 19:04	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		07/08/10 19:04	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		07/08/10 19:04	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		07/08/10 19:04	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		07/08/10 19:04	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		07/08/10 19:04	98-08-8	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

QC Batch: OEXT/7672 — Analysis Method: Extended Range DRO
QC Batch Method: Extended Range DRO — Analysis Description: Extended Range DRO GCS
Associated Lab Samples: 4033980001, 4033980002, 4033980003, 4033980004, 4033980005, 4033980006, 4033980007, 4033980008, 4033980009, 4033980010, 4033980011, 4033980012, 4033980013, 4033980014, 4033980015, 4033980016, 4033980017

METHOD BLANK: 323609 — Matrix: Water
Associated Lab Samples: 4033980001, 4033980002, 4033980003, 4033980004, 4033980005, 4033980006, 4033980007, 4033980008, 4033980009, 4033980010, 4033980011, 4033980012, 4033980013, 4033980014, 4033980015, 4033980016, 4033980017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Extended Range DRO (C10-C40)	ug/L	<80.0	80.0	07/13/10 09:06	

LABORATORY CONTROL SAMPLE & LCSD: 323610 323611

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Extended Range DRO (C10-C40)	ug/L	1600	2060	2250	129	140	75-115	8	20	L0

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

QC Batch: GCV/5282 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 4033980001, 4033980002, 4033980003, 4033980004, 4033980005, 4033980006, 4033980007, 4033980008, 4033980009, 4033980010, 4033980011, 4033980012, 4033980013, 4033980014, 4033980015, 4033980016, 4033980017

METHOD BLANK: 324046 Matrix: Water
Associated Lab Samples: 4033980001, 4033980002, 4033980003, 4033980004, 4033980005, 4033980006, 4033980007, 4033980008, 4033980009, 4033980010, 4033980011, 4033980012, 4033980013, 4033980014, 4033980015, 4033980016, 4033980017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<1.0	1.0	07/08/10 09:38	
Ethylbenzene	ug/L	<1.0	1.0	07/08/10 09:38	
m&p-Xylene	ug/L	<2.0	2.0	07/08/10 09:38	
o-Xylene	ug/L	<1.0	1.0	07/08/10 09:38	
Toluene	ug/L	<1.0	1.0	07/08/10 09:38	
a,a,a-Trifluorotoluene (S)	%	103	80-120	07/08/10 09:38	

LABORATORY CONTROL SAMPLE & LCSD: 324047 324048

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	20.7	20.6	103	103	80-120	.5	20	
Ethylbenzene	ug/L	20	20.6	20.5	103	103	80-120	.1	20	
m&p-Xylene	ug/L	40	41.1	41.3	103	103	80-120	.3	20	
o-Xylene	ug/L	20	20.4	20.6	102	103	80-120	.6	20	
Toluene	ug/L	20	20.7	20.6	103	103	80-120	.5	20	
a,a,a-Trifluorotoluene (S)	%				102	103	80-120			

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QUALIFIERS

Project: SOUTH CASS LAKE
Pace Project No.: 4033980

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: GCV/5282

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.

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Sample Condition Upon Receipt

Client Name: NREC Project #

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None Other

Optional
Proj. Due Date:
Proj. Name:

Thermometer Used JD **Type of Ice:** Wet Blue Dry None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4°C **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☑ yes ☐ no

Temp should be above freezing to 6°C for all sample except Biota.
Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: UB 7/2/10
Initials:

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3. On faxed copy. UB 7/2/10
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☐No		Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A	15.
Trip Blank Present:	☐Yes	☑No	☐N/A	16. listed on COC; was not rec'd in lab; Proj. was in 2 coolers, no TB. UB 7/2/10
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:** 7-2-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

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KM

CHAIN OF CUSTODY

(Please Print Clearly)

Company Name:	NREC
Branch/Location:	Superior, WI
Project Contact:	Karl Beaster
Phone:	715-394-1430
Project Number:	
Project Name:	South Cass Lake
Project State:	MN
Sampled By (Print):	Brian Hill / Jesse Martys
Sampled By (Sign):	[signatures]
PO #:	
Regulatory Program:	

Quote #:	
Mail To Contact:	Barry Power
Mail To Company:	NREC
Mail To Address:	1409 Hammond Ave. Suite 110 Superior, WI 54880
Invoice To Contact:	Karl Beaster
Invoice To Company:	Enbridge Energy
Invoice To Address:	119 N. 25th St. East Superior, WI 54880
Invoice To Phone:	

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

FILTERED? (YES/NO): Y/N — N, N
PRESERVATION (CODE)*: Pick Letter — B, B

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	BTEX	ERDRO							CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	MW-1	6/29/10		GW	X	X								3-40ml B; 1-1l AG B	
002	MW-4														
003	MW-6														
004	MW-7														
005	MW-8														
006	MW-9														
007	MW-10														
008	MW-16A														
009	MW-16B														
010	MW-17														
011	MW-18														
012	MW-19														
013	USGS-1A														

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
		Erik Freitag	7/1 8:40
Walters	7/2/10 8:40	[signature]	7/2/10 8:40

PACE Project No.

Receipt Temp = 4 °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

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CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)

Company Name:	NREC
Branch/Location:	Superior, WI
Project Contact:	Karl Beaster
Phone:	715-394-1430
Project Number:	
Project Name:	South Cass Lake
Project State:	MN
Sampled By (Print):	Brian Hill / Jesse Matus
Sampled By (Sign):	[signatures]
PO #:	
Regulatory Program:	

Quote #:	
Mail To Contact:	Barry Power
Mail To Company:	NREC
Mail To Address:	1409 Hammond Ave. Suite 110 Superior, WI 54880
Invoice To Contact:	Karl Beaster
Invoice To Company:	Enbridge Energy
Invoice To Address:	119 N. 25th St. East Superior, WI 54880
Invoice To Phone:	

Data Package Options (billable)
- ☐ EPA Level III
- ☐ EPA Level IV

MS/MSD
- ☐ On your sample (billable)
- ☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

FILTERED? (YES/NO): N, N
PRESERVATION (CODE)* Pick Letter: B, B
Analyses Requested: BTEX, ERDRO

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	BTEX	ERDRO	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
014	USGS-2A	6/29/10		GW	X	X		3-40ml B, 1-1L AG B	
015	USGS-3A	↓		↓	↓	↓		↓	
016	USGS-4A	↓		↓	↓	↓		↓	
017	Field Blank	↓			↓	↓		↓	
—	Trip Blank				↓			Not recd in 2 coolers samples were located in. UB 7/2/10	

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
		Eric Freitag	7/1 8:40
[signature]	7/2/10 8:40	[signature]	7/2/10 8:40

PACE Project No.

Receipt Temp = 4 °C

Sample Receipt pH OK / Adjusted

Cooler ~~Custody Seal~~ Present / ~~Not Present~~
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

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December 17, 2010

Barry Power
Natural Resources Engineering Co.
1409 Hammond Avenue
Suite 110
Superior, WI 54880

RE: Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Dear Barry Power:

Enclosed are the analytical results for sample(s) received by the laboratory on December 03, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brian Basten

brian.basten@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
California Certification #: 09268CA
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 11888
New York Certification #: 11888
North Carolina Certification #: 503
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444

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SAMPLE SUMMARY

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4040305001	**MW-1**	Water	12/01/10 10:00	12/03/10 09:30
4040305002	**MW-4**	Water	12/01/10 10:45	12/03/10 09:30
4040305003	**MW-6**	Water	12/01/10 11:30	12/03/10 09:30
4040305004	**MW-7**	Water	12/01/10 12:30	12/03/10 09:30
4040305005	**MW-8**	Water	12/01/10 14:05	12/03/10 09:30
4040305006	**MW-17**	Water	12/01/10 12:30	12/03/10 09:30
4040305007	**MW-18**	Water	12/01/10 12:50	12/03/10 09:30
4040305008	**MW-19**	Water	12/01/10 13:20	12/03/10 09:30
4040305009	**MW-16A**	Water	12/01/10 13:45	12/03/10 09:30
4040305010	**MW-16B**	Water	12/01/10 14:15	12/03/10 09:30
4040305011	**MW-9**	Water	12/01/10 13:15	12/03/10 09:30
4040305012	**USG-S 4A**	Water	12/02/10 08:30	12/03/10 09:30
4040305013	**USG-S 3A**	Water	12/02/10 08:40	12/03/10 09:30
4040305014	**USG-S 2A**	Water	12/02/10 09:00	12/03/10 09:30
4040305015	**USG-S 1A**	Water	12/02/10 09:00	12/03/10 09:30
4040305016	**MW-10**	Water	12/01/10 15:00	12/03/10 09:30
4040305017	**SCL FB**	Water	12/01/10 00:00	12/03/10 09:30

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SAMPLE ANALYTE COUNT

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4040305001	MW-1	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305002	MW-4	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305003	MW-6	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305004	MW-7	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305005	MW-8	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305006	MW-17	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305007	MW-18	Extended Range DRO	DAL	1

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SAMPLE ANALYTE COUNT

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305008	**MW-19**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305009	**MW-16A**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305010	**MW-16B**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305011	**MW-9**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305012	**USG-S 4A**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305013	**USG-S 3A**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1

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SAMPLE ANALYTE COUNT

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305014	**USG-S 2A**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305015	**USG-S 1A**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305016	**MW-10**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		WI MOD GRO	SES	6
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1
4040305017	**SCL FB**	Extended Range DRO	DAL	1
		EPA 8015B Modified	SES	1
		HACH 8146	DEY	1
		EPA 300.0	DDY	1
		EPA 300.0	DDY	1

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-1 | **Lab ID: 4040305001** | Collected: 12/01/10 10:00 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<76.9**	ug/L	76.9	1	12/07/10 14:00	12/17/10 08:34		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 07:25	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 11:10	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 11:10	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 11:10	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 11:10	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 11:10	95-47-6	
a,a,a-Trifluorotoluene (S)	103	%	80-120	1		12/06/10 11:10	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.12**	mg/L	0.12	2.5		12/03/10 14:45		D3,H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**0.61**	mg/L	0.40	1		12/03/10 18:58	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 18:58	14808-79-8	

Sample: MW-4 | **Lab ID: 4040305002** | Collected: 12/01/10 10:45 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	12/07/10 14:00	12/17/10 08:41		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 07:34	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 11:36	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 11:36	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 11:36	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 11:36	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 11:36	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 11:36	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-4 **Lab ID: 4040305002** Collected: 12/01/10 10:45 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**4.8**	mg/L	0.40	1		12/03/10 19:12	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**5.9**	mg/L	4.0	1		12/03/10 19:12	14808-79-8	

Sample: MW-6 **Lab ID: 4040305003** Collected: 12/01/10 11:30 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<76.9**	ug/L	76.9	1	12/07/10 14:00	12/17/10 08:48		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 07:43	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 12:01	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 12:01	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 12:01	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 12:01	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 12:01	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 12:01	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.12**	mg/L	0.12	2.5		12/03/10 14:45		D3,H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**1.8**	mg/L	0.40	1		12/03/10 19:26	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**4.9**	mg/L	4.0	1		12/03/10 19:26	14808-79-8	M1

Sample: MW-7 **Lab ID: 4040305004** Collected: 12/01/10 12:30 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<76.9**	ug/L	76.9	1	12/07/10 14:00	12/17/10 08:55		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 07:52	74-82-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-7 | **Lab ID: 4040305004** | Collected: 12/01/10 12:30 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 12:27	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 12:27	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 12:27	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 12:27	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 12:27	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120	1		12/06/10 12:27	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**1.1**	mg/L	0.40	1		12/03/10 20:09	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**7.6**	mg/L	4.0	1		12/03/10 20:09	14808-79-8	

Sample: MW-8 | **Lab ID: 4040305005** | Collected: 12/01/10 14:05 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**114**	ug/L	78.4	1	12/07/10 14:00	12/17/10 09:02		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 08:01	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 12:52	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 12:52	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 12:52	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 12:52	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 12:52	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 12:52	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 21:19	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**7.4**	mg/L	4.0	1		12/03/10 21:19	14808-79-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-17 | **Lab ID: 4040305006** | Collected: 12/01/10 12:30 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<76.2**	ug/L	76.2	1	12/07/10 14:00	12/17/10 09:09		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**6.9**	ug/L	2.8	1		12/07/10 08:09	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 13:18	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 13:18	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 13:18	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 13:18	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 13:18	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 13:18	98-08-8	pH
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.12**	mg/L	0.12	2.5		12/03/10 14:45		D3,H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 21:34	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**9.5**	mg/L	4.0	1		12/03/10 21:34	14808-79-8	

Sample: MW-18 | **Lab ID: 4040305007** | Collected: 12/01/10 12:50 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**<75.5**	ug/L	75.5	1	12/07/10 14:00	12/17/10 09:16		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**4.4**	ug/L	2.8	1		12/07/10 08:18	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 13:43	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 13:43	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 13:43	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 13:43	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 13:43	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120	1		12/06/10 13:43	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-18 **Lab ID: 4040305007** Collected: 12/01/10 12:50 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**4.2**	mg/L	0.40	1		12/03/10 21:48	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**5.8**	mg/L	4.0	1		12/03/10 21:48	14808-79-8	

Sample: MW-19 **Lab ID: 4040305008** Collected: 12/01/10 13:20 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**843**	ug/L	75.5	1	12/07/10 14:00	12/17/10 09:23		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**187**	ug/L	2.8	1		12/07/10 08:27	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 14:09	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 14:09	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 14:09	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 14:09	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 14:09	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120	1		12/06/10 14:09	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 22:02	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**5.2**	mg/L	4.0	1		12/03/10 22:02	14808-79-8	

Sample: MW-16A **Lab ID: 4040305009** Collected: 12/01/10 13:45 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**1150**	ug/L	75.5	1	12/07/10 14:00	12/17/10 09:30		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**528**	ug/L	14.0	5		12/07/10 10:16	74-82-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-16A | **Lab ID: 4040305009** | Collected: 12/01/10 13:45 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 18:24	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 18:24	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 18:24	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 18:24	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 18:24	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120	1		12/06/10 18:24	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**0.090**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 22:16	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 22:16	14808-79-8	

Sample: MW-16B | **Lab ID: 4040305010** | Collected: 12/01/10 14:15 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**9470**	ug/L	755	10	12/07/10 14:00	12/17/10 10:33		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**9.5**	ug/L	2.8	1		12/07/10 08:45	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 18:50	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 18:50	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 18:50	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 18:50	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 18:50	95-47-6	
a,a,a-Trifluorotoluene (S)	105	%	80-120	1		12/06/10 18:50	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 22:30	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**7.9**	mg/L	4.0	1		12/03/10 22:30	14808-79-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-9 | **Lab ID: 4040305011** | Collected: 12/01/10 13:15 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**3690**	ug/L	226	3	12/07/10 14:00	12/17/10 10:40		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**3590**	ug/L	112	40		12/07/10 10:36	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**573**	ug/L	5.0	5		12/06/10 15:51	71-43-2	
Ethylbenzene	**95.4**	ug/L	5.0	5		12/06/10 15:51	100-41-4	
Toluene	**<5.0**	ug/L	5.0	5		12/06/10 15:51	108-88-3	
m&p-Xylene	**18.1**	ug/L	10.0	5		12/06/10 15:51	179601-23-1	
o-Xylene	**<5.0**	ug/L	5.0	5		12/06/10 15:51	95-47-6	
a,a,a-Trifluorotoluene (S)	100	%	80-120	5		12/06/10 15:51	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**0.090**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 22:44	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 22:44	14808-79-8	

Sample: USG-S 4A | **Lab ID: 4040305012** | Collected: 12/02/10 08:30 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**2010**	ug/L	151	2	12/07/10 14:00	12/17/10 10:47		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**398**	ug/L	11.2	4		12/07/10 10:44	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**<1.0**	ug/L	1.0	1		12/06/10 19:41	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 19:41	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 19:41	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 19:41	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 19:41	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 19:41	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: USG-S 4A **Lab ID: 4040305012** Collected: 12/02/10 08:30 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 22:59	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 22:59	14808-79-8	

Sample: USG-S 3A **Lab ID: 4040305013** Collected: 12/02/10 08:40 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**1810**	ug/L	151	2	12/07/10 14:00	12/17/10 10:54		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**1180**	ug/L	28.0	10		12/07/10 11:07	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**6.2**	ug/L	1.0	1		12/06/10 20:06	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 20:06	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 20:06	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 20:06	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 20:06	95-47-6	
a,a,a-Trifluorotoluene (S)	104	%	80-120	1		12/06/10 20:06	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**1.8**	mg/L	0.25	5		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 23:13	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 23:13	14808-79-8	

Sample: USG-S 2A **Lab ID: 4040305014** Collected: 12/02/10 09:00 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**3370**	ug/L	226	3	12/07/10 14:00	12/17/10 11:01		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**2310**	ug/L	70.0	25		12/07/10 11:15	74-82-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: USG-S 2A | **Lab ID: 4040305014** | Collected: 12/02/10 09:00 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**239**	ug/L	1.0	1		12/06/10 20:32	71-43-2	
Ethylbenzene	**<1.0**	ug/L	1.0	1		12/06/10 20:32	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 20:32	108-88-3	
m&p-Xylene	**<2.0**	ug/L	2.0	1		12/06/10 20:32	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 20:32	95-47-6	
a,a,a-Trifluorotoluene (S)	98	%	80-120	1		12/06/10 20:32	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**2.8**	mg/L	0.25	5		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/03/10 23:27	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/03/10 23:27	14808-79-8	

Sample: USG-S 1A | **Lab ID: 4040305015** | Collected: 12/02/10 09:00 | Received: 12/03/10 09:30 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**5370**	ug/L	377	5	12/07/10 14:00	12/17/10 11:08		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**10200**	ug/L	280	100		12/07/10 11:24	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**791**	ug/L	10.0	10		12/06/10 16:17	71-43-2	M1
Ethylbenzene	**<10.0**	ug/L	10.0	10		12/06/10 16:17	100-41-4	
Toluene	**<10.0**	ug/L	10.0	10		12/06/10 16:17	108-88-3	
m&p-Xylene	**<20.0**	ug/L	20.0	10		12/06/10 16:17	179601-23-1	
o-Xylene	**<10.0**	ug/L	10.0	10		12/06/10 16:17	95-47-6	
a,a,a-Trifluorotoluene (S)	102	%	80-120	10		12/06/10 16:17	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**12.3**	mg/L	1.2	25		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/04/10 00:10	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/04/10 00:10	14808-79-8	

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ANALYTICAL RESULTS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

Sample: MW-10 **Lab ID: 4040305016** Collected: 12/01/10 15:00 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**28100**	ug/L	1510	20	12/07/10 14:00	12/17/10 11:15		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**7030**	ug/L	140	50		12/07/10 11:33	74-82-8	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	**193**	ug/L	1.0	1		12/06/10 19:15	71-43-2	
Ethylbenzene	**4.8**	ug/L	1.0	1		12/06/10 19:15	100-41-4	
Toluene	**<1.0**	ug/L	1.0	1		12/06/10 19:15	108-88-3	
m&p-Xylene	**10.5**	ug/L	2.0	1		12/06/10 19:15	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		12/06/10 19:15	95-47-6	
a,a,a-Trifluorotoluene (S)	106	%	80-120	1		12/06/10 19:15	98-08-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**5.1**	mg/L	0.50	10		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**2.4**	mg/L	0.40	1		12/04/10 00:24	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**4.3**	mg/L	4.0	1		12/04/10 00:24	14808-79-8	

Sample: SCL FB **Lab ID: 4040305017** Collected: 12/01/10 00:00 Received: 12/03/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Extended Range DRO GCS	Analytical Method: Extended Range DRO Preparation Method: Extended Range DRO							
Extended Range DRO (C10-C40)	**389**	ug/L	75.5	1	12/07/10 14:00	12/17/10 10:26		
Methane, Ethane, Ethene GCV	Analytical Method: EPA 8015B Modified							
Methane	**<2.8**	ug/L	2.8	1		12/07/10 10:07	74-82-8	
Iron, Ferrous	Analytical Method: HACH 8146							
Iron, Ferrous	**<0.050**	mg/L	0.050	1		12/03/10 14:45		H6
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**<0.40**	mg/L	0.40	1		12/04/10 00:38	14797-55-8	H1
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	**<4.0**	mg/L	4.0	1		12/04/10 00:38	14808-79-8	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: OEXT/10045 — Analysis Method: Extended Range DRO
QC Batch Method: Extended Range DRO — Analysis Description: Extended Range DRO GCS
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

METHOD BLANK: 392758 — Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Extended Range DRO (C10-C40)	ug/L	<80.0	80.0	12/17/10 08:27	

LABORATORY CONTROL SAMPLE & LCSD: 392759 — 392760

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Extended Range DRO (C10-C40)	ug/L	1600	1480	1680	92	105	75-115	13	20	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: GCV/5990 — Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified — Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

METHOD BLANK: 392739 — Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	ug/L	<2.8	2.8	12/07/10 07:05	

LABORATORY CONTROL SAMPLE & LCSD: 392740 392741

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	28.4	25.8	26.7	91	94	80-120	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392907 392908

Parameter	Units	4040305001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	<2.8	28.4	28.4	25.3	26.1	89	92	74-125	3	20	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: GCV/5979 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016

METHOD BLANK: 392276 Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<1.0	1.0	12/06/10 08:45	
Ethylbenzene	ug/L	<1.0	1.0	12/06/10 08:45	
m&p-Xylene	ug/L	<2.0	2.0	12/06/10 08:45	
o-Xylene	ug/L	<1.0	1.0	12/06/10 08:45	
Toluene	ug/L	<1.0	1.0	12/06/10 08:45	
a,a,a-Trifluorotoluene (S)	%	104	80-120	12/06/10 08:45	

LABORATORY CONTROL SAMPLE & LCSD: 392277 392278

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	20	20.8	20.7	104	103	80-120	.8	20	
Ethylbenzene	ug/L	20	21.1	21.1	106	105	80-120	.3	20	
m&p-Xylene	ug/L	40	41.9	41.9	105	105	80-120	.02	20	
o-Xylene	ug/L	20	20.7	20.7	104	104	80-120	.09	20	
Toluene	ug/L	20	20.9	20.9	104	104	80-120	.1	20	
a,a,a-Trifluorotoluene (S)	%				103	104	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392508 392509

Parameter	Units	4040305015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	791	200	200	1120	1150	163	182	23-177	3	20	M1
Ethylbenzene	ug/L	<10.0	200	200	223	225	112	113	63-144	.8	20	
m&p-Xylene	ug/L	<20.0	400	400	443	450	111	112	39-172	1	20	
o-Xylene	ug/L	<10.0	200	200	211	214	105	107	60-150	2	20	
Toluene	ug/L	<10.0	200	200	222	223	111	112	53-164	.4	20	
a,a,a-Trifluorotoluene (S)	%						99	100	80-120			

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: WET/7811 Analysis Method: HACH 8146
QC Batch Method: HACH 8146 Analysis Description: Iron, Ferrous
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

METHOD BLANK: 392042 Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Ferrous	mg/L	<0.050	0.050	12/03/10 14:45	

LABORATORY CONTROL SAMPLE: 392043

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	.6	0.63	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392044 392045

Parameter	Units	4040305001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Ferrous	mg/L	<0.12	1.5	1.5	1.5	1.8	93	113	80-120	19	20	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: WETA/7946 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

METHOD BLANK: 392074 Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.40	0.40	12/03/10 18:29	

LABORATORY CONTROL SAMPLE: 392075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2	1.9	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392076 392077

Parameter	Units	4040305003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	1.8	2	2	3.7	3.7	94	94	90-110	.5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392078 392079

Parameter	Units	4040305004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	1.1	2	2	2.9	2.9	90	90	90-110	0	20	

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QUALITY CONTROL DATA

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

QC Batch: WETA/7947 — Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 — Analysis Description: 300.0 IC Anions
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

METHOD BLANK: 392080 — Matrix: Water
Associated Lab Samples: 4040305001, 4040305002, 4040305003, 4040305004, 4040305005, 4040305006, 4040305007, 4040305008, 4040305009, 4040305010, 4040305011, 4040305012, 4040305013, 4040305014, 4040305015, 4040305016, 4040305017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	<4.0	4.0	12/03/10 18:29	

LABORATORY CONTROL SAMPLE: 392081

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392082 392083

Parameter	Units	4040305003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	4.9	20	20	22.0	22.0	86	86	90-110	.05	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 392084 392085

Parameter	Units	4040305004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	7.6	20	20	25.7	25.6	90	90	90-110	.2	20	

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QUALIFIERS

Project: SOUTH CASS LAKE
Pace Project No.: 4040305

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H1	Analysis conducted outside the recognized method holding time.
H6	Analysis initiated more than 15 minutes after sample collection.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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Sample Condition Upon Receipt

Client Name: NREC   Project # 4040305

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no   Seals intact: ☐ yes ☑ no

Custody Seal on Samples Present: ☐ yes ☑ no   Seals intact: ☐ yes ☑ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None Other

Thermometer Used: VB   Type of Ice: Wet Blue Dry None   ☑ Samples on ice, cooling process has begun

Cooler Temperature: 20C   Biological Tissue is Frozen: ☐ yes ☐ no

Temp Blank Present: ☐ yes ☑ no

Temp should be above freezing to 6°C for all sample except Biota.
Biota Samples should be received ≤ 0°C.

Optional
Proj. Due Date:
Proj. Name:

Person examining contents:
Date: 12/3/10
Initials: KM

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2. no collection times MRN 12/3/10
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3. Supplied by JM 12-3-10
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4:
Samples Arrived within Hold Time:	☐Yes	☑No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☐Yes	☑No	☐N/A	10. 1-40ml B was received broken for sample 005(MW08) ~~and 010 (MW16B)~~ KM 12/3/10
Filtered volume received for Dissolved tests	☐Yes	☑No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12. rec'd volume for all analyses for SCL FB (-017) client only requested BTEX MRN 12/3/10 run all per PH 12-3-10
-Includes date/time/ID/Analysis Matrix: W				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13. Added 1ml nitric acid to sample MW17 (020) 12/3/10 @ 1030 KM
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☑No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☐No		Initial when completed: KM / Lot # of added preservative: H14024
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A	15.
Trip Blank Present:	☑Yes	☐No	☐N/A	16.
Trip Blank Custody Seals Present	☑Yes	☐No	☐N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:** 12-3-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

VMRW

4040305

UPPER MIDWEST REGION
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CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)

Company Name:	NREC
Branch/Location:	Superior, WI
Project Contact:	Brian Hill
Phone:	715-399-3251
Project Number:	
Project Name:	South Cass Lake
Project State:	MN
Sampled By (Print):	Jesse Martus
Sampled By (Sign):	Jesse P. Martus
PO #:	
Regulatory Program:	

Quote #:	
Mail To Contact:	BRIAN HILL
Mail To Company:	NREC
Mail To Address:	
Invoice To Contact:	BARRY POWER
Invoice To Company:	ENBRIDGE ENERGY
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

	BTEX	ERDRO	NITRATE	SULFATE	Fe^{+2}	METHANE
FILTERED? (YES/NO) Y/N	N	N	N	N	N	N
PRESERVATION (CODE)* Pick Letter	B	B	A	[illegible]		B

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	BTEX	ERDRO	NITRATE	SULFATE	Fe^{+2}	METHANE	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	MW-1	12/1/10		GW	X	X	X	X	X	X		1-1L ag B 2-250ml AD 6-40ml B	
002	MW-4												
003	MW-6												
004	MW-7												
005	MW-8											5-40ml B	
006	MW-17												
007	MW-18												
008	MW-19												
009	MW-16A												
010	MW-16B											5-40ml B	
011	MW-9												
012	USGS 4A	12/2/10											
013	USGS 3A	12/2/10											

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Jesse P. Martus	12/2/10 1520		
Fed Ex	12/3/10 0930	[signature]	12/3/10 0930

PACE Project No. 4040305
Receipt Temp = 2 °C
Sample Receipt pH
OK / Adjusted
Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

4040305

Pace Analytical®
www.pacelabs.com

CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)

Company Name:	NREC
Branch/Location:	Superior, WI
Project Contact:	Brian Hill
Phone:	715-399-3251
Project Number:	
Project Name:	South Cass Lake
Project State:	MN
Sampled By (Print):	Jesse Marthes
Sampled By (Sign):	[signature]
PO #:	
Regulatory Program:	

Quote #:	
Mail To Contact:	Brian Hill
Mail To Company:	NREC
Mail To Address:	
Invoice To Contact:	Barry Power
Invoice To Company:	Enbridge Energy
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
- ☐ EPA Level III
- ☐ EPA Level IV

MS/MSD
- ☐ On your sample (billable)
- ☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

						BTEX	ERDRO	NITRATE	SULFATE	Fe^{+2}	METHANE			CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
FILTERED? (YES/NO)					Y/N	N	N	N	N	N	N					
PRESERVATION (CODE)*					Pick Letter	B	B	A			B					
PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Analyses Requested											
014	USGS 2A	12/2/10		GW		X	X	X	X	X	X				1-1lag B 2-250ml AD 6-40ml B	
015	USGS 1A	12/2/10		GW		X	X	X	X	X	X					
016	MW-10	12/1/10		GW		X	X	X	X	X	X					
017	SCL FB	12/1/10		W		X										
018	TRIP BLANK			W		X									2-40ml B	

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Fed Ex	12/3/10 0930	[signature]	12/3/10 0930

PACE Project No.

Receipt Temp = 2 °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL