

Appendix E
Groundwater Analytical Reports



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June 04, 2009

REVISION

Ms. Marta Nelson
Barr Engineering Co.
4700 W 77th St
Minneapolis, MN 55435

Work Order Number: 0901260
RE: 23/19-0B05

This is a revised report. The details of the revision are listed in the case narrative on the following page.

Enclosed are the results of analyses for samples received by the laboratory on 02/11/09. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of the original report and then discarded unless other arrangements are made.

MDH Certification #027-123-295

Prepared by,
LEGEND TECHNICAL SERVICES, INC

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Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-C2-002	0901260-01	Water	02/09/09 15:10	02/11/09 13:40
MW-E2-209	0901260-02	Water	02/10/09 12:20	02/11/09 13:40
MW-E2-009	0901260-03	Water	02/10/09 12:40	02/11/09 13:40
MW-A6-006	0901260-04	Water	02/10/09 14:45	02/11/09 13:40
MW-E2-305	0901260-05	Water	02/10/09 17:20	02/11/09 13:40

Shipping Container Information

Default Cooler Temperature (°C): 5.8

Received on ice: Yes Temperature blank was present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (IH/ISO only): No
 Custody seals: No

Case Narrative:

MN Certification does not apply to the bicarbonate, chloride, sulfate, phosphate, or fluoride analyses.

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed. The ammonia as N and nitrate+nitrite as N analyses for the Clean Water Program were performed by Davy Laboratories, LaCrosse, WI, #055-999-151.

Sodium and calcium recoveries in the MSD sample and sodium recovery in the MS sample for batch B9B1706 were outside laboratory control limits due to the spike level being disproportionate to sample concentration. Recoveries in the LCS/LCSD samples and the corresponding RPDs were within limits. The source sample used for this batch was MW-C2-002.

This report was revised on March 5, 2009 to correct the Nitrate/Nitrite as N dilution factors for samples MW-E2-009 and MW-E2-305 from 5 to 1.

At the client's request, this report was revised on June 4, 2009 to indicate that the metals were dissolved and not total. The values reported were unchanged.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-002 (0901260-01) Water Sampled: 02/09/09 15:10 Received: 02/11/09 13:40										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	73	1.0	0.0077	mg/L	1	"	"	"	"	M3
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	26	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.39	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	3.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	54	2.0	0.040	mg/L	2	"	"	02/18/09	"	M3
MW-E2-209 (0901260-02) Water Sampled: 02/10/09 12:20 Received: 02/11/09 13:40										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	70	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.41	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	23	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.20	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.9	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	9.5	1.0	0.020	mg/L	1	"	"	"	"	
MW-E2-009 (0901260-03) Water Sampled: 02/10/09 12:40 Received: 02/11/09 13:40										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	39	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	13	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.24	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	3.5	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	97	5.0	0.10	mg/L	5	"	"	02/18/09	"	
MW-A6-006 (0901260-04) Water Sampled: 02/10/09 14:45 Received: 02/11/09 13:40										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	85	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	29	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.054	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.9	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	5.9	1.0	0.020	mg/L	1	"	"	"	"	
MW-E2-305 (0901260-05) Water Sampled: 02/10/09 17:20 Received: 02/11/09 13:40										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	85	1.0	0.0077	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E2-305 (0901260-05) Water Sampled: 02/10/09 17:20 Received: 02/11/09 13:40										
Iron	0.56	0.050	0.0047	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Magnesium	24	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.35	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	3.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	36	1.0	0.020	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-002 (0901260-01) Water Sampled: 02/09/09 15:10 Received: 02/11/09 13:40										
Bicarbonate as CaCO3	270	20		mg/L	1	B9B2304	02/23/09	02/23/09	SM 2320 B-97	
Total Dissolved Solids	440	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	1.5	1.5	0.38	mg/L	1	B9B2407	02/24/09	02/25/09	SM 5310 C-00	QR-2
MW-E2-209 (0901260-02) Water Sampled: 02/10/09 12:20 Received: 02/11/09 13:40										
Bicarbonate as CaCO3	250	20		mg/L	1	B9B2304	02/23/09	02/23/09	SM 2320 B-97	
Total Dissolved Solids	300	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2407	02/24/09	02/25/09	SM 5310 C-00	
MW-E2-009 (0901260-03) Water Sampled: 02/10/09 12:40 Received: 02/11/09 13:40										
Bicarbonate as CaCO3	250	20		mg/L	1	B9B2304	02/23/09	02/23/09	SM 2320 B-97	
Total Dissolved Solids	400	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2407	02/24/09	02/25/09	SM 5310 C-00	
MW-A6-006 (0901260-04) Water Sampled: 02/10/09 14:45 Received: 02/11/09 13:40										
Bicarbonate as CaCO3	240	20		mg/L	1	B9B2304	02/23/09	02/23/09	SM 2320 B-97	
Total Dissolved Solids	380	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2407	02/24/09	02/25/09	SM 5310 C-00	
MW-E2-305 (0901260-05) Water Sampled: 02/10/09 17:20 Received: 02/11/09 13:40										
Bicarbonate as CaCO3	260	20		mg/L	1	B9B2304	02/23/09	02/23/09	SM 2320 B-97	
Total Dissolved Solids	450	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2407	02/24/09	02/25/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-002 (0901260-01) Water Sampled: 02/09/09 15:10 Received: 02/11/09 13:40										
Chloride	24	5.0	0.55	mg/L	5	B9B1208	02/12/09	02/12/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	02/12/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	66	7.5	1.9	mg/L	5	"	"	02/12/09	"	
MW-E2-209 (0901260-02) Water Sampled: 02/10/09 12:20 Received: 02/11/09 13:40										
Chloride	2.6	1.0	0.11	mg/L	1	B9B1208	02/12/09	02/12/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	18	1.5	0.38	mg/L	1	"	"	"	"	
MW-E2-009 (0901260-03) Water Sampled: 02/10/09 12:40 Received: 02/11/09 13:40										
Chloride	6.0	1.0	0.11	mg/L	1	B9B1208	02/12/09	02/12/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	60	7.5	1.9	mg/L	5	"	"	02/12/09	"	
MW-A6-006 (0901260-04) Water Sampled: 02/10/09 14:45 Received: 02/11/09 13:40										
Chloride	14	1.0	0.11	mg/L	1	B9B1208	02/12/09	02/12/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	30	3.0	0.76	mg/L	2	"	"	02/12/09	"	
MW-E2-305 (0901260-05) Water Sampled: 02/10/09 17:20 Received: 02/11/09 13:40										
Chloride	20	5.0	0.55	mg/L	5	B9B1208	02/12/09	02/12/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	02/12/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	63	7.5	1.9	mg/L	5	"	"	02/12/09	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-002 (0901260-01) Water Sampled: 02/09/09 15:10 Received: 02/11/09 13:40										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	8.67	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-E2-209 (0901260-02) Water Sampled: 02/10/09 12:20 Received: 02/11/09 13:40										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	<0.90	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-E2-009 (0901260-03) Water Sampled: 02/10/09 12:40 Received: 02/11/09 13:40										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	4.38	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-A6-006 (0901260-04) Water Sampled: 02/10/09 14:45 Received: 02/11/09 13:40										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	9.39	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-E2-305 (0901260-05) Water Sampled: 02/10/09 17:20 Received: 02/11/09 13:40										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	12.2	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	

Barr Engineering Co.
 4700 W 77th St
 Minneapolis, MN 55435

Project: 23/19-0B05
 Project Number: 23/19-0B05GWAS330
 Project Manager: Ms. Marta Nelson

Work Order #: 0901260
 Date Reported: 06/04/09

DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
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Batch B9B1706 - EPA 200.7/3005A Digestion

Blank (B9B1706-BLK1)

Prepared & Analyzed: 02/17/09

Aluminum	< 0.020	0.020	0.00017	mg/L							
Calcium	< 1.0	1.0	0.0077	mg/L							
Iron	< 0.050	0.050	0.0047	mg/L							
Magnesium	< 1.0	1.0	0.045	mg/L							
Manganese	< 0.020	0.020	0.00048	mg/L							
Potassium	< 1.0	1.0	0.028	mg/L							
Sodium	< 1.0	1.0	0.020	mg/L							

LCS (B9B1706-BS1)

Prepared & Analyzed: 02/17/09

Aluminum	1.86	0.020	0.00017	mg/L	2.00		93.2	80-120			
Calcium	4.14	1.0	0.0077	mg/L	3.99		104	80-120			
Iron	2.05	0.050	0.0047	mg/L	2.00		102	80-120			
Magnesium	4.01	1.0	0.045	mg/L	3.99		100	80-120			
Manganese	0.411	0.020	0.00048	mg/L	0.399		103	80-120			
Potassium	2.08	1.0	0.028	mg/L	2.00		104	80-120			
Sodium	3.71	1.0	0.020	mg/L	3.99		93.0	80-120			

LCS Dup (B9B1706-BSD1)

Prepared & Analyzed: 02/17/09

Aluminum	1.88	0.020	0.00017	mg/L	2.00		93.8	80-120	0.635	20	
Calcium	4.15	1.0	0.0077	mg/L	3.99		104	80-120	0.197	20	
Iron	2.08	0.050	0.0047	mg/L	2.00		104	80-120	1.37	20	
Magnesium	4.03	1.0	0.045	mg/L	3.99		101	80-120	0.569	20	
Manganese	0.415	0.020	0.00048	mg/L	0.399		104	80-120	0.883	20	
Potassium	2.09	1.0	0.028	mg/L	2.00		104	80-120	0.502	20	
Sodium	3.77	1.0	0.020	mg/L	3.99		94.5	80-120	1.63	20	

Matrix Spike (B9B1706-MS1)

Source: 0901260-01

Prepared & Analyzed: 02/17/09

Aluminum	1.95	0.020	0.00017	mg/L	2.00	<0.020	97.5	75-125			
Calcium	77.8	1.0	0.0077	mg/L	3.99	73.3	112	75-125			
Iron	2.05	0.050	0.0047	mg/L	2.00	<0.050	101	75-125			
Magnesium	29.9	1.0	0.045	mg/L	3.99	25.6	106	75-125			
Manganese	0.788	0.020	0.00048	mg/L	0.399	0.388	100	75-125			
Potassium	5.38	1.0	0.028	mg/L	2.00	3.04	117	75-125			
Sodium	59.9	2.0	0.040	mg/L	3.99	53.8	153	75-125			M3

Matrix Spike Dup (B9B1706-MSD1)

Source: 0901260-01

Prepared & Analyzed: 02/17/09

Aluminum	1.97	0.020	0.00017	mg/L	2.00	<0.020	98.4	75-125	0.954	20	
Calcium	79.2	1.0	0.0077	mg/L	3.99	73.3	148	75-125	1.86	20	M3
Iron	2.05	0.050	0.0047	mg/L	2.00	<0.050	101	75-125	0.327	20	
Magnesium	30.4	1.0	0.045	mg/L	3.99	25.6	119	75-125	1.75	20	
Manganese	0.798	0.020	0.00048	mg/L	0.399	0.388	103	75-125	1.23	20	
Potassium	5.44	1.0	0.028	mg/L	2.00	3.04	120	75-125	1.13	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1706 - EPA 200.7/3005A Digestion											
Matrix Spike Dup (B9B1706-MSD1)											
			Source: 0901260-01			Prepared: 02/17/09		Analyzed: 02/18/09			
Sodium	60.4	2.0	0.040	mg/L	3.99	53.8	166	75-125	0.878	20	M3

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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WET CHEMISTRY - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1606 - General Prep											
Blank (B9B1606-BLK1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	< 10	10		mg/L							
Duplicate (B9B1606-DUP1) Source: 0901260-01 Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	454	10		mg/L		444			2.23	10	
Reference (B9B1606-SRM1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	24.0	10		mg/L	23.9		100	94.6-105.4			
Batch B9B2304 - General Prep											
Blank (B9B2304-BLK1) Prepared & Analyzed: 02/23/09											
Bicarbonate as CaCO3	< 20	20		mg/L							
Duplicate (B9B2304-DUP1) Source: 0901260-01 Prepared & Analyzed: 02/23/09											
Bicarbonate as CaCO3	266	20		mg/L		268			0.749	20	
Reference (B9B2304-SRM1) Prepared & Analyzed: 02/23/09											
Bicarbonate as CaCO3	221	20		mg/L	224		98.7	90-110			
Batch B9B2407 - General Prep											
Blank (B9B2407-BLK1) Prepared: 02/24/09 Analyzed: 02/25/09											
Total Organic Carbon	< 1.5	1.5	0.38	mg/L							
Duplicate (B9B2407-DUP1) Source: 0901260-01 Prepared: 02/24/09 Analyzed: 02/25/09											
Total Organic Carbon	1.16	1.5	0.38	mg/L		<1.5			NA	20	QR-2
Reference (B9B2407-SRM1) Prepared: 02/24/09 Analyzed: 02/25/09											
Total Organic Carbon	25.3	1.5	0.38	mg/L	25.0		101	80-120			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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ANIONS 9056 - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1208 - General Prep Dept 4											
Blank (B9B1208-BLK1)											
						Prepared & Analyzed: 02/12/09					
Chloride	< 1.0	1.0	0.11	mg/L							
Fluoride	< 0.50	0.50	0.076	mg/L							
Phosphate	< 2.1	2.1	0.22	mg/L							
Sulfate	< 1.5	1.5	0.38	mg/L							
LCS (B9B1208-BS1)											
						Prepared & Analyzed: 02/12/09					
Chloride	4.90	1.0	0.11	mg/L	5.00		98.0	85-120			
Fluoride	2.50	0.50	0.076	mg/L	2.50		100	80-120			
Phosphate	5.40	2.1	0.22	mg/L	5.00		108	80-120			
Sulfate	5.00	1.5	0.38	mg/L	5.00		100	81.5-120			
LCS Dup (B9B1208-BSD1)											
						Prepared & Analyzed: 02/12/09					
Chloride	4.90	1.0	0.11	mg/L	5.00		98.0	85-120	0.00	15	
Fluoride	2.50	0.50	0.076	mg/L	2.50		100	80-120	0.00	15	
Phosphate	5.30	2.1	0.22	mg/L	5.00		106	80-120	1.87	15	
Sulfate	4.90	1.5	0.38	mg/L	5.00		98.0	81.5-120	2.02	20	
Matrix Spike (B9B1208-MS1)											
						Source: 0901260-01			Prepared & Analyzed: 02/12/09		
Fluoride	2.80	0.50	0.076	mg/L	2.50	<0.50	112	80-120			
Phosphate	4.80	2.1	0.22	mg/L	5.00	<2.1	96.0	80-120			
Matrix Spike (B9B1208-MS2)											
						Source: 0901260-01			Prepared & Analyzed: 02/12/09		
Chloride	52.0	5.0	0.55	mg/L	25.0	24.5	110	80-120			
Sulfate	90.5	7.5	1.9	mg/L	25.0	66.5	96.0	80-120			
Matrix Spike Dup (B9B1208-MSD1)											
						Source: 0901260-01			Prepared & Analyzed: 02/12/09		
Fluoride	2.60	0.50	0.076	mg/L	2.50	<0.50	104	80-120	7.41	15	
Phosphate	5.20	2.1	0.22	mg/L	5.00	<2.1	104	80-120	8.00	20	
Matrix Spike Dup (B9B1208-MSD2)											
						Source: 0901260-01			Prepared & Analyzed: 02/12/09		
Chloride	51.0	5.0	0.55	mg/L	25.0	24.5	106	80-120	1.94	15	
Sulfate	89.5	7.5	1.9	mg/L	25.0	66.5	92.0	80-120	1.11	15	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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Analytical Results - Quality Control
Davy Laboratories, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch N/A - No Prep											
BLK (0901260-BLK)											
							Prepared:	Analyzed: 02/20/09			
Ammonia as N	<0.19	0.19	--	mg/L		<0.19		-			
Nitrate/Nitrite as N	<0.90	0.90	--	mg/L		<0.90		-			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901260 Date Reported: 06/04/09
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Notes and Definitions

- QR-2 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
- M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable.
- < Less than value listed
- dry Sample results reported on a dry weight basis
- NA Not applicable. The %RPD is not calculated from values less than the reporting limit.
- MDL Method Detection Limit
- RL Reporting Limit
- RPD Relative Percent Difference
- LCS Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)
- MS Matrix Spike = Laboratory Fortified Matrix (LFM)

LEGEND

Technical Services, Inc.

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88 Empire Drive
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 Tel: 651-642-1150
 Fax: 651-642-1239

0901260

Chain of Custody

4700 West 77th Street
 Minneapolis, MN 55435-4803
 (952) 832-2600

BARR

Project Number

23711-CB056uAs330

Project Name

NO 26781

Sample Identification	Collection		Matrix	Type	Water	Soil	Grab	Comp	OC
	Date	Time							
1. MN-C2-002	2/9/09	1510	✓						
2. MN-E2-204	2/10/09	1220	✓						
3. MN-E2-007		1240	✓						
4. MN-AL-006		1445	✓						
5. MN-E2-205		1720	✓						
6.									
7.									
8.									
9.									
10.									
11.									
12.									

Common Parameter/Container - Preservation Key
 *1 - Volatile Organics = BTEX, GRO, TPH, Full List
 *2 - Semivolatile Organics = PAHs, PCB, Dioxins, Full List, Herbicide/Pesticide/PCBs
 *3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
 *4 - Nutrients = COD, TOC, Phosphorus, Ammonia Nitrogen, TKN

Number of Containers/Preservative		Total No. Of Containers	Remarks
Water	Soil		
Volatile Organics (Pres.) *1 Dissolved Metals (HNO ₃) Total Metals (HNO ₃) General (Impreserved) *3 Cyanide (NaOH) Nutrients (H ₂ SO ₄) *4 Oil and Grease (H ₂ SO ₄) Sulfide (Zn Acetate) Methane Bacteria (Na ₂ S ₂ O ₃) DRO (HCl)	VOCs (2-oz tared MeOH) *1 GRO, BTEX (2-oz tared MeOH) *1 DRO (2-oz tared) - 25 grams Metals (2-oz unpreserved) SVOCs (2 or 4-oz unpres.) *2 % Moisture (plastic vial, unpres.)	5	Attached List
		5	
		5	
		5	
		5	

COC _____ of _____
 Project Manager: Jim Eiden
 Project Contact: _____
 Sampled by: KST
 Laboratory: Legend

Requested By: Jim Eiden
 Date: 2/11/09
 Time: 13:40
 Received by: Stephen B
 Date: 2/11/09
 Time: 13:40
 Air Bill Number: _____
 Samples Shipped: Air Freight Federal Express Sampler Other

5.9%

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Groundwater Sampling Details -EIS			
23/19-0B05.03 GWAS 330			
UMore Park			
Dakota County, MN			
Analytical Parameters	Method Number	Reporting Limit (mg/L)	Comment
Aluminum	EPA 6010B	0.020	
Calcium	EPA 6010B	1.0	
Magnesium	EPA 6010B	1.0	
Iron	EPA 6010B	0.050	
Manganese	EPA 6010B	0.020	
Sodium	EPA 6010B	1.0	
Potassium	EPA 6010B		
Chloride	EPA 9056 (M)	1.0	
Bicarbonate	SM 2320B (97)	20	calculation
Sulfate	EPA 9056 (M)	1.5	
Nitrate + Nitrite (as N)	SM 4500-NO3F	0.20	subcontract
Ammonia	EPA 350.1	1.0	subcontract
TOC	SM 5310C	1.5	
TDS	SM 2540 C (97)	10	
Phosphate	EPA 9056 (M)	2.1	
Fluoride	EPA 9056 (M)	0.50	
Field Parameters			
Temp			
Conductivity			
pH			
ORP			

P:\Mpls\23 MN\19\2319B05 UMore park environmental\WorkFiles\EIS Support\Implementation\Groundwater\Sampling Parameters



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

June 04, 2009

REVISION

Ms. Marta Nelson
Barr Engineering Co.
4700 W 77th St
Minneapolis, MN 55435

Work Order Number: 0901301
RE: 23/19-0B05

This is a revised report. The details of the revision are listed in the case narrative on the following page.

Enclosed are the results of analyses for samples received by the laboratory on 02/13/09. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of the original report and then discarded unless other arrangements are made.

MDH Certification #027-123-295

Prepared by,
LEGEND TECHNICAL SERVICES, INC

Terri Olson
Client Manager II
tolson@legend-group.com

Erica Nastrom
QA/QC Coordinator
enastrom@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-E4-010	0901301-01	Water	02/12/09 10:30	02/13/09 16:25
MW-D3-007	0901301-02	Water	02/12/09 12:50	02/13/09 16:25
MW-C2-202	0901301-03	Water	02/12/09 13:15	02/13/09 16:25
MW-A3-003	0901301-04	Water	02/12/09 15:20	02/13/09 16:25
MW-C4-311	0901301-05	Water	02/12/09 17:30	02/13/09 16:25
MW-C7-004	0901301-06	Water	02/13/09 10:50	02/13/09 16:25
MW-D5-308	0901301-07	Water	02/13/09 12:45	02/13/09 16:25
MW-B1-001	0901301-08	Water	02/13/09 15:10	02/13/09 16:25
M-1	0901301-09	Water	02/13/09 00:00	02/13/09 16:25
FB-1	0901301-10	Water	02/13/09 15:30	02/13/09 16:25

Shipping Container Information

Default Cooler Temperature (°C): 1.9

Received on ice: Yes Temperature blank was present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (IH/ISO only): No
 Custody seals: No

Case Narrative:

MN Certification does not apply to the bicarbonate, chloride, sulfate, phosphate, or fluoride analyses.

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed. The ammonia as N and nitrate+nitrite as N analyses for the Clean Water Program were performed by Davy Laboratories, LaCrosse, WI, #055-999-151.

Sodium and calcium recoveries in the MSD sample and sodium recovery in the MS sample for batch B9B1706 were outside laboratory control limits due to the spike level being disproportionate to sample concentration. Recoveries in the LCS/LCSD samples and the corresponding RPDs were within limits. The source sample used is not associated with this work order.

At the client's request, this report was revised on June 4, 2009 to indicate that the metals were dissolved and not total. The values reported were unchanged.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E4-010 (0901301-01) Water Sampled: 02/12/09 10:30 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	96	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	33	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.22	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	2.3	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	7.1	1.0	0.020	mg/L	1	"	"	"	"	
MW-D3-007 (0901301-02) Water Sampled: 02/12/09 12:50 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	88	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	29	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.080	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	2.4	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	13	1.0	0.020	mg/L	1	"	"	"	"	
MW-C2-202 (0901301-03) Water Sampled: 02/12/09 13:15 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	86	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.16	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	29	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.034	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	3.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	40	1.0	0.020	mg/L	1	"	"	"	"	
MW-A3-003 (0901301-04) Water Sampled: 02/12/09 15:20 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/17/09	EPA 6010B (Dissolved)	
Calcium	85	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.058	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.028	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.6	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	4.2	1.0	0.020	mg/L	1	"	"	"	"	
MW-C4-311 (0901301-05) Water Sampled: 02/12/09 17:30 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	58	1.0	0.0077	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-C4-311 (0901301-05) Water Sampled: 02/12/09 17:30 Received: 02/13/09 16:25

Iron	<0.050	0.050	0.0047	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Magnesium	25	1.0	0.045	mg/L	1	"	"	"	"	"
Manganese	0.24	0.020	0.00048	mg/L	1	"	"	"	"	"
Potassium	1.3	1.0	0.028	mg/L	1	"	"	"	"	"
Sodium	11	1.0	0.020	mg/L	1	"	"	"	"	"

MW-C7-004 (0901301-06) Water Sampled: 02/13/09 10:50 Received: 02/13/09 16:25

Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	99	1.0	0.0077	mg/L	1	"	"	"	"	"
Iron	0.15	0.050	0.0047	mg/L	1	"	"	"	"	"
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	"
Manganese	0.051	0.020	0.00048	mg/L	1	"	"	"	"	"
Potassium	1.4	1.0	0.028	mg/L	1	"	"	"	"	"
Sodium	6.4	1.0	0.020	mg/L	1	"	"	"	"	"

MW-D5-308 (0901301-07) Water Sampled: 02/13/09 12:45 Received: 02/13/09 16:25

Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	79	1.0	0.0077	mg/L	1	"	"	"	"	"
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	"
Magnesium	24	1.0	0.045	mg/L	1	"	"	"	"	"
Manganese	0.15	0.020	0.00048	mg/L	1	"	"	"	"	"
Potassium	1.9	1.0	0.028	mg/L	1	"	"	"	"	"
Sodium	25	1.0	0.020	mg/L	1	"	"	"	"	"

MW-B1-001 (0901301-08) Water Sampled: 02/13/09 15:10 Received: 02/13/09 16:25

Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	60	1.0	0.0077	mg/L	1	"	"	"	"	"
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	"
Magnesium	22	1.0	0.045	mg/L	1	"	"	"	"	"
Manganese	0.12	0.020	0.00048	mg/L	1	"	"	"	"	"
Potassium	1.7	1.0	0.028	mg/L	1	"	"	"	"	"
Sodium	3.8	1.0	0.020	mg/L	1	"	"	"	"	"

M-1 (0901301-09) Water Sampled: 02/13/09 00:00 Received: 02/13/09 16:25

Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	100	1.0	0.0077	mg/L	1	"	"	"	"	"
Iron	0.11	0.050	0.0047	mg/L	1	"	"	"	"	"
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	"
Manganese	0.051	0.020	0.00048	mg/L	1	"	"	"	"	"

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
M-1 (0901301-09) Water Sampled: 02/13/09 00:00 Received: 02/13/09 16:25										
Potassium	1.4	1.0	0.028	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Sodium	6.4	1.0	0.020	mg/L	1	"	"	"	"	
FB-1 (0901301-10) Water Sampled: 02/13/09 15:30 Received: 02/13/09 16:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9B1706	02/17/09	02/18/09	EPA 6010B (Dissolved)	
Calcium	<1.0	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	<1.0	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	<0.020	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	<1.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	<1.0	1.0	0.020	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E4-010 (0901301-01) Water Sampled: 02/12/09 10:30 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	200	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	420	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	QR-2
MW-D3-007 (0901301-02) Water Sampled: 02/12/09 12:50 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	240	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	400	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-C2-202 (0901301-03) Water Sampled: 02/12/09 13:15 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	270	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	460	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-A3-003 (0901301-04) Water Sampled: 02/12/09 15:20 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	250	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	370	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-C4-311 (0901301-05) Water Sampled: 02/12/09 17:30 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	310	10		mg/L	1	B9B1606	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-C7-004 (0901301-06) Water Sampled: 02/13/09 10:50 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	290	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	420	10		mg/L	1	B9B1613	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-D5-308 (0901301-07) Water Sampled: 02/13/09 12:45 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	280	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	380	10		mg/L	1	B9B1613	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
MW-B1-001 (0901301-08) Water Sampled: 02/13/09 15:10 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	310	10		mg/L	1	B9B1613	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	
M-1 (0901301-09) Water Sampled: 02/13/09 00:00 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	410	10		mg/L	1	B9B1613	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
FB-1 (0901301-10) Water Sampled: 02/13/09 15:30 Received: 02/13/09 16:25										
Bicarbonate as CaCO3	<20	20		mg/L	1	B9B2508	02/25/09	02/25/09	SM 2320 B-97	
Total Dissolved Solids	93	10		mg/L	1	B9B1613	02/16/09	02/16/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9B2507	02/25/09	02/25/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E4-010 (0901301-01) Water Sampled: 02/12/09 10:30 Received: 02/13/09 16:25										
Chloride	33	5.0	0.55	mg/L	5	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	02/16/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	22	1.5	0.38	mg/L	1	"	"	"	"	
MW-D3-007 (0901301-02) Water Sampled: 02/12/09 12:50 Received: 02/13/09 16:25										
Chloride	20	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	29	1.5	0.38	mg/L	1	"	"	"	"	
MW-C2-202 (0901301-03) Water Sampled: 02/12/09 13:15 Received: 02/13/09 16:25										
Chloride	19	5.0	0.55	mg/L	5	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	02/16/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	70	7.5	1.9	mg/L	5	"	"	02/16/09	"	
MW-A3-003 (0901301-04) Water Sampled: 02/12/09 15:20 Received: 02/13/09 16:25										
Chloride	13	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	30	1.5	0.38	mg/L	1	"	"	"	"	
MW-C4-311 (0901301-05) Water Sampled: 02/12/09 17:30 Received: 02/13/09 16:25										
Chloride	2.8	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	19	1.5	0.38	mg/L	1	"	"	"	"	
MW-C7-004 (0901301-06) Water Sampled: 02/13/09 10:50 Received: 02/13/09 16:25										
Chloride	12	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	18	1.5	0.38	mg/L	1	"	"	"	"	
MW-D5-308 (0901301-07) Water Sampled: 02/13/09 12:45 Received: 02/13/09 16:25										
Chloride	9.8	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	38	7.5	1.9	mg/L	5	"	"	02/16/09	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-B1-001 (0901301-08) Water Sampled: 02/13/09 15:10 Received: 02/13/09 16:25										
Chloride	12	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	9.2	1.5	0.38	mg/L	1	"	"	"	"	
M-1 (0901301-09) Water Sampled: 02/13/09 00:00 Received: 02/13/09 16:25										
Chloride	12	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	19	1.5	0.38	mg/L	1	"	"	"	"	
FB-1 (0901301-10) Water Sampled: 02/13/09 15:30 Received: 02/13/09 16:25										
Chloride	<1.0	1.0	0.11	mg/L	1	B9B1607	02/16/09	02/16/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	<1.5	1.5	0.38	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E4-010 (0901301-01) Water Sampled: 02/12/09 10:30 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	14.6	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-D3-007 (0901301-02) Water Sampled: 02/12/09 12:50 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	11.5	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-C2-202 (0901301-03) Water Sampled: 02/12/09 13:15 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	2.39	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-A3-003 (0901301-04) Water Sampled: 02/12/09 15:20 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	8.00	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-C4-311 (0901301-05) Water Sampled: 02/12/09 17:30 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	3.53	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-C7-004 (0901301-06) Water Sampled: 02/13/09 10:50 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	7.26	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-D5-308 (0901301-07) Water Sampled: 02/13/09 12:45 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	1.42	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
MW-B1-001 (0901301-08) Water Sampled: 02/13/09 15:10 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	9.03	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
M-1 (0901301-09) Water Sampled: 02/13/09 00:00 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	3.93	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	
FB-1 (0901301-10) Water Sampled: 02/13/09 15:30 Received: 02/13/09 16:25										

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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
FB-1 (0901301-10) Water Sampled: 02/13/09 15:30 Received: 02/13/09 16:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		02/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	<0.90	0.90	0.30	mg/L	1	"	"	03/02/09	SM 4500 NO3-F-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
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Batch B9B1706 - EPA 200.7/3005A Digestion

Blank (B9B1706-BLK1)

Prepared & Analyzed: 02/17/09

Aluminum	< 0.020	0.020	0.00017	mg/L							
Calcium	< 1.0	1.0	0.0077	mg/L							
Iron	< 0.050	0.050	0.0047	mg/L							
Magnesium	< 1.0	1.0	0.045	mg/L							
Manganese	< 0.020	0.020	0.00048	mg/L							
Potassium	< 1.0	1.0	0.028	mg/L							
Sodium	< 1.0	1.0	0.020	mg/L							

LCS (B9B1706-BS1)

Prepared & Analyzed: 02/17/09

Aluminum	1.86	0.020	0.00017	mg/L	2.00		93.2	80-120			
Calcium	4.14	1.0	0.0077	mg/L	3.99		104	80-120			
Iron	2.05	0.050	0.0047	mg/L	2.00		102	80-120			
Magnesium	4.01	1.0	0.045	mg/L	3.99		100	80-120			
Manganese	0.411	0.020	0.00048	mg/L	0.399		103	80-120			
Potassium	2.08	1.0	0.028	mg/L	2.00		104	80-120			
Sodium	3.71	1.0	0.020	mg/L	3.99		93.0	80-120			

LCS Dup (B9B1706-BSD1)

Prepared & Analyzed: 02/17/09

Aluminum	1.88	0.020	0.00017	mg/L	2.00		93.8	80-120	0.635	20	
Calcium	4.15	1.0	0.0077	mg/L	3.99		104	80-120	0.197	20	
Iron	2.08	0.050	0.0047	mg/L	2.00		104	80-120	1.37	20	
Magnesium	4.03	1.0	0.045	mg/L	3.99		101	80-120	0.569	20	
Manganese	0.415	0.020	0.00048	mg/L	0.399		104	80-120	0.883	20	
Potassium	2.09	1.0	0.028	mg/L	2.00		104	80-120	0.502	20	
Sodium	3.77	1.0	0.020	mg/L	3.99		94.5	80-120	1.63	20	

Matrix Spike (B9B1706-MS1)

Source: 0901260-01

Prepared & Analyzed: 02/17/09

Aluminum	1.95	0.020	0.00017	mg/L	2.00	<0.020	97.5	75-125			
Calcium	77.8	1.0	0.0077	mg/L	3.99	73.3	112	75-125			
Iron	2.05	0.050	0.0047	mg/L	2.00	<0.050	101	75-125			
Magnesium	29.9	1.0	0.045	mg/L	3.99	25.6	106	75-125			
Manganese	0.788	0.020	0.00048	mg/L	0.399	0.388	100	75-125			
Potassium	5.38	1.0	0.028	mg/L	2.00	3.04	117	75-125			
Sodium	59.9	2.0	0.040	mg/L	3.99	53.8	153	75-125			M3

Matrix Spike Dup (B9B1706-MSD1)

Source: 0901260-01

Prepared & Analyzed: 02/17/09

Aluminum	1.97	0.020	0.00017	mg/L	2.00	<0.020	98.4	75-125	0.954	20	
Calcium	79.2	1.0	0.0077	mg/L	3.99	73.3	148	75-125	1.86	20	M3
Iron	2.05	0.050	0.0047	mg/L	2.00	<0.050	101	75-125	0.327	20	
Magnesium	30.4	1.0	0.045	mg/L	3.99	25.6	119	75-125	1.75	20	
Manganese	0.798	0.020	0.00048	mg/L	0.399	0.388	103	75-125	1.23	20	
Potassium	5.44	1.0	0.028	mg/L	2.00	3.04	120	75-125	1.13	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1706 - EPA 200.7/3005A Digestion											
Matrix Spike Dup (B9B1706-MSD1)											
			Source: 0901260-01			Prepared: 02/17/09		Analyzed: 02/18/09			
Sodium	60.4	2.0	0.040	mg/L	3.99	53.8	166	75-125	0.878	20	M3

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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WET CHEMISTRY - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1606 - General Prep											
Blank (B9B1606-BLK1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	< 10	10		mg/L							
Duplicate (B9B1606-DUP1) Source: 0901260-01 Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	454	10		mg/L		444			2.23	10	
Reference (B9B1606-SRM1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	24.0	10		mg/L	23.9		100	94.6-105.4			
Batch B9B1613 - General Prep											
Blank (B9B1613-BLK1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	< 10	10		mg/L							
Duplicate (B9B1613-DUP1) Source: 0901301-06 Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	465	10		mg/L		422			9.70	10	
Reference (B9B1613-SRM1) Prepared & Analyzed: 02/16/09											
Total Dissolved Solids	23.0	10		mg/L	23.9		96.2	94.6-105.4			
Batch B9B2507 - General Prep											
Blank (B9B2507-BLK1) Prepared & Analyzed: 02/25/09											
Total Organic Carbon	< 1.5	1.5	0.38	mg/L							
Duplicate (B9B2507-DUP1) Source: 0901301-01 Prepared & Analyzed: 02/25/09											
Total Organic Carbon	0.749	1.5	0.38	mg/L		<1.5			NA	20	QR-2

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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WET CHEMISTRY - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B2508 - General Prep											
Blank (B9B2508-BLK1)											
Bicarbonate as CaCO3	< 20	20		mg/L							Prepared & Analyzed: 02/25/09
Duplicate (B9B2508-DUP1)											
Source: 0901301-01											
Bicarbonate as CaCO3	242	20		mg/L		204			17.0	20	Prepared & Analyzed: 02/25/09
Reference (B9B2508-SRM1)											
Prepared: 02/25/09 Analyzed: 02/26/09											
Bicarbonate as CaCO3	227	20		mg/L	224		101	90-110			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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ANIONS 9056 - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9B1607 - General Prep Dept 4											
Blank (B9B1607-BLK1)						Prepared & Analyzed: 02/16/09					
Chloride	< 1.0	1.0	0.11	mg/L							
Fluoride	< 0.50	0.50	0.076	mg/L							
Phosphate	< 2.1	2.1	0.22	mg/L							
Sulfate	< 1.5	1.5	0.38	mg/L							
LCS (B9B1607-BS1)						Prepared & Analyzed: 02/16/09					
Chloride	4.90	1.0	0.11	mg/L	5.00		98.0	85-120			
Fluoride	2.40	0.50	0.076	mg/L	2.50		96.0	80-120			
Phosphate	5.50	2.1	0.22	mg/L	5.00		110	80-120			
Sulfate	5.20	1.5	0.38	mg/L	5.00		104	81.5-120			
LCS Dup (B9B1607-BSD1)						Prepared & Analyzed: 02/16/09					
Chloride	5.10	1.0	0.11	mg/L	5.00		102	85-120	4.00	15	
Fluoride	2.50	0.50	0.076	mg/L	2.50		100	80-120	4.08	15	
Phosphate	5.60	2.1	0.22	mg/L	5.00		112	80-120	1.80	15	
Sulfate	5.20	1.5	0.38	mg/L	5.00		104	81.5-120	0.00	20	
Matrix Spike (B9B1607-MS1)						Source: 0901301-10 Prepared & Analyzed: 02/16/09					
Chloride	5.20	1.0	0.11	mg/L	5.00	<1.0	104	80-120			
Fluoride	2.50	0.50	0.076	mg/L	2.50	<0.50	100	80-120			
Phosphate	6.00	2.1	0.22	mg/L	5.00	<2.1	120	80-120			
Sulfate	5.30	1.5	0.38	mg/L	5.00	<1.5	106	80-120			
Matrix Spike Dup (B9B1607-MSD1)						Source: 0901301-10 Prepared & Analyzed: 02/16/09					
Chloride	5.00	1.0	0.11	mg/L	5.00	<1.0	100	80-120	3.92	15	
Fluoride	2.50	0.50	0.076	mg/L	2.50	<0.50	100	80-120	0.00	15	
Phosphate	5.20	2.1	0.22	mg/L	5.00	<2.1	104	80-120	14.3	20	
Sulfate	5.20	1.5	0.38	mg/L	5.00	<1.5	104	80-120	1.90	15	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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Analytical Results - Quality Control
Davy Laboratories, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch N/A - No Prep											
BLK (0901301-BLK)											
							Prepared:	Analyzed: 02/20/09			
Ammonia as N	<0.19	0.19	--	mg/L		<0.19		-			
Nitrate/Nitrite as N	<0.90	0.90	--	mg/L		<0.90		-			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901301 Date Reported: 06/04/09
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Notes and Definitions

QR-2 Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.

M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable.

< Less than value listed

dry Sample results reported on a dry weight basis

NA Not applicable. The %RPD is not calculated from values less than the reporting limit.

MDL Method Detection Limit

RL Reporting Limit

RPD Relative Percent Difference

LCS Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)

MS Matrix Spike = Laboratory Fortified Matrix (LFM)

HLR/LS/TDFORMS/Chain of Custody Form RLG Rev 07/01/05

6901361

Chain of Custody
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

Project Number
23/19-0B056WAS330
Project Name
NO 26779

Sample Identification	Collection		Matrix Type			Number of Containers/Preservative										COC of																	
	Date	Time	Water	Soil	Comp	Water					Soil					Project Manager:	Project Contact:																
						OC	Grab	Volatiles Organics (Pres.) #1	Semivolatile Organics #2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	Cyanide (NaOH)	General (Unpreserved) #3	Nutrients (H ₂ SO ₄) #4	Oil and Grease (H ₂ SO ₄)			Sulfide (Zn Acetate)	Methane	Bacteria (Na ₂ S ₂ O ₃)	DRO (HCl)	VOCs (2-oz tared MeOH) #1	GRO, BTEX (2-oz tared MeOH) #1	DRO (2-oz tared) - 25 grams	Metals (2-oz unpreserved)	SVOCS (2 or 4-oz unpreserved) #2	% Moisture (plastic vial, unpres.)	Total No. Of Containers					
01 MW-E4-010	2/12/09	1030	✓	✓	✓	1	2	2																		5	Project Manager: Jim Eidem	Project Contact: MSH	Sampled by: KST	Laboratory: Legend	Remarks: See Attached list	Date	Time
02 MW-D3-007		1250	✓	✓	✓	1	2	2																		5					2/13/09	10:05	
03 MW-E2-202		1315	✓	✓	✓	1	2	2																		5							
04 MW-A3-003		1520	✓	✓	✓	1	2	2																		5							
05 MW-04-304		1730	✓	✓	✓	1	2	2																		5							
06 MW-C7-0042/009		1050	✓	✓	✓	1	2	2																		5							
07 MW-05-308		1245	✓	✓	✓	1	2	2																		5							
08 MW-B1-001		1510	✓	✓	✓	1	2	2																		5							
09 M-1			✓	✓	✓	1	2	2																		5							
10 FB-1		1530	✓	✓	✓	1	2	2																		5							
11																																	
12 *ENV 216/09 Per Maria																																	

Requisitioned By: Jim Eidem
Date: 2/13/09
On Ice? Y N
Date: _____
Date: _____
On Ice? Y N
Date: _____
Date: _____

Sample Shipped Via: Air Freight Federal Express Other

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

0901301

Groundwater Sampling Details -EIS			
23/19-0B05.03 GWAS 330			
UMore Park			
Dakota County, MN			
Analytical Parameters	Method Number	Reporting Limit (mg/L)	Comment
Aluminum	EPA 6010B	0.020	
Calcium	EPA 6010B	1.0	
Magnesium	EPA 6010B	1.0	
Iron	EPA 6010B	0.050	
Manganese	EPA 6010B	0.020	
Sodium	EPA 6010B	1.0	
Potassium	EPA 6010B		
Chloride	EPA 9056 (M)	1.0	
Bicarbonate	SM 2320B (97)	20	calculation
Sulfate	EPA 9056 (M)	1.5	
Nitrate + Nitrite (as N)	SM 4500-NO3F	0.20	subcontract
Ammonia	EPA 350.1	1.0	subcontract
TOC	SM 5310C	1.5	
TDS	SM 2540 C (97)	10	
Phosphate	EPA 9056 (M)	2.1	
Fluoride	EPA 9056 (M)	0.50	
Field Parameters			
Temp			
Conductivity			
pH			
ORP			

P:\Mpls\23 MN\19\2319B05 UMore park environmental\WorkFiles\EIS Support\Implementation\Groundwater\Sampling Parameters



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

June 04, 2009

REVISION

Ms. Marta Nelson
Barr Engineering Co.
4700 W 77th St
Minneapolis, MN 55435

Work Order Number: 0901983
RE: 23/19-0B05

This is a revised report. The details of the revision are listed in the case narrative on the following page.

Enclosed are the results of analyses for samples received by the laboratory on 04/10/09. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of the original report and then discarded unless other arrangements are made.

MDH Certification #027-123-295

Prepared by,
LEGEND TECHNICAL SERVICES, INC

Terri Olson
Client Manager II
tolson@legend-group.com

Erica Nastrom
QA/QC Coordinator
enastrom@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-C2-202	0901983-01	Water	04/10/09 10:50	04/10/09 17:07
MW-C2-002	0901983-02	Water	04/10/09 12:20	04/10/09 17:07
MW-B1-001	0901983-03	Water	04/10/09 00:00	04/10/09 17:07

Shipping Container Information

Default Cooler Temperature (°C): 1.9

Received on ice: Yes Temperature blank was present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (IH/ISO only): No
 Custody seals: No

Case Narrative:

MN Certification does not apply to the bicarbonate, chloride, sulfate, phosphate, or fluoride analyses.

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed. The ammonia as N and nitrate+nitrite as N analyses for the Clean Water Program were performed by Davy Laboratories, LaCrosse, WI, #055-999-151.

Phosphate recovery in the MS sample was below laboratory limits and the corresponding MS/MSD %RPD was above laboratory limits. Recoveries for this compound in the LCS/LCSD samples and the corresponding %RPD were within limits. The MS/MSD source sample was sample MW-C2-202.

At the client's request, this report was revised on June 4, 2009 to indicate that the metals were dissolved and not total. The values reported were unchanged.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-202 (0901983-01) Water Sampled: 04/10/09 10:50 Received: 04/10/09 17:07										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2106	04/21/09	04/21/09	EPA 6010B (Dissolved)	
Calcium	86	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.13	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.025	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	2.5	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	24	1.0	0.020	mg/L	1	"	"	"	"	
MW-C2-002 (0901983-02) Water Sampled: 04/10/09 12:20 Received: 04/10/09 17:07										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2106	04/21/09	04/21/09	EPA 6010B (Dissolved)	
Calcium	94	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	35	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.25	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	2.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	24	1.0	0.020	mg/L	1	"	"	"	"	
MW-B1-001 (0901983-03) Water Sampled: 04/10/09 00:00 Received: 04/10/09 17:07										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2106	04/21/09	04/21/09	EPA 6010B (Dissolved)	
Calcium	66	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	23	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.077	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.3	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	17	1.0	0.020	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-202 (0901983-01) Water Sampled: 04/10/09 10:50 Received: 04/10/09 17:07										
Bicarbonate as CaCO3	260	20		mg/L	1	B9D2211	04/22/09	04/22/09	SM 2320 B-97	
Total Dissolved Solids	410	10		mg/L	1	B9D1706	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	1.5	1.5	0.38	mg/L	1	B9D1605	04/16/09	04/20/09	SM 5310 C-00	
MW-C2-002 (0901983-02) Water Sampled: 04/10/09 12:20 Received: 04/10/09 17:07										
Bicarbonate as CaCO3	290	20		mg/L	1	B9D2211	04/22/09	04/22/09	SM 2320 B-97	
Total Dissolved Solids	440	10		mg/L	1	B9D1706	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	3.5	1.5	0.38	mg/L	1	B9D1605	04/16/09	04/20/09	SM 5310 C-00	
MW-B1-001 (0901983-03) Water Sampled: 04/10/09 00:00 Received: 04/10/09 17:07										
Bicarbonate as CaCO3	210	20		mg/L	1	B9D2211	04/22/09	04/22/09	SM 2320 B-97	
Total Dissolved Solids	330	10		mg/L	1	B9D1706	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	8.4	1.5	0.38	mg/L	1	B9D1605	04/16/09	04/20/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-202 (0901983-01) Water Sampled: 04/10/09 10:50 Received: 04/10/09 17:07										
Chloride	21	4.0	0.44	mg/L	4	B9D1409	04/14/09	04/14/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	04/14/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	M2, QR-04
Sulfate	50	6.0	1.5	mg/L	4	"	"	04/14/09	"	
MW-C2-002 (0901983-02) Water Sampled: 04/10/09 12:20 Received: 04/10/09 17:07										
Chloride	45	5.0	0.55	mg/L	5	B9D1409	04/14/09	04/14/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	04/14/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	26	1.5	0.38	mg/L	1	"	"	"	"	
MW-B1-001 (0901983-03) Water Sampled: 04/10/09 00:00 Received: 04/10/09 17:07										
Chloride	18	1.0	0.11	mg/L	1	B9D1409	04/14/09	04/14/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	12	1.5	0.38	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C2-202 (0901983-01) Water Sampled: 04/10/09 10:50 Received: 04/10/09 17:07										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	10.5	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-C2-002 (0901983-02) Water Sampled: 04/10/09 12:20 Received: 04/10/09 17:07										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	12.1	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-B1-001 (0901983-03) Water Sampled: 04/10/09 00:00 Received: 04/10/09 17:07										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	9.20	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
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Batch B9D2106 - EPA 200.7/3005A Digestion

Blank (B9D2106-BLK1)

Prepared & Analyzed: 04/21/09

Aluminum	< 0.020	0.020	0.00017	mg/L							
Calcium	< 1.0	1.0	0.0077	mg/L							
Iron	< 0.050	0.050	0.0047	mg/L							
Magnesium	< 1.0	1.0	0.045	mg/L							
Manganese	< 0.020	0.020	0.00048	mg/L							
Potassium	< 1.0	1.0	0.028	mg/L							
Sodium	< 1.0	1.0	0.020	mg/L							

LCS (B9D2106-BS1)

Prepared & Analyzed: 04/21/09

Aluminum	2.02	0.020	0.00017	mg/L	2.00		101	80-120			
Calcium	4.01	1.0	0.0077	mg/L	3.99		100	80-120			
Iron	2.00	0.050	0.0047	mg/L	2.00		100	80-120			
Magnesium	4.09	1.0	0.045	mg/L	3.99		102	80-120			
Manganese	0.405	0.020	0.00048	mg/L	0.399		102	80-120			
Potassium	1.84	1.0	0.028	mg/L	2.00		92.1	80-120			
Sodium	4.06	1.0	0.020	mg/L	3.99		102	80-120			

LCS Dup (B9D2106-BSD1)

Prepared & Analyzed: 04/21/09

Aluminum	2.09	0.020	0.00017	mg/L	2.00		105	80-120	3.39	20	
Calcium	4.13	1.0	0.0077	mg/L	3.99		104	80-120	3.16	20	
Iron	2.08	0.050	0.0047	mg/L	2.00		104	80-120	3.98	20	
Magnesium	4.22	1.0	0.045	mg/L	3.99		106	80-120	3.16	20	
Manganese	0.417	0.020	0.00048	mg/L	0.399		105	80-120	2.98	20	
Potassium	1.90	1.0	0.028	mg/L	2.00		94.8	80-120	2.85	20	
Sodium	4.15	1.0	0.020	mg/L	3.99		104	80-120	2.19	20	

Matrix Spike (B9D2106-MS1)

Source: 0901983-01

Prepared & Analyzed: 04/21/09

Aluminum	2.00	0.020	0.00017	mg/L	2.00	<0.020	100	75-125			
Calcium	89.6	1.0	0.0077	mg/L	3.99	85.6	101	75-125			
Iron	2.14	0.050	0.0047	mg/L	2.00	0.131	100	75-125			
Magnesium	32.0	1.0	0.045	mg/L	3.99	28.1	99.3	75-125			
Manganese	0.430	0.020	0.00048	mg/L	0.399	0.0245	102	75-125			
Potassium	4.54	1.0	0.028	mg/L	2.00	2.45	105	75-125			
Sodium	28.5	1.0	0.020	mg/L	3.99	24.1	111	75-125			

Matrix Spike Dup (B9D2106-MSD1)

Source: 0901983-01

Prepared & Analyzed: 04/21/09

Aluminum	2.03	0.020	0.00017	mg/L	2.00	<0.020	101	75-125	1.37	20	
Calcium	89.8	1.0	0.0077	mg/L	3.99	85.6	105	75-125	0.206	20	
Iron	2.17	0.050	0.0047	mg/L	2.00	0.131	102	75-125	1.18	20	
Magnesium	32.2	1.0	0.045	mg/L	3.99	28.1	103	75-125	0.459	20	
Manganese	0.437	0.020	0.00048	mg/L	0.399	0.0245	103	75-125	1.52	20	
Potassium	4.58	1.0	0.028	mg/L	2.00	2.45	106	75-125	0.783	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D2106 - EPA 200.7/3005A Digestion											
Matrix Spike Dup (B9D2106-MSD1)											
			Source: 0901983-01			Prepared & Analyzed: 04/21/09					
Sodium	28.6	1.0	0.020	mg/L	3.99	24.1	114	75-125	0.370	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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WET CHEMISTRY - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D1605 - General Prep											
Blank (B9D1605-BLK1) Prepared: 04/16/09 Analyzed: 04/20/09											
Total Organic Carbon	< 1.5	1.5	0.38	mg/L							
Duplicate (B9D1605-DUP1) Source: 0901983-01 Prepared: 04/16/09 Analyzed: 04/20/09											
Total Organic Carbon	1.42	1.5	0.38	mg/L		1.51			6.38	20	
Batch B9D1706 - General Prep											
Blank (B9D1706-BLK1) Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	< 10	10		mg/L							
Duplicate (B9D1706-DUP1) Source: 0901983-01 Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	425	10		mg/L		409			3.84	10	
Reference (B9D1706-SRM1) Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	22.0	10		mg/L	22.3		98.7	94.6-105.4			
Batch B9D2211 - General Prep											
Blank (B9D2211-BLK1) Prepared & Analyzed: 04/22/09											
Bicarbonate as CaCO3	< 20	20		mg/L							
Duplicate (B9D2211-DUP1) Source: 0901983-01 Prepared & Analyzed: 04/22/09											
Bicarbonate as CaCO3	254	20		mg/L		264			3.86	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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ANIONS 9056 - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D1409 - General Prep Dept 4											
Blank (B9D1409-BLK1)											
						Prepared & Analyzed: 04/14/09					
Chloride	< 1.0	1.0	0.11	mg/L							
Fluoride	< 0.50	0.50	0.076	mg/L							
Phosphate	< 2.1	2.1	0.22	mg/L							
Sulfate	< 1.5	1.5	0.38	mg/L							
LCS (B9D1409-BS1)											
						Prepared & Analyzed: 04/14/09					
Chloride	5.50	1.0	0.11	mg/L	5.00		110	85-120			
Fluoride	2.80	0.50	0.076	mg/L	2.50		112	80-120			
Phosphate	5.10	2.1	0.22	mg/L	5.00		102	80-120			
Sulfate	5.40	1.5	0.38	mg/L	5.00		108	81.5-120			
LCS Dup (B9D1409-BSD1)											
						Prepared & Analyzed: 04/14/09					
Chloride	5.50	1.0	0.11	mg/L	5.00		110	85-120	0.00	15	
Fluoride	2.90	0.50	0.076	mg/L	2.50		116	80-120	3.51	15	
Phosphate	5.10	2.1	0.22	mg/L	5.00		102	80-120	0.00	15	
Sulfate	5.20	1.5	0.38	mg/L	5.00		104	81.5-120	3.77	20	
Matrix Spike (B9D1409-MS1)											
						Source: 0901983-01					
						Prepared & Analyzed: 04/14/09					
Fluoride	2.90	0.50	0.076	mg/L	2.50	<0.50	112	80-120			
Phosphate	3.70	2.1	0.22	mg/L	5.00	<2.1	74.0	80-120			M2
Matrix Spike (B9D1409-MS2)											
						Source: 0901983-01					
						Prepared & Analyzed: 04/14/09					
Chloride	42.8	4.0	0.44	mg/L	20.0	21.2	108	80-120			
Sulfate	70.4	6.0	1.5	mg/L	20.0	50.4	100	80-120			
Matrix Spike Dup (B9D1409-MSD1)											
						Source: 0901983-01					
						Prepared & Analyzed: 04/14/09					
Fluoride	2.90	0.50	0.076	mg/L	2.50	<0.50	112	80-120	0.00	15	
Phosphate	4.80	2.1	0.22	mg/L	5.00	<2.1	96.0	80-120	25.9	20	QR-04
Matrix Spike Dup (B9D1409-MSD2)											
						Source: 0901983-01					
						Prepared & Analyzed: 04/14/09					
Chloride	43.6	4.0	0.44	mg/L	20.0	21.2	112	80-120	1.85	15	
Sulfate	70.0	6.0	1.5	mg/L	20.0	50.4	98.0	80-120	0.570	15	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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Analytical Results - Quality Control
Davy Laboratories, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch N/A - No Prep											
BLK (0901983-BLK)											
						Prepared:	Analyzed: 04/20/09				
Ammonia as N	<0.19	0.19	--	mg/L		<0.19		-			
Nitrate/Nitrite as N	<0.05	0.05	--	mg/L		<0.05		-			

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0901983 Date Reported: 06/04/09
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Notes and Definitions

QR-04	The RPD value for the MS/MSD was outside of QC acceptance limits. Data was accepted based on LCS and/or LCSD recovery and/or RPD values.
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
<	Less than value listed
dry	Sample results reported on a dry weight basis
NA	Not applicable. The %RPD is not calculated from values less than the reporting limit.
MDL	Method Detection Limit
RL	Reporting Limit
RPD	Relative Percent Difference
LCS	Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)
MS	Matrix Spike = Laboratory Fortified Matrix (LFM)

LEGEND

Technical Services, Inc.

www.legend-group.com

88 Empire Drive
St Paul, MN 55103
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Fax: 651-642-1239

09101983

Chain of Custody

4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

BARR

Project Number

2.3 / 1.9 - 0 B0.56111AS 330

Project Name

No. 28363

Sample Identification	Collection		Matrix Type			Total No. Of Containers	Remarks
	Date	Time	Water	Soil	Grab		
01 MW-02-202	4/10/09	1050	✓	✓	✓	5	See attached list
02 MW-02-002	↓	1200	✓	✓	✓	5	↓
03 MW-P1-001	↓	↓	✓	✓	✓	5	↓
04							
05							
06							
07							
08							
09							
10							
11							
12							

Number of Containers/Preservative

Water	
Soil	

Project Manager: Jim Eiden
Project Contact: MST
Sampled by: KST
Laboratory: Legend

Volatile Organics (Pres.) *1	
Semivolatile Organics *2	
Dissolved Metals (HNO ₃)	
Total Metals (HNO ₃)	
General (Unpreserved) *3	
Cyanide (NaOH)	
Nutrients (H ₂ SO ₄) *4	
Oil and Grease (H ₂ SO ₄)	
Sulfide (Zn Acetate)	
Methane	
Bacteria (Na ₂ S ₂ O ₃)	
DRO (HCl)	
VOCs (2-oz tared MeOH) *1	
GRO BTEX (2-oz tared MeOH) *1	
DRO (2-oz tared)	
Metals (2-oz unpreserved)	
SVOCS (2 or 4-oz unpres.) *2	
% Moisture (plastic vial, unpres.)	

Requested By: [Signature] Date: 4/10/09 Time: 10:00
Received By: [Signature] Date: 4/10/09 Time: 17:27

On Ice? Y N
Fernal Express Samples Shipped Via: Air Freight Other

Air Bill Number: _____

Common Parameter/Container - Preservation Key
*1 - Volatile Organics = BTEX, GRO, TPH, Full List
*2 - Semivolatile Organics = PAHs, PCB, Dioxins, Full List, Herbicide/Pesticide/PCBs
*3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
*4 - Nutrients = COD, TOC, Phosphorus, Ammonia

0901983

Groundwater Sampling Details -EIS			
23/19-0B05.03 GWAS 330			
UMore Park			
Dakota County, MN			
Analytical Parameters	Method Number	Reporting Limit (mg/L)	Comment
Aluminum	EPA 6010B	0.020	
Calcium	EPA 6010B	1.0	
Magnesium	EPA 6010B	1.0	
Iron	EPA 6010B	0.050	
Manganese	EPA 6010B	0.020	
Sodium	EPA 6010B	1.0	
Potassium	EPA 6010B		
Chloride	EPA 9056 (M)	1.0	
Bicarbonate	SM 2320B (97)	20	calculation
Sulfate	EPA 9056 (M)	1.5	
Nitrate + Nitrite (as N)	SM 4500-NO3F	0.20	subcontract
Ammonia	EPA 350.1	1.0	subcontract
TOC	SM 5310C	1.5	
TDS	SM 2540 C (97)	10	
Phosphate	EPA 9056 (M)	2.1	
Fluoride	EPA 9056 (M)	0.50	
Field Parameters			
Temp			
Conductivity			
pH			
ORP			

P:\Mpls\23 MN\19\2319805 UMore park environmental\WorkFiles\EIS Support\Implementation\Groundwater\Sampling Parameters



88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

June 04, 2009

REVISION

Ms. Marta Nelson
Barr Engineering Co.
4700 W 77th St
Minneapolis, MN 55435

Work Order Number: 0902035
RE: 23/19-0B05

This is a revised report. The details of the revision are listed in the case narrative on the following page.

Enclosed are the results of analyses for samples received by the laboratory on 04/15/09. If you have any questions concerning this report, please feel free to contact me.

All samples will be retained by LEGEND, unless consumed in the analysis, for 30 days from the date of the original report and then discarded unless other arrangements are made.

MDH Certification #027-123-295

Prepared by,
LEGEND TECHNICAL SERVICES, INC

Terri Olson
Client Manager II
tolson@legend-group.com

Erica Nastrom
QA/QC Coordinator
enastrom@legend-group.com

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-E2-209	0902035-01	Water	04/13/09 10:55	04/15/09 15:25
MW-E2-009	0902035-02	Water	04/13/09 12:10	04/15/09 15:25
MW-E2-305	0902035-03	Water	04/13/09 13:55	04/15/09 15:25
MW-E4-010	0902035-04	Water	04/13/09 16:05	04/15/09 15:25
MW-D3-007	0902035-05	Water	04/14/09 10:40	04/15/09 15:25
MW-D5-308	0902035-06	Water	04/14/09 13:10	04/15/09 15:25
FB-1	0902035-07	Water	04/14/09 13:35	04/15/09 15:25
MW-A3-003	0902035-08	Water	04/14/09 15:40	04/15/09 15:25
MW-C7-004	0902035-09	Water	04/15/09 10:10	04/15/09 15:25
MW-A6-006	0902035-10	Water	04/15/09 11:50	04/15/09 15:25
MW-C4-311	0902035-11	Water	04/15/09 13:55	04/15/09 15:25
M-1	0902035-12	Water	04/15/09 00:00	04/15/09 15:25

Shipping Container Information

Default Cooler Temperature (°C): 2.4

Received on ice: Yes Temperature blank was present Received on ice pack: No
 Received on melt water: No Ambient: No Acceptable (IH/ISO only): No
 Custody seals: No

Case Narrative:

MN Certification does not apply to the bicarbonate, chloride, sulfate, phosphate, or fluoride analyses.

This report contains data that were produced by a subcontracted laboratory certified for the fields of testing performed. The ammonia as N and nitrate+nitrite as N analyses for the Clean Water Program were performed by Davy Laboratories, LaCrosse, WI, #055-999-151.

Calcium and sodium recoveries in the MS for batch B8D2306 exceeded the laboratory control limits due to the analyte concentration being disproportionate to the spike level. Recoveries in the LCS/LCSD/MSD samples and the corresponding RPDs were within limits. The source sample used for this batch was MW-E2-209.

At the client's request, this report was revised on June 4, 2009 to indicate that the metals were dissolved and not total. The values reported were unchanged.

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E2-209 (0902035-01) Water Sampled: 04/13/09 10:55 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	58	1.0	0.0077	mg/L	1	"	"	"	"	M3
Iron	0.91	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	20	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.16	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.4	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	32	1.0	0.020	mg/L	1	"	"	"	"	M3
MW-E2-009 (0902035-02) Water Sampled: 04/13/09 12:10 Received: 04/15/09 15:25										
Aluminum	0.17	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	62	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.64	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	19	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.94	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	3.4	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	140	10	0.20	mg/L	10	"	"	04/27/09	"	
MW-E2-305 (0902035-03) Water Sampled: 04/13/09 13:55 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	70	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.29	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	20	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.19	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	2.5	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	43	10	0.20	mg/L	10	"	"	04/27/09	"	
MW-E4-010 (0902035-04) Water Sampled: 04/13/09 16:05 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	92	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.12	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	32	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.083	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.6	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	7.3	1.0	0.020	mg/L	1	"	"	"	"	
MW-D3-007 (0902035-05) Water Sampled: 04/14/09 10:40 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	83	1.0	0.0077	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-D3-007 (0902035-05) Water Sampled: 04/14/09 10:40 Received: 04/15/09 15:25										
Iron	0.066	0.050	0.0047	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Magnesium	29	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.084	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.9	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	15	1.0	0.020	mg/L	1	"	"	"	"	
MW-D5-308 (0902035-06) Water Sampled: 04/14/09 13:10 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	78	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.059	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	24	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.099	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.2	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	21	1.0	0.020	mg/L	1	"	"	"	"	
FB-1 (0902035-07) Water Sampled: 04/14/09 13:35 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	<1.0	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	<1.0	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	<0.020	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	<1.0	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	<1.0	1.0	0.020	mg/L	1	"	"	"	"	
MW-A3-003 (0902035-08) Water Sampled: 04/14/09 15:40 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	83	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	<0.050	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.023	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.4	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	4.8	1.0	0.020	mg/L	1	"	"	"	"	
MW-C7-004 (0902035-09) Water Sampled: 04/15/09 10:10 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	99	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.15	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	<0.020	0.020	0.00048	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C7-004 (0902035-09) Water Sampled: 04/15/09 10:10 Received: 04/15/09 15:25										
Potassium	1.2	1.0	0.028	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Sodium	13	1.0	0.020	mg/L	1	"	"	"	"	
MW-A6-006 (0902035-10) Water Sampled: 04/15/09 11:50 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	83	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.069	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	29	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	<0.020	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.6	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	6.7	1.0	0.020	mg/L	1	"	"	"	"	
MW-C4-311 (0902035-11) Water Sampled: 04/15/09 13:55 Received: 04/15/09 15:25										
Aluminum	0.38	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	37	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.50	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	19	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	0.17	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.1	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	51	10	0.20	mg/L	10	"	"	04/27/09	"	
M-1 (0902035-12) Water Sampled: 04/15/09 00:00 Received: 04/15/09 15:25										
Aluminum	<0.020	0.020	0.00017	mg/L	1	B9D2306	04/23/09	04/23/09	EPA 6010B (Dissolved)	
Calcium	99	1.0	0.0077	mg/L	1	"	"	"	"	
Iron	0.18	0.050	0.0047	mg/L	1	"	"	"	"	
Magnesium	28	1.0	0.045	mg/L	1	"	"	"	"	
Manganese	<0.020	0.020	0.00048	mg/L	1	"	"	"	"	
Potassium	1.2	1.0	0.028	mg/L	1	"	"	"	"	
Sodium	13	1.0	0.020	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E2-209 (0902035-01) Water Sampled: 04/13/09 10:55 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	280	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	H1
Total Dissolved Solids	280	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	14	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-E2-009 (0902035-02) Water Sampled: 04/13/09 12:10 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	380	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	H1
Total Dissolved Solids	660	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	140	15	3.8	mg/L	10	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-E2-305 (0902035-03) Water Sampled: 04/13/09 13:55 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	H1
Total Dissolved Solids	430	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	5.2	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-E4-010 (0902035-04) Water Sampled: 04/13/09 16:05 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	250	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	H1
Total Dissolved Solids	430	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	1.8	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-D3-007 (0902035-05) Water Sampled: 04/14/09 10:40 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	440	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	3.2	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-D5-308 (0902035-06) Water Sampled: 04/14/09 13:10 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	270	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	380	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	7.0	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
FB-1 (0902035-07) Water Sampled: 04/14/09 13:35 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	<20	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	23	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	2.2	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-A3-003 (0902035-08) Water Sampled: 04/14/09 15:40 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	280	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	370	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	<1.5	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-C7-004 (0902035-09) Water Sampled: 04/15/09 10:10 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	320	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	430	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	8.8	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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WET CHEMISTRY
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A6-006 (0902035-10) Water Sampled: 04/15/09 11:50 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	360	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	3.7	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
MW-C4-311 (0902035-11) Water Sampled: 04/15/09 13:55 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	260	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	360	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	11	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	
M-1 (0902035-12) Water Sampled: 04/15/09 00:00 Received: 04/15/09 15:25										
Bicarbonate as CaCO3	310	20		mg/L	1	B9D2814	04/28/09	04/28/09	SM 2320 B-97	
Total Dissolved Solids	410	10		mg/L	1	B9D1709	04/17/09	04/17/09	SM 2540 C-97	
Total Organic Carbon	8.8	1.5	0.38	mg/L	1	B9D2816	04/28/09	04/28/09	SM 5310 C-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E2-209 (0902035-01) Water Sampled: 04/13/09 10:55 Received: 04/15/09 15:25										
Chloride	1.6	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	13	1.5	0.38	mg/L	1	"	"	"	"	
MW-E2-009 (0902035-02) Water Sampled: 04/13/09 12:10 Received: 04/15/09 15:25										
Chloride	8.8	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	33	3.0	0.76	mg/L	2	"	"	04/17/09	"	
MW-E2-305 (0902035-03) Water Sampled: 04/13/09 13:55 Received: 04/15/09 15:25										
Chloride	22	2.0	0.22	mg/L	2	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	04/17/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	34	3.0	0.76	mg/L	2	"	"	04/17/09	"	
MW-E4-010 (0902035-04) Water Sampled: 04/13/09 16:05 Received: 04/15/09 15:25										
Chloride	35	5.0	0.55	mg/L	5	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	04/17/09	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	21	1.5	0.38	mg/L	1	"	"	"	"	
MW-D3-007 (0902035-05) Water Sampled: 04/14/09 10:40 Received: 04/15/09 15:25										
Chloride	20	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	27	1.5	0.38	mg/L	1	"	"	"	"	
MW-D5-308 (0902035-06) Water Sampled: 04/14/09 13:10 Received: 04/15/09 15:25										
Chloride	11	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	28	1.5	0.38	mg/L	1	"	"	"	"	
FB-1 (0902035-07) Water Sampled: 04/14/09 13:35 Received: 04/15/09 15:25										
Chloride	<1.0	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	<1.5	1.5	0.38	mg/L	1	"	"	"	"	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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ANIONS 9056
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A3-003 (0902035-08) Water Sampled: 04/14/09 15:40 Received: 04/15/09 15:25										
Chloride	13	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	29	1.5	0.38	mg/L	1	"	"	"	"	
MW-C7-004 (0902035-09) Water Sampled: 04/15/09 10:10 Received: 04/15/09 15:25										
Chloride	14	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	20	1.5	0.38	mg/L	1	"	"	"	"	
MW-A6-006 (0902035-10) Water Sampled: 04/15/09 11:50 Received: 04/15/09 15:25										
Chloride	15	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	30	3.0	0.76	mg/L	2	"	"	04/17/09	"	
MW-C4-311 (0902035-11) Water Sampled: 04/15/09 13:55 Received: 04/15/09 15:25										
Chloride	2.3	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	21	1.5	0.38	mg/L	1	"	"	"	"	
M-1 (0902035-12) Water Sampled: 04/15/09 00:00 Received: 04/15/09 15:25										
Chloride	14	1.0	0.11	mg/L	1	B9D1707	04/17/09	04/17/09	EPA 9056(M)	
Fluoride	<0.50	0.50	0.076	mg/L	1	"	"	"	"	
Phosphate	<2.1	2.1	0.22	mg/L	1	"	"	"	"	
Sulfate	20	1.5	0.38	mg/L	1	"	"	"	"	

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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E2-209 (0902035-01) Water Sampled: 04/13/09 10:55 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	0.10	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-E2-009 (0902035-02) Water Sampled: 04/13/09 12:10 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	5.15	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-E2-305 (0902035-03) Water Sampled: 04/13/09 13:55 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/20/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	10.9	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-E4-010 (0902035-04) Water Sampled: 04/13/09 16:05 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	16.2	0.25	0.10	mg/L	5	"	"	04/23/09	SM 4500 NO3-F-00	
MW-D3-007 (0902035-05) Water Sampled: 04/14/09 10:40 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	12.9	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-D5-308 (0902035-06) Water Sampled: 04/14/09 13:10 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	4.69	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
FB-1 (0902035-07) Water Sampled: 04/14/09 13:35 Received: 04/15/09 15:25										
Ammonia as N	0.20	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	<0.05	0.05	0.02	mg/L	1	"	"	04/23/09	SM 4500 NO3-F-00	
MW-A3-003 (0902035-08) Water Sampled: 04/14/09 15:40 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	7.17	0.05	0.02	mg/L	1	"	"	04/27/09	SM 4500 NO3-F-00	
MW-C7-004 (0902035-09) Water Sampled: 04/15/09 10:10 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	6.70	0.05	0.02	mg/L	1	"	"	04/27/09	SM 4500 NO3-F-00	
MW-A6-006 (0902035-10) Water Sampled: 04/15/09 11:50 Received: 04/15/09 15:25										

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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**Analytical Results
 Davy Laboratories, Inc.**

Analyte	Result	RL	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-A6-006 (0902035-10) Water Sampled: 04/15/09 11:50 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	8.08	0.05	0.02	mg/L	1	"	"	04/27/09	SM 4500 NO3-F-00	
MW-C4-311 (0902035-11) Water Sampled: 04/15/09 13:55 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	2.00	0.05	0.02	mg/L	1	"	"	04/27/09	SM 4500 NO3-F-00	
M-1 (0902035-12) Water Sampled: 04/15/09 00:00 Received: 04/15/09 15:25										
Ammonia as N	<0.19	0.19	0.05	mg/L	1	N/A		04/28/09	SM 4500 NH3 C-97	
Nitrate/Nitrite as N	6.05	0.05	0.02	mg/L	1	"	"	04/27/09	SM 4500 NO3-F-00	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
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Batch B9D2306 - EPA 200.7/3005A Digestion

Blank (B9D2306-BLK1)

Prepared & Analyzed: 04/23/09

Aluminum	< 0.020	0.020	0.00017	mg/L							
Calcium	< 1.0	1.0	0.0077	mg/L							
Iron	< 0.050	0.050	0.0047	mg/L							
Magnesium	< 1.0	1.0	0.045	mg/L							
Manganese	< 0.020	0.020	0.00048	mg/L							
Potassium	< 1.0	1.0	0.028	mg/L							
Sodium	< 1.0	1.0	0.020	mg/L							

LCS (B9D2306-BS1)

Prepared & Analyzed: 04/23/09

Aluminum	2.03	0.020	0.00017	mg/L	2.00		101	80-120			
Calcium	4.26	1.0	0.0077	mg/L	3.99		107	80-120			
Iron	2.11	0.050	0.0047	mg/L	2.00		105	80-120			
Magnesium	4.14	1.0	0.045	mg/L	3.99		104	80-120			
Manganese	0.415	0.020	0.00048	mg/L	0.399		104	80-120			
Potassium	1.85	1.0	0.028	mg/L	2.00		92.2	80-120			
Sodium	4.07	1.0	0.020	mg/L	3.99		102	80-120			

LCS Dup (B9D2306-BSD1)

Prepared & Analyzed: 04/23/09

Aluminum	2.04	0.020	0.00017	mg/L	2.00		102	80-120	0.823	20	
Calcium	4.07	1.0	0.0077	mg/L	3.99		102	80-120	4.41	20	
Iron	2.11	0.050	0.0047	mg/L	2.00		106	80-120	0.200	20	
Magnesium	4.12	1.0	0.045	mg/L	3.99		103	80-120	0.508	20	
Manganese	0.416	0.020	0.00048	mg/L	0.399		104	80-120	0.140	20	
Potassium	1.84	1.0	0.028	mg/L	2.00		91.9	80-120	0.352	20	
Sodium	4.04	1.0	0.020	mg/L	3.99		101	80-120	0.707	20	

Matrix Spike (B9D2306-MS1)

Source: 0902035-01

Prepared & Analyzed: 04/23/09

Aluminum	2.02	0.020	0.00017	mg/L	2.00	<0.020	101	75-125			
Calcium	62.7	1.0	0.0077	mg/L	3.99	57.5	129	75-125			M3
Iron	3.05	0.050	0.0047	mg/L	2.00	0.911	107	75-125			
Magnesium	24.8	1.0	0.045	mg/L	3.99	20.3	113	75-125			
Manganese	0.579	0.020	0.00048	mg/L	0.399	0.160	105	75-125			
Potassium	3.57	1.0	0.028	mg/L	2.00	1.44	107	75-125			
Sodium	37.3	1.0	0.020	mg/L	3.99	32.0	132	75-125			M3

Matrix Spike Dup (B9D2306-MSD1)

Source: 0902035-01

Prepared & Analyzed: 04/23/09

Aluminum	2.04	0.020	0.00017	mg/L	2.00	<0.020	102	75-125	0.697	20	
Calcium	62.3	1.0	0.0077	mg/L	3.99	57.5	119	75-125	0.667	20	
Iron	3.07	0.050	0.0047	mg/L	2.00	0.911	108	75-125	0.645	20	
Magnesium	24.7	1.0	0.045	mg/L	3.99	20.3	109	75-125	0.558	20	
Manganese	0.581	0.020	0.00048	mg/L	0.399	0.160	105	75-125	0.257	20	
Potassium	3.58	1.0	0.028	mg/L	2.00	1.44	107	75-125	0.128	20	

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DISSOLVED METALS ANALYSIS - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D2306 - EPA 200.7/3005A Digestion											
Matrix Spike Dup (B9D2306-MSD1)			Source: 0902035-01			Prepared & Analyzed: 04/23/09					
Sodium	37.0	1.0	0.020	mg/L	3.99	32.0	125	75-125	0.733	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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WET CHEMISTRY - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D1709 - General Prep											
Blank (B9D1709-BLK1) Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	< 10	10		mg/L							
Duplicate (B9D1709-DUP1) Source: 0902035-01 Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	304	10		mg/L		283			7.16	10	
Duplicate (B9D1709-DUP2) Source: 0902035-11 Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	340	10		mg/L		360			5.71	10	
Reference (B9D1709-SRM1) Prepared & Analyzed: 04/17/09											
Total Dissolved Solids	23.0	10		mg/L	23.5		97.9	95.3-105.5			
Batch B9D2814 - General Prep											
Blank (B9D2814-BLK1) Prepared & Analyzed: 04/28/09											
Bicarbonate as CaCO3	< 20	20		mg/L							
Duplicate (B9D2814-DUP1) Source: 0902035-01 Prepared & Analyzed: 04/28/09											
Bicarbonate as CaCO3	280	20		mg/L		280			0.00	20	
Duplicate (B9D2814-DUP2) Source: 0902035-10 Prepared & Analyzed: 04/28/09											
Bicarbonate as CaCO3	256	20		mg/L		262			2.32	20	
Reference (B9D2814-SRM1) Prepared & Analyzed: 04/28/09											
Bicarbonate as CaCO3	228	20		mg/L	220		104	0-200			
Batch B9D2816 - General Prep											
Blank (B9D2816-BLK1) Prepared & Analyzed: 04/28/09											
Total Organic Carbon	< 1.5	1.5	0.38	mg/L							
Duplicate (B9D2816-DUP1) Source: 0902035-01 Prepared & Analyzed: 04/28/09											
Total Organic Carbon	14.1	1.5	0.38	mg/L		14.0			0.925	20	
Duplicate (B9D2816-DUP2) Source: 0902035-11 Prepared & Analyzed: 04/28/09											
Total Organic Carbon	10.7	1.5	0.38	mg/L		10.7			0.00	20	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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ANIONS 9056 - Quality Control
Legend Technical Services, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch B9D1707 - General Prep Dept 4											
Blank (B9D1707-BLK1)						Prepared & Analyzed: 04/17/09					
Chloride	< 1.0	1.0	0.11	mg/L							
Fluoride	< 0.50	0.50	0.076	mg/L							
Phosphate	< 2.1	2.1	0.22	mg/L							
Sulfate	< 1.5	1.5	0.38	mg/L							
LCS (B9D1707-BS1)											
						Prepared & Analyzed: 04/17/09					
Chloride	5.40	1.0	0.11	mg/L	5.00		108	85-120			
Fluoride	2.80	0.50	0.076	mg/L	2.50		112	80-120			
Phosphate	5.90	2.1	0.22	mg/L	5.00		118	80-120			
Sulfate	5.20	1.5	0.38	mg/L	5.00		104	81.5-120			
LCS Dup (B9D1707-BSD1)											
						Prepared & Analyzed: 04/17/09					
Chloride	5.40	1.0	0.11	mg/L	5.00		108	85-120	0.00	15	
Fluoride	2.90	0.50	0.076	mg/L	2.50		116	80-120	3.51	15	
Phosphate	5.60	2.1	0.22	mg/L	5.00		112	80-120	5.22	15	
Sulfate	5.20	1.5	0.38	mg/L	5.00		104	81.5-120	0.00	20	
Matrix Spike (B9D1707-MS1)											
						Source: 0902035-07 Prepared & Analyzed: 04/17/09					
Chloride	5.50	1.0	0.11	mg/L	5.00	<1.0	110	80-120			
Fluoride	2.90	0.50	0.076	mg/L	2.50	<0.50	116	80-120			
Phosphate	5.80	2.1	0.22	mg/L	5.00	<2.1	116	80-120			
Sulfate	5.60	1.5	0.38	mg/L	5.00	<1.5	112	80-120			
Matrix Spike Dup (B9D1707-MSD1)											
						Source: 0902035-07 Prepared & Analyzed: 04/17/09					
Chloride	5.50	1.0	0.11	mg/L	5.00	<1.0	110	80-120	0.00	15	
Fluoride	2.90	0.50	0.076	mg/L	2.50	<0.50	116	80-120	0.00	15	
Phosphate	5.90	2.1	0.22	mg/L	5.00	<2.1	118	80-120	1.71	20	
Sulfate	5.60	1.5	0.38	mg/L	5.00	<1.5	112	80-120	0.00	15	

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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Analytical Results - Quality Control
Davy Laboratories, Inc.

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	%RPD	%RPD Limit	Notes
Batch N/A - No Prep											
BLK1 (0902035-BLK1)											
Nitrate/Nitrite as N	<0.05	0.05	--	mg/L							Prepared: Analyzed: 04/23/09 <0.05 -
BLK2 (0902035-BLK2)											
Ammonia as N	<0.19	0.19	--	mg/L							Prepared: Analyzed: 04/20/09 <0.19 -
BLK3 (0902035-BLK3)											
Nitrate/Nitrite as N	<0.05	0.05	--	mg/L							Prepared: Analyzed: 04/27/09 <0.05 -
BLK4 (0902035-BLK4)											
Ammonia as N	<0.19	0.19	--	mg/L							Prepared: Analyzed: 04/28/09 <0.19 -

Barr Engineering Co. 4700 W 77th St Minneapolis, MN 55435	Project: 23/19-0B05 Project Number: 23/19-0B05GWAS330 Project Manager: Ms. Marta Nelson	Work Order #: 0902035 Date Reported: 06/04/09
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Notes and Definitions

- M3 The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike recovery was acceptable.
- H1 Sample analysis performed past holding time.
- < Less than value listed
- dry Sample results reported on a dry weight basis
- NA Not applicable. The %RPD is not calculated from values less than the reporting limit.
- MDL Method Detection Limit
- RL Reporting Limit
- RPD Relative Percent Difference
- LCS Laboratory Control Spike = Blank Spike (BS) = Laboratory Fortified Blank (LFB)
- MS Matrix Spike = Laboratory Fortified Matrix (LFM)

LEGEND

Technical Services, Inc.

www.legend-group.com

88 Empire Drive
St Paul, MN 55103
Tel: 651-642-1150
Fax: 651-642-1239

0902035

Chain of Custody

4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

BARR

Project Number
23119-CBCS-GWAS-330
Project Name
NO 28362

Sample Identification	Collection		Matrix Type		Volatiles Organics (Pres.) *1	Semi-volatile Organics *2	Dissolved Metals (HNO3)	Total Metals (HNO3)	General (Unpreserved) *3	Cyanide (NaOH)	Nutrients (H2SO4) *4	Oil and Grease (H2SO4)	Sulfide (Zn Acetate)	Methane	Bacteria (Na2S2O3)	DRO (HCl)	VOCs (2-oz tared MeOH) *7	GRO, BTEX (2-oz tared MeOH) *7	DRO (2-oz tared) - 25 grams	Metals (2-oz unpreserved)	SVOCS (2 or 4-oz unpres.) *2	% Moisture (plastic vial, unpres.)	Total No. Of Containers	Remarks
	Date	Time	Water	Soil																				
1. M16-E2-209	4/14/09	1655	✓	✓	1	2	2																5	See attached list
2. M16-E2-009		1216	✓	✓	1	2	2																5	
3. M16-E2-305		1355	✓	✓	1	2	2																5	
4. M16-E4-016		1605	✓	✓	1	2	2																5	
5. M16-D3-009	4/14/09	1610	✓	✓	1	2	2																5	
6. M16-D5-303		1310	✓	✓	1	2	2																5	
7. FB-1		1335	✓	✓	1	2	2																5	
8. M16-A3-063		1510	✓	✓	1	2	2																5	
9. M16-C7-004	4/15/09	1610	✓	✓	1	2	2																5	
10. M16-A6-006		1150	✓	✓	1	2	2																5	
11. M16-C4-311		1335	✓	✓	1	2	2																5	
12. M-1		4/15/09			1	2	2																5	added by JH 4/15/09

Number of Containers/Preservative

Water: On Ice: Y N

Soil: On Ice: Y N

Received by: John B Date: 4/15/09 Time: 15:25

Received by: John B Date: 4/15/09 Time: 15:25

Air Bill Number: 242

Common Parameters/Container Preservation Key

*1 - Volatile Organics = BTEX, GRO, TPH, Full List

*2 - Semi-volatile Organics = PAHs, PCB, Dioxins, Full List, Herbicide/Pesticide/PCBs

*3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, T₃, Sulfate

*4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

0902035

Groundwater Sampling Details -EIS			
23/19-0B05.03 GWAS 330			
UMore Park			
Dakota County, MN			
Analytical Parameters	Method Number	Reporting Limit (mg/L)	Comment
Aluminum	EPA 6010B	0.020	
Calcium	EPA 6010B	1.0	
Magnesium	EPA 6010B	1.0	
Iron	EPA 6010B	0.050	
Manganese	EPA 6010B	0.020	
Sodium	EPA 6010B	1.0	
Potassium	EPA 6010B		
Chloride	EPA 9056 (M)	1.0	
Bicarbonate	SM 2320B (97)	20	calculation
Sulfate	EPA 9056 (M)	1.5	
Nitrate + Nitrite (as N)	SM 4500-NO3F	0.20	subcontract
Ammonia	EPA 350.1	1.0	subcontract
TOC	SM 5310C	1.5	
TDS	SM 2540 C (97)	10	
Phosphate	EPA 9056 (M)	2.1	
Fluoride	EPA 9056 (M)	0.50	
Field Parameters			
Temp			
Conductivity			
pH			
ORP			

P:\Mpls\23 MN\19\2319B05 UMore park environmental\WorkFiles\EIS Support\Implementation\Groundwater\Sampling Parameters



FIELD SAMPLING REPORT

Date: 2/16/2009

Project: 23/19-0B05

Contact: Jim Eidem
Barr Engineering Company
4700 W. 77th Street
Minneapolis, MN 55435-4803

Field Sampling

Groundwater monitoring at the Umore Park site was conducted on February 9-13, 2009. 13 groundwater monitoring wells were sampled for analysis listed on EIS table.

Field Report

Attachments:

- | | |
|--------------------------|------------------------------|
| * Field log cover sheet | * Meter calibration summary |
| * Field log data summary | * COC's # 26779, 26781 |
| * Field log data sheets | * Analytical parameter table |

Laboratory Analysis Status

Samples were delivered to Legend Technical Services for analysis. Refer to the chain-of-custody forms and parameter lists for exact analysis.

A handwritten signature in cursive script that reads "Kim Johannessen".

Kim Johannessen
Sr. Environmental Technician



**FIELD LOG COVER SHEET
WATER SAMPLING**

Client: Umore Park

Project No: 23/19-0B05

Technician: Kim Johannessen

Sampling Period: February 9-13, 2009

Date	Temperature	Wind Speed	Wind Direction	Cloud Cover
2/9/2009	32-45	10-20	SE	overcast/rain
2/10/2009	30-43	15-25	SE	overcast/rain
2/12/2009	24-34	10-20	NW	overcast
10/13/2009	20-27	5-15	WNW	overcast

Summary of Field Activities

- * Masked duplicate M-1 was collected at MW-C7-004
- * Field blank FB-1 was collected through pump and tubing after purging MW-B1-001
- * MW-C2-202 initial pH reading was 9.40 on 2/9/09; final reading was 7.66 on 2/12/09.
- * Water elevations were measured prior to purging/stabilizing monitoring wells.

WATER LEVEL SUMMARY

Project: UMORE PARK

Project Number: 23/19-0B05

Date:

Environmental Staff: KSJ & SDI

Monitoring Location	Measuring point elevation	Water level depth	Total well depth	Static water elevation	Comments
MW-B1-001	949.29	65.35	72.0	883.94	2/13/2009
MW-C2-002	951.17	65.56	76.6	885.61	2/9/2009
MW-C2-202	951.88	66.33	145.7	885.55	2/9/2009
MW-A3-003	942.95	72.12	83.8	870.83	2/12/2009
MW-C7-004	930.32	71.41	92.0	858.91	2/13/2009
MW-E2-305	940.73	54.13	77.0	886.60	2/10/2009
MW-A6-006	935.41	83.10	114.0	852.31	2/10/2009
MW-D3-007	945.49	61.04	71.8	884.45	2/12/2009
MW-D5-308	936.86	65.25	76.8	871.61	2/13/2009
MW-E2-009	949.37	62.91	69.6	886.46	2/10/2009
MW-E2-209	948.85	62.38	127.2	886.47	2/10/2009
MW-E4-010	940.15	57.46	73.6	882.69	2/12/2009
MW-C4-311	935.96	61.39	94.3	874.57	2/12/2009

FIELD DATA SUMMARY

Project: UMORE PARK

Project number: 23/19-0B05

Environmental Staff: KSJ

Monitoring location	Date	Temp (oC)	Conductivity @ 25	pH	Eh (mV)	D.O. (mg/l)
MW-C2-002	2/9/09	9.2	1205	6.94	-14	3.68
MW-E2-209	2/10/09	8.8	443	7.28	-104	0.3
MW-E2-009	"	9.0	536	7.27	96	4.59
MW-A6-006	"	9.9	546	7.27	54	5.87
MW-E2-305	"	8.9	589	7.01	8	3.5
MW-E4-010	2/12/09	8.9	758	7.06	33	5.98
MW-D3-007	"	8.7	711	7.09	89	7.75
MW-C2-202	"	7.3	647	7.66	-54	1.04
MW-A3-003	"	8.5	623	7.28	22	7.5
MW-C4-304	"	8.8	493	7.20	55	5.83
MW-C7-004	2/13/09	9.1	681	7.12	42	8.27
MW-D5-308	"	8.6	611	7.24	73	7.08
MW-B1-001	"	8.0	479	7.4	92	7.89



Barr Engineering Company Field Log Data Sheet

Client: UMORE PARK			Monitoring Point: MW-CZ-202							
Location: ROSEMOUNT			Date: 2/9/09							
Project #: 23/190B05GNAS330			Sample Time: pH high - no samples collected							
GENERAL DATA			STABILIZATION TEST							
Barr lock:	NO-									
Casing diameter:	2"		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance	
Total well depth:*	143.5		1155 67.6/206	8.6	55	9.40	-86	2.64	Cloudy green	
Static water level:*	66.33		1245 27.4/80	8.82	57	8.82	38	3.68	Clear	
Water depth:*	77.2		1315 1150	8.37	55	8.64	0	1.41	slightly cloudy	
Well volume: (gal)	13		1325 1270	8.89	58	9.10	17	0.36	slightly cloudy	
Purge method:	Submersible		1342 1770	9.03	52	8.04	22	0.85	Clear	
Sample method:	"									
Start time:	1140		Odor: none detected							
Stop time:	1340		Purge Appearance: begin - cloudy greenish / end - clear							
Duration: (minutes)	120		Sample Appearance: clear							
Rate, gpm:	1.2 l/m		Comments: @ 1250 lowered pump \approx 1' from well bottom & surged pump. Restarted pump @ 1310. Increased flow rate to 1 gpm @ 1330.							
Volume, purged:	\approx 200 liters									
Duplicate collected?	NO									
Sample collection by:	KSJ, SDI		CO2-	Mn2-	Fe(T)-	Fe2-				
Others present:										
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)										
CASING & CAP:			COLLAR:		LOCK:		OTHER:			
MW: groundwater monitoring well			WS: water supply well		SW: surface water		SE: sediment other:			
VOC-		semi-volatile-		general-		nutrient-		cyanide-	DRO-	Sulfide-
oil,grease-		bacteria-		total metal-		filtered metal-		methane-		filter-
Others:										

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>U More Park</i>			Monitoring Point: <i>MW-C2-002</i>					
Location: <i>Rosemount</i>			Date: <i>2/9/09</i>					
Project #: <i>23/19-OBOS 6 WAS 330</i>			Sample Time: <i>1510</i>					
GENERAL DATA			STABILIZATION TEST					
Barr lock:	<i>no-</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>76.6</i>	<i>65.72 / 1425/3g</i>	<i>8.96</i>	<i>56</i>	<i>7.22</i>	<i>-52</i>	<i>0.51</i>	<i>cloudy</i>
Static water level:*	<i>65.56</i>	<i>1435/8g</i>	<i>9.17</i>	<i>48</i>	<i>7.03</i>	<i>-16</i>	<i>1.45</i>	<i>clearing</i>
Water depth:*	<i>11</i>	<i>65.81 / 1445/13g</i>	<i>9.38</i>	<i>48</i>	<i>6.95</i>	<i>-11</i>	<i>3.04</i>	<i>clear</i>
Well volume: (gal)	<i>1.8</i>	<i>1455/18g</i>	<i>9.27</i>	<i>47</i>	<i>6.95</i>	<i>-13</i>	<i>3.47</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1505 23g</i>	<i>9.23</i>	<i>47</i>	<i>6.94</i>	<i>-14</i>	<i>3.68</i>	<i>"</i>
Sample method:	<i>"</i>			<i>1205</i>				
Start time:	<i>1420</i>	Odor: <i>none detected</i>						
Stop time:	<i>1505</i>	Purge Appearance: <i>begin - cloudy brown, silty / end - clear</i>						
Duration: (minutes)	<i>45</i>	Sample Appearance: <i>clear</i>						
Rate, gpm:	<i>.5</i>	Comments: <i>Conductivity readings suspect - final reading taken is accurate.</i>						
Volume, purged:	<i>23 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSS, SDI</i>							
Sample collection by:		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:			COLLAR:		LOCK:		OTHER:	
MW: groundwater monitoring well			WS: water supply well		SW: surface water		SE: sediment other:	
VOC- semi-volatile-		general-		nutrient- <i>1+</i>		cyanide-		DRO- Sulfide-
oil, grease- bacteria-		total metal-		filtered metal-		methane-		filter-
Others: <i>Snap pack - 1</i>								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK</u>		Monitoring Point: <u>MW-EZ-209</u>						
Location: <u>ROSEMOUNT</u>		Date: <u>2/10/09</u>						
Project #: <u>23/19-OBOS GWAS 330</u>		Sample Time: <u>1220</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>127.2^v</u>	<u>62.5/1135/25g</u>	<u>8.85</u>	<u>444</u>	<u>7.45</u>	<u>-103</u>	<u>1.65</u>	<u>cloudy</u>
Static water level:*	<u>62.38</u>	<u>114.5/30g</u>	<u>8.88</u>	<u>443</u>	<u>7.30</u>	<u>-89</u>	<u>0.79</u>	<u>clearing</u>
Water depth:*	<u>64.8</u>	<u>120.0/45g</u>	<u>8.84</u>	<u>444</u>	<u>7.28</u>	<u>-101</u>	<u>0.44</u>	<u>clear</u>
Well volume: (gal)	<u>11</u>	<u>121.0/55g</u>	<u>8.83</u>	<u>443</u>	<u>7.28</u>	<u>-104</u>	<u>0.30</u>	<u>"</u>
Purge method:	<u>Submersible</u>							
Sample method:	<u>"</u>							
Start time:	<u>1115</u>	Odor: <u>None detected</u>						
Stop time:	<u>1210</u>	Purge Appearance: <u>begin - cloudy brown / end - clear</u>						
Duration: (minutes)	<u>55</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>55 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KSJ, SDI</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- /	nutrient- /	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- /	methane-	filter- /			
Others: <u>Snap Cap - 1</u>								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK</u>		Monitoring Point: <u>MW-EZ-009</u>						
Location: <u>Rosemount</u>		Date: <u>2/10/09</u>						
Project #: <u>23/19 OBOS GWAS 330</u>		Sample Time: <u>1240</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>no</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>69.6</u>	<u>64.5/68</u> <u>1107/39</u>	<u>8.30</u>	<u>690</u>	<u>7.52</u>	<u>14</u>	<u>3.50</u>	<u>Slightly cloudy</u>
Static water level:*	<u>62.91</u>	<u>1124/17</u> <u>1137/19</u>	<u>8.59</u>	<u>649</u>	<u>7.40</u>	<u>39</u>	<u>3.55</u>	<u>clearing</u>
Water depth:*	<u>6.7</u>	<u>1137/152</u>	<u>8.86</u>	<u>609</u>	<u>7.29</u>	<u>93</u>	<u>4.12</u>	<u>clear</u>
Well volume: (gal)	<u>1</u>	<u>1157/212</u>	<u>8.97</u>	<u>571</u>	<u>7.25</u>	<u>97</u>	<u>4.34</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1217/290</u>	<u>8.98</u>	<u>551</u>	<u>7.26</u>	<u>99</u>	<u>4.81</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1237/330</u>	<u>9.02</u>	<u>536</u>	<u>7.27</u>	<u>94</u>	<u>4.59</u>	<u>"</u>
Start time:	<u>1047</u>	Odor: <u>none detected</u>						
Stop time:	<u>1237</u>	Purge Appearance: <u>begin - slightly cloudy / end - clear</u>						
Duration: (minutes)	<u>110</u>	Sample Appearance: <u>clear</u>						
Rate, gpm: <u>l/m</u>	<u>.3 l/m</u>	Comments:						
Volume, purged:	<u>33 liters</u>							
Duplicate collected?	<u>no</u>							
Sample collection by: <u>KBJ, SDI</u>								
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general-	nutrient-	+ cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others: <u>Snap pack - 1</u>								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK</u>		Monitoring Point: <u>MW-A6-006</u>						
Location: <u>Rosemount</u>		Date: <u>2/10/09</u>						
Project #: <u>23/19-OB05 GWAS 330</u>		Sample Time: <u>1445</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>YES</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>114.0</u>	^{83.20} <u>1345/10g</u>	<u>9.27</u>	<u>544</u>	<u>7.48</u>	<u>48</u>	<u>4.10</u>	<u>Cloudy</u>
Static water level:*	<u>83.10</u>	<u>1355/20g</u>	<u>9.49</u>	<u>545</u>	<u>7.30</u>	<u>53</u>	<u>4.35</u>	<u>"</u>
Water depth:*	<u>30.9</u>	<u>1405/30g</u>	<u>9.63</u>	<u>547</u>	<u>7.30</u>	<u>52</u>	<u>5.21</u>	<u>"</u>
Well volume: (gal)	<u>5</u>	<u>1425/40g</u>	<u>9.83</u>	<u>545</u>	<u>7.29</u>	<u>52</u>	<u>5.67</u>	<u>Clear</u>
Purge method:	<u>Submersible</u>	<u>1440/65g</u>	<u>9.87</u>	<u>546</u>	<u>7.27</u>	<u>54</u>	<u>5.87</u>	<u>"</u>
Sample method:	<u>"</u>							
Start time:	<u>1335</u>	Odor: <u>None detected</u>						
Stop time:	<u>1440</u>	Purge Appearance: <u>begin - cloudy brown, silty / end - clear</u>						
Duration: (minutes)	<u>65</u>	Sample Appearance: <u>Clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>65 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KSJ, SDI</u>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>1</u>	nutrient- <u>1/1</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others: <u>Snop pack - 1</u>								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: UMORE TRAK		Monitoring Point: MW-EZ-305						
Location: Rosemount		Date: 2/10/09						
Project #: 23/19-OBOS EWAS 330		Sample Time: 1720						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	no							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	77.0	56.3 1605/4g	8.70	656	7.91	-250	1.65	slightly cloudy
Static water level:*	54.13	1615/7g	8.86	689	7.52	-48	1.12	"
Water depth:*	22.9	1630/10g	8.82	645	7.38	-7	2.95	clear
Well volume: (gal)	3.7	1645/14g	8.83	609	7.24	5	3.12	"
Purge method:	Submersible	1700/18g	8.85	601	7.12	13	3.29	"
Sample method:	"	1715/22g	8.88	589	7.01	8	3.50	"
Start time:	1350	Odor: none detected						
Stop time:	1715	Purge Appearance: begin - med cloudy / end - clear						
Duration: (minutes)	85	Sample Appearance: clear						
Rate, gpm:	.25	Comments:						
Volume, purged:	27 gal							
Duplicate collected?	no							
Sample collection by:	KSJ							
		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- /	nutrient- / + /	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- /	methane-	filter- /			
Others: Snap Cap - /								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: UMORE PARK		Monitoring Point: MW-E4-010						
Location: Rosemount		Date: 2/12/09						
Project #: 23/19-0B05		Sample Time: 1030						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	NO							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	73.6	58.1 0925/4g	8.65	622	7.28	-68	3.35	slightly cloudy
Static water level:*	57.46	0940/8g	8.69	682	7.20	-31	4.28	clearing
Water depth:*	16.1	0950/10g	8.74	712	7.15	-12	4.68	clear
Well volume: (gal)	2.6	1000/12g	8.79	735	7.09	11	5.38	"
Purge method:	Submersible	1010/14g	8.84	749	7.05	25	5.78	"
Sample method:	"	1026/16g	8.87	758	7.06	33	5.98	"
Start time:	0910	Odor: none detected						
Stop time:	1020	Purge Appearance: begin - med cloudy brown / end - clear						
Duration: (minutes)	70	Sample Appearance: clear						
Rate, gpm:	.25	Comments:						
Volume, purged:	16gal							
Duplicate collected?	NO							
Sample collection by:	KST, SDI	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others: Snap cup - 1								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK</u>		Monitoring Point: <u>MW-D3-007</u>						
Location: <u>ROSEMOUNT</u>		Date: <u>2/12/09</u>						
Project #: <u>23/19-OB056WAS330</u>		Sample Time: <u>1250</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO-U</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>71.8</u>	<u>61.30 / 1150 / 4g</u>	<u>8.92</u>	<u>680</u>	<u>7.38</u>	<u>31</u>	<u>6.12</u>	<u>slightly cloudy</u>
Static water level:*	<u>61.04</u>	<u>1240 / 6g</u>	<u>8.85</u>	<u>668</u>	<u>7.30</u>	<u>39</u>	<u>6.87</u>	<u>clearing</u>
Water depth:*	<u>10.8</u>	<u>1210 / 9g</u>	<u>8.79</u>	<u>695</u>	<u>7.25</u>	<u>47</u>	<u>7.29</u>	<u>clear</u>
Well volume: (gal)	<u>1.8</u>	<u>1220 / 11g</u>	<u>8.71</u>	<u>703</u>	<u>7.18</u>	<u>70</u>	<u>7.26</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1230 / 13g</u>	<u>8.73</u>	<u>708</u>	<u>7.14</u>	<u>80</u>	<u>7.</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1240 / 15g</u>	<u>8.72</u>	<u>711</u>	<u>7.09</u>	<u>89</u>	<u>7.75</u>	<u>"</u>
Start time:	<u>1135</u>	Odor: <u>none detected</u>						
Stop time:	<u>1240</u>	Purge Appearance: <u>begin-med cloudy brown/end-clear</u>						
Duration: (minutes)	<u>65</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.25</u>	Comments:						
Volume, purged:	<u>15gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KSJ, SDI</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general-	nutrient- +	cyanide-		DRO-	Sulfide-	
oil,grease-	bacteria-	total metal-	filtered metal-	methane-		filter-		
Others: <u>Snap Cup - 1</u>								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company

Field Log Data Sheet

Client: <u>Umore Park</u>			Monitoring Point: <u>MW 02-202</u>					
Location:			Date: <u>2-12-09</u>					
Project #: <u>23190805</u>			Sample Time: <u>1315</u>					
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>N</u>							
Casing diameter:	<u>2</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>145.7</u>	<u>START 1015</u>	<u>8.47</u>	<u>632</u>	<u>8.89</u>	<u>-209.5</u>	<u>3.27</u>	<u>CLOUDY</u>
Static water level:*	<u>66.36</u>	<u>1041</u>	<u>7.82</u>	<u>654</u>	<u>8.40</u>	<u>-137.8</u>	<u>.75</u>	<u>-</u>
Water depth:*	<u>79.4</u>	<u>1107</u>	<u>7.53</u>	<u>656</u>	<u>8.10</u>	<u>-95.0</u>	<u>.82</u>	<u>-</u>
Well volume: (gal)	<u>13</u>	<u>1133</u>	<u>7.57</u>	<u>651</u>	<u>7.79</u>	<u>-49.7</u>	<u>1.04</u>	<u>-</u>
Purge method:	<u>1.5 sub.</u>	<u>1159</u>	<u>7.42</u>	<u>649</u>	<u>7.72</u>	<u>-61.9</u>	<u>1.00</u>	<u>-</u>
Sample method:	<u>GRAB</u>	<u>1225</u>	<u>7.31</u>	<u>647</u>	<u>7.66</u>	<u>-54.3</u>	<u>1.04</u>	<u>-</u>
Start time:	<u>1015</u>	Odor: <u>NA</u>						
Stop time:	<u>1315</u>	Purge Appearance: <u>CLOUDY → CLEAR</u>						
Duration (minutes):	<u>180</u>	Sample Appearance: <u>CLEAR</u>						
Rate, gpm:	<u>.5</u>	Comments: <u>1315 7.29 640 7.61 -50.0 1.01 1.09</u>						
Volume, purged:	<u>90 gal</u>							
Duplicate collected?	<u>-</u>							
Sample collection by:	<u>SDI, KST</u>	<u>CO2-</u>	<u>Mn2-</u>	<u>Fe(T)-</u>	<u>Fe2-</u>			
Others present:	<u>-</u>							
WELL INSPECTION (answer each category, state if lock replaced, detail any repairs needed on back of form, and notify project manager of any deficiencies)								
CASING & CAP:	COLLAR:	LOCK:	PLUG:					
FLOOD PROTECTION:	MDH WELL TAG:	OTHER:						
<input checked="" type="checkbox"/> MW: groundwater monitoring well	<input type="checkbox"/> WS: water supply well	<input type="checkbox"/> SW: surface water	<input type="checkbox"/> SE: sediment	other:				
VOC- <input type="checkbox"/> semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-			
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated



Barr Engineering Company Field Log Data Sheet

Client: <i>Umore Park</i>		Monitoring Point: <i>MW-A3-003</i>						
Location: <i>Rosemount</i>		Date: <i>2/12/09</i>						
Project #: <i>23/19-OBOS EWAS330</i>		Sample Time: <i>1520</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>no-u</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>83.8</i>	<i>725/1427/4g</i>	<i>8.36</i>	<i>620</i>	<i>7.69</i>	<i>96</i>	<i>8.18</i>	<i>Slightly cloudy</i>
Static water level:*	<i>72.12</i>	<i>1442/8g</i>	<i>8.40</i>	<i>623</i>	<i>7.47</i>	<i>45</i>	<i>7.69</i>	<i>clear</i>
Water depth:*	<i>11.7</i>	<i>1452/10g</i>	<i>8.51</i>	<i>624</i>	<i>7.33</i>	<i>11</i>	<i>7.61</i>	<i>"</i>
Well volume: (gal)	<i>1.9</i>	<i>1502/12g</i>	<i>8.45</i>	<i>623</i>	<i>7.30</i>	<i>18</i>	<i>7.52</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1512/14g</i>	<i>8.53</i>	<i>623</i>	<i>7.28</i>	<i>22</i>	<i>7.50</i>	<i>"</i>
Sample method:	<i>u</i>							
Start time:	<i>1412</i>	Odor: <i>none detected</i>						
Stop time:	<i>1512</i>	Purge Appearance: <i>begin - cloudy brown, silty and clear</i>						
Duration: (minutes)	<i>60</i>	Sample Appearance: <i>clear</i>						
Rate, gpm:	<i>.75</i>	Comments:						
Volume, purged:	<i>14 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSJ, SDI</i>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:	COLLAR:	LOCK:	OTHER:					
MW: groundwater monitoring well	WS: water supply well	SW: surface water	SE: sediment	other:				
VOC-	semi-volatile-	general- /	nutrient- / + /	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- /	methane-	filter- /			
Others:	<i>5 nap cup - 1</i>							

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>Umore Park</i>		Monitoring Point: <i>MW-CH-304(311)</i>						
Location: <i>Rosemount</i>		Date: <i>2/12/09</i>						
Project #: <i>23/19-OBOS EWAS 330</i>		Sample Time: <i>1730</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>no-ll.</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>94.3</i>	<i>63.5 1632/49</i>	<i>8.69</i>	<i>541</i>	<i>7.54</i>	<i>-132</i>	<i>2.06</i>	<i>Clear</i>
Static water level:*	<i>61.39</i>	<i>1647/89</i>	<i>8.74</i>	<i>524</i>	<i>7.39</i>	<i>-59</i>	<i>3.95</i>	<i>"</i>
Water depth:*	<i>32.9</i>	<i>1657/105</i>	<i>8.78</i>	<i>509</i>	<i>7.28</i>	<i>-4</i>	<i>4.87</i>	<i>"</i>
Well volume: (gal)	<i>5.4</i>	<i>1707/129</i>	<i>8.79</i>	<i>497</i>	<i>7.22</i>	<i>30</i>	<i>5.35</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1717/145</i>	<i>8.81</i>	<i>493</i>	<i>7.20</i>	<i>55</i>	<i>5.83</i>	<i>"</i>
Sample method:	<i>"</i>							
Start time:	<i>1617</i>	Odor: <i>None detected</i>						
Stop time:	<i>1717</i>	Purge Appearance: <i>begin - slightly cloudy/end - clear</i>						
Duration: (minutes)	<i>60</i>	Sample Appearance: <i>clear</i>						
Rate, gpm:	<i>,25</i>	Comments:						
Volume, purged:	<i>14 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSJ, SDI</i>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <i>2</i>	nutrient- <i>1+1</i>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	<i>1</i>	methane-	filter- <i>1</i>		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>Umore Park</u>			Monitoring Point: <u>MW-C7-004</u>						
Location: <u>Rosemount</u>			Date: <u>2/13/09</u>						
Project #: <u>23/19-OB05 GWAS 330</u>			Sample Time: <u>1050</u>						
GENERAL DATA			STABILIZATION TEST						
Barr lock:	<u>NO-U</u>								
Casing diameter:	<u>2"</u>		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>92.0</u>		<u>71.79</u> <u>0938/4g</u>	<u>9.00</u>	<u>677</u>	<u>7.39</u>	<u>-41</u>	<u>6.43</u>	<u>Slightly cloudy</u>
Static water level:*	<u>71.41</u>		<u>0953/8g</u>	<u>8.89</u>	<u>687</u>	<u>7.30</u>	<u>-24</u>	<u>6.95</u>	<u>"</u>
Water depth:*	<u>20.6</u>		<u>1003/10g</u>	<u>8.80</u>	<u>683</u>	<u>7.23</u>	<u>4</u>	<u>7.38</u>	<u>"</u>
Well volume: (gal)	<u>3.4</u>		<u>1013/12g</u>	<u>8.87</u>	<u>682</u>	<u>7.18</u>	<u>20</u>	<u>7.98</u>	<u>"</u>
Purge method:	<u>Submersible</u>		<u>1023/14g</u>	<u>9.03</u>	<u>680</u>	<u>7.14</u>	<u>33</u>	<u>8.15</u>	<u>Clear</u>
Sample method:	<u>"</u>		<u>1033/16g</u>	<u>9.09</u>	<u>681</u>	<u>7.12</u>	<u>42</u>	<u>8.27</u>	<u>"</u>
Start time:	<u>0923</u>		Odor: <u>none detected</u>						
Stop time:	<u>1033</u>		Purge Appearance: <u>begin - med cloudy brown lend - clear</u>						
Duration: (minutes)	<u>70</u>		Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.25</u>		Comments:						
Volume, purged:	<u>16 gal</u>								
Duplicate collected?	<u>M-1</u>								
Sample collection by:	<u>KSJ, SDI</u>								
Others present:			CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)									
CASING & CAP:			COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well			WS: water supply well		SW: surface water		SE: sediment other:		
VOC- semi-volatile-		general- <u>4</u>		nutrient- <u>4</u>		cyanide- DRO-		Sulfide-	
oil, grease- bacteria-		total metal-		filtered metal- <u>2</u>		methane-		filter- <u>1</u>	
Others:									

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>Umore Park</i>		Monitoring Point: <i>MW-05-308</i>						
Location: <i>Rosemount</i>		Date: <i>2/13/09</i>						
Project #: <i>23/19-0805 EWAS 330</i>		Sample Time: <i>1245</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>no-u</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>76.8</i>	<i>67.9 / 1203/49</i>	<i>8.50</i>	<i>634</i>	<i>7.50</i>	<i>94</i>	<i>6.53</i>	<i>slightly cloudy</i>
Static water level:*	<i>65.25</i>	<i>1218/89</i>	<i>8.52</i>	<i>621</i>	<i>7.39</i>	<i>56</i>	<i>7.10</i>	<i>clear</i>
Water depth:*	<i>11.6</i>	<i>1228/109</i>	<i>8.46</i>	<i>615</i>	<i>7.28</i>	<i>68</i>	<i>7.01</i>	<i>"</i>
Well volume: (gal)	<i>1.9</i>	<i>1238/129</i>	<i>8.64</i>	<i>611</i>	<i>7.24</i>	<i>73</i>	<i>7.08</i>	<i>"</i>
Purge method:	<i>Submersible</i>							
Sample method:	<i>"</i>							
Start time:	<i>1148</i>	Odor: <i>none detected</i>						
Stop time:	<i>1238</i>	Purge Appearance: <i>begin - med cloudy brown tend.</i>						
Duration: (minutes)	<i>50</i>	Sample Appearance: <i>slightly cloudy - clear</i>						
Rate, gpm:	<i>.25</i>	Comments:						
Volume, purged:	<i>12 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSJ, SDI</i>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <i>2</i>	nutrient- <i>2</i>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <i>1</i>	methane-	filter- <i>1</i>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>U more Park</i>		Monitoring Point: <i>MW-BT 001</i>						
Location: <i>Rosemount</i>		Date: <i>2/13/09</i>						
Project #: <i>23/19-OBOS E WAS. 330</i>		Sample Time: <i>1510</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>NO-U</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>72.0</i>	<i>66.41 1353/4g</i>	<i>7.57</i>	<i>455</i>	<i>8.04</i>	<i>37</i>	<i>4.95</i>	<i>Clear</i>
Static water level:*	<i>65.35</i>	<i>1408/8g</i>	<i>7.89</i>	<i>467</i>	<i>7.83</i>	<i>71</i>	<i>6.01</i>	<i>"</i>
Water depth:*	<i>6.7</i>	<i>1423/12g</i>	<i>8.07</i>	<i>475</i>	<i>7.59</i>	<i>76</i>	<i>6.89</i>	<i>"</i>
Well volume: (gal)	<i>1</i>	<i>1438/14g</i>	<i>7.99</i>	<i>478</i>	<i>7.41</i>	<i>84</i>	<i>7.38</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1453/20g</i>	<i>7.95</i>	<i>479</i>	<i>7.35</i>	<i>92</i>	<i>7.89</i>	<i>"</i>
Sample method:	<i>"</i>							
Start time:	<i>1338</i>	Odor: <i>none detected</i>						
Stop time:	<i>1453</i>	Purge Appearance: <i>begin - med cloudy brown/endl - clear</i>						
Duration: (minutes)	<i>75</i>	Sample Appearance: <i>clear</i>						
Rate, gpm:	<i>.25</i>	Comments:						
Volume, purged:	<i>20 gal</i>							
Duplicate collected?	<i>FB-1</i>							
Sample collection by:	<i>KSJ, SDI</i>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-		filter-		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR ENGINEERING COMPANY METER CALIBRATION SUMMARY

PROJECT UMORE PARK
TECHNICIAN RSD SD1

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
2/9/09	SE	10-20	32-45	overcast	rain
2/10/09	SE	15-25	30-43	overcast	rain
2/12/09	NW	10-20	24-34	overcast	
2/13/09	WNW	5-15	20-27	overcast	

Meter type and number	Date	Time	Temperature .C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 556	2/9/09	1020	11	7/10	7.00 / 10.00	1000 uS/cm	249 mV
"	2/10/09	0850	15	7/10	7.00 / 10.00	1000 uS/cm	244
"	2/12/09	0940	10	7/10	7.00 / 10.00	1000 uS/cm	251 mV
SD YSI 552	"	0915	15	7/10	7.00 / 10.00	1000 uS/cm	244
YSI 556	2/13/09	0855	12	7/10	7.00 / 10.00	1000 uS/cm	248

231+/- 10mV @ 25C
231mV = Display Value + [(Display Temp. - 25 C) x (1.3 mV)]

Chain of Custody

4700 West 77th Street
 Minneapolis, MN 55435-4803
 (952) 832-2600

BARR

Project Number
23/19-0B050WAS 330
 Project Name
26701

Sample Identification	Collection		Matrix	Type	Water	Soil	Grab	Comp.	OC	Number of Containers/Preservative										Total No. Of Containers	Remarks:			
	Date	Time								Water					Soil									
1. MW-C2-002	2/19/09	1510	✓	✓							1	2	2										5	Attached List
2. MW-E2-209	2/19/09	1220	✓	✓							1	2	2										5	
3. MW-E2-009		1240	✓	✓							1	2	2										5	
4. MW-A6-006		1445	✓	✓							1	2	2										5	
5. MW-E2-305		1720	✓	✓							1	2	2										5	
6.																								
7.																								
8.																								
9.																								
10.																								
11.																								
12.																								

COC _____ of _____
 Project Manager: Jim Eiders
 Project Contact: MSH
 Sampled by: KSS
 Laboratory: Legend

Refurbished By: Jim Eiders Date: 2/11/09
 Relinquished By: _____ Date: _____
 Samples Shipped VIA: Air Freight Federal Express Sampler Other

Common Parameter/Container - Preservation Key
 *1 - Volatile Organics = BTEX, GRO, TPH, Full List
 *2 - Semivolatile Organics = PAHs, PCF, Dioxins, Full List, Herbicide/Pesticide/PCBs
 *3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
 *4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Chain of Custody

4700 West 77th Street
 Minneapolis, MN 55435-4803
 (952) 832-2600

BARR

Project Number
23/19-0B056WAS330
 Project Name
26779

Sample Identification	Collection		Matrix	Type	Water	Soil	Grab	Comp.	OC
	Date	Time							
1. MW-E4-010	2/12/09	1030	✓	✓					
2. MW-D3-007		1250	✓	✓					
3. MW-E2-202 MW-02-202		1315	✓	✓					
4. MW-A3-003		1520	✓	✓					
5. MW-04-304		1730	✓	✓					
6. MW-C7-004	2/13/09	1050	✓	✓					
7. MW-05-308		1245	✓	✓					
8. MW-B1-001		1510	✓	✓					
9. M-1 (CF-004)			✓	✓					
10. FB-1		1530	✓	✓					
11.									
12.									

Common Parameter/Container - Preservation Key
 *1 - Volatile Organics = BTEX, GRO, TPH, Full List
 *2 - Semivolatile Organics = PAHs, PCB, Dioxins, Full List, Herbicide/Pesticide/PCBs
 *3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
 *4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Number of Containers/Preservative										Water		Soil										Total No. Of Containers	
Volatile Organics (Pres.)*1	Semivolatile Organics *2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	General (Unpreserved) *3	Cyanide (NaOH)	Nutrients (H ₂ SO ₄) *4	Oil and Grease (H ₂ SO ₄)	Sulfide (Zn Acetate)	Methane	Bacteria (Na ₂ S ₂ O ₃)	DRO (HCl)	VOCs (2-oz tared MeOH) *1	GRO, BTEX (2-oz tared MeOH) *1	DRO (2-oz tared) - 25 grams	Metals (2-oz unpreserved)	SVOCs (2 or 4-oz unpres.) *2	% Moisture (plastic vial, unpres.)	Total No. Of Containers					
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			
1	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5			

Remarks:
 See Attached list

COC _____ of _____
 Project Manager: Jim Eidson
 Project Contact: MST
 Sampled by: KST
 Laboratory: Legend

Relinquished By: Jim Eidson Date: 2/13/09
 Transmitted By: Jim Eidson Date: 2/13/09
 Received by: John AB Date: 2/13/09 Time: 16:05
 Air Bill Number: _____



**FIELD LOG COVER SHEET
WATER SAMPLING**

Client: Umore Park

Project No: 23/19-0B05

Technician: Kim Johannessen

Sampling Period: April 10,13,14,15, 2009

Date	Temperature	Wind Speed	Wind Direction	Cloud Cover
4/10/2009	36-52	5-10	NW	clear
4/13/2009	45-55	5-15	ESE	80%
4/14/2009	42-52	5-10	NE	clear
4/15/2009	46-60	5-15	ESE	clear

Summary of Field Activities

- * Masked duplicate M-1 was collected at MW-C7-004
- * Field blank FB-1 was collected through pump and tubing after purging MW-D5-308
- * Water elevations were measured prior to purging/stabilizing monitoring wells.



Barr Engineering Company Field Log Data Sheet

Client: <i>U MORE</i>	Monitoring Point: <i>MW-C2-202</i>
Location: <i>Rosemont</i>	Date: <i>4/16/09</i>
Project #: <i>23/19-CBC5 GWAS-330</i>	Sample Time: <i>1050</i>

GENERAL DATA	STABILIZATION TEST				
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Barr lock:	Time/Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
<i>NO-U</i>							
Casing diameter: <i>2"</i>							
Total well depth:* <i>143.5</i>	<i>0935/25</i>	<i>9.01</i>	<i>673</i>	<i>7.98</i>	<i>5</i>	<i>2.28</i>	<i>Clear</i>
Static water level:* <i>66.29</i>	<i>0947/37</i>	<i>9.24</i>	<i>675</i>	<i>7.77</i>	<i>7</i>	<i>2.44</i>	<i>"</i>
Water depth:* <i>77.2</i>	<i>0959/49</i>	<i>9.41</i>	<i>678</i>	<i>7.67</i>	<i>8</i>	<i>2.66</i>	<i>"</i>
Well volume: (gal) <i>12.6</i>	<i>1013/63</i>	<i>9.45</i>	<i>679</i>	<i>7.63</i>	<i>9</i>	<i>2.81</i>	<i>"</i>
Purge method: <i>Submersible</i>	<i>1026/85</i>	<i>9.48</i>	<i>682</i>	<i>7.56</i>	<i>10</i>	<i>2.73</i>	<i>"</i>
Sample method: <i>"</i>	<i>1038/88</i>	<i>9.52</i>	<i>681</i>	<i>7.51</i>	<i>12</i>	<i>2.60</i>	<i>"</i>
Start time: <i>0910</i>	Odor: <i>none detected</i>						
Stop time: <i>1038</i>	Purge Appearance: <i>begin - clear - green hue / end - clear</i>						
Duration: (minutes) <i>88</i>	Sample Appearance: <i>Clear</i>						
Rate, gpm: <i>1</i>	Comments: <i>Alkalinity = 247 mc e. (HACH)</i> <i>= 225 mc = (Chem itec)</i>						
Volume, purged: <i>88 gal</i>							
Duplicate collected? <i>no</i>							

Sample collection by: <i>KST, JDH</i>	CO2-	Mn2-	Fe(T)-	Fe2-
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Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP:	COLLAR:	LOCK:	OTHER:
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MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC-	semi-volatile-	general- <i>H1</i>	nutrient- <i>1+1</i>	cyanide-	DRO-	Sulfide-
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oil, grease-	bacteria-	total metal-	filtered metal- <i>/</i>	methane-	filter- <i>/</i>
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Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>U Note</i>				Monitoring Point: <i>MW-CZ-002</i>				
Location: <i>Rosemount</i>				Date: <i>4/10/09</i>				
Project #: <i>23/19-OB05</i>				Sample Time: <i>1220</i>				
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>NO - U</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>76.6</i>	<i>1147 / 6g</i>	<i>9.76</i>	<i>698</i>	<i>8.15</i>	<i>12</i>	<i>3.08</i>	<i>clear</i>
Static water level:*	<i>65.63</i>	<i>1151 / 8g</i>	<i>9.84</i>	<i>721</i>	<i>7.89</i>	<i>14</i>	<i>4.38</i>	<i>"</i>
Water depth:*	<i>11</i>	<i>1155 / 10g</i>	<i>9.91</i>	<i>729</i>	<i>7.70</i>	<i>15</i>	<i>5.12</i>	<i>"</i>
Well volume: (gal)	<i>2</i>	<i>1159 / 12g</i>	<i>9.95</i>	<i>738</i>	<i>7.53</i>	<i>14</i>	<i>5.60</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1203 / 14g</i>	<i>9.97</i>	<i>749</i>	<i>7.40</i>	<i>15</i>	<i>6.01</i>	<i>"</i>
Sample method:	<i>"</i>	<i>1211 / 18g</i>	<i>10.03</i>	<i>758</i>	<i>7.32</i>	<i>15</i>	<i>6.49</i>	<i>"</i>
Start time:	<i>1135</i>	Odor: <i>None detected</i>						
Stop time:	<i>1211</i>	Purge Appearance: <i>begin - slightly cloudy / end - clear</i>						
Duration: (minutes)	<i>36</i>	Sample Appearance: <i>Clear</i>						
Rate, gpm:	<i>.5</i>	Comments: <i>Alkalinity = 274 ml (Hack)</i> <i>" = 255 ml (Chemitrics)</i>						
Volume, purged:	<i>18 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSTJ, JDH</i>	CO2-	Mn2-	Fe(T)-	Fe2-	Others present:		
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile-	general- <i>+/</i>	nutrient- <i>+/</i>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <i>/</i>	methane-	filter- <i>/</i>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-B1-001</u>						
Location: <u>Rosemount</u>		Date: <u>4/10/09</u>						
Project #: <u>23/19-OBAS GWAS 330</u>		Sample Time: <u>1450 1535</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO-"u"</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>72.0</u>	<u>1407/3</u>	<u>10.21</u>	<u>523</u>	<u>8.29</u>	<u>12</u>	<u>6.38</u>	<u>Clear</u>
Static water level:*	<u>65.21</u>	<u>1419/4</u>	<u>10.18</u>	<u>517</u>	<u>8.18</u>	<u>13</u>	<u>6.85</u>	<u>"</u>
Water depth:*	<u>6.8</u>	<u>1415/5</u>	<u>10.09</u>	<u>512</u>	<u>8.05</u>	<u>14</u>	<u>7.39</u>	<u>"</u>
Well volume: (gal)	<u>1.1</u>	<u>1419/6</u>	<u>10.17</u>	<u>507</u>	<u>7.93</u>	<u>15</u>	<u>7.84</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1423/7</u>	<u>10.23</u>	<u>503</u>	<u>7.81</u>	<u>16</u>	<u>8.30</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1427/8</u>	<u>10.25</u>	<u>500</u>	<u>7.70</u>	<u>14</u>	<u>8.12</u>	<u>"</u>
Start time:	<u>1355</u>	Odor: <u>none detected</u>						
Stop time:	<u>1427</u>	Purge Appearance: <u>clear</u>						
Duration: (minutes)	<u>32</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.25</u>	Comments: <u>Alkalinity = 195 ml (HACH)</u> <u>180 ml (Chemistries)</u>						
Volume, purged:	<u>8 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KSJ</u>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>1/1</u>	nutrient- <u>1/1</u>	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company

Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-E2-209</u>						
Location: <u>ROSEMOUNT</u>		Date: <u>4/13/09</u>						
Project #: <u>23/19-OBOS6 WAS 330</u>		Sample Time: <u>1055</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>127.2</u>	<u>1013/33g</u>	<u>9.30</u>	<u>479</u>	<u>6.95</u>	<u>-13</u>	<u>0.76</u>	<u>Clear</u>
Static water level:*	<u>62.36</u>	<u>1024/44g</u>	<u>9.31</u>	<u>482</u>	<u>6.89</u>	<u>-14</u>	<u>0.81</u>	<u>"</u>
Water depth:*	<u>64.8</u>	<u>1035/55g</u>	<u>9.48</u>	<u>487</u>	<u>6.85</u>	<u>-13</u>	<u>0.52</u>	<u>"</u>
Well volume: (gal)	<u>11</u>	<u>1046/66g</u>	<u>9.54</u>	<u>490</u>	<u>6.83</u>	<u>-13</u>	<u>0.46</u>	<u>"</u>
Purge method:	<u>Submersible</u>							
Sample method:	<u>"</u>							
Start time:	<u>0940</u>	Odor: <u>none detected</u>						
Stop time:	<u>1046</u>	Purge Appearance: <u>clear</u>						
Duration: (minutes)	<u>66</u>	Sample Appearance: <u>Clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>66 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KSJ, JDH</u>							
		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal- <u>/</u>	methane-	filter- <u>/</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>	Monitoring Point: <u>MW-E2-009</u>
Location: <u>Rosemont</u>	Date: <u>4/13/09</u>
Project #: <u>23/19-OBOS GWAS 330</u>	Sample Time: <u>1210</u>

GENERAL DATA

STABILIZATION TEST

Bar lock:	NO							
Casing diameter:	2"	Time/Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	69.6	1140/37	10.22	670	7.00	-5	3.23	clear
Static water level:*	62.89	1150/37	10.26	676	6.93	-5	4.49	"
Water depth:*	6.7	1200/30	10.33	680	6.87	-6	5.09	"
Well volume: (gal)	1.1							
Purge method:	Submersible							
Sample method:	"							
Start time:	1125	Odor: <u>None detected</u>						
Stop time:	1200	Purge Appearance: <u>begin - slightly cloudy lead - clear</u>						
Duration: (minutes)	30	Sample Appearance: <u>clear</u>						
Rate, gpm:	.5	Comments:						
Volume, purged:	15 gal							
Duplicate collected?	NO							
Sample collection by:	KST, JDH							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- 2 nutrient- 2 cyanide- DRO- Sulfide-

oil, grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-EZ-305</u>						
Location: <u>Rosemount</u>		Date: <u>4/13/09</u>						
Project #: <u>23/19-OBOS GWAS 330</u>		Sample Time: <u>1355</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>77.0</u>	<u>1310/15g</u>	<u>10.09</u>	<u>707</u>	<u>6.79</u>	<u>-15</u>	<u>3.44</u>	<u>clear</u>
Static water level:*	<u>53.62</u>	<u>1320/25g</u>	<u>10.19</u>	<u>680</u>	<u>6.68</u>	<u>-12</u>	<u>3.80</u>	<u>"</u>
Water depth:*	<u>23.4</u>	<u>1330/35g</u>	<u>10.21</u>	<u>663</u>	<u>6.57</u>	<u>-10</u>	<u>5.31</u>	<u>"</u>
Well volume: (gal)	<u>4</u>	<u>1335/40g</u>	<u>10.30</u>	<u>648</u>	<u>6.56</u>	<u>-8</u>	<u>6.87</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1340/45g</u>	<u>10.28</u>	<u>641</u>	<u>6.45</u>	<u>-7</u>	<u>7.12</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1345/50g</u>	<u>10.29</u>	<u>637</u>	<u>6.51</u>	<u>-8</u>	<u>7.49</u>	<u>"</u>
Start time:	<u>1255</u>	Odor: <u>None detected</u>						
Stop time:	<u>1345</u>	Purge Appearance: <u>begin - slight greenish hue / end - clear</u>						
Duration: (minutes)	<u>50</u>	Sample Appearance: <u>Clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>50 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KSJ, JDH</u>							
Sample collection by:		CO2-	Mn2-	Fe(T)-	Fe2-	Others present:		
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	<u>1</u>	methane-	filter- <u>1</u>		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-E4-010</u>						
Location:		Date: <u>4/13/09</u>						
Project #: <u>23/19-CBOSGW48330</u>		Sample Time: <u>1405</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>no</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>73.6</u>	<u>1520/159</u>	<u>10.64</u>	<u>686</u>	<u>6.86</u>	<u>-10</u>	<u>6.42</u>	<u>clear</u>
Static water level:*	<u>57.42</u>	<u>1530/259</u>	<u>10.75</u>	<u>689</u>	<u>6.84</u>	<u>-9</u>	<u>6.95</u>	<u>"</u>
Water depth:*	<u>16.2</u>	<u>1535/30</u>	<u>10.58</u>	<u>691</u>	<u>6.76</u>	<u>-7</u>	<u>7.38</u>	<u>"</u>
Well volume: (gal)	<u>2.6</u>	<u>1540/35</u>	<u>10.57</u>	<u>692</u>	<u>6.70</u>	<u>-6</u>	<u>7.89</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1545/40</u>	<u>10.50</u>	<u>693</u>	<u>6.67</u>	<u>-6</u>	<u>8.29</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1555/45</u>	<u>10.56</u>	<u>693</u>	<u>6.70</u>	<u>-5</u>	<u>8.54</u>	<u>"</u>
Start time:	<u>1505</u>	Odor: <u>none detected</u>						
Stop time:	<u>1455</u>	Purge Appearance: <u>begin slightly cloudy and clear</u>						
Duration: (minutes)	<u>45</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>1</u>	Comments: <u>Alkalinity, total = 222 mg/L (HAET)</u> <u>" " 200 mg/L (Chemtrics)</u>						
Volume, purged:	<u>45 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KST, JDH</u>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>Umore (uofm)</i>		Monitoring Point: <i>MW-D3-007</i>						
Location: <i>Rosemount</i>		Date: <i>4/14/09</i>						
Project #: <i>23/19-OBOS GWAS 330</i>		Sample Time: <i>1040</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>no</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>71.8</i>	<i>0940/8g</i>	<i>9.89</i>	<i>662</i>	<i>7.56</i>	<i>81</i>	<i>3.76</i>	<i>clearing</i>
Static water level:*	<i>60.97</i>	<i>0950/13g</i>	<i>9.73</i>	<i>641</i>	<i>7.44</i>	<i>100</i>	<i>5.39</i>	<i>clear</i>
Water depth:*	<i>10.8</i>	<i>1000/18g</i>	<i>9.84</i>	<i>640</i>	<i>7.45</i>	<i>112</i>	<i>6.47</i>	<i>"</i>
Well volume: (gal)	<i>1.8</i>	<i>1010/23g</i>	<i>9.90</i>	<i>630</i>	<i>7.30</i>	<i>139</i>	<i>6.89</i>	<i>"</i>
Purge method:	<i>Submersible</i>	<i>1020/28g</i>	<i>9.95</i>	<i>637</i>	<i>7.27</i>	<i>153</i>	<i>7.38</i>	<i>"</i>
Sample method:	<i>"</i>	<i>1030/33g</i>	<i>9.93</i>	<i>636</i>	<i>7.29</i>	<i>158</i>	<i>7.81</i>	<i>"</i>
Start time:	<i>0925</i>	Odor: <i>none detected</i>						
Stop time:	<i>1030</i>	Purge Appearance: <i>begin - slightly cloudy / end - clear</i>						
Duration: (minutes)	<i>66</i>	Sample Appearance: <i>clear</i>						
Rate, gpm:	<i>.5</i>	Comments:						
Volume, purged:	<i>33 gal</i>							
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KST, JDH</i>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <i>2</i>	nutrient- <i>2</i>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <i> </i>	methane-	filter- <i> </i>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>11 MORE Park (WOFM)</u>		Monitoring Point: <u>MW-D5-308</u>						
Location: <u>Rosemount</u>		Date: <u>4/14/09</u>						
Project #: <u>23/19-CROSEWAS330</u>		Sample Time: <u>1310</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>76.8</u>	<u>1210/15g</u>	<u>14.14</u>	<u>594</u>	<u>8.20</u>	<u>+150</u>	<u>3.93</u>	<u>Clear</u>
Static water level:*	<u>65.01</u>	<u>1220/20g</u>	<u>14.00</u>	<u>587</u>	<u>7.97</u>	<u>112</u>	<u>4.87</u>	<u>"</u>
Water depth:*	<u>11.8</u>	<u>1230/25g</u>	<u>13.89</u>	<u>591</u>	<u>7.80</u>	<u>121</u>	<u>5.24</u>	<u>"</u>
Well volume: (gal)	<u>2</u>	<u>1240/30g</u>	<u>14.05</u>	<u>582</u>	<u>7.63</u>	<u>132</u>	<u>5.74</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1250/35g</u>	<u>14.24</u>	<u>580</u>	<u>7.52</u>	<u>137</u>	<u>6.03</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1300/40g</u>	<u>14.31</u>	<u>578</u>	<u>7.43</u>	<u>142</u>	<u>6.21</u>	<u>"</u>
Start time:	<u>1155</u>	Odor: <u>clear</u>						
Stop time:	<u>1300</u>	Purge Appearance: <u>begin - slightly cloudy / end - clear</u>						
Duration: (minutes)	<u>80</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.25</u>	Comments: <u>Equipment blank FB-1 collected through pump & tubing after MW-D5-308 De-con. (1335)</u>						
Volume, purged:	<u>40 gal</u>							
Duplicate collected?	<u>FB-1</u>							
Sample collection by:	<u>KST</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>12 MORE PAK (UoFM)</u>		Monitoring Point: <u>MW-43-003</u>						
Location: <u>Rosemount</u>		Date: <u>4/14/09</u>						
Project #: <u>23/19-OBOS WAS 330</u>		Sample Time: <u>1540</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>No</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>83.8</u>	<u>1458/4g</u>	<u>11.49</u>	<u>583</u>	<u>7.48</u>	<u>139</u>	<u>7.69</u>	<u>slightly cloudy</u>
Static water level:*	<u>72.07</u>	<u>1508/7g</u>	<u>11.48</u>	<u>582</u>	<u>7.41</u>	<u>154</u>	<u>7.57</u>	<u>"</u>
Water depth:*	<u>11.7</u>	<u>1518/9g</u>	<u>11.57</u>	<u>581</u>	<u>7.40</u>	<u>170</u>	<u>7.53</u>	<u>clear</u>
Well volume: (gal)	<u>2</u>	<u>1528/11g</u>	<u>11.42</u>	<u>580</u>	<u>7.43</u>	<u>178</u>	<u>7.59</u>	<u>"</u>
Purge method:	<u>Submersible</u>							
Sample method:	<u>"</u>							
Start time:	<u>1443</u>	Odor: <u>None detected</u>						
Stop time:	<u>1528</u>	Purge Appearance: <u>clear begin - cloudy brown brack-</u>						
Duration: (minutes)	<u>44</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.25</u>	Comments:						
Volume, purged:	<u>11 gal</u>							
Duplicate collected?	<u>No</u>							
Sample collection by:	<u>KSJ</u>							
		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-		filter- <u>1</u>		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>UMORE PARK (UofM)</i>		Monitoring Point: <i>MW-07-004</i>						
Location: <i>Rosemount</i>		Date: <i>4/15/09</i>						
Project #: <i>Z3/19-08056 WAS 330</i>		Sample Time: <i>1010</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>NO</i>							
Casing diameter:	<i>2"</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<i>92.0</i>	<i>0920/4g</i>	<i>10.56</i>	<i>617</i>	<i>7.45</i>	<i>94</i>	<i>6.12</i>	<i>Slightly cloudy</i>
Static water level:*	<i>71.50</i>	<i>0930/7g</i>	<i>10.65</i>	<i>631</i>	<i>7.32</i>	<i>83</i>	<i>6.39</i>	<i>"</i>
Water depth:*	<i>20.5</i>	<i>0940/10g</i>	<i>10.71</i>	<i>639</i>	<i>7.23</i>	<i>78</i>	<i>6.79</i>	<i>clearing</i>
Well volume: (gal)	<i>3.3</i>	<i>0950/13g</i>	<i>10.80</i>	<i>647</i>	<i>7.17</i>	<i>87</i>	<i>7.10</i>	<i>clear</i>
Purge method:	<i>Submersible</i>	<i>1000/16g</i>	<i>10.81</i>	<i>655</i>	<i>7.21</i>	<i>106</i>	<i>7.25</i>	<i>"</i>
Sample method:	<i>"</i>							
Start time:	<i>0905</i>	Odor: <i>None detected</i>						
Stop time:	<i>1000</i>	Purge Appearance: <i>begin - cloudy dark brown/leak - clear</i>						
Duration: (minutes)	<i>55</i>	Sample Appearance: <i>clear - slightly cloudy</i>						
Rate, gpm:	<i>.25</i>	Comments:						
Volume, purged:	<i>16 gal</i>	<i>Alkalinity = (total) = 282 mc (HACH)</i>						
Duplicate collected?	<i>M-1</i>	<i>" = 260 mc (chemtrics)</i>						
Sample collection by:	<i>RST, JDH</i>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile-	general- <i>2+2</i>	nutrient- <i>2+2</i>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <i>1+1</i>	methane-	filter- <i>1</i>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK (UoFM)</u>		Monitoring Point: <u>MW-A6-006</u>						
Location: <u>Rosemount</u>		Date: <u>4/15/09</u>						
Project #: <u>23/19-08056WAS330</u>		Sample Time: <u>1150</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>114.0</u>	<u>1113/15g</u>	<u>11.37</u>	<u>583</u>	<u>7.40</u>	<u>48</u>	<u>6.23</u>	<u>Slightly cloudy</u>
Static water level:*	<u>83.54</u>	<u>1123/20g</u>	<u>11.28</u>	<u>596</u>	<u>7.28</u>	<u>67</u>	<u>6.89</u>	<u>clearing</u>
Water depth:*	<u>30.5</u>	<u>1133/30g</u>	<u>11.31</u>	<u>599</u>	<u>7.37</u>	<u>96</u>	<u>7.29</u>	<u>clear</u>
Well volume: (gal)	<u>5</u>	<u>1143/40g</u>	<u>11.37</u>	<u>604</u>	<u>7.42</u>	<u>107</u>	<u>7.34</u>	<u>"</u>
Purge method:	<u>Submersible</u>							
Sample method:	<u>"</u>							
Start time:	<u>1058</u>	Odor: <u>None detected</u>						
Stop time:	<u>1143</u>	Purge Appearance: <u>begin - cloudy brown / end - clear</u>						
Duration: (minutes)	<u>45</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>40 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KSTJ, JDH</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE PARK (NoFM)</u>		Monitoring Point: <u>MW-04-311</u>						
Location: <u>Rosemount</u>		Date: <u>4/15/09</u>						
Project #: <u>23/19-0305 GWAS 330</u>		Sample Time: <u>1355</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>94.3</u>	<u>1300/159</u>	<u>11.32</u>	<u>484</u>	<u>7.82</u>	<u>-129</u>	<u>1.26</u>	<u>Slightly cloudy</u>
Static water level:*	<u>61.41</u>	<u>1310/26</u>	<u>11.32</u>	<u>489</u>	<u>7.70</u>	<u>-79</u>	<u>1.90</u>	<u>clear</u>
Water depth:*	<u>33</u>	<u>1320/25</u>	<u>11.30</u>	<u>486</u>	<u>7.60</u>	<u>-50</u>	<u>2.59</u>	<u>"</u>
Well volume: (gal)	<u>5.4</u>	<u>1330/45</u>	<u>11.32</u>	<u>487</u>	<u>7.57</u>	<u>-28</u>	<u>2.97</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1340/55</u>	<u>11.38</u>	<u>485</u>	<u>7.55</u>	<u>15</u>	<u>3.20</u>	<u>"</u>
Sample method:	<u>"</u>							
Start time:	<u>1245</u>	Odor: <u>None detected</u>						
Stop time:	<u>1340</u>	Purge Appearance: <u>begin-slightly cloudy end-clear</u>						
Duration: (minutes)	<u>55</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>55 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KSJ, JDH</u>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile-	general- <u>2</u>	nutrient- <u>2</u>	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-	<u>1</u>	methane-	filter- <u>1</u>		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

**BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY**

PROJECT W More Park
TECHNICIAN KST, JDH

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
4/10/09	NW	5-10	36-52	Clear	
4/13/09	ESE	5-15	45-55	80%	
4/14/09	NE	5-10	42-55	Clear	
4/15/09	ESE	5-15	46-60	Clear	

Meter type and number	Date	Time	Temperature .C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 550	4/10/09	0830	13	7/10	7.00/10.00	1000 µmhos	246 mV
"	4/13/09	0840	11	7/10	7.00/10.00	1077 µmhos	249 mV
"	4/14/09	0835	8	7/10	7.00/10.00	1000 µmhos	
"	4/15/09	0840	10	7/10	7.00/10.00	1000 µmhos	

231+- 10mV @ 25C

231mV = Display Value + [(Display Temp. - 25 C) x (1.3 mV/°C)]

Chain of Custody

4700 West 77th Street
 Minneapolis, MN 55435-4803
 (952) 832-2600



Project Number

23/19-0805GMA5330

Project Name

28363

Sample Identification	Collection		Matrix			Type
	Date	Time	Water	Soil	Grab	
1. MW-02-202	4/10/09	1050	✓		✓	GC
2. MW-02-002	↓	1200	✓		✓	
3. MW-02-001	↓		✓		✓	
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

Number of Containers/Preservative

Water		Soil									
On Ice?	Y	N	VOCs (2-oz tared MeOH) *1	GRO, BTEX (2-oz tared MeOH) *1	DRO (2-oz tared) - 25 grams	Metals (2-oz unpreserved)	SVOCs (2 or 4-oz unpres.) *2	% Moisture (plastic vial, unpres.)	Total No. Of Containers	COC of _____	
On Ice?	Y	N	1	2	2	2	2	2	5	Project Manager: <u>Jim Eiden</u>	
On Ice?	Y	N	1	2	2	2	2	2	5	Project Contact: <u>MSH</u>	
On Ice?	Y	N	1	2	2	2	2	2	5	Sampled by: <u>KST</u>	
On Ice?	Y	N								Laboratory: <u>Legal</u>	
On Ice?	Y	N								Remarks: <u>See attach list</u>	

Relinquished By: _____ Date: 4/10/09 Time: 13:07

Relinquished By: _____ Date: _____ Time: _____

Samples Shipped Via: Air Freight Federal Express Sampler

Air Bill Number: _____

Received by: EARL Date: 4/10/09 Time: 13:07

Received by: _____ Date: _____ Time: _____

Common Parameter/Container - Preservation Key

*1 - Volatile Organics = BTEX, GRO, TPH, Full List

*2 - Semivolatile Organics = PAHs, PCP, Dioxins, Full List, Pesticide/Pesticide/PCBs

*3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TS, Sulfate

*4 - Nutrients = COD, TOC, Phenols, Ammonia, Nitrogen, TKN

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

MAICE drop off 1.9°C

Chain of Custody

4700 West 77th Street
 Minneapolis, MN 55435-4803
 (952) 832-2600

BARR

Project Number

23/19-0.B.O.S.G.W.A.S.330

Project Name

20362

Sample Identification	Collection		Matrix		Type	
	Date	Time	Water	Soil	Grab	QC
1. MW-E2-209	4/13/09	1055	✓	✓	✓	✓
2. MW-E2-009		1210	✓	✓	✓	✓
3. MW-E2-305		1355	✓	✓	✓	✓
4. MW-E4-010		1605	✓	✓	✓	✓
5. MW-D3-007	4/14/09	1040	✓	✓	✓	✓
6. MW-D5-308		1310	✓	✓	✓	✓
7. FB-1		1335	✓	✓	✓	✓
8. MW-A3-003		1540	✓	✓	✓	✓
9. MW-C7-004	4/15/09	1010	✓	✓	✓	✓
10. MW-A6-006		1150	✓	✓	✓	✓
11. MW-C4-311		1335	✓	✓	✓	✓
12. M-1			✓	✓	✓	✓

Common Parameter/Container - Preservation Key

- *1 - Volatile Organics = BTEX, GRO, TPH, Full List
- *2 - Semivolatile Organics = PAHs, PCB, Dioxins, Full List, Herbicide/Pesticide/PCBs
- *3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, DS, TS, Sulfate
- *4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By: Alissa Thompson

On Ice? Y N Date: 4/15/09

Received by: Alissa Thompson Date: 4/15/09

Received by: Alissa Thompson Date: 4/15/09

Number of Containers/Preservative

Water		Soil																	
Volatiles (Pres.) *1	Semivolatile Organics *2	Dissolved Metals (HNO ₃)	Total Metals (HNO ₃)	General (Unpreserved) *3	Cyanide (NaOH)	Nutrients (H ₂ SO ₄) *4	Oil and Grease (H ₂ SO ₄)	Sulfide (Zn Acetate)	Methane	Bacteria (Na ₂ S ₂ O ₃)	DRO (HCl)	VOCs (2-oz tared MeOH) *1	GRO, BTEX (2-oz tared MeOH) *1	DRO (2-oz tared) - 25 grams	Metals (2-oz unpreserved)	SVOCs (2 or 4-oz unpres.) *2	% Moisture (plastic vial, unpres.)	Total No. Of Containers	
1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	5	5	5	5

Remarks:

See attached list

Project Manager: JME

Project Contact: MSH

Sampled by: KSJ, JDH

Laboratory: Legend

Time

Date

Time

Date

Time

Date

Time

Date

Time

Date

Time

Date

Time

Date

Time

Date

Samples Shipped Via: Air Freight Federal Express Sampler

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

24°C

WATER LEVEL SUMMARY

Project: UMORE PARK

Project Number: 23/19-0B05

Date:

Environmental Staff: KSJ, J04

Monitoring Location	Measuring point elevation	Water level depth	Total well depth	Static water elevation	Comments
* MW-B1-001	949.29	65.21	72.0	--	4/10/09
* MW-C2-002	951.17	65.63	76.6	--	4/10/09
* MW-C2-202	951.88	66.29	145.7	--	4/10/09
MW-A3-003	942.95	72.07	83.8	--	4/14/09
* MW-C7-004	930.32	71.50	92.0	--	4/15/09
MW-E2-305	940.73	53.62	77.0	--	4/13/09
MW-A6-006	935.41	83.54	114.0	--	4/15/09
MW-D3-007	945.49	60.97	71.8	--	4/14/09
MW-D5-308	936.86	65.01	76.8	--	4/14/09
MW-E2-009	949.37	62.89	69.6	--	4/13/09
MW-E2-209	948.85	62.36	127.2	--	4/13/09
* MW-E4-010	940.15	57.42	73.6	--	4/13/09
MW-C4-311	935.96	61.41	94.3	--	4/15/09
				--	

T00006 - 69.83 - Fee Top of Riser

Table E-1
 Comparison of Field and Laboratory Alkalinity Data
 Groundwater Assessment Report
 UMore Mining Area
 Dakota County, Minnesota

	Units	MW-C2-002 4/10/2009	MW-C2-202 4/10/2009	MW-B1-001 4/10/2009	MW-E4-010 4/13/2009	MW-C7-004 4/15/2009
Total Alkalinity (Hach Kit) (Field)	mg/L as CaCO ₃	274	247	195	222	282
P. Alkalinity (Hach kit)* (Field)	mg/L as CaCO ₃	0	0	0	0	0
Total Alkalinity (Chemets Kit) (Field)	mg/L as CaCO ₃	255	225	180	200	260
pH (Field)	S.U.	7.32	7.51	7.7	6.9	7.21
Bicarbonate Alkalinity (Lab- Legend)	mg/L as CaCO ₃	290	260	210	250	320

Phenolphthalein (P.) Alkalinity equals zero based Hach Field kit method. Bicarbonate alkalinity is equal to total alkalinity when Phenolphthalein alkalinity equals zero