MINNESOTA VALLEY TESTING LABORATORIES, INC.
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Report Date: 21 Jul 16
Lab Number: 16-W2421
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 9:59
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW13

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
pH	* 7.0	units	N/A	SM4500 H+ B	30 Jun 16 18:00	KMD
Total Suspended Solids	< 1	mg/l	1	I3765-85	1 Jul 16 11:19	ML
pH - Field	6.86	units	NA	SM 4500 H+ B	29 Jun 16 9:59	DJN
Temperature - Field	11.3	Degrees C	NA	SM 2550B	29 Jun 16 9:59	DJN
Total Alkalinity	492	mg/l CaCO3	20	SM2320-B	30 Jun 16 18:00	KMD
Conductivity - Field	10326	umhos/cm	1	EPA 120.1	29 Jun 16 9:59	DJN
Fluoride	0.92	mg/l	0.10	SM4500-F-C	30 Jun 16 18:00	KMD
Sulfate	6040	mg/l	5.00	ASTM D516-07	14 Jul 16 11:17	EMS
Chloride	77.2	mg/l	1.0	SM4500-Cl-E	7 Jul 16 13:37	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 12:32	EV
Total Dissolved Solids	8920	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	391	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Magnesium - Total	610	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Sodium - Total	1850	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Potassium - Total	22.6	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Lithium - Total	0.58	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	0.61	mg/l	0.10	6010	7 Jul 16 8:50	KMD
Calcium - Dissolved	399	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	630	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	1900	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	23.0	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.58	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.64	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Jul 16 13:30	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Barium - Total	0.0085	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Selenium - Total	0.0663	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Jul 16 19:08	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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CERTIFICATION: ND # ND-00016

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Report Date: 21 Jul 16
Lab Number: 16-W2421
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 9:59
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW13

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0072	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Dissolved	0.0749	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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Report Date: 21 Jul 16
Lab Number: 16-W2422
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 12:04
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW44R

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
pH	* 6.7	units	N/A	SM4500 H+ B	30 Jun 16 18:00	KMD
Total Suspended Solids	15	mg/l	1	I3765-85	1 Jul 16 11:19	ML
pH - Field	6.47	units	NA	SM 4500 H+ B	29 Jun 16 12:04	DJN
Temperature - Field	15.3	Degrees C	NA	SM 2550B	29 Jun 16 12:04	DJN
Total Alkalinity	447	mg/l CaCO3	20	SM2320-B	30 Jun 16 18:00	KMD
Conductivity - Field	9105	umhos/cm	1	EPA 120.1	29 Jun 16 12:04	DJN
Fluoride	0.67	mg/l	0.10	SM4500-F-C	30 Jun 16 18:00	KMD
Sulfate	5360	mg/l	5.00	ASTM D516-07	14 Jul 16 11:17	EMS
Chloride	237	mg/l	1.0	SM4500-Cl-E	7 Jul 16 13:37	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 12:32	EV
Total Dissolved Solids	7820	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	442	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Magnesium - Total	1020	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Sodium - Total	1050	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Potassium - Total	32.7	mg/l	1.0	6010	6 Jul 16 10:56	SZ
Lithium - Total	1.18	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	0.54	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	440	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	1020	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	1070	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	32.8	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	1.17	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.52	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Jul 16 13:30	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Barium - Total	0.0090	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Molybdenum - Total	0.0030	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Selenium - Total	0.0802	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Thallium - Total	0.0009	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Jul 16 19:08	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Report Date: 21 Jul 16
Lab Number: 16-W2422
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 12:04
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW44R

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0070	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Dissolved	0.0780	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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Report Date: 21 Jul 16
Lab Number: 16-W2423
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 14:25
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW103

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
pH	* 6.8	units	N/A	SM4500 H+ B	30 Jun 16 18:00	KMD
Total Suspended Solids	< 1	mg/l	1	I3765-85	1 Jul 16 11:19	ML
pH - Field	6.50	units	NA	SM 4500 H+ B	29 Jun 16 14:25	DJN
Temperature - Field	11.6	Degrees C	NA	SM 2550B	29 Jun 16 14:25	DJN
Total Alkalinity	449	mg/l CaCO3	20	SM2320-B	30 Jun 16 18:00	KMD
Conductivity - Field	4839	umhos/cm	1	EPA 120.1	29 Jun 16 14:25	DJN
Fluoride	0.28	mg/l	0.10	SM4500-F-C	30 Jun 16 18:00	KMD
Sulfate	2550	mg/l	5.00	ASTM D516-07	14 Jul 16 11:17	EMS
Chloride	108	mg/l	1.0	SM4500-Cl-E	7 Jul 16 13:37	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 12:32	EV
Total Dissolved Solids	4600	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	530	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Magnesium - Total	476	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Sodium - Total	252	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Potassium - Total	20.0	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Lithium - Total	0.54	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	0.17	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	530	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	483	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	264	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	20.5	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.55	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.17	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Jul 16 13:30	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Barium - Total	0.0090	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Selenium - Total	0.0580	mg/l	0.0020	6020	6 Jul 16 13:30	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 13:30	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Jul 16 19:08	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC

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Report Date: 21 Jul 16
Lab Number: 16-W2423
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 14:25
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW103

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0103	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Dissolved	0.0716	mg/l	0.0020	6020	18 Jul 16 13:59	CC
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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The reporting limit was elevated for any analyte requiring a dilution as coded below:
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! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

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Report Date: 21 Jul 16
Lab Number: 16-W2424
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 17:50
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW102

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
pH	* 7.0	units	N/A	SM4500 H+ B	30 Jun 16 18:00	KMD
Total Suspended Solids	10	mg/l	1	I3765-85	1 Jul 16 11:19	ML
pH - Field	6.74	units	NA	SM 4500 H+ B	29 Jun 16 17:50	DJN
Temperature - Field	12.4	Degrees C	NA	SM 2550B	29 Jun 16 17:50	DJN
Total Alkalinity	541	mg/l CaCO3	20	SM2320-B	30 Jun 16 18:00	KMD
Conductivity - Field	7746	umhos/cm	1	EPA 120.1	29 Jun 16 17:50	DJN
Fluoride	0.22	mg/l	0.10	SM4500-F-C	30 Jun 16 18:00	KMD
Sulfate	4750	mg/l	5.00	ASTM D516-07	14 Jul 16 11:17	EMS
Chloride	4.2	mg/l	1.0	SM4500-Cl-E	7 Jul 16 13:37	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 12:32	EV
Total Dissolved Solids	6600	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	481	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Magnesium - Total	356	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Sodium - Total	1230	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Potassium - Total	16.2	mg/l	1.0	6010	6 Jul 16 11:56	SZ
Lithium - Total	0.63	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	1.18	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	494	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	368	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	1260	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	16.8	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.62	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	1.22	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Jul 16 19:08	CC
Arsenic - Total	0.0030	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Barium - Total	0.0243	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Total	0.0020	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Jul 16 19:08	CC
Arsenic - Dissolved	0.0030	mg/l	0.0020	6020	6 Jul 16 19:08	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 21 Jul 16
Lab Number: 16-W2424
Work Order #:82-1918
Account #: 002800
Date Sampled: 29 Jun 16 17:50
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR June Event 2016
Sample Description: MW102

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0276	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	0.0021	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Dissolved	< 0.01 ^	mg/l	0.0020	6020	6 Jul 16 19:08	CC
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Jul 16 19:08	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Quality Control Report

Lab IDs: 16-W2419 to 16-W2424 **Project:** MDU Heskett CCR June Event 2016 **Work Order:** 201682-1918

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Boron - Total mg/l	0.40 0.40 0.40	115 108 112	80-120 80-120 80-120	0.400 1.50 1.50 1.50	16-W2365 16-W2421 16-W2450 16-W2421	0.40 0.71 0.43 0.61	0.79 2.22 1.98 2.06	98 101 103 97	75-125 75-125 75-125 75-125	0.79 2.22 1.98 2.06	0.79 2.26 2.02 2.10	98 103 106 99	0.0 1.8 2.0 1.9	20 20 20 20	- - - - - - -	- - - - - - -	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
Cadmium - Dissolved mg/l	0.1000	107	80-120	0.100	16-W2424	< 0.0005	0.1076	108	75-125	0.1076	0.1058	106	1.7	20	-	-	< 0.0005
Cadmium - Total mg/l	0.1000 0.1000	107 107	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.4496 0.4410 0.4460 0.1076	112 110 112 108	75-125 75-125 75-125 75-125	0.4496 0.4410 0.4460 0.1076	0.4442 0.4528 0.4592 0.1058	111 113 115 106	1.2 2.6 2.9 1.7	20 20 20 20	- - - -	- - - -	< 0.0005 < 0.0005
Calcium - Dissolved mg/l	20.0 20.0	110 106	80-120 80-120	500	16w2421q	399	870	94	75-125	870	870	94	0.0	20	- -	- -	< 1
Calcium - Total mg/l	20.0 20.0 20.0	110 106 109	80-120 80-120 80-120	100 500 500	16W2408q 16W2421q 16W2423q	63.9 391 530	163 860 1010	99 94 96	75-125 75-125 75-125	163 860 1010	164 860 995	100 94 93	0.6 0.0 1.5	20 20 20	- - - - - - -	- - - - - - -	< 1 < 1 < 1 < 1 < 1 < 1 < 1
Chloride mg/l	30.0	88	80-120	30.0	16-W2403	2.9	27.5	82	80-120	27.5	28.2	84	2.5	20	- -	- -	< 1 < 1
Chromium - Dissolved mg/l	0.1000	100	80-120	0.100	16-W2424	< 0.002	0.1075	108	75-125	0.1075	0.1044	104	2.9	20	-	-	< 0.002
Chromium - Total mg/l	0.1000 0.1000	98 100	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	0.0029 < 0.002 < 0.002 < 0.002	0.4048 0.3906 0.4106 0.1075	100 98 103 108	75-125 75-125 75-125 75-125	0.4048 0.3906 0.4106 0.1075	0.3956 0.3932 0.4228 0.1044	98 98 106 104	2.3 0.7 2.9 2.9	20 20 20 20	- - - -	- - - -	< 0.002 < 0.002

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Quality Control Report

Lab IDs: 16-W2419 to 16-W2424 **Project:** MDU Heskett CCR June Event 2016 **Work Order:** 201682-1918

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Dissolved mg/l	0.1000	109	80-120	0.100	16-W2424	< 0.001	0.1138	114	75-125	0.1138	0.1143	114	0.4	20	-	-	< 0.001
Antimony - Total mg/l	0.1000	108	80-120	0.400	16W2289q	< 0.001	0.4506	113	75-125	0.4506	0.4502	113	0.1	20	-	-	< 0.001
	0.1000	109	80-120	0.400	16W2397q	< 0.001	0.4416	110	75-125	0.4416	0.4568	114	3.4	20	-	-	< 0.001
				0.400	16W2421q	< 0.001	0.4710	118	75-125	0.4710	0.4766	119	1.2	20	-	-	
				0.100	16W2424Dq	< 0.001	0.1138	114	75-125	0.1138	0.1143	114	0.4	20	-	-	
Arsenic - Dissolved mg/l	0.1000	109	80-120	0.100	16-W2424	0.0030	0.1204	117	75-125	0.1204	0.1202	117	0.2	20	-	-	< 0.002
Arsenic - Total mg/l	0.1000	106	80-120	0.400	16W2289q	< 0.002	0.4474	112	75-125	0.4474	0.4492	112	0.4	20	-	-	< 0.002
	0.1000	109	80-120	0.400	16W2397q	< 0.002	0.4392	110	75-125	0.4392	0.4548	114	3.5	20	-	-	< 0.002
				0.400	16W2421q	< 0.002	0.4694	117	75-125	0.4694	0.4748	119	1.1	20	-	-	
				0.100	16W2424Dq	0.0030	0.1204	117	75-125	0.1204	0.1202	117	0.2	20	-	-	
Barium - Dissolved mg/l	0.1000	106	80-120	0.100	16-W2424	0.0276	0.1306	103	75-125	0.1306	0.1318	104	0.9	20	-	-	< 0.002
Barium - Total mg/l	0.1000	104	80-120	0.400	16W2289q	0.1458	0.5870	110	75-125	0.5870	0.5786	108	1.4	20	-	-	< 0.002
	0.1000	106	80-120	0.400	16W2397q	0.0425	0.4678	106	75-125	0.4678	0.4582	104	2.1	20	-	-	< 0.002
				0.400	16W2421q	0.0085	0.4402	108	75-125	0.4402	0.4372	107	0.7	20	-	-	
				0.100	16W2424Dq	0.0276	0.1306	103	75-125	0.1306	0.1318	104	0.9	20	-	-	
Beryllium - Dissolved mg/l	0.1000	100	80-120	0.100	16-W2424	< 0.0005	0.1038	104	75-125	0.1038	0.1006	101	3.1	20	-	-	< 0.0005
Beryllium - Total mg/l	0.1000	106	80-120	0.400	16W2289q	< 0.0005	0.4416	110	75-125	0.4416	0.4282	107	3.1	20	-	-	< 0.0005
	0.1000	100	80-120	0.400	16W2397q	< 0.0005	0.4432	111	75-125	0.4432	0.4454	111	0.5	20	-	-	< 0.0005
				0.400	16W2421q	< 0.0005	0.4628	116	75-125	0.4628	0.4730	118	2.2	20	-	-	
				0.100	16-W2424d	< 0.0005	0.1038	104	75-125	0.1038	0.1006	101	3.1	20	-	-	
Boron - Dissolved mg/l	0.40	105	80-120	1.50	16-W2424	1.22	2.78	104	75-125	2.78	2.83	107	1.8	20	-	-	< 0.1
															-	-	< 0.1

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Quality Control Report

Lab IDs: 16-W2419 to 16-W2424 **Project:** MDU Heskett CCR June Event 2016 **Work Order:** 201682-1918

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cobalt - Dissolved mg/l	0.1000	100	80-120	0.100	16-W2424	0.0021	0.1066	104	75-125	0.1066	0.1059	104	0.7	20	-	-	< 0.002
Cobalt - Total mg/l	0.1000	98	80-120	0.400	16W2289q	< 0.002	0.4030	101	75-125	0.4030	0.3952	99	2.0	20	-	-	< 0.002
	0.1000	100	80-120	0.400	16W2397q	< 0.002	0.3960	99	75-125	0.3960	0.3970	99	0.3	20	-	-	< 0.002
				0.400	16W2421q	< 0.002	0.4134	103	75-125	0.4134	0.4252	106	2.8	20	-	-	
				0.100	16W2424Dq	0.0021	0.1066	104	75-125	0.1066	0.1059	104	0.7	20	-	-	
Fluoride mg/l	0.50	106	90-110	0.500	16-W2422	0.67	1.09	84	80-120	1.09	1.10	86	0.9	20	-	-	< 0.1
				0.500	16-W2423	0.28	0.76	96	80-120	0.76	0.76	96	0.0	20	-	-	< 0.1
Lead - Dissolved mg/l	0.1000	102	80-120	0.100	16-W2424	< 0.0005	0.0938	94	75-125	0.0938	0.0939	94	0.1	20	-	-	< 0.0005
Lead - Total mg/l	0.1000	100	80-120	0.400	16W2289q	0.0016	0.4066	101	75-125	0.4066	0.3942	98	3.1	20	-	-	< 0.0005
	0.1000	102	80-120	0.400	16W2397q	< 0.0005	0.3980	100	75-125	0.3980	0.4012	100	0.8	20	-	-	< 0.0005
				0.400	16W2421q	< 0.0005	0.3924	98	75-125	0.3924	0.3970	99	1.2	20	-	-	
				0.100	16W2424Dq	< 0.0005	0.0938	94	75-125	0.0938	0.0939	94	0.1	20	-	-	
Lithium - Dissolved mg/l	0.40	98	80-120	1.00	16-W2421	0.58	1.74	116	75-125	1.74	1.64	106	5.9	20	-	-	< 0.1
				1.00	16-W2459	1.81	2.97	116	75-125	2.97	2.92	111	1.7	20	-	-	< 0.1
															-	-	< 0.1
Lithium - Total mg/l	0.40	92	80-120	0.400	16-W2421	0.58	0.98	100	75-125	0.98	0.96	95	2.1	20	-	-	< 0.1
				0.400	16-W2450	0.61	0.96	88	75-125	0.96	1.07	115	10.8	20	-	-	< 0.1
Magnesium - Dissolved mg/l	20.0	112	80-120	500	16w2421q	630	1100	94	75-125	1100	1110	96	0.9	20	-	-	< 1
	20.0	109	80-120												-	-	
Magnesium - Total mg/l	20.0	112	80-120	100	16W2408q	25.3	130	105	75-125	130	131	106	0.8	20	-	-	< 1
	20.0	109	80-120	500	16W2421q	610	1080	94	75-125	1080	1080	94	0.0	20	-	-	< 1
	20.0	110	80-120	500	16W2423q	476	965	98	75-125	965	955	96	1.0	20	-	-	< 1
															-	-	< 1
															-	-	< 1
															-	-	< 1
															-	-	< 1
Mercury - Dissolved mg/l	0.0020	100	85-115	0.002	16-W2428	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	16-W2447	< 0.0002	0.0019	95	70-130	0.0019	0.0019	95	0.0	20	-	-	

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Quality Control Report

Lab IDs: 16-W2419 to 16-W2424 **Project:** MDU Heskett CCR June Event 2016 **Work Order:** 201682-1918

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Mercury - Total mg/l	0.0020	105	85-115	0.002	16-W2453	< 0.0002	0.0019	95	70-130	0.0019	0.0020	100	5.1	20	-	-	< 0.0002
				0.002	16-W2472	< 0.0002	0.0019	95	70-130	0.0019	0.0019	95	0.0	20	-	-	
Molybdenum - Dissolved mg/l	0.1000	100	80-120	0.100	16-W2424	< 0.002	0.1038	104	75-125	0.1038	0.1006	101	3.1	20	-	-	< 0.002
Molybdenum - Total mg/l	0.1000	99	80-120	0.400	16W2289q	0.0135	0.4364	106	75-125	0.4364	0.4350	105	0.3	20	-	-	< 0.002
	0.1000	100	80-120	0.400	16W2397q	< 0.002	0.4338	108	75-125	0.4338	0.4522	113	4.2	20	-	-	< 0.002
				0.400	16W2421q	< 0.002	0.4708	118	75-125	0.4708	0.4778	119	1.5	20	-	-	
				0.100	16-W2424d	< 0.002	0.1038	104	75-125	0.1038	0.1006	101	3.1	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	6.5	6.6	-	1.5	20	-	-	-
	-	-	-	-	-	-	-	-	-	6.8	6.9	-	1.5	20	-	-	-
Potassium - Dissolved mg/l	10.0	103	80-120	100	16w2421q	23.0	124	101	75-125	124	124	101	0.0	20	-	-	< 1
	10.0	101	80-120												-	-	
Potassium - Total mg/l	10.0	103	80-120	20.0	16W2408q	4.1	24.3	101	75-125	24.3	24.4	102	0.4	20	-	-	< 1
	10.0	101	80-120	100	16W2421q	22.6	122	99	75-125	122	123	100	0.8	20	-	-	< 1
	10.0	101	80-120	100	16W2423q	20.0	120	100	75-125	120	120	100	0.0	20	-	-	< 1
															-	-	< 1
															-	-	< 1
															-	-	< 1
															-	-	< 1
Selenium - Dissolved mg/l	0.1000	106	80-120	0.100	16-W2424	0.0099	0.1306	121	75-125	0.1306	0.1272	117	2.6	20	-	-	< 0.002
	0.1000	114	80-120	0.100	16-W2425	0.0905	0.2035	113	75-125	0.2035	0.1990	108	2.2	20	-	-	< 0.002
Selenium - Total mg/l	0.1000	114	80-120	0.400	16W2289q	0.0030	0.4782	119	75-125	0.4782	0.4758	118	0.5	20	-	-	< 0.002
	0.1000	114	80-120	0.400	16W2397q	0.0079	0.5032	124	75-125	0.5032	0.4666	115	7.5	20	-	-	< 0.002
				0.400	16W2421q	0.0663	0.5492	121	75-125	0.5492	0.6040	134	9.5	20	-	-	
				0.100	16W2424Dq	< 0.002	0.1306	131	75-125	0.1306	0.1272	127	2.6	20	-	-	
Sodium - Dissolved mg/l	20.0	107	80-120	500	16w2421q	1900	2290	78	75-125	2290	2280	76	0.4	20	-	-	< 1
	20.0	107	80-120												-	-	

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Quality Control Report

Lab IDs: 16-W2419 to 16-W2424 **Project:** MDU Heskett CCR June Event 2016 **Work Order:** 201682-1918

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Sodium - Total mg/l	20.0 20.0 20.0	108 107 107	80-120 80-120 80-120	100 500 500	16W2408q 16W2421q 16W2423q	136 1850 252	233 2250 755	97 80 101	75-125 75-125 75-125	233 2250 755	233 2240 755	97 78 101	0.0 0.4 0.0	20 20 20	- - - - - - -	- - - - - - -	< 1 < 1 < 1 < 1 < 1 < 1 < 1
Sulfate mg/l	100	96	90-110	200	16-W2416	144	325	90	80-120	325	321	88	1.2	20	-	-	< 5
Thallium - Dissolved mg/l	0.1000	101	80-120	0.100	16-W2424	< 0.0005	0.0942	94	75-125	0.0942	0.0951	95	1.0	20	-	-	< 0.0005
Thallium - Total mg/l	0.1000 0.1000	100 101	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	0.0008 < 0.0005 < 0.0005 < 0.0005	0.4106 0.3994 0.3858 0.0942	102 100 96 94	75-125 75-125 75-125 75-125	0.4106 0.3994 0.3858 0.0942	0.4028 0.4008 0.3932 0.0951	100 100 98 95	1.9 0.3 1.9 1.0	20 20 20 20	- - - -	- - - -	< 0.0005 < 0.0005
Total Alkalinity mg/l CaCO3	410	93	90-110	410 410	16-W2421 16-W2424	492 541	868 912	92 90	80-120 80-120	868 912	866 917	91 92	0.2 0.5	20 20	94	80-120	< 20 < 20
Total Dissolved Solids mg/l	- -	- -	- -	- -	- -	- -	- -	- -	- -	2120 4290	2100 4280	- -	0.9 0.2	20 20	- -	- -	< 5
Total Suspended Solids mg/l	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	26 24 4 10	25 24 4 10	- - - -	3.9 0.0 0.0 0.0	20 20 * *	- - - -	- - - -	< 1 < 1

* Due to result < 10 mg/L, data reported based on acceptance criteria of Relative % Difference of +/- 3 mg/L.

Approved by: C. Canfield
21 JUL 16

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW13

Sampling Personal: Darren Wiesner

Weather Conditions: Temp: 71 °F Wind: Light Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	29.89	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	37.10	ft
Water Level After Sample:	30.57	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	0844 (am)/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	0959 (am)/pm

Bottle List:	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0849	11.87	10431	6.80	0.04	189.4	38.6	30.41	500	Clear
2	0854	11.64	10451	6.81	0.03	187.3	25.9	30.41	500	clear
3	0859	11.54	10421	6.81	0.03	184.0	16.8	30.49	500	clear
4	0904	11.45	10396	6.81	0.04	179.1	13.5	30.57	500	Clear
5	0909	12.16	10766	6.82	0.04	177.2	19.8	30.57	500	clear
6	0919	~~11.75~~	10375	~~6.83~~	0.04	170.6	22.7	30.57	1000	clear
7	0929	11.19	10354	6.83	0.04	168.3	24.0	30.57	1000	clear
8	0939	11.81	10336	6.85	0.04	164.3	10.8	30.57	1000	clear
9	0944	11.75	10337	6.85	0.04	163.2	7.98	30.57	~~1000~~ 500	clear
10	0949	11.57	10304	6.85	0.04	160.8	4.36	30.57	500	clear

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: — mL

Comments:

See next page

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW 13
Sampling Personal: Darren Niemann
Date: 29 June 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	0954	11.49	10323	6.86	0.04	159.4	4.22	30.57	500	clear
12	0959	11.34	10326	6.86	0.04	157.4	4.38	30.57	500	CL
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes No

Total Volume Removed: 7500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MW 44R
Sampling Personal:	Darren Nielsen

Weather Conditions: Temp: 77 °F Wind: Light Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	28.88 ft
Total Well Depth:	~ ft
Well Volume:	~ liters
Depth to Top of Pump:	35.16 ft
Water Level After Sample:	ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	10-15	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1124 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	29 June 16	Time of Sampling:	1204 am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	~~1134~~ ~~1127~~	16.46	9119	6.47	0.03	92.9	8.71	28.91	1000	clear
2	~~1139~~ ~~1134~~	15.56	9144	6.47	0.14	99.3	7.43	28.91	500	clear
3	1144	14.29	9155	6.47	0.43	105.7	3.33	28.93	500	clear
4	1149	13.91	9136	6.47	4.53	110.4	4.08	28.93	500	clear
5	1154	13.25	9138	6.47	5.62	112.4	3.80	28.93	500	clear
6	~~1159~~ ~~1204~~	13.32	9127	6.46	5.69	113.1	4.01	28.93	500	clear
7	1204	15.34	9105	6.47	5.56	112.8	3.96	28.93	500	clear
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW 103

Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 83 °F Wind: Light Precip: ~~Sunny~~ / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	33.49 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	40.74 ft
Water Level After Sample:	40.32 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	Dup-1		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1330 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	1425 am/~~pm~~

Bottle List:			
4 2 - 500 mL Nitric	4 2 - 1 Liter Raw	2 250 mL Sulfiric	
4 2 - 500 mL Nitric (filtered)		5 1 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1340 1	~~1335~~	12.53	5065	6.64	6.70	135.8	6.40	35.09	~~1000~~	clear
2	1345	11.61	5057	6.62	18.01	136.2	5.42	35.44	500	clear
3	1350	11.97	5048	6.62	10.12	136.9	4.28	35.65	500	clear
4	1355	12.55	5026	6.60	9.75	138.2	4.53	35.94	500	clear
5	1400	12.49	5038	6.61	9.39	139.3	3.85	36.18	500	clear
6	1405	12.45	4985	~~6.58~~ 6.58	9.41	140.2	4.05	36.34	500	clear
7	1410	11.97	4908	6.55	9.80	139.8	2.67	36.44	500	clear
8	1415	11.78	4860	6.46	9.94	140.3	1.62	37.04	500	clear
9	1420	11.84	4828	6.49	9.82	139.1	1.64	37.06	500	clear
10	1425	11.58	4839	6.50	9.63	138.6	1.73	37.10	500	clear

Stabilized: Yes No

Total Volume Removed: 5500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW102

Sampling Personal: Darren Nicswaag

Weather Conditions: Temp: 87 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.66	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	26.95	ft
Water Level After Sample:	21.52	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1700 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	1750 am/pm

Bottle List:	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1710	12.23	9433	6.71	9.44	-46.6	31.4	18.66	1000	clear
2	1720	11.76	9011	6.70	9.82	-42.7	17.9	18.98	1000	clear
3	1730	11.82	8422	6.70	9.74	-40.9	6.12	19.26	1000	clear
4	1735	11.60	8195	6.71	9.97	-43.6	3.97	19.44	500	clear
5	1740	12.47	7934	6.72	9.28	-44.9	2.40	19.50	500	clear
6	1745	12.17	7874	6.74	9.54	-50.0	2.48	19.73	500	clear
7	1750	12.39	7746	6.74	9.42	-52.3	2.29	19.73	500	clear
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 5000 mL

Comments:

MVTL **Laboratories, Inc.**
2616 E. Broadway
Bismarck, ND 58501
Phone (701) 258-9720

Chain of Custody Record

Project Name: MDU Heskett CCR Groundwater June Event 2016

Name of Sampler(s): Darren Nieswaag

Report To: MDU
Attn: Samantha Marshall
Address: 400 N. 4th St
Bismarck, ND 58501
Phone: 701-222-7829

Carbon Copy:
Attn:
Address:

Work Order Number: 82-1918

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Gradient	500 ml HNO_3	1 liter	500 ml HNO_3 (filtered)					Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W2419	Dup 1	29June16	NA	W		X	X	X					NA	NA	NA	MDU CCR List with TSS and Dissolved CCR Metals. No RadChem.
W2420	Field Blank (FB)	29June16	NA	W		X	X	X					NA	NA	NA	
W2421	MW13	29June16	0959	GW		X	X	X					11.34	10326	6.86	
W2422	MW44R	29June16	1204	GW		X	X	X					15.34	9105	6.47	
W2423	MW103	29June16	1425	GW		X	X	X					11.58	4839	6.50	
W2424	MW102	29June16	1750	GW		X	X	X					12.39	~~77~~ 2746 GW 29June16	6.74	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Darren Nieswaag	Walk in	29June16 1935	C. Jackson		30 Jun 16 0500	ROI 7.0
2							TM088
3							

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MEMBER ACIL

CASE NARRATIVE – AMENDED (RADIOCHEMISTRY RESULTS)

MVTL Lab Reference No/SDG: **201682-1920**
IML Lab Reference No/SDG: **S1607028**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR June 2016**
MVTL Laboratory Identifications: **16-W2431** through **16-W2436**
IML Laboratory Identifications: **S1607028-001** through **S1607028-006**

MDU Sample Identification	MVTL Laboratory #	IML Laboratory #
Dup1	16-W2431	S1607028-001
Field Blank (FB)	16-W2432	S1607028-002
MW13	16-W2433	S1607028-003
MW44R	16-W2434	S1607028-004
MW103	16-W2435	S1607028-005
MW102	16-W2436	S1607028-006

I. RECEIPT

- All samples were received at the laboratory on 30 June 2016 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 7.0°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 5 July 2016.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

II. HOLDING TIMES

- All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

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CASE NARRATIVE – AMENDED (RADIOCHEMISTRY RESULTS)

MVTL Lab Reference No/SDG: **201682-1920**
IML Lab Reference No/SDG: **S1607028**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR June 2016**
MVTL Laboratory Identifications: **16-W2431** through **16-W2436**
IML Laboratory Identifications: **S1607028-001** through **S1607028-006**

V. REPORTING

- Per email from Barr Engineering dated 10 March 2016, IML was directed to report numerical values, including negative results for both the sample results and the method analyte precision.
- Per email from Samantha Marshall with MDU, MVTL was directed to report the radium 226 and radium 228 values individually and then MDU would calculate the summation result using their database tabulations.
- Per email from Barr Engineering 18 Aug 2016, data for two samples for Radium 228 was reviewed to determine if a data entry error occurred. The amended reports are attached.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 18 Aug 16
Claudette Carroll - MVTL Bismarck Laboratory Manager

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Report Date: 15 Aug 16
Lab Number: 16-W2431
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: Dup 1
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			3 Aug 16	OL
Radium 228	See Attached Report			6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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MEMBER ACIL

Report Date: 15 Aug 16
Lab Number: 16-W2432
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: Field Blank (FB)
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			3 Aug 16	OL
Radium 228	See Attached Report			6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 15 Aug 16
Lab Number: 16-W2433
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16 9:59
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW13
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed		Analyst
pH - Field	6.86	units	NA	SM 4500 H+ B	29 Jun 16	9:59	DJN
Temperature - Field	11.3	Degrees C	NA	SM 2550B	29 Jun 16	9:59	DJN
Flow - Field	10300	gpm	NA	N/A	29 Jun 16	9:59	DJN
Radium 226	See Attached Report				3 Aug 16		OL
Radium 228	See Attached Report				6 Aug 16		OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 15 Aug 16
Lab Number: 16-W2434
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16 12:04
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW44R
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.42	units	NA	SM 4500 H+ B	29 Jun 16 12:04	DJN
Temperature - Field	15.3	Degrees C	NA	SM 2550B	29 Jun 16 12:04	DJN
Flow - Field	9100	gpm	NA	N/A	29 Jun 16 12:04	DJN
Radium 226	See Attached Report				3 Aug 16	OL
Radium 228	See Attached Report				6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 15 Aug 16
Lab Number: 16-W2435
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16 14:25
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW103
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.50	units	NA	SM 4500 H+ B	29 Jun 16 14:25	DJN
Temperature - Field	11.6	Degrees C	NA	SM 2550B	29 Jun 16 14:25	DJN
Flow - Field	4840	gpm	NA	N/A	29 Jun 16 14:25	DJN
Radium 226	See Attached Report				3 Aug 16	OL
Radium 228	See Attached Report				6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

CC

Approved by: Claudette K. Carroll 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

Report Date: 15 Aug 16
Lab Number: 16-W2436
Work Order #:82-1920
Account #: 002800
Date Sampled: 29 Jun 16 17:50
Date Received: 30 Jun 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW102
Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.74	units	NA	SM 4500 H+ B	29 Jun 16 17:50	DJN
Temperature - Field	12.4	Degrees C	NA	SM 2550B	29 Jun 16 17:50	DJN
Flow - Field	7750	gpm	NA	N/A	29 Jun 16 17:50	DJN
Radium 226	See Attached Report				3 Aug 16	OL
Radium 228	See Attached Report				6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 8/18/2016

CLIENT: MVTL Laboratories, Inc.
Project: 201682-1920
Lab Order: S1607028

CASE NARRATIVE

Report ID: S1607028002
(Replaces S1607028001)

Samples 16W2431 Dup 1, 16W2432 Field Blank, 16W2433 MW13, 16W2434 MW44R, 16W2435 MW103, and 16W2436 MW102 were received on July 5, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Report S1607028002 replaces S1607028001 see attached.

Reviewed by:
Wade Nieuwsma, Assistant Laboratory Manager

Wade Nieuwsma

From: Claudette Carroll [ccarroll@mvtl.com]
Sent: Thursday, August 18, 2016 8:18 AM
To: Wade Nieuwsma
Subject: FW: Emailing - 201682-1933 Amended MDU Heskett CCR Radiochem Jul 2016.pdf

Hi Wade,

Can you take a look at the data for the two samples mentioned in the email below to ensure that it was reported correctly.
Thank you,

CLAUDETTE CARROLL
Minnesota Valley Testing Laboratories, Inc.
2616 E. Broadway Ave.
Bismarck, ND 58501
701-258-9720
ccarroll@mvtl.com

From: Terri A. Olson [mailto:TOlson@barr.com]
Sent: Thursday, August 18, 2016 9:05 AM
To: Claudette Carroll <ccarroll@mvtl.com>; Barr Data Management <BarrDM@barr.com>; Marshall, Samantha <Samantha.Marshall@mdu.com>; Tonia D. O'Brien <tobrien@barr.com>
Subject: RE: Emailing - 201682-1933 Amended MDU Heskett CCR Radiochem Jul 2016.pdf

Hi Claudette,

Please have the lab confirm the results for the field duplicate and the sample source for the following:

- 201682-1920, IML S1607028
  - Radium 228: 001 (Dup1) = 7.9, 005 (source) = -5.4

Thank-you,

Terri A. Olson
Senior Data Quality Specialist
Minneapolis, MN office: 952.842.3578
TOlson@barr.com
www.barr.com

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/18/2016
Report ID S1607028002
(Replaces S1607028001)

ProjectName: 201682-1920
Lab ID: S1607028-001
ClientSample ID: 16W2431 Dup 1
COC: 201682-1920

WorkOrder: S1607028
CollectionDate: 6/29/2016
DateReceived: 7/5/2016 10:22:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	1.8	pCi/L		1	Ga-Tech	08/06/2016 408	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	08/06/2016 408	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/18/2016
Report ID S1607028002
(Replaces S1607028001)

ProjectName: 201682-1920
Lab ID: S1607028-002
ClientSample ID: 16W2432 Field Blank
COC: 201682-1920

WorkOrder: S1607028
CollectionDate: 6/29/2016
DateReceived: 7/5/2016 10:22:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.2	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	-1.0	pCi/L		1	Ga-Tech	08/06/2016 612	MB
Radium 228 Precision (±)	3.5	pCi/L			Ga-Tech	08/06/2016 612	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/18/2016
Report ID S1607028002
(Replaces S1607028001)

ProjectName: 201682-1920
Lab ID: S1607028-003
ClientSample ID: 16W2433 MW13
COC: 201682-1920

WorkOrder: S1607028
CollectionDate: 6/29/2016 9:59:00 AM
DateReceived: 7/5/2016 10:22:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.19	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	-2.6	pCi/L		1	Ga-Tech	08/06/2016 839	MB
Radium 228 Precision (±)	3.5	pCi/L			Ga-Tech	08/06/2016 839	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/18/2016
Report ID S1607028002
(Replaces S1607028001)

ProjectName: 201682-1920
Lab ID: S1607028-004
ClientSample ID: 16W2434 MW44R
COC: 201682-1920

WorkOrder: S1607028
CollectionDate: 6/29/2016 12:04:00 PM
DateReceived: 7/5/2016 10:22:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.2	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	-0.8	pCi/L		1	Ga-Tech	08/06/2016 1041	MB
Radium 228 Precision (±)	3.6	pCi/L			Ga-Tech	08/06/2016 1041	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/18/2016
Report ID S1607028002
(Replaces S1607028001)

ProjectName: 201682-1920
Lab ID: S1607028-005
ClientSample ID: 16W2435 MW103
COC: 201682-1920

WorkOrder: S1607028
CollectionDate: 6/29/2016 2:25:00 PM
DateReceived: 7/5/2016 10:22:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	-5.4	pCi/L		1	Ga-Tech	08/06/2016 1243	MB
Radium 228 Precision (±)	3.7	pCi/L			Ga-Tech	08/06/2016 1243	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	8/18/2016 S1607028002 (Replaces S1607028001)
ProjectName:	201682-1920	**WorkOrder:**	S1607028
Lab ID:	S1607028-006	**CollectionDate:**	6/29/2016 5:50:00 PM
ClientSample ID:	16W2436 MW102	**DateReceived:**	7/5/2016 10:22:00 AM
COC:	201682-1920	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
Radium 228	-1.3	pCi/L		1	Ga-Tech	08/06/2016 1445	MB
Radium 228 Precision (±)	3.5	pCi/L			Ga-Tech	08/06/2016 1445	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc. **Date:**
Work Order: S1607028
Project: 201682-1920

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-362 (08/05/16 04:08) RunNo: 137310 PrepDate: 07/21/16 14:00 BatchID 12097

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-362 (08/05/16 02:01) RunNo: 137310 PrepDate: 07/21/16 14:00 BatchID 12097

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	34	1	38.5		87.9	61.3 - 120	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-362 (08/05/16 06:12) RunNo: 137310 PrepDate: 07/21/16 14:00 BatchID 12097

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	37	1	38.5	2	91.4	64.3 - 120	
Total Radium 228	37	1	38.5	2	91.4	64.3 - 120	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-362 (08/05/16 08:16) RunNo: 137310 PrepDate: 07/21/16 14:00 BatchID 12097

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	36	1	37	2.12	89.4	20	
Total Radium 228	36	1	37	2.12	89.4	20	

Radium 226 in Water - Total by SM7500RA_B Sample Type **MBLK** Units: pCi/L

MB-1638 (08/03/16 09:30) RunNo: 137279 PrepDate: 07/25/16 0:00 BatchID 12118

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

Radium 226 in Water - Total by SM7500RA_B Sample Type **LCS** Units: pCi/L

LCS-1638 (08/03/16 09:30) RunNo: 137279 PrepDate: 07/25/16 0:00 BatchID 12118

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	5.3	0.2	5.99		88.8	67.1 - 131	

Radium 226 in Water - Total by SM7500RA_B Sample Type **LCSD** Units: pCi/L

LCSD-1638 (08/03/16 09:30) RunNo: 137279 PrepDate: 07/25/16 0:00 BatchID 12118

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	5.4	0.2	5.3	2.22	90.8	20	

Radium 226 in Water - Total by SM7500RA_B Sample Type **MS** Units: pCi/L

S1607028-001A MS (08/03/16 09:30) RunNo: 137279 PrepDate: 07/25/16 0:00 BatchID 12118

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	11.5	0.2	12	ND	96.4	65 - 131	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-1920

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
	Quote Number	Date Submitted: 6/30/2016
	Project Name/Number:	Purchase Order #: BL5607

Sample Information						Bottle Type						Analysis
SI607028 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Umpreserved	Glass Jar	Other		Analysis Required
001	16-W2431	Dup 1		6/29/2016								Radium 226 & Radium 228 on all
002	16-W2432	Field Blank		6/29/2016								
003	16-W2433	MW13		6/29/2016	959							
004	16-W2434	MW44R		6/29/2016	1204							
005	16-W2435	MW103		6/29/2016	1425							
006	16-W2436	MW102		6/29/2016	1750							

Comments: All results must be reported as a numerical value

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
C. Jackson	06/30/16	1700		Kathy Boyd	7.5.16	10:22	23.5
2.							

MVTL **Laboratories, Inc.**
2616 E. Broadway
Bismarck, ND 58501
Phone (701) 258-9720

Chain of Custody Record

Project Name: MDU Heskett CCR Radiochem June Event 2016

Name of Sampler(s): Darren Nieswaag

Report To: MDU
Attn: Samantha Marshall
Address: 400 N. 4th St
Bismarck, ND 58501
Phone: 701-222-7829

Carbon Copy:
Attn:
Address:

Work Order Number: 82-1920

Lab Number	Sample ID	Date	Time	Sample Type	Gradient	Bottle Type: 1000 ml HNO_3	Field Parameters: Field Temperature °C	Field Spec. Cond.	Field pH	Analysis: Analysis Required
w2431	Dup 1	29Jun16	NA	W		4	NA	NA	NA	MDU CCR Numerical RadChem
w2432	Field Blank (FB)	29Jun16	NA	W		4	NA	NA	NA	
w2433	MW13	29Jun16	0959	GW		4	11.34	10326	6.86	
w2434	MW44R	29Jun16	1204	GW		4	15.34	9105	6.47	
w2435	MW103	29Jun16	1425	GW		4	11.58	4839	6.50	
w2436	MW102	29Jun16	1750	GW		4	12.39	7746	6.74	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Dan Nies	walking	29Jun16 1935	C. Jackson		30JUN16 0800	ROI 7.0
2							TM588
3							

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW13
Sampling Personal: Darcun Kiesner

Weather Conditions: Temp: 71 °F Wind: Light Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	29.89	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	37.40	ft
Water Level After Sample:	30.57	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	0844 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	0959 ~~am~~/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0849	11.87	10431	6.80	0.04	189.4	38.6	30.41	500	Clear
2	0854	11.64	10451	6.81	0.03	187.3	25.9	30.41	500	clear
3	0859	11.54	10421	6.81	0.03	184.0	16.8	30.49	500	clear
4	0904	11.45	10396	6.81	0.04	179.1	13.5	30.57	500	Clear
5	0909	12.16	10366	6.82	0.04	177.2	19.8	30.57	500	clear
6	0919	~~11.75~~	~~10375~~	~~6.83~~	~~0.04~~	170.6	22.7	30.57	1000	clear
7	0929	11.19	10354	6.83	0.04	168.3	24.0	30.57	1000	clear
8	0939	11.81	10336	6.85	0.04	164.3	10.8	30.57	1000	clear
9	0944	11.75	10337	6.85	0.04	163.2	7.98	30.57	~~1000~~ 500	clear
10	0949	11.57	10304	6.85	0.04	160.8	4.36	30.57	500	clear

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: — mL

Comments:

See next page

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW 13
Sampling Personal: Darcia Nieswang
Date: 29 June 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	0954	11.49	10323	6.86	0.04	159.4	4.22	30.57	500	clear
12	0959	11.34	10326	6.86	0.04	157.4	4.38	30.57	500	clear
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes No

Total Volume Removed: 7500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW 44R

Sampling Personal: Darren Nielsen

Weather Conditions: Temp: 77 °F Wind: Light Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	28.88	ft
Total Well Depth:		ft
Well Volume:		liters
Depth to Top of Pump:	35.66	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes No
Duplicate Sample?:	Yes No
Duplicate Sample ID:	—

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	10-15	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1124 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	29 June 16	Time of Sampling:	1204 am/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	~~1134~~ ~~1127~~	16.46	9119	6.47	0.03	92.9	8.71	28.91	1000	clear
2	~~1139~~ ~~1134~~	15.56	9144	6.47	0.14	99.3	7.43	28.91	500	clear
3	1144	14.29	9155	6.47	0.43	105.7	3.33	28.93	500	clear
4	1149	13.91	9136	6.47	4.53	110.4	4.08	28.93	500	clear
5	1154	13.25	9138	6.47	5.62	112.4	3.80	28.93	500	clear
6	~~1159~~ ~~1204~~	13.32	9127	6.46	5.69	113.1	4.01	28.93	500	clear
7	1204	15.34	9105	6.47	5.56	112.8	3.96	28.93	500	clear
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 4000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW 103

Sampling Personal: Darren Niswaag

Weather Conditions: Temp: 83 °F Wind: Light Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	(No)	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	33.49	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	40.74	ft
Water Level After Sample:	40.32	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	(Yes)	No	
Duplicate Sample ID:	Dup-1		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1330 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	1425 am/(pm)

Bottle List:	4 - 500 mL Nitric	4 - 1 Liter Raw	2 250 mL Sulfiric
	4 - 500 mL Nitric (filtered)		6 - 1 Liter Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1340 1	~~1335~~	12.53	5065	6.64	6.70	135.8	6.40	35.09	1000	clear
2	1345	11.61	5057	6.62	18.01	136.2	5.42	35.44	500	clear
3	1350	11.97	5048	6.62	10.12	136.9	4.28	35.65	500	clear
4	1355	12.55	5026	6.60	9.75	138.2	4.53	35.94	500	clear
5	1400	12.49	5038	6.61	9.39	139.3	3.85	36.18	500	clear
6	1405	12.45	4985	~~6.58~~ 6.58	9.41	140.2	4.05	36.34	500	clear
7	1410	11.97	4908	6.55	9.80	139.8	2.67	36.49	500	clear
8	1415	11.78	4860	6.46	9.94	140.3	1.62	37.04	500	clear
9	1420	11.84	4828	6.49	9.82	139.1	1.64	37.06	500	clear
10	1425	11.58	4839	6.50	9.63	138.6	1.73	37.10	500	clear

Stabilized: (Yes) No

Total Volume Removed: 5500 mL

Comments:

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW102
Sampling Personal: Darren Nieswand

Weather Conditions: Temp: 87 °F Wind: Light Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.66	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	26.95	ft
Water Level After Sample:	21.52	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	154	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	29 June 16	Time Purging Began:	1700 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	29 June 16	Time of Sampling:	1750 am/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1710	12.23	9433	6.71	9.44	-46.6	31.4	18.66	1000	clear
2	1720	11.76	9011	6.70	9.82	-42.7	17.9	18.98	1000	clear
3	1730	11.82	8422	6.70	9.74	-40.9	6.12	19.26	1000	clear
4	1735	11.60	8195	6.71	9.97	-43.6	3.97	19.44	500	clear
5	1740	12.47	7934	6.72	9.28	-44.9	2.40	19.50	500	clear
6	1745	12.17	7874	6.74	9.54	-50.0	2.48	19.73	500	clear
7	1750	12.39	7746	6.74	9.42	-52.3	2.29	19.73	500	clear
8										
9										
10										

Stabilized: Yes No
Comments:

Total Volume Removed: 5000 mL

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CASE NARRATIVE

MVTL Lab Reference No/SDG: **201682-1932**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett**
Project Identification: **CCR June 2016**
MVTL Laboratory Identifications: **16-W2450** through **16-W2459**

MDU Sample Identification	MVTL Laboratory #
Dup 2	16-W2450
Field Blank (FB)	16-W2451
MW70	16-W2452
MW101	16-W2453
MW80R	16-W2454
MW105	16-W2455
MW33	16-W2456
MW2-90	16-W2457
MW3-90	16-W2458
MW104	16-W2459

I. RECEIPT

- All samples were received at the laboratory on 1 Jul 2016 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 5.4°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

II. HOLDING TIMES

- With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.

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IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
    - For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
    - For some metals, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.
    - Recovery for one sulfate matrix spike duplicate was outside of the acceptable limits. Recovery of the matrix spike was acceptable. RPD for the recoveries of the matrix spike/matrix spike duplicate was acceptable. No further action was taken.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 21JUL16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Report Date: 18 Jul 16
Lab Number: 16-W2450
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: Dup2

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.2	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	5	mg/l	1	I3765-85	5 Jul 16 15:36	ML
Total Alkalinity	532	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Fluoride	0.31	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	2940	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	167	mg/l	1.0	SM4500-Cl-E	7 Jul 16 14:53	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	4940	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	282	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Magnesium - Total	570	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Sodium - Total	600	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Potassium - Total	< 5 @	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Lithium - Total	0.61	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	< 0.5 @	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	290	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	585	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	620	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	< 5 @	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.62	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0142	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0037	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0553	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Dissolved	0.0103	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2450
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: Dup2

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	0.0044	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.0640	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
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CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2451
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: Field Blank (FB)

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 6.1	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	< 1	mg/l	1	I3765-85	5 Jul 16 15:36	ML
Total Alkalinity	< 20	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	< 5	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	< 1	mg/l	1.0	SM4500-Cl-E	7 Jul 16 14:53	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	< 5	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	< 1	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Magnesium - Total	< 1	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Sodium - Total	< 1	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Potassium - Total	< 1	mg/l	1.0	6010	6 Jul 16 12:56	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	< 1	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	< 1	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	< 1	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	< 1	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	< 0.1	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.1	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2451
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: Field Blank (FB)

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2452
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 7:47
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW70

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.1	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	6	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	7.03	units	NA	SM 4500 H+ B	30 Jun 16 7:47	DJN
Temperature - Field	10.3	Degrees C	NA	SM 2550B	30 Jun 16 7:47	DJN
Total Alkalinity	441	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Conductivity - Field	4395	umhos/cm	1	EPA 120.1	30 Jun 16 7:47	DJN
Fluoride	0.38	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	2170	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	28.3	mg/l	1.0	SM4500-Cl-E	7 Jul 16 14:53	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	3640	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	397	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	156	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	540	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	10.8	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.27	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	0.35	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	428	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	174	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	605	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	11.4	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.29	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.36	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0107	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0073	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0338	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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CERTIFICATION: ND # ND-00016

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Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Report Date: 18 Jul 16
Lab Number: 16-W2452
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 7:47
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW70

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0091	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	0.0082	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.0393	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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Report Date: 18 Jul 16
Lab Number: 16-W2453
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 10:29
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW101

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 6.8	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	7	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.70	units	NA	SM 4500 H+ B	30 Jun 16 10:29	DJN
Temperature - Field	12.7	Degrees C	NA	SM 2550B	30 Jun 16 10:29	DJN
Total Alkalinity	455	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Conductivity - Field	5130	umhos/cm	1	EPA 120.1	30 Jun 16 10:29	DJN
Fluoride	0.10	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	2600	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	15.3	mg/l	1.0	SM4500-Cl-E	7 Jul 16 14:53	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	4260	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	370	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	296	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	605	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	20.1	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.51	mg/l	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	1.04	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	380	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	305	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Sodium - Dissolved	625	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	20.7	mg/l	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.53	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	1.13	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0226	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0144	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

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Report Date: 18 Jul 16
Lab Number: 16-W2453
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 10:29
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW101

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0233	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	0.0120	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

CC
Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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Report Date: 18 Jul 16
Lab Number: 16-W2454
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 14:16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW80R

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.3	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	4	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	7.10	units	NA	SM 4500 H+ B	30 Jun 16 14:16	DJN
Temperature - Field	11.5	Degrees C	NA	SM 2550B	30 Jun 16 14:16	DJN
Total Alkalinity	533	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Conductivity - Field	6043	umhos/cm	1	EPA 120.1	30 Jun 16 14:16	DJN
Fluoride	0.31	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	2900	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	167	mg/l	1.0	SM4500-Cl-E	7 Jul 16 14:53	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	5210	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	277	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	560	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	595	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	< 5 @	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.64	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	< 0.5 @	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	284	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	580	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	615	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	< 5 @	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	0.64	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0131	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0035	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0541	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

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CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2454
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 14:16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW80R

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0107	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	0.0038	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.0600	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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Report Date: 18 Jul 16
Lab Number: 16-W2455
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 17:30
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW105

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 6.9	units	N/A	SM4500 H+ B	1 Jul 16 17:00	ML
Total Suspended Solids	17	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.72	units	NA	SM 4500 H+ B	30 Jun 16 17:30	DJN
Temperature - Field	12.1	Degrees C	NA	SM 2550B	30 Jun 16 17:30	DJN
Total Alkalinity	449	mg/l CaCO3	20	SM2320-B	1 Jul 16 17:00	ML
Conductivity - Field	7618	umhos/cm	1	EPA 120.1	30 Jun 16 17:30	DJN
Fluoride	0.26	mg/l	0.10	SM4500-F-C	1 Jul 16 17:00	ML
Sulfate	4300	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	336	mg/l	1.0	SM4500-Cl-E	7 Jul 16 15:56	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	7360	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	384	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	775	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	770	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	18.6	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.91	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	< 0.5 @	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	399	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	800	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	805	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	19.4	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	0.91	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0299	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0041	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

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CERTIFICATION: ND # ND-00016

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Samantha Marshall
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Bismarck ND 58501

Report Date: 18 Jul 16
Lab Number: 16-W2455
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 17:30
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW105

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0193	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.0047	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Report Date: 18 Jul 16
Lab Number: 16-W2456
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 10:40
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW33

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 6.7	units	N/A	SM4500 H+ B	1 Jul 16 18:00	ML
Total Suspended Solids	6	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.52	units	NA	SM 4500 H+ B	30 Jun 16 10:40	DJN
Temperature - Field	11.8	Degrees C	NA	SM 2550B	30 Jun 16 10:40	DJN
Total Alkalinity	465	mg/l CaCO3	20	SM2320-B	1 Jul 16 18:00	ML
Conductivity - Field	5140	umhos/cm	1	EPA 120.1	30 Jun 16 10:40	DJN
Fluoride	0.24	mg/l	0.10	SM4500-F-C	1 Jul 16 18:00	ML
Sulfate	2930	mg/l	5.00	ASTM D516-07	14 Jul 16 13:14	EMS
Chloride	8.7	mg/l	1.0	SM4500-Cl-E	7 Jul 16 15:56	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	4760	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	455	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	431	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	423	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	19.9	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.63	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	0.36	mg/l	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	492	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	470	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	461	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	22.0	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	0.62	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.38	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0116	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0022	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

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CERTIFICATION: ND # ND-00016

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

Report Date: 18 Jul 16
Lab Number: 16-W2456
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 10:40
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW33

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0115	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Report Date: 18 Jul 16
Lab Number: 16-W2457
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 14:15
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW2-90

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.1	units	N/A	SM4500 H+ B	1 Jul 16 18:00	ML
Total Suspended Solids	3	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.93	units	NA	SM 4500 H+ B	30 Jun 16 14:15	DJN
Temperature - Field	9.14	Degrees C	NA	SM 2550B	30 Jun 16 14:15	DJN
Total Alkalinity	494	mg/l CaCO3	20	SM2320-B	1 Jul 16 18:00	ML
Conductivity - Field	7639	umhos/cm	1	EPA 120.1	30 Jun 16 14:15	DJN
Fluoride	0.97	mg/l	0.10	SM4500-F-C	1 Jul 16 18:00	ML
Sulfate	4810	mg/l	5.00	ASTM D516-07	14 Jul 16 13:37	EMS
Chloride	81.8	mg/l	1.0	SM4500-Cl-E	7 Jul 16 15:56	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	5820	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	481	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	720	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	770	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	22.6	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.92	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	< 0.5 @	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Calcium - Dissolved	500	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	735	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	795	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	23.2	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	0.95	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0099	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0071	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.1633	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

RL = Method Reporting Limit

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CERTIFICATION: ND # ND-00016

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Report Date: 18 Jul 16
Lab Number: 16-W2457
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 14:15
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW2-90

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0101	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	0.0040	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.1843	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll cc 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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Report Date: 18 Jul 16
Lab Number: 16-W2458
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 12:35
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW3-90

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.0	units	N/A	SM4500 H+ B	1 Jul 16 18:00	ML
Total Suspended Solids	3	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.87	units	NA	SM 4500 H+ B	30 Jun 16 12:35	DJN
Temperature - Field	10.1	Degrees C	NA	SM 2550B	30 Jun 16 12:35	DJN
Total Alkalinity	531	mg/l CaCO3	20	SM2320-B	1 Jul 16 18:00	ML
Conductivity - Field	4924	umhos/cm	1	EPA 120.1	30 Jun 16 12:35	DJN
Fluoride	0.13	mg/l	0.10	SM4500-F-C	1 Jul 16 18:00	ML
Sulfate	2580	mg/l	5.00	ASTM D516-07	14 Jul 16 13:37	EMS
Chloride	32.1	mg/l	1.0	SM4500-Cl-E	7 Jul 16 15:56	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	4290	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	535	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	250	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	580	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	12.2	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	0.19	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	0.14	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Calcium - Dissolved	525	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	248	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	580	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	12.2	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	0.19	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	0.14	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0133	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0796	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC

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CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2458
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 12:35
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW3-90

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0127	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	0.0794	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll CC 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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MEMBER ACIL

Report Date: 18 Jul 16
Lab Number: 16-W2459
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 16:08
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW104

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
pH	* 7.2	units	N/A	SM4500 H+ B	1 Jul 16 18:00	ML
Total Suspended Solids	9	mg/l	1	I3765-85	5 Jul 16 15:36	ML
pH - Field	6.92	units	NA	SM 4500 H+ B	30 Jun 16 16:08	DJN
Temperature - Field	11.9	Degrees C	NA	SM 2550B	30 Jun 16 16:08	DJN
Total Alkalinity	558	mg/l CaCO3	20	SM2320-B	1 Jul 16 18:00	ML
Conductivity - Field	14092	umhos/cm	1	EPA 120.1	30 Jun 16 16:08	DJN
Fluoride	0.52	mg/l	0.10	SM4500-F-C	1 Jul 16 18:00	ML
Sulfate	10300	mg/l	5.00	ASTM D516-07	14 Jul 16 13:37	EMS
Chloride	95.1	mg/l	1.0	SM4500-Cl-E	7 Jul 16 15:56	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7 Jul 16 11:33	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	18 Jul 16 12:32	EV
Total Dissolved Solids	14600	mg/l	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	432	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Magnesium - Total	1550	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Sodium - Total	1980	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Potassium - Total	32.6	mg/l	1.0	6010	6 Jul 16 13:56	SZ
Lithium - Total	1.74	mg/l	0.10	6010	7 Jul 16 15:08	KMD
Boron - Total	1.01	mg/l	0.10	6010	5 Jul 16 20:03	KMD
Calcium - Dissolved	430	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Magnesium - Dissolved	1550	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Sodium - Dissolved	2000	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Potassium - Dissolved	31.9	mg/l	1.0	6010	6 Jul 16 16:09	SZ
Lithium - Dissolved	1.81	mg/l	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	1.02	mg/l	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0080	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.1565	mg/l	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	7 Jul 16 17:00	CC
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 17:00	CC

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 18 Jul 16
Lab Number: 16-W2459
Work Order #:82-1932
Account #: 002800
Date Sampled: 30 Jun 16 16:08
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016
Sample Description: MW104

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Barium - Dissolved	0.0074	mg/l	0.0020	6020	7 Jul 16 17:00	CC
Beryllium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 17:00	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 17:00	CC
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 17:00	CC
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 17:00	CC
Lead - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 17:00	CC
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	7 Jul 16 17:00	CC
Selenium - Dissolved	0.1765	mg/l	0.0020	6020	7 Jul 16 20:50	CC
Thallium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	7 Jul 16 17:00	CC

* Holding time exceeded

^ Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

Approved by: Claudette K. Carroll 21 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Quality Control Report

Lab IDs: 16-W2450 to 16-W2459 **Project:** MDU Heskett CCR GW June Event 2016 **Work Order:** 201682-1932

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Dissolved mg/l	0.1000 0.1000	109 116	80-120 80-120	0.100	16W2459Dq	< 0.001	0.1154	115	75-125	0.1154	0.1132	113	1.9	20	- -	- -	< 0.001
Antimony - Total mg/l	0.1000	109	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.001 < 0.001 < 0.001	0.4640 0.4628 0.1154	116 116 115	75-125 75-125 75-125	0.4640 0.4628 0.1154	0.4336 0.4524 0.1132	108 113 113	6.8 2.3 1.9	20 20 20	- - -	- - -	< 0.001 < 0.001
Arsenic - Dissolved mg/l	0.1000 0.1000	111 116	80-120 80-120	0.100	16W2459Dq	< 0.002	0.1244	124	75-125	0.1244	0.1223	122	1.7	20	- -	- -	< 0.002
Arsenic - Total mg/l	0.1000	111	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.002 < 0.002 < 0.002	0.4622 0.4666 0.1244	116 117 124	75-125 75-125 75-125	0.4622 0.4666 0.1244	0.4570 0.4778 0.1223	114 119 122	1.1 2.4 1.7	20 20 20	- - -	- - -	< 0.002 < 0.002
Barium - Dissolved mg/l	0.1000 0.1000	106 105	80-120 80-120	0.100	16W2459Dq	0.0074	0.1178	110	75-125	0.1178	0.1130	106	4.2	20	- -	- -	< 0.002
Barium - Total mg/l	0.1000	106	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	0.0142 0.0080 0.0074	0.4272 0.4328 0.1178	103 106 110	75-125 75-125 75-125	0.4272 0.4328 0.1178	0.4274 0.4376 0.1130	103 107 106	0.0 1.1 4.2	20 20 20	- - -	- - -	< 0.002 < 0.002
Beryllium - Dissolved mg/l	0.1000 0.1000	107 115	80-120 80-120	0.100	16W2459Dq	< 0.001	0.1171	117	75-125	0.1171	0.1160	116	0.9	20	- -	- -	< 0.0005
Beryllium - Total mg/l	0.1000	107	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.0005 < 0.0005 < 0.0005	0.4428 0.4576 0.1171	111 114 117	75-125 75-125 75-125	0.4428 0.4576 0.1171	0.4330 0.4562 0.1160	108 114 116	2.2 0.3 0.9	20 20 20	- - -	- - -	< 0.0005 < 0.0005
Boron - Dissolved mg/l	0.40	108	80-120	0.600 1.50	16-W2453 16-W2475	1.13 7.34	1.79 8.48	110 76	75-125 75-125	1.79 8.48	1.80 8.63	112 86	0.6 1.8	20 20	- - -	- - -	< 0.1 < 0.1 < 0.1
Boron - Total mg/l	0.40 0.40	112 105	80-120 80-120	1.50 1.50	16-W2450 16-W2459	0.43 1.01	1.98 2.41	103 93	75-125 75-125	1.98 2.41	2.02 2.46	106 97	2.0 2.1	20 20	- - - -	- - - -	< 0.1 < 0.1 < 0.1 < 0.1

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Quality Control Report

Lab IDs: 16-W2450 to 16-W2459 **Project:** MDU Heskett CCR GW June Event 2016 **Work Order:** 201682-1932

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cadmium - Dissolved mg/l	0.1000 0.1000	110 114	80-120 80-120	0.100	16W2459Dq	< 0.001	0.1076	108	75-125	0.1076	0.1038	104	3.6	20	- -	- -	< 0.0005
Cadmium - Total mg/l	0.1000	110	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.0005 < 0.0005 < 0.0005	0.4480 0.4422 0.1076	112 111 108	75-125 75-125 75-125	0.4480 0.4422 0.1076	0.4202 0.4304 0.1038	105 108 104	6.4 2.7 3.6	20 20 20	- - -	- - -	< 0.0005 < 0.0005
Calcium - Dissolved mg/l	20.0 20.0	110 106	80-120 80-120	500 500	16w2421q 16w2458q	399 525	870 980	94 91	75-125 75-125	870 980	870 960	94 87	0.0 2.1	20 20	- -	- -	< 1 < 1
Calcium - Total mg/l	20.0	112	80-120	500 500	16W2442q 16W2452q	424 397	910 895	97 100	75-125 75-125	910 895	925 875	100 96	1.6 2.3	20 20	- - -	- - -	< 1 < 1 < 1
Chloride mg/l	30.0 30.0 30.0	89 88 89	80-120 80-120 80-120	30.0	16-W2456	8.7	35.4	89	80-120	35.4	34.7	87	2.0	20	- - -	- - -	< 1 < 1
Chromium - Dissolved mg/l	0.1000 0.1000	100 107	80-120 80-120	0.100	16W2459Dq	< 0.002	0.1154	115	75-125	0.1154	0.1134	113	1.7	20	- -	- -	< 0.002
Chromium - Total mg/l	0.1000	100	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.002 < 0.002 < 0.002	0.4068 0.4204 0.1154	102 105 115	75-125 75-125 75-125	0.4068 0.4204 0.1154	0.3916 0.4154 0.1134	98 104 113	3.8 1.2 1.7	20 20 20	- - -	- - -	< 0.002 < 0.002
Cobalt - Dissolved mg/l	0.1000 0.1000	102 108	80-120 80-120	0.100	16W2459Dq	< 0.002	0.1134	113	75-125	0.1134	0.1114	111	1.8	20	- -	- -	< 0.002
Cobalt - Total mg/l	0.1000	102	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.002 < 0.002 < 0.002	0.4098 0.4204 0.1134	102 105 113	75-125 75-125 75-125	0.4098 0.4204 0.1134	0.4002 0.4176 0.1114	100 104 111	2.4 0.7 1.8	20 20 20	- - -	- - -	< 0.002 < 0.002
Fluoride mg/l	0.50 0.50 0.50	106 108 108	90-110 90-110 90-110	0.500 0.500 0.500	16-W2440 16-W2446 16-W2456	0.31 0.24 0.24	0.78 0.71 0.72	94 94 96	80-120 80-120 80-120	0.78 0.71 0.72	0.79 0.72 0.73	96 96 98	1.3 1.4 1.4	20 20 20	- - - -	- - - -	< 0.1 < 0.1 < 0.1 < 0.1

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Quality Control Report

Lab IDs: 16-W2450 to 16-W2459 **Project:** MDU Heskett CCR GW June Event 2016 **Work Order:** 201682-1932

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Lead - Dissolved mg/l	0.1000 0.1000	106 108	80-120 80-120	0.100	16W2459Dq	< 0.001	0.0971	97	75-125	0.0971	0.0944	94	2.8	20	- -	- -	< 0.0005
Lead - Total mg/l	0.1000	106	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.0005 < 0.0005 < 0.0005	0.3874 0.3876 0.0971	97 97 97	75-125 75-125 75-125	0.3874 0.3876 0.0971	0.3872 0.3996 0.0944	97 100 94	0.1 3.0 2.8	20 20 20	- - -	- - -	< 0.0005 < 0.0005
Lithium - Dissolved mg/l	0.40	98	80-120	1.00 1.00	16-W2421 16-W2459	0.58 1.81	1.74 2.97	116 116	75-125 75-125	1.74 2.97	1.64 2.92	106 111	5.9 1.7	20 20	- - -	- - -	< 0.1 < 0.1 < 0.1
Lithium - Total mg/l	0.40 0.40 0.40	92 95 98	80-120 80-120 80-120	0.400 0.400 0.400	16-W2421 16-W2450 16-W2459	0.58 0.61 1.74	0.98 0.96 2.23	100 88 122	75-125 75-125 75-125	0.98 0.96 2.23	0.96 1.07 2.11	95 115 92	2.1 10.8 5.5	20 20 20	- - - - - - -	- - - - - - -	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
Magnesium - Dissolved mg/l	20.0 20.0	112 109	80-120 80-120	500 500	16w2421q 16w2458q	630 248	1100 740	94 98	75-125 75-125	1100 740	1110 730	96 96	0.9 1.4	20 20	- -	- -	< 1 < 1
Magnesium - Total mg/l	20.0	114	80-120	500 500	16W2442q 16W2452q	168 156	685 675	103 104	75-125 75-125	685 675	690 665	104 102	0.7 1.5	20 20	- - -	- - -	< 1 < 1 < 1
Mercury - Dissolved mg/l	0.0020	100	85-115	0.002 0.002	16-W2457 16-W2550	< 0.0002 < 0.0002	0.0019 0.0020	95 100	70-130 70-130	0.0019 0.0020	0.0019 0.0019	95 95	0.0 5.1	20 20	- -	- -	< 0.0002
Mercury - Total mg/l	0.0020	105	85-115	0.002 0.002	16-W2453 16-W2472	< 0.0002 < 0.0002	0.0019 0.0019	95 95	70-130 70-130	0.0019 0.0019	0.0020 0.0019	100 95	5.1 0.0	20 20	- -	- -	< 0.0002
Molybdenum - Dissolved mg/l	0.1000 0.1000	98 99	80-120 80-120	0.100	16W2459Dq	< 0.002	0.1234	123	75-125	0.1234	0.1224	122	0.8	20	- -	- -	< 0.002

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Quality Control Report

Lab IDs: 16-W2450 to 16-W2459 **Project:** MDU Heskett CCR GW June Event 2016 **Work Order:** 201682-1932

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Molybdenum - Total mg/l	0.1000	98	80-120	0.400	16W2450q	0.0037	0.4462	111	75-125	0.4462	0.4226	105	5.4	20	-	-	< 0.002
				0.400	16W2459q	< 0.002	0.4616	115	75-125	0.4616	0.4526	113	2.0	20	-	-	< 0.002
				0.100	16W2459Dq	< 0.002	0.1234	123	75-125	0.1234	0.1224	122	0.8	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	6.7	6.7	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	6.9	6.8	-	1.5	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.2	7.3	-	1.4	20	-	-	-
Potassium - Dissolved mg/l	10.0	103	80-120	100	16w2421q	23.0	124	101	75-125	124	124	101	0.0	20	-	-	< 1
	10.0	101	80-120	100	16w2458q	12.2	110	98	75-125	110	110	98	0.0	20	-	-	< 1
Potassium - Total mg/l	10.0	105	80-120	100	16W2442q	11.4	112	101	75-125	112	114	103	1.8	20	-	-	< 1
				100	16W2452q	10.8	110	99	75-125	110	110	99	0.0	20	-	-	< 1
															-	-	< 1
Selenium - Dissolved mg/l	0.1000	104	80-120	0.400	16-W2459q	0.1565	0.6068	113	75-125	0.6068	0.6432	122	5.8	20	-	-	< 0.002
	0.1000	101	80-120							0.3413	0.3175		7.2	20	-	-	< 0.002
Selenium - Total mg/l	0.1000	104	80-120	0.400	16-W2450	0.0553	0.5386	121	75-125	0.5386	0.5216	117	3.2	20	-	-	< 0.002
				0.400	16-W2459	0.1565	0.6068	113	75-125	0.6068	0.6432	122	5.8	20	-	-	
Sodium - Dissolved mg/l	20.0	107	80-120	500	16w2421q	1900	2290	78	75-125	2290	2280	76	0.4	20	-	-	< 1
	20.0	107	80-120	500	16w2458q	580	1050	94	75-125	1050	1040	92	1.0	20	-	-	< 1
Sodium - Total mg/l	20.0	112	80-120	500	16W2442q	585	1070	97	75-125	1070	1080	99	0.9	20	-	-	< 1
				500	16W2452q	540	1030	98	75-125	1030	1020	96	1.0	20	-	-	< 1
															-	-	< 1
Sulfate mg/l	100	96	90-110	100	16-W2451	< 5	91.5	92	80-120	91.5	92.2	92	0.8	20	-	-	< 5
	100	95	90-110	5000	16-W2457	4810	8870	81	80-120	8870	8770	79	1.1	20	-	-	< 5
Thallium - Dissolved mg/l	0.1000	105	80-120	0.100	16W2459Dq	< 0.001	0.0982	98	75-125	0.0982	0.0960	96	2.3	20	-	-	< 0.0005
	0.1000	107	80-120												-	-	
Thallium - Total mg/l	0.1000	105	80-120	0.400	16W2450q	< 0.0005	0.3862	97	75-125	0.3862	0.3884	97	0.6	20	-	-	< 0.0005
				0.400	16W2459q	< 0.0005	0.3828	96	75-125	0.3828	0.4016	100	4.8	20	-	-	< 0.0005
				0.100	16W2459Dq	0.0007	0.0982	98	75-125	0.0982	0.0960	95	2.3	20	-	-	

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Quality Control Report

Lab IDs: 16-W2450 to 16-W2459 **Project:** MDU Heskett CCR GW June Event 2016 **Work Order:** 201682-1932

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Total Alkalinity mg/l CaCO3	410 410 410	97 95 99	90-110 90-110 90-110	410 410 410	16-W2443 16-W2453 16-W2458	457 455 531	846 845 912	95 95 93	80-120 80-120 80-120	846 845 912	836 840 910	92 94 92	1.2 0.6 0.2	20 20 20	93	80-120	< 20 < 20 < 20 < 20
Total Dissolved Solids mg/l	- -	- -	- -	- -	- -	- -	- -	- -	- -	2120 4290	2100 4280	- -	0.9 0.2	20 20	- -	- -	< 5
Total Suspended Solids mg/l	- -	- -	- -	- -	- -	- -	- -	- -	- -	16 17	16 18	- -	0.0 5.7	20 20	- -	- -	< 1

Approved by: C. Comtois

21 JUL 16

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: Darren Nieswaas

Instrument (Circle One): #1 650 MDS 08F100203 #2 650 MDS 04H14736 ~~#3 556 MPS 12E102056~~

Pre Site Calibration

Date: 29 June 16 **Time:** 0715

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	22.10	7.04	7.00	6.95-7.05	-35.5	0 +/- 50
Buffer 10	21.94	9.98	10.00	9.95-10.05	-210.5	-180 +/- 50
Conductivity						Check
Buffer 10000 ICCA	22.23	10180	10006	±10%	Buffer 5000	4974
ORP						
231 mV @ 25C	6.90	258.9	257.1	±10 mV		
DO					Barometric Pressure (mm Hg)	
	21.80	9.38	8.30	mg/L	719.2	

Date: 30 June 16 **Time:** 0600

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	21.71	6.95	7.00	6.95-7.05	-32.7	0 +/- 50
Buffer 10	21.66	10.07	10.00	9.95-10.05	-211.4	-180 +/- 50
Conductivity						Check
Buffer 10000 ICCA	22.18	9887	10001	±10%	Buffer 5000 ICCA	5014
ORP						
231 mV @ 25C	~~25.39~~	251.4	257.7	±10 mV		
DO					Barometric Pressure (mm Hg)	
	21.25	7.02	8.39	mg/L	719.6	

Post Site Check

Time: 1925

	Temp °C	Reading
pH		
Buffer 7	23.63	6.95
Conductivity		
Buffer 5000 ICCA	22.99	4956

Time: 1859

	Temp °C	Reading
pH		
Buffer 7	23.31	7.03
Conductivity		
Buffer 5000	22.48	4982

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: Jeremy Meyer

Instrument (Circle One): (#1 650 MDS 08F100203) #2 650 MDS 04H14736 #3 556 MPS 12E102056

Pre Site Calibration

Date: 30 June 16 **Time:** 0902

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	21.55	7.05	7.00	6.95-7.05	-19.2	0 +/- 50
Buffer 10	21.55	10.01	10.00	9.95-10.05	-194.8	-180 +/- 50
Conductivity						Check
Buffer 10000	20.34	9972	10000	±10%	Buffer 5000	4980
ORP						
231 mV @ 25C	5.00	257.3	257.0	±10 mV		
DO					Barometric Pressure (mm Hg)	
	16.16	101.3%	101.0%	mg/L	769.95	

Post Site Check

Time:

	Temp °C	Reading
pH		
Buffer 7	21.67	7.01
Conductivity		
Buffer 5000	21.43	4978

Pre Site Calibration

Date: **Time:**

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7				6.95-7.05		0 +/- 50
Buffer 10				9.95-10.05		-180 +/- 50
Conductivity						Check
Buffer 10000				±10%	Buffer 5000	
ORP						
231 mV @ 25C				±10 mV		
DO					Barometric Pressure (mm Hg)	
				mg/L		

Post Site Check

Time:

	Temp °C	Reading
pH		
Buffer 7		
Conductivity		
Buffer 5000		

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW10

Sampling Personal: Darren Nieswand

Weather Conditions: Temp: 61 °F Wind: N 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	21.25 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	32.68 ft
Water Level After Sample:	22.28 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	0657 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	0727 am/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0707	10.03	4517	6.96	2.40	195.8	25.3	22.41	1000	clear
2	0717	10.00	4499	6.98	2.37	190.5	10.6	22.15	1000	clear
3	0722	9.84	4484	6.98	2.37	188.6	10.3	22.15	500	clear
4	0727	9.87	4441	6.98	2.13	187.6	5.24	22.15	500	clear
5	0732	9.87	4352	7.00	7.54	186.2	4.61	22.15	500	clear
6	0737	9.82	4357	7.02	8.75	184.9	4.55	22.20	500	clear
7	0742	10.36	4359	7.02	8.90	183.5	4.41	22.20	500	clear
8	0747	10.32	4395	7.03	9.44	182.1	4.80	22.20	500	clear
9										
10										

Stabilized: Yes No

Total Volume Removed: 5000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW 101

Sampling Personal: Darren Niemaas

Weather Conditions: Temp: 68 °F Wind: N 5-10 Precip: ~~Sunny~~ / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	37.62 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	46.85 ft
Water Level After Sample:	41.72 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	0904 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1029 ~~am~~/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
0914 1	~~0909~~	11.05	5104	6.71	10.25	54.7	34.0	38.96	1000	clear
0929 2	~~0914~~	11.28	5096	6.71	10.05	48.3	28.3	39.29	~~1000~~ 1500	clear
0939 3	~~0919~~	12.40	5084	6.71	9.17	32.9	14.1	39.31	1000	clear
4	0949	12.19	5086	6.71	9.32	31.5	11.6	39.40	1000	clear
5	0959	11.98	5100	6.71	9.48	30.1	7.94	39.61	1000	clear
6	1004	11.79	5119	6.71	9.63	27.7	6.96	39.75	500	clear
7	1009	12.15	5105	6.70	9.34	25.2	6.08	39.81	500	clear
8	1014	13.32	5111	6.71	8.47	22.5	5.30	39.81	500	clear
9	1019	12.14	5126	6.71	8.63	19.0	4.38	39.85	500	clear
10	1024	12.78	5132	6.70	8.89	17.0	4.78	39.95	500	clear

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: — mL

Comments:

See next page

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW107

Sampling Personal: Darren Wiesmann

Date: 6/30 Time: 10

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	1029	12.66	5130	6.70	8.97	16.0	4.71	40.00	500	Clear
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 8500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW80R

Sampling Personal: Darren Nitsway

Weather Conditions: Temp: 77 °F Wind: N 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	14.25 ft
Total Well Depth:	ft
Well Volume:	— liters
Depth to Top of Pump:	19.30 ft
Water Level After Sample:	14.98 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	Dup-2		

Control Settings	
Purge:	834 sec.
Recover:	5456 sec.
PSI:	—
Pumping Rate:	100 mL/min

Purge Date:	30June16	Time Purging Began:	1151 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	30June16	Time of Sampling:	1416 am/pm

Bottle List:			
4 - 500 mL Nitric	4 - 1 Liter Raw	2 - 250 mL Sulfiric	
4 - 500 mL Nitric (filtered)		8 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1201	12.50	6027	7.08	9.06	39.9	32.7	14.98	1000	clear
2	1211	12.33	6027	7.06	9.19	48.5	62.0	14.98	1000	clear
3	1221	11.61	6012	7.07	9.73	55.1	66.0	14.98	1000	clear
4	1231	12.03	6011	7.08	9.42	59.1	48.1	14.98	1000	clear
5	1241	11.91	6003	7.08	9.45	61.7	37.9	14.98	1000	clear
6	1251	11.85	6003	7.08	9.60	64.6	36.5	14.98	1000	clear
7	1301	11.70	6031	7.09	10.17	70.2	23.7	14.98	1000	clear
8	1311	12.46	6048	7.10	9.58	68.8	17.8	14.98	1000	clear
9	1321	12.12	6032	7.10	9.80	70.3	13.3	14.98	1000	clear
10	1331	12.05	6034	7.10	9.87	76.3	9.99	14.98	1000	clear

Stabilized: Yes No

Total Volume Removed: 10,000 mL

Comments:

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW80R
Sampling Personal: Darren Riesmay
Date: 30 June 16

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
11	1341	11,44	6023	7,11	10,33	74,6	8,09	14,98	1000	clear
12	1346	12,08	6040	7,11	9,84	74,1	7,16	14,98	500	clear
13	1351	11,84	6044	7,11	10,03	74,2	6,14	14,98	500	clear
14	1356	11,56	6036	7,11	10,25	75,1	5,04	14,98	500	clear
15	1401	11,61	6024	7,10	10,14	74,9	5,43	14,98	500	clear
16	1406	11,54	6039	7,10	10,18	75,7	4,83	14,98	500	clear
17	1411	11,94	6040	7,11	9,96	75,6	4,70	14,98	500	clear
18	1416	11,54	6043	7,10	9,98	76,4	4,56	14,98	500	clear
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 14,500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW105

Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 78 °F Wind: N 5 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	13.55	ft
Total Well Depth:	–	ft
Well Volume:	–	liters
Depth to Top of Pump:	21.15	ft
Water Level After Sample:	13.81	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	–		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	15	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	1640 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	– am/pm
Sample Date:	30 Jun 16	Time of Sampling:	1730 am/~~pm~~

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfuric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1650	12.04	6481	6.73	9.85	75.0	8.25	13.70	1000	clear
2	1655	11.89	6687	6.73	9.95	79.5	7.49	13.81	500	clear
3	~~1700~~ 1700	11.80	6939	6.72	10.03	83.5	7.00	13.81	500	clear
4	1705	11.70	7174	6.72	10.09	87.5	6.02	13.81	500	clear
5	1710	11.58	7268	6.71	10.19	89.5	6.91	13.81	500	clear
6	1715	12.41	7375	6.72	9.46	92.1	6.41	13.81	500	clear
7	1720	12.73	7477	6.70	9.28	94.1	6.87	13.81	500	clear
8	1725	12.96	7570	6.72	9.41	95.6	6.67	13.81	500	clear
9	1730	12.08	7618	6.72	9.78	98.6	6.34	13.81	500	clear
10										

Stabilized: Yes No

Total Volume Removed: 5000 mL

Comments: –

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MW33
Sampling Personal:	Jerry Ply

Weather Conditions: Temp: 75 °F Wind: NE 5-10 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	41.98 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	42.10 ft
Water Level After Sample:	BTOP ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	0950 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 Jun 16	Time of Sampling:	1040 (am)/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0955	9.59	5080	6.52	1.90	114.9	15.2	BTOP	500.0	Clear
2	1000	11.53	5076	6.52	1.78	95.3	8.64	BTOP	500.0	Clear
3	1005	11.38	5116	6.52	1.86	82.7	6.33	BTOP	500.0	Clear
4	1010	11.38	5139	6.52	1.77	72.8	5.04	BTOP	500.0	Clear
5	1015	11.56	5145	6.52	1.73	65.6	3.49	BTOP	500.0	Clear
6	1020	11.69	5159	6.52	1.69	61.1	2.09	BTOP	500.0	Clear
7	1025	11.72	5167	6.52	1.71	56.7	1.64	BTOP	500.0	Clear
8	1030	11.62	5173	6.52	1.70	52.1	1.28	BTOP	500.0	Clear
9	1035	11.78	5154	6.52	1.68	47.4	1.10	BTOP	500.0	Clear
10	1040	11.82	5140	6.52	1.68	46.6	1.10	BTOP	500.0	Clear

Stabilized: (Yes) No Total Volume Removed: 5000.0 mL

Comments:

BTOP = Below Top of Pump

Should lower pump to record water levels

Could not record water levels for stabilization due to pump being in the way.

Pump rate: water level lowered & stabilized. The well has good recharge to maintain water level.

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: 2-90
Sampling Personal: [signature]

Weather Conditions: Temp: 75 °F Wind: NW 5-10 Precip: ~~Sunny~~ / ~~Partly Cloudy~~ / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.58	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.05	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	1345 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1415 am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1350	9.40	7861	7.01	5.47	105.3	3.04	22.03	500.0	Clear
2	1355	9.46	7853	6.94	4.44	114.7	1.61	22.05	500.0	Clear
3	1400	9.23	7805	6.93	4.24	117.3	1.25	22.04	500.0	Clear
4	1405	9.50	7694	6.93	4.22	118.4	0.52	22.05	500.0	Clear
5	1410	9.11	7707	6.93	4.25	118.5	0.43	22.04	500.0	clear
6	1415	9.14	7639	6.93	4.25	117.9	0.41	22.05	500.0	clear
7										
8										
9										
10										

Stabilized: (Yes) No
Total Volume Removed: 3000.0 mL
Comments:

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: 3-90
Sampling Personal: Jeremy Morgan

Weather Conditions: Temp: 75 °F Wind: NW 5-10 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	19.22	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.30	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	1210 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1235 am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1215	10.52	4916	6.89	2.42	-20.6	3.29	19.30	500.0	Clear
2	1220	10.04	4933	6.87	2.08	-50.4	1.33	19.32	500.0	Clear
3	1225	9.94	4915	6.87	2.07	-51.0	1.01	19.35	500.0	Clear
4	1230	9.60	4949	6.88	2.11	-45.0	1.04	19.36	500.0	Clear
5	1235	10.08	4924	6.87	2.10	-38.9	0.96	19.35	500.0	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No
Total Volume Removed: 2500.0 mL
Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104
Sampling Personal:	Jeremy Olson

Weather Conditions: Temp: 70 °F Wind: N @ 5-10 Precip: ~~Sunny~~ / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	14.53	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.85	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	1508	~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	—	am/pm
Sample Date:	30 Jun 16	Time of Sampling:	1558	am/~~pm~~

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1513	12.66	14053	6.96	2.36	63.8	18.0	14.68	500.0	clear
2	1518	12.33	14015	6.95	1.60	73.7	17.3	14.81	500.0	Clear
3	1523	11.86	14084	6.94	1.24	79.2	26.0	14.81	500.0	clear
4	1528	11.74	14130	6.95	1.18	84.0	17.1	14.83	500.0	clear
5	1533	11.99	14135	6.95	1.21	85.8	13.6	14.85	500.0	clear
6	1538	11.78	14092	6.94	1.19	87.7	9.42	14.84	500.0	Clear
7	1543	11.75	14128	6.93	1.69	89.9	6.32	14.82	500.0	clear
8	1548	11.61	14127	6.92	1.13	92.5	4.80	14.83	500.0	clear
9	1553	12.06	14116	6.93	1.18	94.6	3.74	14.84	500.0	Clear
10	1558	12.03	14079	6.92	1.20	95.3	2.92	14.85	500.0	Clear

Stabilized: ~~Yes~~ No Total Volume Removed: 5000.0 mL

Comments:

Continued on next Page

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104
Sampling Personal:	Jeremy Player
Date:	30 June 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	1603	11.84	14089	6.92	1.23	95.6	2.81	14.84	500.0	Clear
12	1608	11.91	14092	6.92	1.19	95.7	2.76	14.85	500.0	Clear
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes No

Total Volume Removed: 6000.0 mL

Comments:

MVTL **Laboratories, Inc.**
2616 E. Broadway
Bismarck, ND 58501
Phone (701) 258-9720

Chain of Custody Record

Project Name: MDU Heskett CCR Groundwater June Event 2016

Name of Sampler(s): Darren Nieswaag

Report To: MDU
Attn: Samantha Marshall
Address: 400 N. 4th St
Bismarck, ND 58501
Phone: 701-222-7829

Carbon Copy:
Attn:
Address:

Work Order Number: 82-1932

Lab Number	Sample ID	Date	Time	Sample Type	Gradient	500 ml HNO_3	1 liter	500 ml HNO_3 (filtered)					Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
						Bottle Type							**Field Parameters**			**Analysis**
W2450	Dup 2	30Jun16	NA	W		X	X	X					NA	NA	NA	MDU CCR List with TSS and Dissolved CCR Metals. No RadChem.
W2451	Field Blank (FB)	30Jun16	NA	W		X	X	X					NA	NA	NA	
W2452	MW70	30Jun16	0747	GW		X	X	X					10.32	4395	7.03	
W2453	MW101	30Jun16	1029	GW		X	X	X					12.66	5130	6.70	
W2454	MW 80R	30Jun16	1416	GW		X	X	X					11.54	6043	7.10	
W2455	MW105	30Jun16	1730	GW		X	X	X					12.08	7618	6.72	
W2456	MW 33	30Jun16	1040	GW		X	X	X					11.82	5140	6.52	
W2457	MW 2-90	30Jun16	1415	GW		X	X	X					9.14	7639	6.93	
W2458	MW 3-90	30Jun16	1235	GW		X	X	X					10.08	4924	6.87	
W2459	MW 104	30Jun16	1608	GW		X	X	X					11.91	14092	6.92	

Comments:

1Jul2016 ~~1Jul2016~~ 1Jul2016

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1		walk in 2	30Jun16 1906			~~1Jul2016~~ 0800	ROI 5.4
2							TM588
3							

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CASE NARRATIVE

MVTL Lab Reference No/SDG: **201682-1933**
IML Lab Reference No/SDG: **S1607046**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR June 2016**
MVTL Laboratory Identifications: **16-W2460** through **16-W2469**
IML Laboratory Identifications: **S1607046-001** through **S1607046-010**

MDU Sample Identification	MVTL Laboratory #	IML Laboratory #
Dup2	16-W2460	S1607046-001
Field Blank (FB)	16-W2461	S1607046-002
MW70	16-W2462	S1607046-003
MW101	16-W2463	S1607046-004
MW80R	16-W2464	S1607046-005
MW105	16-W2465	S1607046-006
MW33	16-W2466	S1607046-007
MW2-90	16-W2467	S1607046-008
MW3-90	16-W2468	S1607046-009
MW104	16-W2469	S1607046-010

I. RECEIPT

- All samples were received at the laboratory on 1 July 2016 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
    - Temperature of samples upon receipt was 5.4°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 6 July 2016.
    - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

II. HOLDING TIMES

- All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

III. METHODS

- Approved methodology was followed for all sample analyses.
    - Please refer to the IML Case Narrative for more information regarding methodology.

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CASE NARRATIVE

MVTL Lab Reference No/SDG:	**201682-1933**
IML Lab Reference No/SDG:	**S1607046**
Client:	**Montana Dakota Utilities**
Location:	**MDU Heskett Ash Site**
Project Identification:	**CCR June 2016**
MVTL Laboratory Identifications:	**16-W2460** through **16-W2469**
IML Laboratory Identifications:	**S1607046-001** through **S1607046-010**

IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

V. REPORTING

- Per email from Barr Engineering dated 10 March 2016, IML was directed to report numerical values, including negative results for both the sample results and the method analyte precision.
- Per email from Samantha Marshall with MDU, MVTL was directed to report the radium 226 and radium 228 values individually and then MDU would calculate the summation result using their database tabulations.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 15 Aug 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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MEMBER ACIL

Report Date: 10 Aug 16
Lab Number: 16-W2460
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: Dup2
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			1 Aug 16	OL
Radium 228	See Attached Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 10 Aug 16
Lab Number: 16-W2461
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: Field Blank (FB)
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			1 Aug 16	OL
Radium 228	See Attached Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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Report Date: 10 Aug 16
Lab Number: 16-W2462
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 7:47
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW70
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed		Analyst
pH - Field	7.03	units	NA	SM 4500 H+ B	30 Jun 16	7:47	DJN
Temperature - Field	10.3	Degrees C	NA	SM 2550B	30 Jun 16	7:47	DJN
Conductivity - Field	4395	umhos/cm	1	EPA 120.1	30 Jun 16	7:47	DJN
Radium 226	See Attached Report				2 Aug 16		OL
Radium 228	See Attached Report				8 Aug 16		OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 10 Aug 16
Lab Number: 16-W2463
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 10:29
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW101
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.70	units	NA	SM 4500 H+ B	30 Jun 16 10:29	DJN
Temperature - Field	12.7	Degrees C	NA	SM 2550B	30 Jun 16 10:29	DJN
Conductivity - Field	5130	umhos/cm	1	EPA 120.1	30 Jun 16 10:29	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll cc 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 10 Aug 16
Lab Number: 16-W2464
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 14:16
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW80R
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	7.10	units	NA	SM 4500 H+ B	30 Jun 16 14:16	DJN
Temperature - Field	11.8	Degrees C	NA	SM 2550B	30 Jun 16 14:16	DJN
Conductivity - Field	6043	umhos/cm	1	EPA 120.1	30 Jun 16 14:16	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

CC

Approved by: Claudette K. Carroll 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

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Report Date: 10 Aug 16
Lab Number: 16-W2465
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 17:30
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW105
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.72	units	NA	SM 4500 H+ B	30 Jun 16 17:30	DJN
Temperature - Field	12.1	Degrees C	NA	SM 2550B	30 Jun 16 17:30	DJN
Conductivity - Field	7618	umhos/cm	1	EPA 120.1	30 Jun 16 17:30	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15Aug16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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MEMBER ACIL

Report Date: 10 Aug 16
Lab Number: 16-W2466
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 10:40
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW33
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.52	units	NA	SM 4500 H+ B	30 Jun 16 10:40	DJN
Temperature - Field	11.8	Degrees C	NA	SM 2550B	30 Jun 16 10:40	DJN
Conductivity - Field	5140	umhos/cm	1	EPA 120.1	30 Jun 16 10:40	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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! = Due to sample quantity + = Due to internal standard response

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Report Date: 10 Aug 16
Lab Number: 16-W2467
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 14:15
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW2-90
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.93	units	NA	SM 4500 H+ B	30 Jun 16 14:15	DJN
Temperature - Field	9.14	Degrees C	NA	SM 2550B	30 Jun 16 14:15	DJN
Conductivity - Field	2639	umhos/cm	1	EPA 120.1	30 Jun 16 14:15	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 15 Aug 16 CC

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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CERTIFICATION: ND # ND-00016

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Report Date: 10 Aug 16
Lab Number: 16-W2468
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 12:35
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW3-90
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.87	units	NA	SM 4500 H+ B	30 Jun 16 12:35	DJN
Temperature - Field	10.1	Degrees C	NA	SM 2550B	30 Jun 16 12:35	DJN
Conductivity - Field	4924	umhos/cm	1	EPA 120.1	30 Jun 16 12:35	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

Report Date: 10 Aug 16
Lab Number: 16-W2469
Work Order #:82-1933
Account #: 002800
Date Sampled: 30 Jun 16 16:08
Date Received: 1 Jul 16 8:00
Sampled By: MVTL Field Services

Samantha Marshall
Montana Dakota Utilities
400 N. 4th
Bismarck ND 58501

Project Name: CCR Radiochem June Event 2016
Sample Description: MW104
Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.92	units	NA	SM 4500 H+ B	30 Jun 16 16:08	DJN
Temperature - Field	11.9	Degrees C	NA	SM 2550B	30 Jun 16 16:08	DJN
Conductivity - Field	14092	umhos/cm	1	EPA 120.1	30 Jun 16 16:08	DJN
Radium 226	See Attached Report				2 Aug 16	OL
Radium 228	See Attached Report				8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 15 Aug 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date:

CLIENT: MVTL Laboratories, Inc.
Project: 201682-1933
Lab Order: S1607046

CASE NARRATIVE

Report ID: S1607046001

Samples 16-W2460 Dup2, 16-W2461 Field Blank, 16-W2462 MW70, 16-W2463 MW101, 16-W2464 MW80R, 16-W2465 MW105, 16-W2466 MW33, 16-W2467 MW2-90, 16-W2468 MW3-90, and 16-W2469 MW104 were received on July 6, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicatec in this case narrative.

Reviewed by: Tom Patten
Tom Patten, Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	8/9/2016
		Report ID	S1607046001
ProjectName:	201682-1933	**WorkOrder:**	S1607046
Lab ID:	S1607046-001	**CollectionDate:**	6/30/2016
ClientSample ID:	16-W2460 Dup2	**DateReceived:**	7/6/2016 10:47:00 AM
COC:	201682-1933	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	08/01/2016 1622	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/01/2016 1622	MB
Radium 228	-0.8	pCi/L		1	Ga-Tech	08/08/2016 018	MB
Radium 228 Precision (±)	4.1	pCi/L			Ga-Tech	08/08/2016 018	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-002
ClientSample ID: 16-W2461 Field Blank
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.05	pCi/L		0.2	SM 7500 Ra-B	08/01/2016 1622	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/01/2016 1622	MB
Radium 228	0.4	pCi/L		1	Ga-Tech	08/08/2016 220	MB
Radium 228 Precision (±)	3.9	pCi/L			Ga-Tech	08/08/2016 220	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-003
ClientSample ID: 16-W2462 MW70
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 7:47:00 AM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	5.4	pCi/L		1	Ga-Tech	08/08/2016 421	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	08/08/2016 421	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-004
ClientSample ID: 16-W2463 MW101
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 10:29:00 AM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.5	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	5.8	pCi/L		1	Ga-Tech	08/08/2016 623	MB
Radium 228 Precision (±)	3.6	pCi/L			Ga-Tech	08/08/2016 623	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-005
ClientSample ID: 16-W2464 MW80R
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 2:16:00 PM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	1.3	pCi/L		1	Ga-Tech	08/08/2016 824	MB
Radium 228 Precision (±)	4.1	pCi/L			Ga-Tech	08/08/2016 824	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-006
ClientSample ID: 16-W2465 MW105
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 5:30:00 PM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	-3.3	pCi/L		1	Ga-Tech	08/08/2016 1026	MB
Radium 228 Precision (±)	3.7	pCi/L			Ga-Tech	08/08/2016 1026	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
X	Matrix Effect
C	Calculated Value
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-007
ClientSample ID: 16-W2466 MW33
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 10:40:00 AM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.2	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	-0.5	pCi/L		1	Ga-Tech	08/08/2016 1227	MB
Radium 228 Precision (±)	3.7	pCi/L			Ga-Tech	08/08/2016 1227	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-008
ClientSample ID: 16-W2467 MW2-90
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 2:15:00 PM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	-4.0	pCi/L		1	Ga-Tech	08/08/2016 1429	MB
Radium 228 Precision (±)	3.6	pCi/L			Ga-Tech	08/08/2016 1429	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-009
ClientSample ID: 16-W2468 MW3-90
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 12:35:00 PM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	-1.7	pCi/L		1	Ga-Tech	08/08/2016 1631	MB
Radium 228 Precision (±)	3.6	pCi/L			Ga-Tech	08/08/2016 1631	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/9/2016
Report ID S1607046001

ProjectName: 201682-1933
Lab ID: S1607046-010
ClientSample ID: 16-W2469 MW104
COC: 201682-1933

WorkOrder: S1607046
CollectionDate: 6/30/2016 4:08:00 PM
DateReceived: 7/6/2016 10:47:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.16	pCi/L		0.2	SM 7500 Ra-B	08/02/2016 909	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2016 909	MB
Radium 228	-1.0	pCi/L		1	Ga-Tech	08/08/2016 1832	MB
Radium 228 Precision (±)	3.5	pCi/L			Ga-Tech	08/08/2016 1832	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Inter-Mountain Labs
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc. **Date:**
Work Order: S1607046
Project: 201682-1933

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-366 (08/07/16 08:05)	RunNo: 137356	PrepDate: 07/26/16 14:00			BatchID 12100		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					

Radium 228 by Ga/Tech Sample Type **LCS** Units: pCi/L

LCS-366 (08/07/16 10:07)	RunNo: 137356	PrepDate: 07/26/16 14:00			BatchID 12100		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	29	1	38.5		76.3	61.3 - 120	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-366 (08/07/16 14:10)	RunNo: 137356	PrepDate: 07/26/16 14:00			BatchID 12100		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 228 (Dissolved)	32	1	38.5	ND	81.8	64.3 - 120	
Total Radium 228	32	1	38.5	ND	81.8	64.3 - 120	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-366 (08/07/16 16:12)	RunNo: 137356	PrepDate: 07/26/16 14:00			BatchID 12100		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 228 (Dissolved)	34	1	32	6.06	87.0	20	
Total Radium 228	34	1	32	6.06	87.0	20	

Radium 226 in Water - Total by SM7500RA_B Sample Type **MBLK** Units: pCi/L

MB-1636 (08/01/16 16:22)	RunNo: 137277	PrepDate: 07/20/16 0:00			BatchID 12116		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

Radium 226 in Water - Total by SM7500RA_B Sample Type **LCS** Units: pCi/L

LCS-1636 (08/01/16 16:22)	RunNo: 137277	PrepDate: 07/20/16 0:00			BatchID 12116		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	5.6	0.2	5.99		93.6	67.1 - 122	

Radium 226 in Water - Total by SM7500RA_B Sample Type **LCSD** Units: pCi/L

LCSD-1636 (08/01/16 16:22)	RunNo: 137277	PrepDate: 07/20/16 0:00			BatchID 12116		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	5.2	0.2	5.6	7.10	87.2	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-1933

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
	Quote Number	Date Submitted: 7/1/2016
	Project Name/Number:	Purchase Order #: BL5608

Sample Information						Bottle Type						Analysis
S1607046 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other	Temp	Analysis Required
001	16-W2460	Dup2		6/30/2016							23.8	Radium 228 & Radium 228 on all
002	16-W2461	Field Blank		6/30/2016							↓	
003	16-W2462	MW70		6/30/2016	747							
004	16-W2463	MW101		6/30/2016	1029							
005	16-W2464	MW80R		6/30/2016	1416							
006	16-W2465	MW105		6/30/2016	1730						24.0	
007	16-W2466	MW33		6/30/2016	1040							
008	16-W2467	MW2-90		6/30/2016	1415							
009	16-W2468	MW3-90		6/30/2016	1235							
010	16-W2469	MW104		6/30/2016	1608						↓	

Comments: All results must be reported as a mumerical value.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
C. Jackson	7/1/2016	1700		Derek Schmidt	7-1-16	10:47	23.8
2.							24.0

MVTL **Laboratories, Inc.**
2616 E. Broadway
Bismarck, ND 58501
Phone (701) 258-9720

Chain of Custody Record

Project Name:
MDU | Heskett | CCR Radiochem | June Event 2016

Name of Sampler(s): Darren Nieswaag

Report To: MDU
Attn: Samantha Marshall
Address: 400 N. 4th St
Bismarck, ND 58501
Phone: 701-222-7829

Carbon Copy:
Attn:
Address:

Work Order Number: 82-1933

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Gradient	1000 ml HNO_3							Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W24660	Dup 2	30June16	NA	W		4							NA	NA	NA	MDU CCR Numerical RadChem
W24661	Field Blank (FB)	30June16	NA	W		4							NA	NA	NA	
W24662	MW70	30June16	0747	GW		4							10.32	4395	7.03	
W24663	MW101	30June16	1029	GW		4							12.66	5130	6.70	
W24664	MW 80R	30June16	1416	GW		4							11.54	6043	7.10	
W24665	MW 105	30June16	1730	GW		4							12.08	7618	6.72	
W24666	MW 73	30June16	1040	GW		4							11.82	5140	6.52	
W24667	MW2-90	30June16	1415	GW		4							9.14	7639	6.93	
W24668	MW3-90	30June16	1235	GW		4							10.08	4924	6.87	
W24669	MW 104	30June16	1608	GW		4							11.91	14092	6.92	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Darren Nies	Walk in 2	30June16 1900			1.JUL2016 0800	ROI 5.4
2							TM588
3							

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: Jeremy Meyer

Instrument (Circle One): (#1 650 MDS 08F100203) #2 650 MDS 04H14736 #3 556 MPS 12E102056

Pre Site Calibration

Date: 30 June 16 **Time:** 0902

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	21.55	7.05	7.00	6.95-7.05	-19.2	0 +/- 50
Buffer 10	21.55	10.01	10.00	9.95-10.05	-194.8	-180 +/- 50
Conductivity						Check
Buffer 10000	20.34	9972	10000	±10%	Buffer 5000	4980
ORP						
231 mV @ 25C	5.00	257.3	257.0	±10 mV		
DO					Barometric Pressure (mm Hg)	
	16.16	101.3%	101.0%	mg/L	769.95	

Post Site Check

Time:

	Temp °C	Reading
pH		
Buffer 7	21.67	7.01
Conductivity		
Buffer 5000	21.43	4978

Date: Time:

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7				6.95-7.05		0 +/- 50
Buffer 10				9.95-10.05		-180 +/- 50
Conductivity						Check
Buffer 10000				±10%	Buffer 5000	
ORP						
231 mV @ 25C				±10 mV		
DO					Barometric Pressure (mm Hg)	
				mg/L		

Time:

	Temp °C	Reading
pH		
Buffer 7		
Conductivity		
Buffer 5000		

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: Darren Nissaaas

Instrument (Circle One): #1 650 MDS 08F100203 | #2 650 MDS 04H14736 | ~~#3 556 MPS 12E102056~~

Pre Site Calibration

Date: 29 June 16 **Time:** 0715

pH	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
Buffer 7	22.10	7.04	7.00	6.95-7.05	-35.5	0 +/- 50
Buffer 10	21.94	9.98	10.00	9.95-10.05	-210.5	-180 +/- 50

Conductivity						Check
Buffer 10000 ICCA	22.23	10180	10006	±10%	Buffer 5000	4974

ORP				
231 mV @ 25C	6.90	258.9	257.1	±10 mV

DO				Barometric Pressure (mm Hg)	
	21.80	9.38	8.30	mg/L	719.2

Date: 30 June 16 **Time:** 0600

pH	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
Buffer 7	21.71	6.95	7.00	6.95-7.05	-32.7	0 +/- 50
Buffer 10	21.66	10.07	10.00	9.95-10.05	-211.4	-180 +/- 50

Conductivity						Check
Buffer 10000 ICCA	22.18	9887	10001	±10%	Buffer 5000 ICCA	5014

ORP				
231 mV @ 25C	~~25.39~~	251.4	257.7	±10 mV

DO				Barometric Pressure (mm Hg)	
	21.25	7.02	8.39	mg/L	719.6

Post Site Check

Time: 1925

pH	Temp °C	Reading
Buffer 7	23.63	6.95

Conductivity		
Buffer 5000 ICCA	22.99	4956

Time: 1859

pH	Temp °C	Reading
Buffer 7	23.31	7.03

Conductivity		
Buffer 5000	22.48	4982

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW10

Sampling Personal: Darren Nieswand

Weather Conditions: Temp: 61 °F Wind: N 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	21.25	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	32.68	ft
Water Level After Sample:	22.28	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	~~Yes~~	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	0657 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	0747 ~~am~~/pm

Bottle List:	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0707	10.03	4517	6.96	2.40	195.8	25.3	22.11	1000	clear
2	0717	10.00	4499	6.98	2.37	190.5	10.6	22.15	1000	clear
3	0722	9.84	4484	6.98	2.37	188.6	10.3	22.15	500	clear
4	0727	9.87	4441	6.98	2.13	187.6	5.24	22.15	500	clear
5	0732	9.87	4352	7.00	7.54	186.2	4.61	22.15	500	clear
6	0737	9.82	4357	7.02	8.75	184.9	4.55	22.20	500	clear
7	0742	10.36	4359	7.02	8.90	183.5	4.41	22.20	500	clear
8	0747	10.32	4395	7.03	9.44	182.1	4.80	22.20	500	clear
9										
10										

Stabilized: Yes ~~No~~

Total Volume Removed: 5000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW 101

Sampling Personal: Darren Nicholas

Weather Conditions: Temp: 68 °F Wind: N 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	37.62	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	46.85	ft
Water Level After Sample:	41.72	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	0904 am/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1029 am/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
0914 1	~~0909~~	11.05	5104	6.71	10.25	54.7	34.0	38.96	1000	clear
0924 2	~~0914~~	11.28	5096	6.71	10.05	48.3	28.3	39.29	~~1000~~ 500	clear
0939 3	~~0919~~	12.40	5084	6.71	9.17	32.9	14.1	39.31	1000	clear
4	0949	12.19	5086	6.71	9.32	31.5	11.6	39.40	1000	clear
5	0959	11.98	5100	6.71	9.48	30.1	7.94	39.61	1000	clear
6	1004	11.79	5119	6.71	9.63	27.7	6.96	39.75	500	clear
7	1009	12.15	5105	6.70	9.34	25.2	6.08	39.81	500	clear
8	1014	13.32	5111	6.71	8.47	22.5	5.30	39.81	500	clear
9	1019	12.14	5126	6.71	8.63	19.0	4.38	39.85	500	clear
10	1024	12.78	5132	6.70	8.89	17.0	4.78	39.95	500	clear

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: — mL

Comments:

See next page

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW107
Sampling Personal: Darren Wiesgram
Date: 6/30 Time: 1029

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	1029	12.66	5130	6.70	8.97	16.0	4.71	40.00	500	clear
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No
Total Volume Removed: 8500 mL
Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW80R

Sampling Personal: Darren Nisbet

Weather Conditions: Temp: 77 °F Wind: N 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	14.25	ft	
Total Well Depth:		ft	
Well Volume:	—	liters	
Depth to Top of Pump:	19.30	ft	
Water Level After Sample:	14.98	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	Dup-2		

Control Settings

Purge:	334 sec.
Recover:	5456 sec.
PSI:	—
Pumping Rate:	100 mL/min

Purge Date:	30 June 16	Time Purging Began:	1151 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1416 am/pm

Bottle List:	4 # - 500 mL Nitric	4 # - 1 Liter Raw	2 - 250 mL Sulfiric
	4 # - 500 mL Nitric (filtered)		8 # - 1 Liter Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1201	12.50	6027	7.08	9.06	39.9	32.7	14.98	1000	clear
2	1211	12.33	6027	7.06	9.19	48.5	62.0	14.98	1000	clear
3	1221	11.61	6012	7.07	9.73	55.1	66.0	14.98	1000	clear
4	1231	12.03	6011	7.08	9.42	59.1	48.1	14.98	1000	clear
5	1241	11.91	6003	7.08	9.45	61.7	37.9	14.98	1000	clear
6	1251	11.85	6003	7.08	9.60	64.6	36.5	14.98	1000	clear
7	1301	11.70	6031	7.09	10.17	70.2	23.7	14.98	1000	clear
8	1311	12.46	6048	7.10	9.58	68.8	17.8	14.98	1000	clear
9	1321	12.12	6032	7.10	9.80	70.3	13.3	14.98	1000	clear
10	1331	12.05	6034	7.10	9.87	76.3	9.99	14.98	1000	clear

Stabilized: Yes No

Total Volume Removed: 10,000 mL

Comments:

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: June Event 2016
Sample ID: MW80R
Sampling Personal: Dawson/Feeney
Date: 30 June 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	1341	11.44	6023	7.11	10.33	74.6	8.09	14.98	1000	clear
12	1346	12.08	6040	7.11	9.84	74.1	7.16	14.98	500	clear
13	1351	11.84	6044	7.11	10.03	74.2	6.14	14.98	500	clear
14	1356	11.56	6036	7.11	10.25	75.1	5.04	14.98	500	clear
15	1401	11.61	6024	7.10	10.14	74.9	5.43	14.98	500	clear
16	1406	11.54	6039	7.10	10.18	75.7	4.83	14.98	500	clear
17	1411	11.94	6040	7.11	~~10~~ 9.96	75.6	4.70	14.98	500	clear
18	1416	11.54	6043	7.10	9.98	76.4	4.56	14.98	500	clear
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 14,500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: June Event 2016

Sample ID: MW05

Sampling Personal: Darren Kresway

Weather Conditions: Temp: 78 °F Wind: N 5 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	(No)	
Well Labeled?	~~Yes~~	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	13.55 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	21.15 ft
Water Level After Sample:	13.81 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:			

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	15	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	1640 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1730 am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1650	12.04	6481	6.73	9.85	75.0	8.25	13.70	1000	clear
2	1655	11.89	6687	6.73	9.95	79.5	7.44	13.81	500	clear
3	1700	11.80	6939	6.72	10.03	83.5	7.00	13.81	500	clear
4	1705	11.70	7174	6.72	10.09	87.5	6.02	13.81	500	clear
5	1710	11.58	7268	6.71	10.19	89.5	6.91	13.81	500	clear
6	1715	12.41	7375	6.72	9.46	92.1	6.41	13.81	500	clear
7	1720	12.73	7477	6.70	9.28	94.8	6.87	13.81	500	clear
8	1725	12.96	7570	6.72	9.41	95.6	6.67	13.81	500	clear
9	1730	12.08	7618	6.72	9.78	98.6	6.34	13.81	500	clear
10										

Stabilized: (Yes) No

Total Volume Removed: 5000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MW33
Sampling Personal:	Jerry Ply

Weather Conditions: Temp: 75 °F Wind: NE 5-10 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	41.98	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	42.60	ft
Water Level After Sample:	BTOP	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	0950 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 Jun 16	Time of Sampling:	1040 (am)/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	0955	9.59	5080	6.52	1.90	114.9	15.2	BTOP	500.0	Clear
2	1000	11.53	5076	6.52	1.78	95.3	8.64	BTOP	500.0	Clear
3	1005	11.38	5116	6.52	1.86	82.7	6.33	BTOP	500.0	Clear
4	1010	11.38	5139	6.52	1.77	72.8	5.04	BTOP	500.0	Clear
5	1015	11.56	5145	6.52	1.73	65.6	3.49	BTOP	500.0	Clear
6	1020	11.69	5159	6.52	1.69	61.1	2.09	BTOP	500.0	Clear
7	1025	11.72	5167	6.52	1.71	56.7	1.64	BTOP	500.0	Clear
8	1030	11.62	5173	6.52	1.70	52.1	1.28	BTOP	500.0	Clear
9	1035	11.78	5154	6.52	1.68	47.4	1.10	BTOP	500.0	Clear
10	1040	11.82	5140	6.52	1.68	46.6	1.10	BTOP	500.0	Clear

Stabilized: (Yes) No

Total Volume Removed: 5000.0 mL

Comments:

BTOP = Below Top of Pump

Should lower pump to record water levels

Could not record water levels for stabilization due to pump being in the way.

Good recharge to maintain water level.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	2-90
Sampling Personal:	

Weather Conditions: Temp: 75 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.58	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.05	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 June 16	Time Purging Began:	1345	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	—	am/pm
Sample Date:	30 June 16	Time of Sampling:	1415	am/pm

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1350	9.40	7861	7.01	5.47	105.3	3.04	22.03	500.0	Clear
2	1355	9.46	7853	6.94	4.44	114.7	1.61	22.05	500.0	Clear
3	1400	9.23	7805	6.93	4.24	117.3	1.25	22.04	500.0	Clear
4	1405	9.50	7694	6.93	4.22	118.4	0.52	22.05	500.0	Clear
5	1410	9.41	7707	6.93	4.25	118.5	0.43	22.04	500.0	Clear
6	1415	9.14	7639	6.93	4.25	117.9	0.41	22.05	500.0	Clear
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 3000.0 mL

Comments:

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	3990
Sampling Personal:	Jerry Player

Weather Conditions: Temp: 75 °F Wind: NW 5-10 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	19.22	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.30	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	1210 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 June 16	Time of Sampling:	1235 am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1215	10.52	4916	6.89	2.42	-20.6	3.29	19.30	500.0	Clear
2	1220	10.04	4933	6.87	2.08	-50.4	1.33	19.32	500.0	Clear
3	1225	9.94	4915	6.87	2.07	-51.0	1.01	19.35	500.0	Clear
4	1230	9.60	4949	6.88	2.11	-45.0	1.04	19.36	500.0	Clear
5	1235	10.08	4924	6.87	2.10	-38.9	0.96	19.35	500.0	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500.0 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104
Sampling Personal:	Jeremy Mayer

Weather Conditions: Temp: 70 °F Wind: N @ 5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	14.53	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	14.85	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 Jun 16	Time Purging Began:	1508	am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	—	am/pm
Sample Date:	30 Jun 16	Time of Sampling:	1558	am/(pm)

Bottle List:				
	2 - 500 mL Nitric	2 - 1 Liter Raw	250 mL Sulfiric	
	2 - 500 mL Nitric (filtered)		4 - 1 Liter Nitric	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1513	12.66	14053	6.96	2.36	63.8	18.0	14.68	500.0	clear
2	1518	12.33	14015	6.95	1.60	73.7	17.3	14.81	500.0	Clear
3	1523	11.86	14084	6.94	1.24	79.2	26.0	14.81	500.0	clear
4	1528	11.74	14130	6.95	1.18	84.0	17.1	14.83	500.0	clear
5	1533	11.99	14135	6.95	1.21	85.8	13.6	14.85	500.0	clear
6	1538	11.78	14092	6.94	1.19	87.7	9.42	14.84	500.0	Clear
7	1543	11.75	14128	6.93	1.69	89.9	6.32	14.82	500.0	Clear
8	1548	11.61	14127	6.92	1.13	92.5	4.80	14.83	500.0	Clear
9	1553	12.06	14116	6.93	1.18	94.6	3.74	14.84	500.0	Clear
10	1558	12.03	14079	6.92	1.20	95.3	2.92	14.85	500.0	Clear

Stabilized: (Yes) No

Total Volume Removed: 5000.0 mL

Comments:

Continued on next Page

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104
Sampling Personal:	Jeremy Player
Date:	30 June 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
11	1603	11.84	14089	6.92	1.23	95.6	2.81	14.84	500.0	Clear
12	1608	11.91	14092	6.92	1.19	95.7	2.76	14.85	500.0	Clear
13										
14										
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29										
30										

Stabilized: Yes No

Total Volume Removed: 6000.0 mL

Comments:

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July 28, 2017

Montana Dakota Utilities
Attn: Samantha Marshall
400 N. 4th St.
Bismarck, ND 58501

RE: Groundwater Sampling Event - MDU Heskett Ash Site

Dear Ms. Marshall:

On July 27, 2017, MVTL Laboratories' Field Services division collected groundwater samples at the MDU Heskett site near Mandan, ND for the Heskett Coal Combustion Rule.

All wells were located and were found to be in generally good condition. The wells for CCR were purged and sampled using a dedicated bladder pump and BARR's SOP for low flow purging and sampling. Samples were collected from wells 104 and 70. The samples collected were, placed on ice and transported back to the MVTL laboratory in Bismarck, ND for analysis. The field data report for the sampling event accompanies this letter.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer
MVTL Field Services

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CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-2038
Client: Montana Dakota Utilities
Location: MDU Heskett
Project Identification: CCR July 2017
MVTL Laboratory Identifications: 17-W3197 through 17-W3198
Page 1 of 1

MDU Sample Identification	MVTL Laboratory #
MW104	17-W3197
MW70	17-W3198

I. RECEIPT

- All samples were received at the laboratory on 27 Jul 17 at 1226.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 4.8°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

II. HOLDING TIMES

- With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.

IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - The recoveries for one selenium matrix spike/matrix spike duplicate were outside the acceptable limits. RPD for the recoveries was within limits. Poor recoveries were determined to be due to sample matrix. Data was accepted based on acceptable recovery of the LCS. No further action was taken.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 16Aug'17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Quality Control Report

Lab IDs: 17-W3197 to 17-W3198 **Project:** MDU Heskett - CCR **Work Order:** 201782-2038

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	102	80-120	0.400	17W2959q	< 0.001	0.4174	104	75-125	0.4174	0.4188	105	0.3	20	-	-	< 0.001
	0.1000	96	80-120	0.400	17W3137q	< 0.001	0.4096	102	75-125	0.4096	0.4170	104	1.8	20	-	-	< 0.001
				0.400	17W3197q	< 0.001	0.4186	105	75-125	0.4186	0.4088	102	2.4	20	-	-	
				0.100	17W3197Dq	< 0.001	0.1002	100	75-125	0.1002	0.0975	97	2.7	20	-	-	
Arsenic - Total mg/l	0.1000	102	80-120	0.400	17W2959q	< 0.002	0.4222	106	75-125	0.4222	0.4226	106	0.1	20	-	-	< 0.002
	0.1000	93	80-120	0.400	17W3137q	< 0.002	0.4128	103	75-125	0.4128	0.4188	105	1.4	20	-	-	< 0.002
				0.400	17W3197q	< 0.002	0.4186	105	75-125	0.4186	0.4244	106	1.4	20	-	-	
				0.100	17W3197Dq	< 0.002	0.1085	108	75-125	0.1085	0.1076	108	0.8	20	-	-	
Barium - Total mg/l	0.1000	93	80-120	0.400	17W2959q	0.0120	0.4000	97	75-125	0.4000	0.4032	98	0.8	20	-	-	< 0.002
	0.1000	90	80-120	0.400	17W3137q	0.0272	0.3982	93	75-125	0.3982	0.4108	96	3.1	20	-	-	< 0.002
				0.400	17W3197q	0.0064	0.3854	95	75-125	0.3854	0.3766	93	2.3	20	-	-	
				0.100	17W3197Dq	0.0067	0.1009	94	75-125	0.1009	0.1010	94	0.1	20	-	-	
Beryllium - Total mg/l	0.1000	97	80-120	0.400	17W2959q	< 0.0005	0.4224	106	75-125	0.4224	0.4268	107	1.0	20	-	-	< 0.0005
	0.1000	102	80-120	0.400	17W3137q	< 0.0005	0.4186	105	75-125	0.4186	0.4266	107	1.9	20	-	-	< 0.0005
				0.400	17W3197q	< 0.0005	0.4362	109	75-125	0.4362	0.4294	107	1.6	20	-	-	
				0.100	17W3197Dq	< 0.0005	0.1099	110	75-125	0.1099	0.1090	109	0.8	20	-	-	
Boron - Total mg/l	0.40	110	80-120	2.00	17-W3137	4.70	6.46	88	75-125	6.46	6.48	89	0.3	20	-	-	< 0.1
				2.00	17-W3197	0.98	2.60	81	75-125	2.60	2.63	83	1.1	20	-	-	< 0.1
				0.400	17-W3254	0.70	1.08	95	75-125	1.08	1.10	100	1.8	20	-	-	
Cadmium - Total mg/l	0.1000	106	80-120	0.400	17W2959q	< 0.0005	0.4150	104	75-125	0.4150	0.4248	106	2.3	20	-	-	< 0.0005
	0.1000	98	80-120	0.400	17W3137q	< 0.0005	0.3928	98	75-125	0.3928	0.4130	103	5.0	20	-	-	< 0.0005
				0.400	17W3197q	< 0.0005	0.4004	100	75-125	0.4004	0.4006	100	0.0	20	-	-	
				0.100	17W3197Dq	< 0.0005	0.0948	95	75-125	0.0948	0.0930	93	1.9	20	-	-	
Calcium - Total mg/l	20.0	106	80-120	1000	17W3197q	428	1400	97	75-125	1400	1410	98	0.7	20	-	-	< 1
	20.0	106	80-120												-	-	< 1
															-	-	< 1
Chloride mg/l	30.0	92	80-120	30.0	17-W3140	21.5	50.9	98	80-120	50.9	50.2	96	1.4	20	-	-	< 1
Chromium - Total mg/l	0.1000	98	80-120	0.400	17W2959q	< 0.002	0.3932	98	75-125	0.3932	0.3858	96	1.9	20	-	-	< 0.002
	0.1000	92	80-120	0.400	17W3137q	< 0.002	0.3716	93	75-125	0.3716	0.3870	97	4.1	20	-	-	< 0.002
				0.400	17W3197q	< 0.002	0.3858	96	75-125	0.3858	0.3902	98	1.1	20	-	-	
				0.100	17W3197Dq	< 0.002	0.1022	102	75-125	0.1022	0.1004	100	1.8	20	-	-	

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Quality Control Report

Lab IDs: 17-W3197 to 17-W3198 **Project:** MDU Heskett - CCR **Work Order:** 201782-2038

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cobalt - Total mg/l	0.1000	96	80-120	0.400	17W2959q	< 0.002	0.3954	99	75-125	0.3954	0.3924	98	0.8	20	-	-	< 0.002
	0.1000	92	80-120	0.400	17W3137q	< 0.002	0.3824	96	75-125	0.3824	0.3990	100	4.2	20	-	-	< 0.002
				0.400	17W3197q	0.0022	0.3996	99	75-125	0.3996	0.3972	99	0.6	20	-	-	
				0.100	17W3197Dq	0.0022	0.1045	102	75-125	0.1045	0.1014	99	3.0	20	-	-	
Fluoride mg/l	0.50	100	90-110	0.500	17-W3203	0.20	0.70	100	80-120	0.70	0.70	100	0.0	20	-	-	< 0.1
				0.500	17-W3264	0.50	1.00	100	80-120	1.00	1.00	100	0.0	20	-	-	< 0.1
				0.500	17-W3286	0.18	0.67	98	80-120	0.67	0.68	100	1.5	20	-	-	
Lead - Total mg/l	0.1000	101	80-120	0.400	17W2959q	0.0035	0.4014	99	75-125	0.4014	0.3992	99	0.5	20	-	-	< 0.0005
	0.1000	96	80-120	0.400	17W3137q	< 0.0005	0.3546	89	75-125	0.3546	0.3684	92	3.8	20	-	-	< 0.0005
				0.400	17W3197q	< 0.0005	0.3624	91	75-125	0.3624	0.3554	89	2.0	20	-	-	
				0.100	17W3197Dq	< 0.0005	0.0859	86	75-125	0.0859	0.0854	85	0.6	20	-	-	
Lithium - Total mg/l	0.40	105	80-120	2.00	17-W3137	0.60	2.83	112	75-125	2.83	2.82	111	0.4	20	-	-	< 0.1
				2.00	17-W3197	2.20	4.26	103	75-125	4.26	4.20	100	1.4	20	-	-	< 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.002	17-W3198	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
Molybdenum - Total mg/l	0.1000	88	80-120	0.400	17W2959q	< 0.002	0.3910	98	75-125	0.3910	0.3990	100	2.0	20	-	-	< 0.002
	0.1000	91	80-120	0.400	17W3137q	0.0025	0.4156	103	75-125	0.4156	0.4214	105	1.4	20	-	-	< 0.002
				0.400	17W3197q	< 0.002	0.4340	108	75-125	0.4340	0.4286	107	1.3	20	-	-	
				0.100	17W3197Dq	< 0.002	0.1160	116	75-125	0.1160	0.1156	116	0.3	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	7.9	7.9	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	8.4	8.4	-	0.0	20	-	-	-
Selenium - Total mg/l	0.1000	107	80-120	0.400	17W2959q	< 0.005	0.4296	107	75-125	0.4296	0.4424	111	2.9	20	-	-	< 0.002
	0.1000	103	80-120	0.400	17W3137q	0.0155	0.4530	109	75-125	0.4530	0.4642	112	2.4	20	-	-	< 0.002
				0.400	17W3197q	0.1396	0.5758	109	75-125	0.5758	0.6096	118	5.7	20	-	-	
				0.100	17W3197Dq	0.1496	0.2990	149	75-125	0.2990	0.2958	146	1.1	20	-	-	

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Quality Control Report

Lab IDs: 17-W3197 to 17-W3198 **Project:** MDU Heskett - CCR **Work Order:** 201782-2038

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Sulfate mg/l	100	98	80-120	100	17-W3200	173	264	91	80-120	264	259	86	1.9	20	-	-	< 5
Thallium - Total mg/l	0.1000	101	80-120	0.400	17W2959q	< 0.0005	0.3992	100	75-125	0.3992	0.3924	98	1.7	20	-	-	< 0.0005
	0.1000	96	80-120	0.400	17W3137q	< 0.0005	0.3604	90	75-125	0.3604	0.3664	92	1.7	20	-	-	< 0.0005
				0.400	17W3197q	< 0.0005	0.3592	90	75-125	0.3592	0.3550	89	1.2	20	-	-	
				0.100	17W3197Dq	< 0.0005	0.0860	86	75-125	0.0860	0.0852	85	0.9	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	4130	4190	-	1.4	20	-	-	< 10

Approved by: C. Gould

16 Aug 17

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CERTIFICATE of ANALYSIS - CCR

Samantha Marshall
Montana Dakota Utilities
400 N 4th St
Bismarck ND 58501

Report Date: 14 Aug 17
Lab Number: 17-W3197
Work Order #: 82-2038
Account #: 002800
Date Sampled: 27 Jul 17 10:57
Date Received: 27 Jul 17 12:26
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW104

Temp at Receipt: 4.8C ROI

Event and Year: July 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	27 Jul 17	CS
pH - Field	6.91	units	NA	SM 4500 H+ B	27 Jul 17 10:57	DJN
pH	* 7.5	units	0.1	SM4500 H+ B	2 Aug 17 18:00	CS
Temperature - Field	11.9	Degrees C	NA	SM 2550B	27 Jul 17 10:57	DJN
Conductivity - Field	14256	umhos/cm	1	EPA 120.1	27 Jul 17 10:57	DJN
Fluoride	0.51	mg/l	0.10	SM4500-F-C	7 Aug 17 18:00	CS
Sulfate	10500	mg/l	5.00	ASTM D516-07	7 Aug 17 17:16	EMS
Chloride	97.2	mg/l	1.0	SM4500-Cl-E	11 Aug 17 14:16	RAG
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 Aug 17 11:38	EV
Total Dissolved Solids	16900	mg/l	10	I1750-85	28 Jul 17 14:15	SVS
Calcium - Total	428	mg/l	1.0	6010D	10 Aug 17 9:50	SZ
Lithium - Total	2.20	mg/l	0.10	6010D	4 Aug 17 9:22	SZ
Boron - Total	0.98	mg/l	0.10	6010D	4 Aug 17 13:12	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020B	3 Aug 17 11:34	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Barium - Total	0.0064	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Cobalt - Total	0.0022	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Selenium - Total	0.1396	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC

* Holding time exceeded

CC

Approved by: Claudette K. Carroll 16 Aug 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Samantha Marshall
Montana Dakota Utilities
400 N 4th St
Bismarck ND 58501

Report Date: 14 Aug 17
Lab Number: 17-W3198
Work Order #: 82-2038
Account #: 002800
Date Sampled: 27 Jul 17 9:10
Date Received: 27 Jul 17 12:26
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW70

Temp at Receipt: 4.8C ROI

Event and Year: July 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	27 Jul 17	CS
pH - Field	6.96	units	NA	SM 4500 H+ B	27 Jul 17 9:10	DJN
pH	* 7.8	units	0.1	SM4500 H+ B	2 Aug 17 18:00	CS
Temperature - Field	11.4	Degrees C	NA	SM 2550B	27 Jul 17 9:10	DJN
Conductivity - Field	4681	umhos/cm	1	EPA 120.1	27 Jul 17 9:10	DJN
Fluoride	0.31	mg/l	0.10	SM4500-F-C	7 Aug 17 18:00	CS
Sulfate	2760	mg/l	5.00	ASTM D516-07	7 Aug 17 17:16	EMS
Chloride	32.5	mg/l	1.0	SM4500-Cl-E	11 Aug 17 14:16	RAG
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 Aug 17 11:38	EV
Total Dissolved Solids	4130	mg/l	10	I1750-85	28 Jul 17 14:15	SVS
Calcium - Total	406	mg/l	1.0	6010D	10 Aug 17 9:50	SZ
Lithium - Total	0.40	mg/l	0.10	6010D	4 Aug 17 9:22	SZ
Boron - Total	0.51	mg/l	0.10	6010D	4 Aug 17 13:12	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020B	3 Aug 17 11:34	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Barium - Total	0.0110	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC
Molybdenum - Total	0.0035	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Selenium - Total	0.0176	mg/l	0.0020	6020B	3 Aug 17 11:34	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020B	3 Aug 17 11:34	CC

* Holding time exceeded

Approved by: Claudette K. Carroll 16 Aug 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: 2017

Sample ID: MW104

Sampling Personal: Darren Nierenz

Weather Conditions: Temp: 68 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	14.09	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	14.48	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		
Purge Date:	27July17	Time Purging Began:	1022 ~~am~~/pm
Well Purged Dry?	Yes	~~No~~	Time Purged Dry: — ~~am/pm~~
Sample Date:	27July17	Time of Sampling:	1057 ~~am~~/pm

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	10	
Pumping Rate:	100	mL/min

Bottle List: 1L Raw, 500mL Nitirc, 500mL Nitric (filtered), 4-1L Nitric; 250 mL Sulfuric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1027	11.87	14176	6.92	1.94	259.0	4.45	14.44	500	clr
2	1032	11.61	14201	6.92	1.03	262.0	2.13	14.41	500	clr
3	1037	11.65	14177	6.92	1.09	263.0	1.28	14.42	500	clr
4	1042	11.47	14196	6.91	0.74	264.2	1.11	14.41	500	clr
5	1047	12.06	14233	6.91	0.63	265.2	0.88	14.42	500	clr
6	1052	12.01	14251	6.91	0.65	265.7	0.83	14.43	500	clr
7	1057	11.92	14256	6.91	~~0.65~~ 0.57	266.1	0.80	14.43	500	clr
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 3500 mL

Comments: