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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW13

1 of 2 Page:

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

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	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	13765-85	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/1	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-C1-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	mq/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:

@ = Due to sample matrix # = Due to con
! = Due to sample quantity + = Due to int

publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CERTIFICATION: ND # ND-00016

all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW13

Page: 2 of 2

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

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	$< 0.001 ^ mg/1$	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005 mg/1	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002 mg/1	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

Approved by:

Clauditte K. Canto 21JU16

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 conduct to sample quantity + = Due to information with ND 20016

publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CERTIFICATION: ND # ND-00016

all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW44R

Page: 1 of 2

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

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
	* 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:

@ = Due to sample matrix # = Due to compared to the property of the pro

CERTIFICATION: ND # ND-00016

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW44R

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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

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	$< 0.001 ^ mg/1$	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002 mg/1	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/1	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002 mg/1	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

Approved by:

Clauditte K. Cantlo ZI JUL16

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 co
! = Due to sample quantity + = Due to in

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

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW103

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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

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
	* 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

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: @= Due to sample matrix #= Due to con! = Due to sample quantity += Due to int

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW103

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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

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/1	0.0005	6020	7 Jul 16 9:39	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	6 Jul 16 19:08	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	6 Jul 16 19:08	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	6 Jul 16 19:08	CC
Lead - Dissolved	< 0.0005 mg/1	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002 mg/1	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

Approved by:

Clauditte K. Canto

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:

@ = Due to sample matrix # = Due to conduct to sample quantity + = Due to interport to the conduct to the conduct

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

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW102

Page: 1 of 2

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

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Jun 16	KMD
	* 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

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The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to con! = Due to sample quantity + = Due to into

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



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

Project Name: MDU Heskett CCR June Event 2016

Sample Description: MW102

2 of 2 Page:

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

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/1	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/1	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/1	0.0005	6020	6 Jul 16 19:08	CC
Molybdenum - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 9:39	CC
Selenium - Dissolved	$< 0.01 ^ mg/1$	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

Approved by:

Clauditte K. Canto

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 conduct to sample quantity + = Due to interport to the conduct to the conduct

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

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

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> < 1 < 1 < 1

Quality Control Report Lab IDs: 16-W2419 to 16-W2424

Project: MDU Heskett CCR June Event 2016

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Work Order: 201682-1918 Matrix Matrix Matrix MSD/ MSD/ LCS LCS LCS Matrix Matrix Spike Matrix Spike Spike Dup Dup MSD/ MSD MSD/ Known Known Spike Rec % Rec Spike Spike Orig Spike Rec % Rec Orig Dup Rec RPD Dup Rec % Rec Method Amt % Limits ID Amt Analyte Result Result % Limits Result Result % RPD Limit (<) (%) Limits Blank Boron - Total mg/l 0.40 115 80-120 0.400 16-W2365 0.40 0.79 98 75-125 0.79 0.79 98 0.0 20 < 0.1 0.40 108 80-120 1.50 16-W2421 0.71 2.22 101 75-125 2.22 2.26 103 1.8 20 < 0.1 0.40 112 80-120 1.50 16-W2450 0.43 1.98 103 75-125 1.98 2.02 106 2.0 20 < 0.11.50 16-W2421 0.61 97 2.06 75-125 2.06 2.10 99 1.9 20 < 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 20 1.7 --

< 0.0005 Cadmium - Total mg/l 0.1000 107 80-120 0.400 16W2289q < 0.0005 0.4496 112 75-125 0.4496 0.4442 111 1.2 20 < 0.0005 0.1000 107 80-120 0.400 16W2397q < 0.0005 | 0.4410 110 75-125 0.4410 0.4528 20 113 2.6 < 0.0005 0.400 16W2421a < 0.0005 | 0.4460 112 75-125 0.4460 0.4592 115 2.9 20 0.100 16W2424Dq < 0.0005 | 0.1076 108 75-125 0.1076 0.1058 106 1.7 20 Calcium - Dissolved mg/l 20.0 110 80-120 500 16w2421q 399 870 94 75-125 870 870 94 0.0 20 < 1 20.0 106 80-120 Calcium - Total mg/l 20.0 110 80-120 100 16W2408q 63.9 163 99 75-125 163 164 100 0.6 20 < 1 20.0 106 80-120 500 16W2421q 391 860 94 860 75-125 860 94 0.0 20 < 1 20.0 109 80-120 500 16W2423q 530 1010 96 75-125 1010 995 93 1.5 20 < 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 98 80-120 0.400 16W2289a 0.0029 0.4048 100 75-125 0.4048 0.3956 98 2.3 20 < 0.002 100 0.1000 80-120 0.400 16W2397q < 0.002 0.3906 98 75-125 0.3906 0.3932 98 0.7 20 < 0.002 0.400 16W2421q < 0.002 0.4106 103 0.4106 75-125 0.4228 106 2.9 20 0.100 16W2424Dq < 0.002 0.1075 108 75-125 0.1075 0.1044 104 2.9 20

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Quality Control Report Lab IDs: 16-W2419 to 16-W2424

Project: MDU Heskett CCR June Event 2016

W------ 0 1 201600 1010

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Lab 1Ds: 16-W2419 to 16-W2424																	
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 0.1000	108 109	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	< 0.001 < 0.001 < 0.001 < 0.001	0.4506 0.4416 0.4710 0.1138	113 110 118 114	75-125 75-125 75-125 75-125	0.4506 0.4416 0.4710 0.1138	0.4502 0.4568 0.4766 0.1143	113 114 119 114	0.1 3.4 1.2 0.4	20 20 20 20 20	-	-	< 0.001 < 0.001
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 0.1000	106 109	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	< 0.002 < 0.002 < 0.002 0.0030	0.4474 0.4392 0.4694 0.1204	112 110 117 117	75-125 75-125 75-125 75-125	0.4474 0.4392 0.4694 0.1204	0.4492 0.4548 0.4748 0.1202	112 114 119 117	0.4 3.5 1.1 0.2	20 20 20 20 20	-	-	< 0.002 < 0.002
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 0.1000	104 106	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	0.1458 0.0425 0.0085 0.0276	0.5870 0.4678 0.4402 0.1306	110 106 108 103	75-125 75-125 75-125 75-125	0.5870 0.4678 0.4402 0.1306	0.5786 0.4582 0.4372 0.1318	108 104 107 104	1.4 2.1 0.7 0.9	20 20 20 20 20	-		< 0.002 < 0.002
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 0.1000	106 100	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16-W2424d	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.4416 0.4432 0.4628 0.1038	110 111 116 104	75-125 75-125 75-125 75-125	0.4416 0.4432 0.4628 0.1038	0.4282 0.4454 0.4730 0.1006	107 111 118 101	3.1 0.5 2.2 3.1	20 20 20 20 20	- -	-	< 0.0005 < 0.0005
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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Lab IDs: 16-W2419 to 16-W2424 Project: MDU Heskett CCR June Event 2016 Work Order: 201682-1918 Matrix Matrix Matrix MSD/ MSD/ LCS LCS LCS Matrix Matrix Spike Matrix Spike Spike Dup MSD/ MSD MSD/ Dup Known Known Spike Rec % Rec Spike Spike Orig Spike Rec % Rec Orig Rec RPD Dup Dup Rec % Rec Method Amt % Limits Amt ID Result % Analyte Result Limits Result Result % RPD Limit (<) (%) Limits 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 0.4030 75-125 0.3952 99 2.0 20 < 0.002 0.1000 100 80-120 0.400 16W2397a < 0.002 0.3960 99 75-125 0.3960 0.3970 99 0.3 20 < 0.002 0.400 16W2421a < 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 94 0.0939 0.1 20 _ < 0.0005 Lead - Total mg/l 0.1000 100 80-120 0.400 16W2289a 0.0016 0.4066 101 75-125 0.4066 0.3942 98 3.1 20 < 0.0005 0.1000 102 80-120 0.400 16W2397a < 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 20 1.2 0.100 16W2424Da < 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 < 0.11.00 16-W2459 1.81 2.97 75-125 116 2.97 2.92 1.7 111 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 < 0.10.400 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 16W2408a 25.3 130 105 75-125 130 131 106 8.0 20 < 1 20.0 109 80-120 500 16W2421a 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 96 955 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

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Lab IDs: 16-W2419 to 16-W2424 Project: MDU Heskett CCR June Event 2016												Wo	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 0.002	16-W2453 16-W2472	< 0.0002 < 0.0002		95 95	70-130 70-130	0.0019 0.0019	0.0020 0.0019	100 95	5.1	20 20	-	-	< 0.0002
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 0.1000	99 100	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16-W2424d	0.0135 < 0.002 < 0.002 < 0.002	0.4364 0.4338 0.4708 0.1038	106 108 118 104	75-125 75-125 75-125 75-125	0.4364 0.4338 0.4708 0.1038	0.4350 0.4522 0.4778 0.1006	105 113 119 101	0.3 4.2 1.5 3.1	20 20 20 20 20	-	-	< 0.002 < 0.002
pH units	-	-	-	-	-	-	-	-	-	6.5 6.8	6.6 6.9	-	1.5 1.5	20 20	_	-	-
Potassium - Dissolved mg/l	10.0 10.0	103 101	80-120 80-120	100	16w2421q	23.0	124	101	75-125	124	124	101	0.0	20	-		< 1
Potassium - Total mg/l	10.0 10.0 10.0	103 101 101	80-120 80-120 80-120	20.0 100 100	16W2408q 16W2421q 16W2423q	4.1 22.6 20.0	24.3 122 120	101 99 100	75-125 75-125 75-125	24.3 122 120	24.4 123 120	102 100 100	0.4 0.8 0.0	20 20 20			<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1
Selenium - Dissolved mg/l	0.1000 0.1000	106 114	80-120 80-120	0.100 0.100	16-W2424 16-W2425	0.0099 0.0905	0.1306 0.2035	121 113	75-125 75-125	0.1306 0.2035	0.1272 0.1990	117 108	2.6 2.2	20 20	-	-	< 0.002 < 0.002
Selenium - Total mg/l	0.1000 0.1000	114 114	80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	0.0030 0.0079 0.0663 < 0.002	0.4782 0.5032 0.5492 0.1306	119 124 121 131	75-125 75-125 75-125 75-125	0.4782 0.5032 0.5492 0.1306	0.4758 0.4666 0.6040 0.1272	118 115 134 127	0.5 7.5 9.5 2.6	20 20 20 20 20	-	-	< 0.002 < 0.002
Sodium - Dissolved mg/l	20.0 20.0	107 107	80-120 80-120	500	16w2421q	1900	2290	78	75-125	2290	2280	76	0.4	20	-	-	< 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

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Lab 1DS: 10-W 2419 to 10-W	2424	11	oject. Mi	DO HESK	en CCR June i	2 VCIII 2010)					VV O	rk Orae	er: 201682	2-1918		
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 <1 <1 <1
Sulfate mg/l Thallium - Dissolved mg/l	100	96	90-110	200	16-W2416 16-W2424	144 < 0.0005	325 0.0942	90	80-120 75-125	325 0.0942	321	88	1.2	20	-	-	< 1 < 5
Thallium - Total mg/l	0.1000 0.1000 0.1000	100	80-120 80-120 80-120	0.400 0.400 0.400 0.100	16W2289q 16W2397q 16W2421q 16W2424Dq	0.0003 0.0008 < 0.0005 < 0.0005 < 0.0005	0.4106 0.3994	102 100 96 94	75-125 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	1.0 1.9 0.3 1.9 1.0	20 20 20 20 20 20	- - - -	- - -	< 0.0005 < 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: Cantle 21 July



Groundwater Assessment

Company:	MDU Hesket	t	
Event:	June Event	2016	
Sample ID:	MW13		
<u> </u>	7		

2616 E. Broadway Ave, Bismarck, ND Phone: (701) 258-9720 Sunny / Partly Cloudy Cloudy ۰F Precip: Weather Conditions: Temp: Wind: / **Well Information** Sampling Information (NO Purging Method: Bladder **Control Settings** Well Locked? Yes Bladder Purge: Sampling Method: sec Well Labeled? (Yes No Yes Dedicated Equip?: Yes>_ No Recover: sec. Casing Straight? No Not Visible Yes 2 10 PSI: Duplicate Sample?: Yes No **Grout Seal Intact?** Pumping Rate: 100 mL/min Duplicate Sample ID: Repairs Necessary: Casing Diameter: Time Purging Began: am/pm Purge Date: 29 Tun 16 Water Level Before Purge: Time Purged Dry AVO) am/pm Well Purged Dry? Total Well Depth: Time of Sampling: 095 @m/pm Well Volume: liters Sample Date: Depth to Top of Pump: 2 - 500 mL Nitric 250 mL Sulfiric 2 - 1 Liter Raw Water Level After Sample: **Bottle** List: 2 - 500 mL Nitric (filtered) 4 - 1 Liter Nitric Measurement Method: **Electric Water Level Indicator**

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	рН	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	Clar
2	0854	11.64	10451	6.81	0,03	187.3	25.9	30,41	500	clev
3	0859	11,54	10421	6,81	0-03	1840	16,8	30,49	500	cles
4	0904	11.45	10396	6.81	0,04	179,1	13.5	30,57	500	Cler
5	0909	12,16	10766	6.82	0,04	177,2	19,8	30,57	502	Clow
6	0919	1195	10370	06.83	0.04	170.6	22,7	30,57	1800	elev
7	0929	11,19	10354	6.83	0,04	168,3	24,0	30,57	1000	ila
8	0939	11.81	10336	6.85	0,04	164,3	1008	30,57	1000	ch
9	0944	11,75	10337	6.85	0,04	163,2	7,98	30,57	70 500	11-er
10	0949	11,57	10304	6.85	0,04	160.8	4.36	30,57	500	ch
Stabilized:	Yes	No				To	otal Volume	Removed:		mL

Comments:

See next page



Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	MW 13	
Sampling Persor	nal: Durner Nieswas	
Data: 000	11	

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	рН	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	Cer
13										
14										
15										
16										
17										
18										
19										
20				J.1.11.V.						A STATE AND ASSESSMENT OF THE STATE ASSESSMENT OF THE
21				***************************************						
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23										
24										
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26				·						
27										
28										And Hamphager Washington
29		1								
30					:					

Yes No Stabilized: Comments:

Total Volume Removed: 7500 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	nu yyk
Sampling Personal:	Vallan Vielman

Phone: (701) 258-9	720				,							
Weather Conditions:		Temp:	77°F	Wind: Light			Precip:		Sunny Partly Cloudy / Cloudy			udy
	Well Info	rmation					Sa					
Well Locked?	Well Locked? Yes No				Purgin	g Method:	Blac	lder		Co	ntrol Settings	s
Well Labeled?	Yes	No			Samplin	ig Method:	Blac	lder		Purge:	6	sec.
Casing Straight?	Ves	No			Dedicate	ed Equip?:	(Yes	No		Recover:	54	sec.
Grout Seal Intact?	Xes	No	Not Visible		Duplicate	Sample?:	Yes	No		PSI:	10-65	
Repairs Necessary:	0				Duplicate S	Sample ID:		_		Pumping R	ate:/00	mL/min
Casing	Diameter:		2"				"					
Water Level Bef	ore Purge:	.1	28,88 ft		Р	urge Date:	29 Th	416	Time Purg	ing Began:	1124	am∕pm
Total V	Vell Depth:		ft		Well Pu	rged Dry?	Yes	No	. Time P	urged Dry:		am/pm
We	ell Volume:		liters		Sar	mple Date:	29June	6	Time of	Sampling:	1204	am/pm
Depth to Top	o of Pump:		35/6 ft									
Water Level After	er Sample:		ft		Bottle	2 - 500 ı	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measurement Method: Electric Water Level Indicator				List:	2	- 500 mL Nitric (filtered)			4 - 1 Liter Nitric			
	•											

Field Measurements

Stabilization (3 consecutive) SEQ # Time		Temp (°C)	Spec. Cond.	рН	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 1/34	H27	16,46	9/19	6.47	0,03	92,9	8.71	28.91	1800	Chen
21139	1139	15,56	9144	6,47	0,14	99,3	7.43	28091	500	Clear
3	1144	14,29	9155	6,47	0.43	105,7	3,33	28,93	500	de
4	1149	13,9/	9136	6,47	4.53	110,4	4.08	28.93	500	Cer
5	1154	13,25	9138	6.47	5062	112.4	3,80	28,93	500	de
6)199	120	13,32	9127	6,46	5,69	113,1	4,01	28.93	500	ch
7	1204	15.34	9105	6.47	5,56	112.8	3.96	28.93	500	Cler
8	·									
9										
10	Vas	No					atal Volume		, f	ml

Stabilized: Yes No Comments:

Total Volume Removed: 4000 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	nw 103
Sampling Pers	onal: Parcen Wirringas

2010 L. Bloadway Ave, bis	androis, ito							Sampling r	CISUIIAI.	14/10	10/25	W (019	
Phone: (701) 258-9	720									•			
			00							- 16	7	N (Ol	1
Weather Conditions:		Temp:	1) 2	°F	Wind:	Light			Precip:	YSunj	297 Partiy C	loudy / Clou	ıay
,	Well Info	mation	U.			,		Sa	mpling l	nformatio	on		
Well Locked?	Mary.	(No)				Purgi	ng Method:	Blac	lder		Co	ntrol Settings	3
Well Labeled?	Xes	No				Sampli	ng Method:	Blac	lder		Purge:	6	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Yes	No		Recover:	54	sec.
Grout Seal Intact?	Yes	No	Not V	isible		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:	Dup-	1		Pumping R	ate: <u>/ <i>(</i>) O</u>	mL/min
Casing	Diameter:		2"					, 7	·				
Water Level Befo	ore Purge:		33,49	t ft		F	ourge Date:	291m	elb		ing Began:	1330	am/pm
Total W	/ell Depth:			ft			urged Dry?		No)		urged Dry:	<u> </u>	am/pm
We	ll Volume:			liters		Sa	mple Date:	29 Timel	6	Time of	Sampling:	1425	am/pm
Depth to Top	of Pump:	y	1074	ft							,		
Water Level Afte	er Sample:	ij	0.32	_ ft		Bottle	42-500	mL Nitric	4 2-1 Li	ter Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric V	Vater Level	Indicator		List:	4	2 - 500 mL N	litric (filtere	d)	8 4 - 1 Lite	er Nitric	
				Einld	Magazzz	monto							

Field Measurements

		zation ecutive) 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
134		1385	12.53	5065	6,64	6,70	135.8	6.40	35,09	1900	elev
۱	2	1345	11.61	5057	6,62	18.0 (136,2	5,42	35,44	500	Cler
	3	1350	11,57	5648	6,62	10,12	136,9	4,28	35065	502	Cu-
	4	1355	12,55	5026	6.60	9,35	138,2	4.53	35,94	500	c Cery
	5	1400	12,49	~ 10	6,61	9,39	139.3	3.85	36,18	500	cles
	6	1405	12,45	4985	\$6.58	9.41	140,2	4,05	36.34	500	Chr
	7	1410	11,97	4908	6,55	9.80	1398	2,67	36,44	500	cler
	8	1415	11,78	4860	6,46	9,94	140,3	1,62	37.04	500	ly
	9	1420	11.84	4828	6,49	9182	739,1	1:64	37,06	500	Chr
	10	1425	11,58	4839	6.50	9,63	138.6	1, 73	37,10	500	ml Cey

Stabilized: Yes No
Comments:

Total Volume Removed: 5500 mL



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	MW102	

2616 E. Broadway Ave, Bis	smarck, ND						_	Sampling P	acc				
Phone: (701) 258-9	720												
Weather Conditions:		Temp:	87 4	=	Wind:	L19/17			Precip:	Suni	ny / Partly C	loudy / Clou	ıdy
	Well Info	rmation				,		Sa	mpling l	nformatio	on 🖳		
Well Locked?	(Yes	No				Purgir	ng Method:	Blac	lder		Со	ntrol Settings	S
Well Labeled?	Y68	No				Samplir	ng Method:	Blac	lder		Purge:	6	sec.
Casing Straight?	Уeş	No				Dedicat	ed Equip?:	Xes2	No		Recover:	<i>'54</i>	sec.
Grout Seal Intact?	Xes	No	Not Vis	ible		Duplicate	Sample?:	Yes	No		PSI:	<u>-</u>	
Repairs Necessary:						Duplicate :	Sample ID:				Pumping R	ate: / <i>0</i> 0	mL/min
Casing	Diameter:		2"									,	
Water Level Befo	ore Purge:	17	7.66	ft		Р	urge Date:	29The	16	Time Purg	ing Began:	1700	am/pm
Total W	/ell Depth:	,	-	ft		Well P	urged Dry?	Yes	~NO	Time F	urged Dry:		am/pm
We	ll Volume:		\	liters		Sa	mple Date:	29 Twel	6	Time of	f Sampling:	1750	am/pm
Depth to Top	of Pump:	2	6.95	ft					,				
Water Level Afte	er Sample:	2	1,52	ft		Bottle	2 - 500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric V	Nater Level Ir	dicator		List:	2	- 500 mL N	itric (filtered	d)	4 - 1 Lite	er Nitric	
				Field	Measure	ments							

Stabili (3 cons	zation ecutive) Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
3EQ#	1710	12,23	9433	171	044	-466	314	18/11	1000	Clean
2	1720	11,76	9011	6,70	9,82	42,7	179	18,98	1000	clear
3	1730	11.82	\$8422	/	9,74	40,9	6.12	19,26	1000	Clear
4	1735	11.60	8195	6,71	9,97	-47.6	7 7	19.44	500	cler
5	1740	12,47	7934	6.72	9,28	-44.9	2,40	19.50	500	ch
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	1273	500	cler
8										
9										
10						<u> </u>		Demonstrado	5000	1

Stabilized: (Yes No Comments: \

Total Volume Removed: 5000 mL



Chain of Custody Record

Projec	ct Name:				Name of Sampler(s):
MDU	Heskett	CCR Groun	ndwater	June Event 2016	Varren Nieswaag
Report To: Attn: Address: Phone:	MDU Samantha Marshall 400 N. 4th St Bismarck, ND 58501 701-222-7829	<u> </u>	Carbon Cop Attn: Address:	y :	Work Order Number: 82 - 1918

T Hone.	Sample Information					Bottle Type Field Parameters				Analysis			
Lab Number	Sample ID	Dale	Time	Sample Type	Gradient	500 ml HNO	1 liter	500 ml HNO ₃ (filtered)		Field Temperature °C	Field Spec. Cond.	Field bH	Analysis Required
W2419	Dup 1	29 June 16	NA	w		X		Х		NA	NA	NA	
WAY20	Field Blank (FB)	29 Juel 6	NA	W		Х	Х	Х		NA	NA	NA	
Wayal	nw13	29 June 16	0959	GW		X	7	4		11,34	10326	6.86	
WAYAA	MWYYR	29Junello	1204	GW		X	X	X		15,34	9105	6,47	
Waya3	mw103	29 Tyrell	1425	Gw		X	X	5	7	11.58	4839	6,50	MDU COD List with TCC and
Wayay	nwlor	29 Tunello	1750	6w		X	X	4		12,39	73746	6,74	MDU CCR List with TSS and Dissolved CCR Metals. No
	7770										29 June	6	RadChem.

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	02 00	nakinz	2900elb	CiJackson		30 Jun 16	ROI 7.0
2	Done 1 /2						TM388
2							31





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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

Page 1 of 2

MDU Sample Identification	MVTL Laboratory #	IML Laboratory #
Dup1	16-W2431	S1607028-001
Field Blank (FB)	16-W2432	S1607028-002
MW13	16-W2433	\$1607028-003
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.
 - o 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:

\$1607028-001 through \$1607028-006

Page 2 of 2

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:

DATE: 18 Aug 16

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Page:

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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

Project Name: CCR Radiochem June Event 2016

58501

Sample Description: Dup 1 Sample Site: MDU Heskett

Radiu Radiu 400 N. 4th

Bismarck ND

Samantha Marshall

Montana Dakota Utilities

Temp at Receipt: 7.0C ROI

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Cantlo

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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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

Page: 1 of 1

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

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:

Clauditte K. Cantes

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 conduct #= Due to sample quantity #= Due to in

CERTIFICATION: ND # ND-00016

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





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Page:

1 of 1

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

Project Name: CCR Radiochem June Event 2016

58501

Sample Description: MW13 Sample Site: MDU Heskett

400 N. 4th

Bismarck ND

Samantha Marshall

Montana Dakota Utilities

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed		Analyst
pH - Field Temperature - Field Flow - Field Radium 226 Radium 228		units Degrees C gpm hed Report hed Report	NA NA NA	SM 4500 H+ B SM 2550B N/A	29 Jun 10 29 Jun 10 29 Jun 10 3 Aug 10 6 Aug 10	9:59 9:59	DJN DJN DJN OL OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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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Page:

Report Date: 15 Aug 16 Lab Number: 16-W2434 Work Order #:82-1920 Account #: 002800

1 of 1

Date Sampled: 29 Jun 16 12:04 Date Received: 30 Jun 16 8:00 Sampled By: MVTL Field Services

Project Name: CCR Radiochem June Event 2016

Sample Description: MW44R Sample Site: MDU Heskett

400 N. 4th

Samantha Marshall

Bismarck ND 58501

Montana Dakota Utilities

Temp at Receipt: 7.0C ROI

	As Receive Result	ed	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 Attac	hed Report			3 Aug 16	OL
Radium 228	See Attac	hed Report			6 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte

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 con
! = Due to sample quantity + = Due to int

CERTIFICATION: ND # ND-00016

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



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Samantha Marshall

Montana Dakota Utilities

400 N. 4th

Bismarck ND 58501

Page: 1 of 1

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW103 Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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 conduct # = Due to incomplete #

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



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Samantha Marshall

Montana Dakota Utilities

400 N. 4th

Bismarck ND 58501

Page: 1 of 1

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW102 Sample Site: MDU Heskett

Temp at Receipt: 7.0C ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
pH - Field Temperature - Field Flow - Field Radium 226 Radium 228		units Degrees C gpm Iched Report Iched Report	AN AN AN	SM 4500 H+ B SM 2550B N/A	29 Jun 16 17:50 29 Jun 16 17:50 29 Jun 16 17:50 3 Aug 16 6 Aug 16	DJN DJN DJN OL OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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 constitution # = Due to incomplete the constitution of the constitution in the constitution is a sample quantity # = Due to incomplete the constitution in the constitution in the constitution is a sample quantity # = Due to incomplete the constitution in the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample quantity # = Due to incomplete the constitution is a sample the constitu

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



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

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: All

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1

Wade Nieuwsma

From: Sent:

Claudette Carroll [ccarroll@mvtl.com] 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



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

<<u>Samantha.Marshall@mdu.com</u>>; Tonia D. O'Brien <<u>tobrien@barr.com</u>>

Subject: RE: Emailing - 201682-1933 Amended MDU Heskett CCR Radiochem Jul 2016.pdf

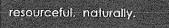
Hi Claudette,

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

- 201682-1920, IML S1607028
 - o 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



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

Sample Analysis Report

MVTL Laboratories, Inc. Company:

Date Reported 8/18/2016 2616 E Broadway Ave. Report ID S1607028002

Bismarck, ND 58501 (Replaces S1607028001)

Matrix:

Water

ProjectName: 201682-1920 WorkOrder: S1607028 Lab ID: S1607028-001 CollectionDate: 6/29/2016

ClientSample ID: 16W2431 Dup 1 DateReceived: 7/5/2016 10:22:00 AM

COC: 201682-1920 FieldSampler:

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.

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits J

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Qualifiers:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



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

Sample Analysis Report

Company: MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID: 201682-1920

ClientSample ID: 16W2432 Field Blank

S1607028-002

COC:

201682-1920

Date Reported 8/18/2016

Report ID \$1607028002

(Replaces S1607028001)

WorkOrder: \$1607028

CollectionDate: 6/29/2016

DateReceived: 7/5/2016 10:22:00 AM

FieldSampler:

Matrix: Water

Comments

Result	Units	Qual	RL	Method	Date Analyzed/l	Init
0.2	pCi/L		0.2	SM 7500 Ra-B	08/03/2016 930	MB
0.1	pCi/L			SM 7500 Ra-B	08/03/2016 930	MB
-1.0	pCi/L		1	Ga-Tech	08/06/2016 612	MB
3.5	pCi/L			Ga-Tech	08/06/2016 612	MB
	0.2 0.1 -1.0	0.2 pCi/L 0.1 pCi/L -1.0 pCi/L	0.2 pCi/L 0.1 pCi/L -1.0 pCi/L	0.2 pCi/L 0.2 0.1 pCi/L -1.0 pCi/L 1	0.2 pCi/L 0.2 SM 7500 Ra-B 0.1 pCi/L SM 7500 Ra-B -1.0 pCi/L 1 Ga-Tech	0.2 pCi/L 0.2 SM 7500 Ra-B 08/03/2016 930 0.1 pCi/L SM 7500 Ra-B 08/03/2016 930 -1.0 pCi/L 1 Ga-Tech 08/06/2016 612

These results apply only to the samples tested.

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

RL - Reporting Limit

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

Page 2 of 6



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

Sample Analysis Report

Company: MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

201682-1920 ProjectName:

S1607028-003

ClientSample ID: 16W2433 MW13 COC:

201682-1920

Date Reported 8/18/2016

Report ID S1607028002

(Replaces S1607028001)

WorkOrder: S1607028

CollectionDate: 6/29/2016 9:59:00 AM DateReceived: 7/5/2016 10:22:00 AM

FieldSampler:

Matrix: Water

Comments

Lab ID:

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

1 Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



Inter-Mountain Labs

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

Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1920

Lab ID:

S1607028-004

ClientSample ID: 16W2434 MW44R COC:

201682-1920

Date Reported 8/18/2016

Report ID

S1607028002

(Replaces S1607028001)

WorkOrder:

S1607028

CollectionDate: 6/29/2016 12:04:00 PM

DateReceived:

7/5/2016 10:22:00 AM

FieldSampler:

Matrix:

Water

Comments

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory 1.

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



Inter-Mountain Labs

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

Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1920

Lab ID:

S1607028-005

ClientSample ID: 16W2435 MW103 COC:

201682-1920

Date Reported 8/18/2016

Report ID

S1607028002

(Replaces S1607028001)

WorkOrder:

S1607028

CollectionDate: 6/29/2016 2:25:00 PM

DateReceived:

7/5/2016 10:22:00 AM

FieldSampler:

Matrix:

Water

Comments

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



nter-Mountain Labs

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

Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1920

Lab ID:

S1607028-006 ClientSample ID: 16W2436 MW102

COC:

201682-1920

Date Reported

8/18/2016

Report ID

S1607028002

(Replaces S1607028001)

WorkOrder:

S1607028

CollectionDate: 6/29/2016 5:50:00 PM

DateReceived:

7/5/2016 10:22:00 AM

FieldSampler:

Matrix:

Water

Comments

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.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

О Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



Work Order:

Project:

Inter-Mountain Labs

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

Date:

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.

S1607028

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	Bat	chID 12097	-	
Analyte	Result	RL Sp	ike Ref Samp	%REC	% Rec Limits	Qual	
Total Radium 228	ND	1					
Radium 228 by Ga/Tech	Sample Type LCS	U	nits: pCi/L				
LCS-362 (08/05/16 02:01)	RunNo: 137310	PrepDate: (PrepDate: 07/21/16 14:00		chID 12097		
Analyte	Result	RL Sp	ike 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		Bat	chID 12097		
Analyte	Result	RL Spi	ke 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	U	nits: pCi/L				
MSD-362 (08/05/16 08:16)	RunNo: 137310	PrepDate: 0	PrepDate: 07/21/16 14:00		BatchID 12097		
Analyte	Result	RL Co	nc %RPD	%REC	% RPD Limits	Qual	
Radium 228 (Dissolved)	36	1 3	7 2.12	89.4	20		
Total Radium 228	36	1 37	7 2.12	89.4	20		
Radium 226 in Water - Total by SM7500RA_B	Sample Type MBLK	U	nits: pCi/L				
MB-1638 (08/03/16 09:30)	RunNo: 137279	PrepDate: 0	PrepDate: 07/25/16 0:00		BatchID 12118		
Analyte	Result	RL Spi	ke Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	ND	0.2					
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCS	Uı	Units: pCi/L				
LCS-1638 (08/03/16 09:30)	RunNo: 137279	PrepDate: 07/25/16 0:00		BatchID 12118			
Analyte	Result	RL Spi	ke Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	5.3	0.2 5.9	19	88.8	67.1 - 131		
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCSD	Ui	Units: pCi/L				
LCSD-1638 (08/03/16 09:30)	RunNo: 137279	PrepDate: 0	7/25/16 0:00	Bato	chID 12118		
Analyte	Result	RL Cor	nc %RPD	%REC	% RPD Limits	Qual	
Radium 226	5.4	0.2 5.3	3 2.22	90.8	20		
Radium 226 in Water - Total by SM7500RA_B	Sample Type MS	Ur	nits: pCi/L				
S1607028-001A MS (08/03/16 09:30)	RunNo: 137279	PrepDate: 0	7/25/16 0:00	Bato	chID 12118		
Analyte	Result	RL Spil	ke Ref Samp	%REC	% Rec Limits	Qual	

Qualifiers:

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- 0 Outside the Range of Dilutions
- Spike Recovery outside accepted recovery limits
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- Χ Matrix Effect



LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501 Phone: (701) 258-9720

Chain of Custody Record

Page 1 of 1 .

Toll Free: (8	300) 279-6885									201682-1920			
Company Nam	e and Address:			Account #: Phone #:						Phone #:			
	K#	VTL									701-258-9720		
		<u>v⊤∟</u> Broadway		Contact:	Q I						Fax #:		
		, ND 58501		Claudette Name of Sampler:						For faxed report check box			
Billing Address	s (indicate if differen	t from above):		Name of Sampler:							E-mail: ccarroll@mvtl.com		
			Quote Nu	mber						For e-mail report check box Date Submitted:			
	<u>PO B</u>									6/30/2016			
	New Ulm.		Project Na	me/Numbe	er:		***************************************			Purchase Order #:			
							_				BL5607		
011 00		Sample Information	1	т			В	ottle	Ту	ре	Analysis		
S1607	D28			•		pə	HNO3	VOC Vials Umpreserved	ar				
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 m	VOC Vi	Glass Jar	Other	Analysis Required		
00	16-W2431	Dup 1		6/29/2016							Radium 226 & Radium 228 on all		
002	16-W2432	Field Blank		6/29/2016				******			The state of the s		
	16-W2433	B 01 0 (4 0							 	_			
- 1	10 112 100	MW13		6/29/2016	959								
<u> </u>	16-W2434	WW13		6/29/2016	959 1204							***************************************	
න <u>4</u> න5	7.00			6/29/2016	1204								
	16-W2434	MW44R		6/29/2016 6/29/2016	1204 1425							Photo in the second	
<u> </u>	16-W2434 16-W2435	MW44R MW103		6/29/2016	1204								
<u> </u>	16-W2434 16-W2435	MW44R MW103		6/29/2016 6/29/2016	1204 1425								
<u> </u>	16-W2434 16-W2435	MW44R MW103		6/29/2016 6/29/2016	1204 1425								
<u> </u>	16-W2434 16-W2435	MW44R MW103		6/29/2016 6/29/2016	1204 1425								
∞5 ∞6	16-W2434 16-W2435 16-W2436	MW44R MW103		6/29/2016 6/29/2016	1204 1425								

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:	T -	Temp:
C. Jackson	06/30/16	1700		Kathy Bours	75 1/	10,53	73.5
2.				The state of the s	1.3.16	10.62	20.7
<u> </u>							



Chain of Custody Record

Projec	t Name:			Name of Sampler(s):
MDU	Heskett	CCR Radiochem	June Event 2016	Darren Wieswaas
Report To: Attn: Address:	MDU Samantha Marshall 400 N. 4th St Bismarck, ND 58501	Carbon Cor Attn: Address:	<u>v</u> y:	Work Order Number: 82 -1920
Phone:	701-222-7829			

	Samp	le Informat	ion			E	Bottle Ty	pe	Fi	eld Para	ameters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Gradient	1000 ml HNO ₃			Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W2431	Dup 1	29Jwell	NA	w		4			NA		NA	
w2432	Field Blank (FB)	29Tirell	NA	w		4			NA	NA	NA	
w2433	MW13	29 June 16	0959	GW		4			11,34	10326	6.86	
w2434	m yyr	29 June 16	1204	Gu		4			15,34	9105		
w2435	mw103	29 Typell	1425	Gu		4			11.58			
w2436	mw 102	29 Twell	1	6 W		4			12,39			MDU CCR Numerical
									1 '			RadChem

	When the second											
										·····		

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
11	Jan Nes	walkinz	29 mell	C. Jakson		303U n 16 0800	ROI 7.0
2							JM588
3							



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	MW13	
Sampling Pers	onal: Dd com Mile	

2616 E. Broadway Ave, Bismarck, ND

Dhana (704) 050 0	700	•						Sampling P	ersonai:	A CU	7/1	elnow	دے
Phone: (701) 258-9	8720											<u> </u>	
Weather Conditions:		Temp:	71	°F	Wind:	Light			Precip:	Suni	ny / Partly C	loudy KClc	oudy)
	Well Info	rmation			•	- 1700		Sa	mpling l	nformatio			
Well Locked?	Yes	(NG)				Purgi	ng Method:	Blad	······		T	ntrol Setting	ns .
Well Labeled?	₹Yes	No				Sampli	ng Method:	Blad	der		. Purge:		sec.
Casing Straight?	<u> Zes</u>	No				Dedicat	ed Equip?:	Yes	No		Recover:	~4	sec.
Grout Seal Intact?	Mes 2	No	Not	Visible /		Duplicate	Sample?:	Yes	(M)		PSI:	5.9	
Repairs Necessary:	÷					Duplicate	Sample ID:	,			Pumping Ra	ate:/07)	mL/min
Casing	Diameter:	***************************************	2"							•			
Water Level Befo	ore Purge:		29.89	ft		F	urge Date:	29 Tyre	16	Time Purg	ing Began:	9844	am/pm
Total W	Vell Depth:			ft		Well P	urged Dry?	Yes	(NO)		urged Dry:	<u></u>	am/pm
We	ell Volume:			liters		Sa	mple Date:	29 Just	4	Time of	Sampling:	259	am/pm
Depth to Top	of Pump:	3~	7.10	ft						•			
Water Level Afte	er Sample:	35	57	ft		Bottle	2 ~ 500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric	Water Leve	el Indicator		List:	2	- 500 mL N	itric (filtere	d)	4 - 1 Lite	r Nitric	
											•	<u>-</u>	

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	рН	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	Clan
2	0854	11.64	10451	6.81	0.03	187,3	25.9	30,41	500	6 Cecr
3	0859	11,54	10421	6,81	0-03	1840		30,49	500	clev.
4	0904	11:45	10396	6,81	0,04	17901	13.5	30,57	500	Cler
5	0909	12.16	10366	6.82	0,04	177,2	19,8	30,57	502	clear.
6	0919	-11.95		06.83	0:04	170.6	22,7	30,57	1800	der
7	0929	11,19	10354	6183	0,04	168,3	24.0	30,57	1000	clasi
8	0939	11.81	10336	6.85	0,04	164,3	108	30,57	1000	دام
9	0944	11,75	10337	6.85	0.04	163,2	7,98	30,57	70500	61-en
L	0949	11,57	10364	6.85	0 w4	160.8		30,57	500	ca
Stabilized:	Yes.	NO				To	tal Volume	Removed:	~	mL

Comments:

See next page



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	Mw 13	
Sampling Perso		
Date: 201		

Phone: (701) 258-9720

Field Measurements

f		T	·		Tela Intea				·	
	ization secutive)	Temp (°C)	Spec. Cond.	рН	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	1524	4.38	30,57	500	Clear
13								1		
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27				-						
28				, , , , , , , , , , , , , , , , , , ,						
29				***************************************						
30										:
Ctobilized:	Voc	No						D		

Stabilized:

No

Total Volume Removed: 7500 mL

Comments:



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	mu 44R
Sampling Personal:	DACCON NEW 16

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

Phone: (701) 258-9720				•			F Wy	ing rep 101 s many				
Weather Conditions:	Temp		Wind: 21gh	<u> </u>		Precip:	Sun	py Partly C	Cloudy / Clou	udv		
Well I	nformation		,		Sa	impling l	nformatio		····	· · · · · · · · · · · · · · · · · · ·		
Well Locked? Ye			Purg	ing Method:	Blac				ntrol Settings	•		
Well Labeled? Ye			Sampl	ling Method:	Blac	lder		Purge:	6	sec.		
Casing Straight?	§ No		Dedica	ated Equip?:	(fee)	No		Recover:	54	sec.		
Grout Seal Intact?	s/ No	Not Visible	Duplicate	e Sample?:	Yes	NO		PSI:	10-65	300.		
Repairs Necessary:	<u> </u>		Duplicate	Sample ID:				Pumping R		mL/min		
Casing Diamet		2"					1 1	r amping re	ate. 7 00	(1111/11111)		
Water Level Before Pur	ge:	28288 ft		Purge Date:	29 Tm	4.16	Time Purgi	ing Began:	1/24	<i></i>		
Total Well Dep	oth:	ft	***************************************	Purged Dry?	Yes	No		urged Dry:	110	æm√pm		
Well Volun	ne:	liters		ample Date:				Sampling:	1204	am/pm		
Depth to Top of Pun	np:	35/16 ft			e ware.	6	11110 01	Camping.	1209	am/pm		
Water Level After Samp	ole:	ft	Bottle	2 - 500	mL Nitric	2 - 1 Lit	ter Raw	050 1	~ ·s · T			
Measurement Metho	d: Electric	Water Level Indicator	List:		- 500 mL N			250 mL				
					- OGO IIIL IV	inic (iliterec	1)	4 - 1 Lite	er INITIC			

Field Measurements

Stabili (3 cons	zation ecutive)	Temp (°C)	Spec. Cond.	рН	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 1/34	1627	16,46	9/19	6.47	0,03	92,9	8.71	28.91	1300	chen
21139	1139	15,56	9144	6.47	0,14	99,3	7.43	28091	500	clea
3	1144	14,29	9155	6,47	0.43	105,7	3,33	28,93	500	de
4	1149	13,9/	9136	6,47	4,53	110,4	4.08	28.93	500	Clar
5	1154	13,25	9138	6.47	5062	162.4	3,80	28,93	500	de
6)[9]	120		9127	6,46	5,69	113,1	4,01	78.53	500	chi
7	1204	15.34	9105	6.47	5,56	112.8	3.96	28.93	500	Clar
8	į.	·								
9										
10										
Stabilized: Comments	Yes	No				To	tal Volume	Removed:	4000	mL



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	mW 103	
Sampling Pers	onal Pacces Nice 1666	

2616 E. Broadway Ave, Bis	marck, ND						_	Sampling Pe	ersonal: /	Parren	Nics	whas	
Phone: (701) 258-9°	720						-						
Weather Conditions:		Temp:	83 €		Wind:	Light			Precip:	Sunr	y Partly C	loudy / Clou	ıdy
1	Well Infor	mation	-0			7		Sampling Information					
Well Locked%	Med	(NO)				Purgir	ng Method:	Blade	der		Co	ntrol Settings	3
Well Labeled?	Xes	No				Sampli	ng Method:	Blad	der		Purge:	6	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	¥ 9 5	No		Recover:	54	sec.
Grout Seal Intact?	Yes	No	Not Visib	le		Duplicate	Sample?:	yés)	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:	Dup-	1		Pumping R	ate: [00	mL/min
Casing	Diameter:		2"					, ,	•				
Water Level Befo	ore Purge:		33,49	ft		F	urge Date:	29 Tue	16	Time Purg	ing Began:	1330	am/pm
Total W	/ell Depth:		· · · · · ·	ft			urged Dry?	Yes	(No)	Time P	urged Dry:		am/pm
We	il Volume:			liters		Sa	mple Date:	29 Tinel		. Time of	Sampling:	1425	am/pm
Depth to Top	of Pump:	i,	1074	ft									
Water Level After	er Sample:	4	0.32	ft		Bottle	42-500	mL Nitric	4 2-1 Li	ter Raw	2250 mL	Sulfiric	
Measuremen	t Method:	Electric \	Water Level Ind	icator		List:	4 2	- 500 mL N	tric (filtere	d)	8 # - 1 Lite	er Nitric	
	Field Measurements												

- 1					ļ	1					1
	Stabili:	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
	SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
132	P 1	1385	12,53	5065	6,64	6,70	135,8	6.40	35,09	1900	elev
i	2	1345	11.61	5057	6,62	18,0 (136,2	5,42	35,44	500	Cler
	3	1350	11,57	5848	6,62	10,12	136,9	4.28	35,65	502	Cu
	4	1355	12,55	5026	6.60	9,35	138.2	4.53	35,94	500	c Cego
	5	1400	12,49	5038	6,61	9,39	139.3	3.85	36,18	500	cles
	6	1405	12,45	4985	\$6.58	9.41	140,2	4,05	36,34	500	Chy
	7	1410	11,97	4908	6,55	9.80	1398	2,67	36,44	500	cler
	8	1415	11,78	4860	6,846	9.94	140,3	1,62	37,04	500	1 hr
	9	1420	11.84	4828	6.49	9182	139,1	1:64	37,06	500	Chr
	10	1425	11,58	4839	6.50	9,63	138.6	1,73	37,10	500	Clean
	Stabilized:	(Yes)	No				To	otal Volume	Removed:	5500	mL

Stabilized: Yes No
Comments:



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016

Sample ID:

Sampling Personal: Da Cour No Chaco

Dhamas (704) 050'0	700								310011dii. #	11/11/11	10 10 50	acce	
Phone: (701) 258-9	720												
Weather Conditions:		Temp:	87	·F	Wind:	(14h)	/		Precip:	Cum			•
						- 1 / 1 / 1	· · · · · · · · · · · · · · · · · · ·		гтестр.	Sun	ly / Partiy C	loudy / Clou	ıdy
	Well Info	ormation						Sa	mpling l	nformatio	on 🖳		
Well Locked?	(Yes	No				Purgi	ng Method:	Blad				ntrol Settings	
Well Labeled?	Y68	No				Sampli	ng Method:	Blad	der		Purge:	6	sec.
Casing Straight?	yeş)	No				Dedicat	ed Equip?:	Xes2	No		Recover:	754	sec.
Grout Seal Intact?	Xes	No	Not Vi	sible		Duplicate	Sample?:	Yes	₩.		PSI:		
Repairs Necessary:	7					Duplicate	Sample ID:		-,		Pumping R	ate: //	mL/min
Casing	Diameter:		2"								1 9	700	
Water Level Befo	ore Purge:	17	7.66	ft		F	urge Date:	29The	16	Time Purgi	ng Began:	1700	am/pm
Total W	/ell Depth:	_		ft		Well P	urged Dry?		~NO	Time P	urged Dry:		am/pm
We	il Volume:		<u>ر</u>	liters		Sa	mple Date:	29 Twel			Sampling:	1700	am/pm
Depth to Top	of Pump:	2	6.95	ft						· · · · · · · · · · · · · · · · · · ·		1100	umpm
Water Level Afte	r Sample:	2.	452	ft		Bottle	2 - 500 r	nL Nitric	2 - 1 Lit	er Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric V	Vater Level I	ndicator		List:	2	- 500 mL Ni			4 - 1 Lite		
							<u> </u>		•	/		21 111010	

Field Measurements

	ization ecutive)	Temp (°C)	Spec. Cond.	рН	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	-466	31,4	18,66	1000	Clean
2	1720	11,76	9011	6,70	9182	-42,7	17.9	18,98	1000	clear
3	1730	11.82	\$8422	6,70	9,74	40,9	6.12	19,26		Clear
4	1735	11.60	8195	6,71	9,97	-43.6	3.97	19,44	500	Cles
5	1740	12.47	7934	6:12	9028	-44.9	2,40	19.50	500	cu
6	1745	12,17	7874	6,74	9,54	50,0	2,48	19,73	500	clear
7	1750	1239	7746	6,74	9,42	-52,3	2,29	1273	500	Cler
8				,						
9										
10									h-	
Stabilized: Comments		No				To	tal 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

Page 1 of 2

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.
 - o 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.
 - o 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.
 - o For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
 - o 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: Claudite Com

DATE: 21JVL16

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Samantha Marshall 400 N. 4th

Montana Dakota Utilities Bismarck ND 58501

Page: 1 of 2

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

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

Temp at Receipt: 5.4C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
На	* 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/1	1.0	SM4500-C1-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/1	5	I1750-85	1 Jul 16 17:11	ML
Calcium - Total	282	mg/1	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/1	1.0	6010	6 Jul 16 12:56	SZ
Potassium - Total	< 5 @	mg/1	1.0	6010	6 Jul 16 12:56	SZ
Lithium - Total	0.61	mg/1	0.10	6010	7 Jul 16 14:08	KMD
Boron - Total	< 0.5 @	mg/1	0.10	6010	5 Jul 16 19:03	KMD
Calcium - Dissolved	290	mg/1	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/1	1.0	6010	6 Jul 16 14:43	SZ
Potassium - Dissolved	< 5 @	mg/1	1.0	6010	6 Jul 16 14:43	SZ
Lithium - Dissolved	0.62	mg/1	0.10	6010	7 Jul 16 16:08	KMD
Boron - Dissolved	< 0.5 @	mg/1	0.10	6010	5 Jul 16 22:03	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Total	< 0.001	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Barium - Total	0.0142	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/1	0.0025	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.0003	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.001	mg/l	0.0020	6020	7 Jul 16 11:03	CC
	< 0.002	mg/l	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/1	0.0025	6020	7 Jul 16 11:03	CC
Lead - Total		mg/l	0.0020	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0037 0.0553		0.0020	6020	7 Jul 16 18:20	CC
Selenium - Total	< 0.001 ^	mg/l mg/l	0.0020	6020	7 Jul 16 11:03	CC
Thallium - Total			0.0003	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/1		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		7 Jul 16 11:03	CC
Cadmium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	/ 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 sample quantity

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



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Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

2 of 2 Page:

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

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/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Clauditte Approved by: K. Canto

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 conduct to sample quantity + = Due to in

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

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



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Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

1 of 2 Page:

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

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

Temp at Receipt: 5.4C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
рН	* 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 code #= Due to sample quantity #= Due to integrate #= Due to integr

CERTIFICATION: ND # ND-00016

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



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

Report Date: 18 Jul 16 Lab Number: 16-W2451

Page:

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Work Order #:82-1932 Account #: 002800

Date Sampled: 30 Jun 16

Date Received: 1 Jul 16 8:00 Sampled By: MVTL Field Services

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/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Dissolved	< 0.002 mg/1	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

Clauditte Approved by: K. Canto

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

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



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

Sample Description: MW70

Project Name: MDU Heskett CCR GW June Event 2016

1 of 2 Page:

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

Temp at Receipt: 5.4C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion			e)	EPA 200.2	1 Jul 16	ML
Н	* 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	mq/1	1.0	6010	6 Jul 16 14:43	SZ
Magnesium - Dissolved	174	mg/1	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/1	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/1	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Total	< 0.001 ^	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Total	< 0.002	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Total	< 0.002	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Total	0.0073	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	0.0338	mg/1	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/1	0.0010	6020	7 Jul 16 11:03	CC
Arsenic - Dissolved	< 0.001	mg/1	0.0020	6020	7 Jul 16 11:03	CC
bcc bibbotvca		5/ -		11-11-11-11-11-11-11-11-11-11-11-11-11-		

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: \emptyset = Due to sample matrix # = Due to cone ! = Due to sample quantity + = Due to into

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



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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

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Date Sampled: 30 Jun 16 Date Received: 1 Jul 16 8:00 Sampled By: MVTL Field Services

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

Page:

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/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	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

Approved by:

Claudite K. Canto

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 co ! = Due to sample quantity + = Due to in

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

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



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

Sample Description: MW101

Project Name: MDU Heskett CCR GW June Event 2016

Page: 1 of 2

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

Temp at Receipt: 5.4C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
	* 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

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to con! = Due to sample quantity + = Due to int

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



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

Report Date: 18 Jul 16

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Lab Number: 16-W2453 Work Order #:82-1932 Account #: 002800

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Date Sampled: 30 Jun 16 10:29 Date Received: 1 Jul 16 8:00 Sampled By: MVTL Field Services

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/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	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/1	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Approved by:

Claudette K. Cantel 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 co
! = Due to sample quantity + = Due to in

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

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



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Page:

Report Date: 18 Jul 16 Lab Number: 16-W2454 Work Order #:82-1932 Account #: 002800

1 of 2

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 Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
Н	* 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

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to con
! = Due to sample quantity + = Due to int

CERTIFICATION: ND # ND-00016

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



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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/1	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Approved by:

Clauditte K. Canto 21 JUL16

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 con
! = Due to sample quantity + = Due to inf

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

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



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

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

Page: 1 of 2

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

Temp at Receipt: 5.4C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
рН	* 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/1	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	< 0.001	mg/l	0.0010	6020	7 Jul 16 11:03	CC
ALBOITE DIBBOTVCG	. 0.002	5/ -	5.0040			

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: @ = Due to sample matrix # = Due to co ! = Due to sample quantity + = Due to in

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



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Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

Report Date: 18 Jul 16 Lab Number: 16-W2455 Work Order #:82-1932

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Account #: 002800

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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/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002 mg/1	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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Approved by:

Clauditte K. Cantlo 21 JU16

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 conduct to sample quantity + = Due to interpolation | + = Du

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

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



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

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

Page: 1 of 2

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

Temp at Receipt: 5.4C

,	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
рН	* 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	mq/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/1	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	mq/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	mq/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/1	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/1	0.0005	6020	7 Jul 16 11:03	CC
Molvbdenum - Total	0.0022	mg/1	0.0020	6020	7 Jul 16 11:03	CC
Selenium - Total	< 0.002	mg/1	0.0020	6020	7 Jul 16 18:20	CC
Thallium - Total	< 0.001 ^	mg/1	0.0005	6020	7 Jul 16 11:03	CC
Antimony - Dissolved	< 0.001	mg/1	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:

@ = Due to sample matrix # = Due to conduct to sample quantity + = Due to interport to the conduct to the conduct

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



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Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

Report Date: 18 Jul 16 Lab Number: 16-W2456 Work Order #:82-1932 Account #: 002800

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Page:

Date Sampled: 30 Jun 16 10:40 Date Received: 1 Jul 16 8:00 Sampled By: MVTL Field Services

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/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Molybdenum - Dissolved	< 0.002 mg/1	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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Claudite K. Canto Approved by:

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 co
! = Due to sample quantity + = Due to in

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

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



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

Sample Description: MW2-90

Project Name: MDU Heskett CCR GW June Event 2016

Temp at Receipt: 5.4C

1 of 2

Report Date: 18 Jul 16

Date Sampled: 30 Jun 16 14:15

Date Received: 1 Jul 16 8:00 Sampled By: MVTL Field Services

Lab Number: 16-W2457

Work Order #:82-1932

Account #: 002800

Page:

As Received Method Method Date Analyzed Result Reference Analyst EPA 200.2 1 Jul 16 ML Metal Digestion N/A 1 Jul 16 18:00 рН * 7.1 units SM4500 H+ B MT. Total Suspended Solids mg/11 I3765-85 5 Jul 16 15:36 ML 3 30 Jun 16 pH - Field 6.93 units NA SM 4500 H+ B 14:15 DJN Temperature - Field SM 2550B 30 Jun 16 14:15 DJN 9.14 Degrees C NA mg/l CaCO3 1 Jul 16 18:00 Total Alkalinity 494 20 SM2320-B ML Conductivity - Field 7639 umhos/cm 1 EPA 120.1 30 Jun 16 14:15 DIN 0.10 SM4500-F-C 1 Jul 16 18:00 Fluoride 0.97 mg/1ML Sulfate 4810 mq/15.00 ASTM D516-07 14 Jul 16 13:37 EMS 7 Jul 16 15:56 EMS 1.0 SM4500-C1-E Chloride 81.8 mg/1< 0.0002 0.0002 EPA 245.1 7 Jul 16 11:33 EV Mercury - Total mg/1Mercury - Dissolved < 0.0002 0.0002 EPA 245.1 18 Jul 16 12:32 EV mg/11 Jul 16 17:11 Total Dissolved Solids 5820 mg/15 I1750-85 ML mg/11.0 6010 6 Jul 16 13:56 SZ Calcium - Total 481 6 Jul 16 13:56 SZ 1.0 6010 Magnesium - Total 720 mq/16 Jul 16 13:56 SZ Sodium - Total 770 mg/11.0 6010 22.6 1.0 6010 6 Jul 16 13:56 SZ Potassium - Total mg/1Lithium - Total 0.92 mg/10.10 6010 7 Jul 16 15:08 KMD 6010 5 Jul 16 20:03 KMD 0.10 Boron - Total < 0.5 @ mg/16 Jul 16 16:09 SZCalcium - Dissolved 500 mg/11.0 6010 6 Jul 16 16:09 SZ Magnesium - Dissolved 735 mg/11.0 6010 Sodium - Dissolved 795 mg/11.0 6010 6 Jul 16 16:09 SZ 6 Jul 16 16:09 Potassium - Dissolved 23.2 mg/11.0 6010 SZ 7 Lithium - Dissolved 0.95 0.10 6010 Jul 16 16:08 KMD mg/15 Jul 16 22:03 KMD Boron - Dissolved < 0.5 @ mg/10.10 6010 Antimony - Total Arsenic - Total < 0.001 mg/10.0010 6020 7 Jul 16 11:03 CC 7 Jul 16 11:03 0.0020 6020 CC < 0.002 mg/1Barium - Total 7 Jul 16 11:03 CC 0.0099 mg/10.0020 6020 Jul 16 11:03 CC Beryllium - Total < 0.0005 mg/10.0005 6020 7 Jul 16 11:03 CC 6020 Cadmium - Total < 0.001 mg/l0.0005 7 Jul 16 11:03 CC Chromium - Total < 0.002 mg/10.0020 6020 0.0020 6020 7 Jul 16 11:03 CC Cobalt - Total < 0.002 mg/1Lead - Total 7 Jul 16 11:03 CC < 0.001 mg/10.0005 6020 Molybdenum - Total 0.0071 0.0020 6020 7 Jul 16 11:03 CC mg/1CC 7 Jul 16 18:20 Selenium - Total 0.1633 mg/10.0020 6020 < 0.001 ^ 7 Jul 16 11:03 CC Thallium - Total mg/10.0005 6020 7 Jul 16 11:03 Antimony - Dissolved < 0.001 mg/10.0010 6020 CC Arsenic - Dissolved 0.0020 6020 7 Jul 16 11:03 < 0.002 mg/1

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

CERTIFICATION: ND # ND-00016

+ = Due to internal standard response



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Bismarck ND 58501

2 of 2 Page:

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
Barium - Dissolved	0.0101 mg/l	0.0020	6020	7 Jul 16 11:03	CC
Beryllium - Dissolved	< 0.0005 mg/1	0.0005	6020	7 Jul 16 11:03	CC
Cadmium - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 11:03	CC
Lead - Dissolved	< 0.001 mg/1	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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 11:03	CC

^{*} Holding time exceeded

Claudite K. Canto Approved by:

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

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



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

Sample Description: MW3-90

Project Name: MDU Heskett CCR GW June Event 2016

Page: 1 of 2

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

Temp at Receipt: 5.4C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
рН	* 7.0	units	N/A	SM4500 H+ B	1 Jul 16 18:00	ML
Total Suspended Solids	3	mq/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-C1-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

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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Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

Project Name: MDU Heskett CCR GW June Event 2016

Sample Description: MW3-90

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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

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/1	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/1	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

Clauditte Approved by:

CC 215U16

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 con
! = Due to sample quantity + = Due to inf

K. Cantlo

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

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



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

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

Page: 1 of 2

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

Temp at Receipt: 5.4C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Jul 16	ML
	* 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	mq/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

@ = Due to sample matrix ! = Due to sample quantity



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Samantha Marshall Montana Dakota Utilities

400 N. 4th Bismarck ND 58501

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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

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	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 17:00	CC
Chromium - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 17:00	CC
Cobalt - Dissolved	< 0.002 mg/1	0.0020	6020	7 Jul 16 17:00	CC
Lead - Dissolved	$< 0.001 ^ mg/1$	0.0005	6020	7 Jul 16 17:00	CC
Molybdenum - Dissolved	< 0.002 mg/1	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

Approved by:

Claudite K. Canto

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

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

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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

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Lab IDs: 16-W2450 to 16-W	/2439	<u> </u>	roject: Mi	JU Hesk	ett CCR GW J		2016	120-100-040-040-0	- Indoor		- Luminossinus Mariana	Wol	rk Orde	er: 201682	2-1932		
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	0.4576	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

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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	0.4422	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	-	-	< I < 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

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Lab 1DS: 10-W 2430 to 10-W	4-TJ		I O CCE. IVII) U IIUSK	CH CCK GW J	TENNESS OF THE PARTY OF THE PAR	2010					VV OI	rk Orac	er: 20168	Z-19 <u>3</u> Z		
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	0.3876	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	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	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	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

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Lab IDs: 16-W2450 to 16-V	W 2439	r	roject: Mi	DU DESK	ett CCR GW J		2010			i Insures constraint of	O more and a second	Wo	rk Ord	er: 20168	2-1932	The state of the s	
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 0.400 0.100	16W2450q 16W2459q 16W2459Dq	0.0037 < 0.002 < 0.002	0.4462 0.4616 0.1234	111 115 123	75-125 75-125 75-125	0.4462 0.4616 0.1234	0.4226 0.4526 0.1224	105 113 122	5.4 2.0 0.8	20 20 20	-	-	< 0.002 < 0.002
pH units	-	- -	- - -	-	- - -	- - -	-	-	-	6.7 6.9 7.2	6.7 6.8 7.3	-	0.0 1.5 1.4	20 20 20	-	-	-
Potassium - Dissolved mg/l	10.0 10.0	103 101	80-120 80-120	100 100	16w2421q 16w2458q	23.0 12.2	124 110	101 98	75-125 75-125	124 110	124 110	101 98	0.0	20 20	_	-	< 1 < 1
Potassium - Total mg/l	10.0	105	80-120	100 100	16W2442q 16W2452q	11.4 10.8	112 110	101 99	75-125 75-125	112 110	114 110	103 99	1.8	20 20	-	-	< 1 < 1 < 1
Selenium - Dissolved mg/l	0.1000 0.1000	104 101	80-120 80-120	0.400	16-W2459q	0.1565	0.6068	113	75-125	0.6068 0.3413	0.6432 0.3175	122	5.8 7.2	20 20	-	-	< 0.002 < 0.002
Selenium - Total mg/l	0.1000	104	80-120	0.400 0.400	16-W2450 16-W2459	0.0553 0.1565	0.5386 0.6068	121 113	75-125 75-125	0.5386 0.6068	0.5216 0.6432	117 122	3.2 5.8	20 20	-	-	< 0.002
Sodium - Dissolved mg/l	20.0 20.0	107 107	80-120 80-120	500 500	16w2421q 16w2458q	1900 580	2290 1050	78 94	75-125 75-125	2290 1050	2280 1040	76 92	0.4	20 20	-	-	< 1 < 1
Sodium - Total mg/l	20.0	112	80-120	500 500	16W2442q 16W2452q	585 540	1070 1030	97 98	75-125 75-125	1070 1030	1080 1020	99 96	0.9	20 20	-	-	< 1 < 1 < 1
Sulfate mg/l	100 100	96 95	90-110 90-110	100 5000	16-W2451 16-W2457	< 5 4810	91.5 8870	92 81	80-120 80-120	91.5 8870	92.2 8770	92 79	0.8	20 20	-	-	< 5 < 5
Thallium - Dissolved mg/l	0.1000 0.1000	105 107	80-120 80-120	0.100	16W2459Dq	< 0.001	0.0982	98	75-125	0.0982	0.0960	96	2.3	20	-	-	< 0.0005
Thallium - Total mg/l	0.1000	105	80-120	0.400 0.400 0.100	16W2450q 16W2459q 16W2459Dq	< 0.0005 < 0.0005 0.0007	0.3862 0.3828 0.0982	97 96 98	75-125 75-125 75-125	0.3862 0.3828 0.0982	0.3884 0.4016 0.0960	97 100 95	0.6 4.8 2.3	20 20 20	-	-	< 0.0005 < 0.0005

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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 (<)	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 < 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: Complete 21 July

MVTL Calibration Worksheet

Jacken 1 Technician: / Site: MDU Heskett Instrument #3.556 MPS 12E102056 #2 650 MDS 04H14736 #1 650 MDS 08F100203 (Circle One): **Post Site Check Pre Site Calibration** 925 Time: 1) 7/5 Date: 29 June / Time: mv Range +/-Post Cal Range 50 Hq Temp °C Reading рΗ Temp °C Post Cal Pre Cal mν 6295 23/63 -35.5 7,04 22.10 7,00 Buffer 7 6.95-7.05 0 +/- 50 Buffer 7 -210.5 21.94 10,00 -180 +/- 50 9.95-10.05 Buffer 10 Conductivity Conductivity Check 4956 22,99 49 74 10180 22,23 Buffer 5000 10006 ±10% Buffer 5000 Buffer 10000 TCCA ICCA ORP 6.90 258,9 257.1 ±10 mV 231 mV @ 25C Barometric Pressure (mm Hg) DO 8,30 21.80 mg/L 30 Tuel 6 Time: 0600 Time: Date: mv Range +/pН Temp °C Post Cal Post Cal Range Reading Temp °C рН Pre Cal mv 50 7,03 -32, -7.00 Buffer 7 6.95-7.05 0 +/- 50 Buffer 7 10,0 -180 +/- 50 10.00 9.95-10.05 Buffer 10 Conductivity Check Conductivity Buffer 5000 50/4 10001 Buffer 5000 Buffer 10000 ►CA ±10% ICA **ORP** 231 mV @ 25C 25.39 257,7 ±10 mV Barometric Pressure (mm Hg) DO 8,39 719.6 21,25 7.02 mg/L

MVTL Calibration Worksheet

Site: MDU Hes	skett					Technician:	Jeven	of Maye		·······
Instrument (Circle One):	(#1 6	50 MDS 08F10	0203	#2 65	50 MDS 04H14	1736		#3 55	6 MPS 12E10	2056
_		Pre	Site Calibr	ation				Po	st Site Chec	:k
Date: 30 Ju	سوال	Time: OG	02					Time:		
pH Buffer 7 Buffer 10 Conductivity Buffer 10000 ORP	Temp °C 21.55 21.55 20.34	Pre Cal 7.05 10.01	Post Cal 7,00 10.00	Post Cal Range 6.95-7.05 9.95-10.05 ±10%	mv -19,2 -194.B Buffer 5000	mv Range +/- 50 0 +/- 50 -180 +/- 50 Check		pH Buffer 7 Conductivity Buffer 5000	Temp °C 21.67	Reading 7.01 4978
231 mV @ 25C	5,00	257.3	257.0	±10 mV						
DO	16.16	101.3%	101.0%	Barometi mg/L	ric Pressure (n 769 i					
Date:		Time:						Time:		
p H Buffer 7	Temp °C	Pre Cal	Post Cal	Post Cal Range 6.95-7.05	mv	mv Range +/- 50 0 +/- 50		Buffer 7	Temp °C	Reading
Conductivity				9.95-10.05				C		
Buffer 10000				±10%	Buffer 5000	Check		Conductivity Buffer 5000		
ORP		The state of the s				_				
231 mV @ 25C-				±10 mV				The control of the co		
DO	-			Baromet	ric Pressure (r	nm Hg)		The state of the s		
				mg/L						



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MWTO
Campling Personal:	DA ACUA Nico

2616 E. Broadway Ave, Bis	smarck, ND							Sampling P	ersonai:	DUI/	IN IVI	conar	J
Phone: (701) 258-9	9720						-						25/
Weather Conditions:		Temp:	6/°F		Wind:	1/5	-10		Precip:	Sunr	ny / Partly C	loudy//∕Cloι	ıdy)
	Well Info	rmation				, •		Sa	impling li	nformatio	on		
Well Locked?	N	No				Purgin	ng Method:	Blac	lder		Col	ntrol Settings	3
Well Labeled?	Yes	No				Samplin	ng Method:	Blac	ider		Purge:	6	sec.
Casing Straight?	Xes	No				Dedicate	ed Equip?:	∦es>	No		Recover:	57	sec.
Grout Seal Intact?	(Es	No	Not Visibl	е		Duplicate	Sample?:	Yes	(NO)		PSI:		
Repairs Necessary:	•					Duplicate S	Sample ID:				Pumping Ra	ate: / 0 <i>0</i>	mL/min
Casing	Diameter:		2"							I			
Water Level Bef	ore Purge:	21	1,25	ft		. P	urge Date:	30 Tan	e 16		ing Began:	19657	@p/pm
Total V	Vell Depth:			ft		Well Pu	urged Dry?	Yes	Nd	ł	urged Dry:		am/pm
We	eli Volume:	_		liters		Sa	mple Date:	305m	U	Time of	f Sampling:	0787	€ pm/pm
Depth to To	p of Pump:	32	2.68.	ft					,		·		
Water Level Aft		2.0	.28	ft		Bottle	2 - 500 1	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measureme	nt Method:	Electric \	Water Level Indic	ator		List:	2	- 500 mL N	litric (filtere	d)	4 - 1 Lite	er Nitric	

Field Measurements

Stabili (3 cons	zation ecutive)	Temp (°C)	Spec. Cond.	pН	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
SEQ#	Time		±5%	±0.1	±1076	±20 mV			1000	
1	0707	10,03	4517	6,96	2,40	195,8	25.3	22.01	1000	des
2	0717	10.00	4499	6,98	2,37	190,5	10,6	2215	1000	cler
3	0722	9,84	4484	6.98	2,37	18816	10,3	2215	500	de
4	0727	1,87	4441	6.98	26.13	187.6	5,24	22,15	500	der
	0732	9,87	4352	\$7,00	7,54	186.2	4.61	22115	500	de
6	0737	0.82	4357	7.02	8,75	184.9	4.55	22,20	500	den
7	0742	10,36	4359	7,07	8.40	183,5	4,41	22,20	500	der
8	8747	10.32		7.03	9.44	1821	4.80	22,20	500	Cler
9										
10	,									
Stabilized:	Yes	No				T	otal Volume	: Removed:	5000	_mL

Stabilized: Yes No
Comments:



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	MW 101	
Compline Des	and Or a AC	

			Ciodilawatei	71000001	incire.		Cample 1D.	///	h/ /	01		
2616 E. Broadway Ave, Bis	smarck, ND						Sampling Pe	2	Darre	/ / /	naas	
Phone: (701) 258-9	720											
Veather Conditions:		Temp:	68°F	Wind:	N5-10			Precip:	<u>(</u> Sı	unny 🌶 Partly (Cloudy / Clou	ıdy
	Well Info	ormation			•		Sa	mpling l	nforma	ation		
Well Locked?	N FEE	(No)			Purging Met	hod:	Blad	der		Co	ontrol Setting:	S
Well Labeled?) Yes	М			Sampling Met	thod:	Blad	der		Purge:	6	sec
Casing Straight?) es	No			Dedicated Equ	uip?:	Yes	No		Recover:	54	sec
Grout Seal Intact?	Yes	No	Not Visible		Duplicate Samp	le?:	Yes	Ø		PSI:	7	
Repairs Necessary:		_			Duplicate Sampl	e ID:		-		Pumping F	tate: 100	mL/mir
Casing	Diameter:		2"								<i>-</i>	
Water Level Bef	ore Purge:	3	7,12 ft		Purge [Date:	30 The	16	Time P	urging Began:	0904	∰/pm
Total V	Vell Depth:		- ft		Well Purged	Dry?	Yes	NO)		e Purged Dry:		am/pm
We	ell Volume:		liters		Sample [Date:	3 & Tine	16	Time	e of Sampling:	1029	@/pm
Depth to Top	of Pump:	1	16085 ft				<i>,</i> , , , , , , , , , , , , , , , , , ,					
Water Level Afte	er Sample:	4	1,72 ft		Bottle 2 -	500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremer	nt Method:	Electric	Water Level Indicator		List:	2 - 500 mL Nitric (filter			red) 4 - 1 Liter Nitric			

Field Measurements

		ilization secutive)	Temp (°C)	Spec. Cond.	рН	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
0914	1 ,	4 0909	11,05	5/04	6,71	10,25	547	34.0	38 0%	1000	Chew
092	1 2 /	NO914	11.28	5096	6.71	10,05	48.3	28.3	39,29	100019	voe Cea
09	39 3 A	10919	12,40	5084	6.71	9,17	32.9	14,1	39,31	1000	der
	4	0949	12119	5086	6,71	9.32	31,5	11.6	39,40	1000	der
	5	0959	11.28	5100	6,71	9,48	3011	7,94	39.61	1000	da
ĺ	6	1004	11.79	5119	6,71	2.63	27,7	6,96	39,75	500	den
	7	1009	12,45	5105	6,70	9,34	25,2	6.08	39,81	500	clen
	8	1014	13,32	5111	6,71	8,47	22,5	5,30	3981	500	den
	9	1019	17,14	5126	6,71	8,63	19,0	4.38	39,85	500	Un
	10	1024	12,78	5132	6,70	8,89	17,0	4,78	39,95	500	den
•	Stabilized	: Yes	No.	•			To	otal Volume	Řemoved:	\sim	mL

Comments:

Sée next prin



Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	nw107	
Sampling Perso	onal: Dames Wie (8)	lalla
Date: 2 7	0001	

Field Measurements

		r		·	ielu iviea	<u> </u>				
Stabili (3 cons	ization ecutive)	Temp (°C)	Spec. Cond.	рН	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	1266	5130	6,70	8.97	16.0	4.71	40.00	300	Cler
12	'	_								
13										
14										
15										
16			_							
17										
18										
19										A CONTRACTOR OF THE CONTRACTOR
20						***				
21										
22										
23								· · · · · · · · · · · · · · · · · · ·		
24										
25						•				
26										
27			***************************************							
28						<u> </u>				44
29										
30										W. W
<u> </u>	(60)		•					***************************************	0	· · · · · · · · · · · · · · · · · · ·

No

Total Volume Removed: 8500 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MW8OR,
Sampling Do	roonal: Dana allies as

2616 E. Broadway Ave, Bis	smarck, ND							Sampling F	ersonal: 🔏	Varres	71/15	way	
Phone: (701) 258-9	720										,	<i>'</i>	
Weather Conditions:		Temp:	77 °F	=	Wind: /	VO.			Precip:	Sunj	ay i Partly C	loudy / Clo	udy
	Well Info	rmation			,			Sa	ımpling lı	nformation	on		
Well Locked?	Yes	/ولک				Purgi	ng Method:	Blac	lder		Coi	ntrol Setting	IS
Well Labeled?	/Yes	No				Sampli	ng Method:	Blac	lder		Purge:	63	sec.
Casing Straight?	Tes	No	:			Dedicat	ted Equip?:	des	No		Recover:	545	sec.
Grout Seal Intact?	yes)	No	Not Vis	ible		Duplicate	Sample?:	Yes	No		PSI:	•	
Repairs Necessary:						Duplicate	Sample ID:	aug-	2		Pumping Ra	ate: <i>[60</i>	mL/min
Casing	Diameter:		2"										
Water Level Befo	ore Purge:		14,75	ft		F	ourge Date:	30Ju	elb	Time Purg	ing Began:	1651	@m/pm
Total V	/ell Depth:			ft			urged Dry?		No2-		urged Dry:		am/pm
We	ell Volume:			liters		Sa	mple Date:	30 Tine	Ub	Time of	Sampling:	1416	am/pm
Depth to Top	of Pump:	l'	9.30	ft									
Water Level Afte	er Sample:	<i>}'</i>	1,98	ft		Bottle	¥ # - 500	mL Nitric	92-1 Li	ter Raw	Հ ∼250 mL	Sulfiric	
Measuremen	t Method:	Electric '	Water Level In	dicator		List:	4 9	<u> - 500 mL N</u>	litric (filtered	d)	8 # - 1 Lite	er Nitric	
							*						

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	pН	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	1201	12,50	6027	7.08	9.06	39,9	32.7	14.98	1000	der
2	1211	12,33	6027	7,06	9,19	48.5	620	14.98	1000	der
3	1221	11,61	6012	7,07	9,73	55.)	66.0	14.98	1000	Cler
4	1231	12,03	6011	7.08	9,42	591	\$481	14098	1,000	cler
5	1241	11.91	6003	7,08	9,45	61.7	37.9	14.98	1000	ola
6	1251	11.85	6003		9,60	64,6	36.5	14,98	1000	Um
7	1301	11,70	6031	7009	10,17	20,2	23.7	14,98	1.000	den
8	1311	12.46	6048	7.10	9,58	6808	17,8	14,98	1000	C Can
9	1321	12,12	6032	7,10	980	70,3	13,3	14,98	1.000	Olen
10	1331	12,05	6074	7,10	7.87	7613	9,99	14198	1000	an
Stabilized:	Yes	No	- '			To	otal Volume	Removed:	10 000	mL_

Comments:



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	W80R
Sampling Personal:	Darcen Willman
Date: 200m	• ; , , , , , , , , , , , , , , , , , ,

Field Measurements

Stabilizat					I		1		1	
(3 consecu	I	Temp (°C)	Spec. Cond.	рН	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 /	341	11,44	6023	Tell	10,33	74,6	8,09	14,98	1000	cler
12]	1346	12.08	6040	7.61	9.84	74.1	7,16	14.98	500	de
13 <i>į</i> .	351	11,84	6044	7,11	10,03	74,2	6,14	1498	500	de
14	1356	11,56	6036	7,11	10,25	7511	5,04	14,98	500	ch
15	401	11.61	6024	7.10	10,14	7409	5143	14.98	500	ch
16	1406	11,54	6039	7,10	10,18	75,7	4,83	14.98	500	de
17	411	11,94	60 40	9,11	409.96	75,6	4.00	1428	500	den
	1416	11,54	6043	7,10	9,98	76.4	9,56	14.98	500	Us_
19										
20										
21										
22				!						
23										
24										
25										
26										
27										
28										
29										
30	\cap									

Stabilized:	Yes	
Comments:		\

No

Total Volume Removed: 14

4	1,5	00	mL
 ,	_		



Comments:

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	muos	

2616 E. Broadway Ave, Bis	smarck, ND							Sampling Personal: Darren Mestras						
Phone: (701) 258-9	720						_							
Weather Conditions: Temp: 7% °F					Wind:	NS		Precip: Sunny) Partly Cloudy / Cloudy						
,	Well Info	rmation				. ,		Sa	mpling l	nformatio	on			
Well Locked?	200	(M)		•		Purgir	ng Method:	Blad	der		Co	ntrol Settings	3	
Well Labeled?	X98	No				Samplin	ng Method:	Blad	der		Purge:	4	sec.	
Casing Straight?	Æ	No				Dedicat	ed Equip?:	Yes	No		Recover:	56	sec.	
Grout Seal Intact?	∑ GS	No	Not Visible			Duplicate	Sample?:	Yes	NO		PSI:	1,5		
Repairs Necessary:	`					Duplicate:	Sample ID:	ے	· · ·		Pumping R	ate: / <i>6</i> 〇	mL/min	
Casing	Diameter:		2"									,		
Water Level Befo	ore Purge:		3,55	ft		P	urge Date:	300m	16	Time Purg	ing Began:	1640	am/pm	
Total W	/ell Depth:	•	<u> </u>	ft		Well P	urged Dry?	Yes	, No	Time P	urged Dry:		am/pm	
We	Il Volume:			liters		Sa	mple Date:	BOTUM	Up	Time of	Sampling:	1730	am/om	
Depth to Top	of Pump:	Z	115	ft					,					
Water Level Afte	er Sample:	13.8		ft		Bottle	2 - 500	mL Nitric 2 - 1 Lit		ter Raw 250 mL S		Sulfiric		
Measuremen	t Method:	Electric V	ater Leve	el Indicator		List:	2	2 - 500 mL Nitric (filtered) 4 - 1 Liter Nitric						

Field Measurements

Stabili	zation ecutive)	Temp (°C)	Spec. Cond.	рН	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	der
2	K55	11,89	6687	6,73	9.95	7905	7,44	13.81	500	der
3 /	461700	11.80	6939	6.72	10,03	83,5	7:00	13.81	500	der
4	1705	11.70	7174	6,72	10,09	87,5	6,02	13,81	500	cler
5	1710	11,58	7268	6,71	10,19	89,5	6.91	13.81	500	de
6	1715	12.41	7375	6.72	9,46	921	6.41	13.81	500	cla
7	1720	12,73	7477	6,60	9.28	944	6.87	13,81	500	den
8	1725	12a6	7570	6.72		95.6	6067	13287	500	de
9	1730	1208	7618	6,72	9,78	98,6	6,34	1381	500	dy
10				•				· ·		
Stabilized:	(Yes/	No	•			To	otal Volume	Removed:	5000	mL



Groundwater Assessment

Wind:

75

Temp:

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	, Mw33
Sampling Personal:	Jerry Plan

Phone: (701) 258-9720

Weather Conditions:

Well Information											
Well Locked?	Yes	مثلاً									
Well Labeled?	ES	No									
Casing Straight?	(Pes	No									
Grout Seal Intact?	Yes	No	Not Visible								
Repairs Necessary:											
Casing	Diameter:		2"								
Water Level Bet	ore Purge:	ż	11.98	ft							
Total V	Vell Depth:	*		ft							
We	ell Volume:	-		iters							
Depth to To	p of Pump:	42.10									
Water Level Aft	er Sample:	7	STOP	ft							
Measuremer	nt Method:	Electric	Water Level Indicat	or							

Nes	-10		Precip:	Suni	Partly (Cloudy / Clo	oudy
		Sa	mpling I	nformation	on		
Purgir	ng Method:	Blac	lder		Co	gs	
Samplir	ng Method:	Blac	lder		Purge:	4	sec.
Dedicat	ed Equip?:	res	No		Recover:	56	sec.
Duplicate	Sample?:	Yes	_ (No)		PSI:	20	
Duplicate \$	Duplicate Sample ID:				Pumping R	late: 100	mL/min
Р	urge Date:	30 June 1	b	Time Purg	ing Began:	0950	ám⁄pm
Well P	urged Dry?	Yes	(No)	Time F	urged Dry:		am/pm
Sa	mple Date:	30 Jul 1	ط	Time of	Sampling:	1040	@m}/pm
		, , , , , , , , , , , , , , , , , , , ,					
Bottle	2 - 500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
List:	2	- 500 mL N	itric (filtere	d)	4 - 1 Lit	er Nitric	

Field Measurements

	lization secutive)	Temp (°C)	Spec. Cond.	рH	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	6955	9,59	5080	6.52	1.90	114.9	15.2	8toP	5000	Clear
2	1000	11.53	5076	6.52	1.78	95,3	8.64	BTOP	Sa).©	Clear
3	1005	11.38	5116	6.52	1.86	82.7	6.33	BIDP	500,0	Clear
4	1010	11.38	5139	6.52	1.77	72.8	5.04	Brop	500,0	Clear
5	1015	11,56	5145	6,52	1.73	65.6	3,49	B70P	500,0	Clear
6	1020	11.69	5159	6,52	1.69	61.1	2.09	BTOP	500,O	Clear
7	1025	11.72	5167	6.52	1,71	56.7	1,64	BTOP	580,0	Clear
8	1630	11.62	5173	6.52	1.70	52.1	1,28	BTOP	500,0	Clear
9	7035	1(, 78	5154	6,52	(164	47.4	1,10	BIEP	500,0	Clear
10	1040	11,82	5140	6,52	h68	46,6	1,10	BTOP	5:0,0	Cler
Stabilized:	: (Yes/	No				To	otal Volume	Removed:	5000,0	mL

Comments:

BTOP = Below top of Pump Should lower pump to record water levels Could not record waterlevels for statilization due to pump being in the way. P. water makes law of a factorisation that well have good recharge to maintain water level.



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	,2-90,
Sampling Personal:	Jerry plen
	1/ 1/2

Phone: (701) 258-9	720										v	<i></i>	
Weather Conditions:		Temp:	735 °F		Wind:	NOS-10			Precip: Şuńı		ny / Partly Cloudy / Cloudy		udy
	Well Info	rmation					Sampling Information						
Well Locked?	Yes	(10)				Purgii	ng Method:	Blac	dder		Control Settings		s
Well Labeled?	∕(esp	No				Samplii	ng Method:	Bladder			Purge:	4	sec.
Casing Straight?	E	No				Dedicat	ed Equip?:	ip?: Yes> No			Recover:	56	sec.
Grout Seal Intact?	Yes	No	<not td="" ∀is<=""><td>ible</td><td></td><td colspan="2">Duplicate Sample?:</td><td>Yes</td><td>(ND)</td><td></td><td>PSI:</td><td>20</td><td></td></not>	ible		Duplicate Sample?:		Yes	(ND)		PSI:	20	
Repairs Necessary:						Duplicate Sample ID					Pumping Ra	ate: 100	mL∕min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		21.58	ft		Purge Date:		30 June 16		Time Purg	ing Began:	1345	am/pm
Total W	Vell Depth:			ft		Well P	urged Dry?	Yes	(Ño/	Time P	urged Dry:		am/pm
We	ell Volume:	<u> </u>		liters		Sa	mple Date:	30 Jun 1	6	Time of	Sampling:	1415	am/om
Depth to Top	of Pump:			ft									
Water Level After	er Sample:	2	12.05	ft		Bottle 2 - 500 m		mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremen	t Method:	ethod: Electric Water Level Indicator List:		2	2 - 500 mL Nitric (filtered)			4 - 1 Lite	er Nitric				
				Field	Measure	ments							

	ization secutive)	Temp (°C)	Spec. Cond.	рН	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	Clea
2	1355	9.46	7853	6,94	4.44	114.7	1,61	22,05	2020	Clear
3	1400	9.23	7865	693	4.24	117.3	1,25	22,04	දිග්වැට	Clear
4	1405	9,50	7694	6.93	4.22	11824	0,52	22.05	520,0	Clear
5	1410	9.11	7707	6.93	4.25	1/8.5	0.43	22.04	<u>క</u> ్రాణం	Clear
6	1415	9.14	7639	6.93	4.25	1179	0.41	22,05	500,0	Clear
7										
8										
9										
10	(Vos.)									

No Comments:

Total Volume Removed: 3ంలుగు mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	3790
Sampling Personal:	Deren Men a

Phone: (701) 258-9720

Friorie. (701) 256-8	720											•	
Weather Conditions:		Temp:	75	°F	Wind:	Nos	~10		Precip	: (Suni	ny)Partly C	loudy / Clo	udy
	Well Info	rmation						S	ampling l	nformation	on		
Well Locked?	Yes	(NO)				Purgii	ng Method:	Bla	dder		Со	ntrol Setting	s
Well Labeled?	E	No				Samplii	ng Method:	Bla	dder	1	Purge:	3	sec.
Casing Straight?	₹®	No				Dedicat	ed Equip?:	(es	> No	}	Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate	Sample?:	Yes	(ND)		PSI:	ZO	
Repairs Necessary:						Duplicate:	Sample ID:	-			Pumping R	ate: 100	mL/min
Casing	Diameter:		2"							_			
Water Level Bef	ore Purge:		19.22	ft		P	urge Date:	30Jm	,16	Time Purg	ing Began:	1210	am/pm
Total W	Vell Depth:	_		ft		Well P	urged Dry?	Yes	(No	Time F	urged Dry:		am/pm
We	ell Volume:	***		liters		Sa	mple Date:	30 June	16	Time of	Sampling:	1235	am/m
Depth to Top	of Pump:	•		ft						•			
Water Level Afte	er Sample:		19.30	ft		Bottle	2 - 500	mL Nitric	2-1 Li	ter Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric V	Vater Leve	Indicator		List:	2	- 500 mL N	Vitric (filtere	d)	4 - 1 Lite	er Nitric	
				Field	Measura	monte					•		

	ization secutive)	Temp (°C)	Spec. Cond.	pН	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	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	7.07	-51.0	1.01	19,35	580.0	Clear
4	1230	9,60	4949	6,88	2.11	-45.0	1.04	19,36	580,0	Clea
5	1235	10.08	4924	6.87	2.10	-38,9	0.96	19,35	500,0	Clear
6										
7										
8										
9										
10									07	

No Comments:

Total Volume Removed: 2500 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104.
Sampling Personal:	Jerenzalya

Phone: (701) 258-9720

Filone. (101) 250-5	1720										•		
Weather Conditions:		Temp:	70.		Wind:	N 65	-10		Precip	. Suni	y / Partly C	Cloudy / Clo	udy
	Well Info	rmation						Sa	ampling I	nformatio	on		
Well Locked?	Yes	(NO)				Purgir	ng Method:	Blac	dder		Co	ntrol Setting	s
Well Labeled?	XES	No				Samplir	ng Method:	Blad	der		Purge:	4	sec
Casing Straight?	TOS.	No				Dedicat	ed Equip?:	A GES	No		Recover:	56	sec
Grout Seal Intact?	(Jes	No	Not Vis	sible		Duplicate	Sample?:	Yes	No]	PSI:	20	
Repairs Necessary:				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Duplicate S	Sample ID:]	Pumping R	ate: 100	mL/mir
Casing	Diameter:		2"							_			
Water Level Befo	ore Purge:		14.53	ft		Р	urge Date:	30 Jul	6	Time Purg	ing Began:	1508	am/pm
Total W	/ell Depth:			ft		Well Pu	urged Dry?	Yes	(Nb)	Time F	urged Dry:	~	am/pm
We	ll Volume:			liters		Sa	mple Date:	30 Jul	6	Time of	Sampling:	1558	am/or
Depth to Top	of Pump:		<u> </u>	ft									
Water Level Afte	er Sample:	1	4,85	ft		Bottle	2 - 500	mL Nitric	2 - 1 Li	iter Raw	250 mL	Sulfiric	
Measuremen	t Method:	Electric \	Nater Level Ir	ndicator		List:	2	- 500 mL N	litric (filtere	d)	4 - 1 Lite	er Nitric	

Field Measurements

		·				,	·	,		
	ization secutive) Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
		12 601				<u> </u>	l		 	
1	1513	12.66	14053	6.96	2,36	63.8	180	1468	200,0	Clear
2	1518	12.33	14015	6.95	1.60	73.7	17.3	14.81	500,0	Clear
3	1523	11,66	14084	6,94	(,24	79.2	26.0	14.81	580.0	Clear
4	1528	11.74	14130	6,95	1.18	84.0	17.1	14.83	SERIO	Clear
5	1533	11,99	14135	6,95	1.21	851B	13.6	14.85	530.0	Clear
6	1538	11,78	14092	6.94	1.19	87.7	9.42	14,84	500,0	Clear
7	(543	11.75	14128	6,93	1.69	89.9	6.32	14.82	දිගා?ට	Cla
8	1548	11.61	14127	6.92	1.13	92.5	4.80	14.83	580.0	Clen
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	14.65	500.0	Clear
Stabilizad:	Vera	NI.a				т.	stal Maluma	D	Part	mal .

Total Volume Removed: 5000,0 mL

Stabilized: YES No
Comments:

Continued on next Page



Groundwater Assessment

Phone:	(701)	258-9720

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	104 .	
Sampling Personal:	Jeren flage	
Date [.]	30 Jun 16	_

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	pН	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	SODO	Clear
12	1608	11.91	14092	6.92	1.19	95.7	2,76	14.85	500,0	Cler
13										
14										
15										
16										
17										
18										
19										
20										***************************************
21										- Constitution of the Cons
22										
23										et in the state of
24										
25										
26										
27										,
28										
29										
30										

Stabili:	zed:	X

No

Total Volume Removed: 6000.0 mL



Chain of Custody Record

Projec	t Name:					Name	of Sampler	<u>·(s)</u> :	
MDU	Heskett	CCR Grou	ndwater	June Event 2016		D	Jamen	Nieswaag	
Report To: Attn: Address: Phone:	MDU Samantha Marshall 400 N. 4th St Bismarck, ND 58501 701-222-7829	· ·	Carbon Cop Attn: Address:	γ :	N	Work	Order Numb	ber: 82-1932	2

	Sampl	e Informati	on			Bottle Type Field Parameters				Analysis			
Lab Number	Sample ID	Date	Time	Sample Type	Gradient	500 ml HMG	1 lifer	500 ml HNO ₃ (fillered)		Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W2450	Dup 1 _	30 Jull	NA	W		Х		Х		NA	NA	NA	
w2451	Field Blank (FB)	30 Jull		W		Х	Χ	X		NA	NA	NA	
w2452				GW		X	X	4		10,32	4395	7,03	
w2453	mw101	30 Junello	,	GW		X	X	X		1266	5130	6,70	
w2454		30 Juril6	1416	GW		X	X	X		11,54	6043	7.10	MDU COD List with TOO sand
w2455	mw105	30 June 16	1730	GW		X	Y	4		12.08	7618	6.72	MDU CCR List with TSS and Dissolved CCR Metals. No
w2456		30 Twell	1040	aw		X	7	X		11.82	5140	6.52	RadChem.
w2457	nv 2-90	30 Junello	1415	6W		+	+	8		9.14	7639	6.93	
w2458		3 or well	1235	GW		X	4	4		10.08	4924	6.87	
W2459	nw 104	30 Twell	1608	ow		X	+	4		11.91	14092	6,92	

Comments:

Comments.						1242016	D1773010
	Transferred by:	Sample Condition	Date/Time,	Received by:	Sample Condition		° C
1	Im rin	walkin 2	30 Twelb	Tualle		150000	ROJ 514
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 CCR June 2016

Project Identification:
MVTL Laboratory Identifications:

16-W2460 through 16-W2469

IML Laboratory Identifications:

\$1607046-001 through \$1607046-010

Page 1 of 2

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.
 - o 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.
 - o 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: M

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

Page 2 of 2

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:

DATE:_ 1 5 Avg 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Samantha Marshall

Montana Dakota Utilities

400 N. 4th

Bismarck ND 58501

Page: 1 of 1

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

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:

Clauditte K. Canto

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 complete the control of the contr

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



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

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

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:

Clauditte K. Canto

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 co:
! = Due to sample quantity + = Due to in

CERTIFICATION: ND # ND-00016



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Montana Dakota Utilities

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Bismarck ND 58501

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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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW70 Sample Site: MDU Heskett

Temp at Receipt: 5.4C

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte

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 constitution # = Due to in

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



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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

Project Name: CCR Radiochem June Event 2016

Montana Dakota Utilities

Sample Description: MW101 Sample Site: MDU Heskett

400 N. 4th

Samantha Marshall

Bismarck ND 58501

Temp at Receipt: 5.4C

	As Recei Result	ved	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 Atta	ched Report			2 Aug 16	OL
Radium 228	See Atta	ched Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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 con
! = Due to sample quantity + = Due to int

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



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Report Date: 10 Aug 16

Lab Number: 16-W2464

Samantha Marshall Montana Dakota Utilities 400 N. 4th

Bismarck ND 58501

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW80R Sample Site: MDU Heskett

Temp at Receipt: 5.4C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	7.10	units	NA	SM 4500 H+ B	30 Jun 16 14:16	
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 Atta	ached Report			2 Aug 16	OL
Radium 228		ached Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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 conduct to sample quantity + = Due to information with ND 20016.

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



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1 of 1 Page:

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW105 Sample Site: MDU Heskett

400 N. 4th

Samantha Marshall

Bismarck ND 58501

Montana Dakota Utilities

Temp at Receipt: 5.4C

	As Recei Result	ved	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 Atta	ched Report			2 Aug 16	OL
Radium 228	See Atta	ched Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canteo

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



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Bismarck ND 58501

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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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW33 Sample Site: MDU Heskett

Temp at Receipt: 5.4C

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canto

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 in

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



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Bismarck ND 58501

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW2-90 Sample Site: MDU Heskett

400 N. 4th

Temp at Receipt: 5.4C

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K. Cantes

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 co
! = Due to sample quantity + = Due to in

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW3-90 Sample Site: MDU Heskett

400 N. 4th

Samantha Marshall

Bismarck ND 58501

Montana Dakota Utilities

Temp at Receipt: 5.4C

	As Rece: Result	ived	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 Atta	ached Report			2 Aug 16	OL
Radium 228	See Atta	ached Report			8 Aug 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Cantlo

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 code in the sample quantity + = Due to in

CERTIFICATION: ND # ND-00016



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1 of 1 Page:

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

Project Name: CCR Radiochem June Event 2016

Sample Description: MW104 Sample Site: MDU Heskett

400 N. 4th

Samantha Marshall

Bismarck ND 58501

Montana Dakota Utilities

Temp at Receipt: 5.4C

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

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Canteo

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: $@ = Due \ to \ sample \ matrix$ $\# = Due \ to \ column 1 = Due \ to \ sample \ quantity$ $\# = Due \ to \ in \ delta = Due \ to \ in \$

CERTIFICATION: ND # ND-00016

Date:

CLIENT:

MVTL Laboratories, Inc.

Project:

201682-1933

ASTM approved and recognized standards

in this case narrative.

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

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated

Reviewed by: Tom Rutte

Tom Patten, Laboratory Manager

Page 1 of 1

S1607046



Inter-Mountain Labs

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

Sample Analysis Report

Company: MVTL Laboratories, Inc.

Date Reported 8/9/2016 2616 E Broadway Ave. Report ID \$1607046001

Bismarck, ND 58501

201682-1933 ProjectName:

CollectionDate: 6/30/2016 Lab ID: S1607046-001 ClientSample ID: 16-W2460 Dup2 DateReceived: 7/6/2016 10:47:00 AM

COC: 201682-1933 FieldSampler:

WorkOrder:

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-002

ClientSample ID: 16-W2461 Field Blank COC:

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Μ Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: <u>A</u>

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-003

ClientSample ID: 16-W2462 MW70

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

WorkOrder:

S1607046

CollectionDate: 6/30/2016 7:47:00 AM

DateReceived:

7/6/2016 10:47:00 AM

FieldSampler:

Matrix:

Water

COC:

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range Е

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Χ Matrix Effect **RL** - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 10

S1607046



nter-Mountain Labs

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

Sample Analysis Report

Company: MVTL Laboratories, Inc.

Date Reported 8/9/2016 2616 E Broadway Ave. Report ID S1607046001

Bismarck, ND 58501

ProjectName: 201682-1933

Lab ID: S1607046-004 CollectionDate: 6/30/2016 10:29:00 AM ClientSample ID: 16-W2463 MW101 DateReceived: 7/6/2016 10:47:00 AM

201682-1933 COC: FieldSampler:

Matrix: Water

WorkOrder:

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-005

ClientSample ID: 16-W2464 MW80R COC:

201682-1933

Date Reported 8/9/2016

Report ID

S1607046001

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-006

ClientSample ID: 16-W2465 MW105 COC:

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

WorkOrder:

S1607046

CollectionDate: 6/30/2016 5:30:00 PM

DateReceived: 7/6/2016 10:47:00 AM FieldSampler:

Matrix:

Water

Comments

Method Da	te Analyzed/Init	
	Date Analyzed/Init	
17500 Ra-B 08/	/02/2016 909 N	
7500 Ra-B 08/	/02/2016 909 N	
Ga-Tech 08/0	08/2016 1026 N	
Ga-Tech 08/0	08/2016 1026 N	
(7500 Ra-B 08/ 7500 Ra-B 08/ Ga-Tech 08/6	

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

О Outside the Range of Dilutions

Χ Matrix Effect **RL - Reporting Limit**

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 10



Sample Analysis Report

MVTL Laboratories, Inc. Company:

Date Reported 8/9/2016 2616 E Broadway Ave. Report ID S1607046001

Bismarck, ND 58501

ProjectName: 201682-1933 WorkOrder: S1607046

Lab ID: S1607046-007 CollectionDate: 6/30/2016 10:40:00 AM ClientSample ID: 16-W2466 MW33 DateReceived: 7/6/2016 10:47:00 AM 201682-1933 COC:

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.

Analyte detected in the associated Method Blank Qualifiers:

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

0 X Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 7 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-008

ClientSample ID: 16-W2467 MW2-90 COC:

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Μ Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 8 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-009

ClientSample ID: 16-W2468 MW3-90 COC:

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 9 of 10



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-1933

Lab ID:

S1607046-010 ClientSample ID: 16-W2469 MW104

COC:

201682-1933

Date Reported

8/9/2016

Report ID

S1607046001

WorkOrder:

S1607046

CollectionDate: 6/30/2016 4:08:00 PM

DateReceived:

7/6/2016 10:47:00 AM

FieldSampler:

Matrix:

Water

Commonto

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.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

O X Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 10 of 10



Inter-Mountain Labs

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

Date:

ANALYTICAL QC SUMMARY REPORT

CLIENT:

MVTL Laboratories, Inc.

Work Order:

S1607046

Project:

201682-1933

Radium 228 by Ga/Tech	Sample Type	MBLK	Units: pCi/L		: pCi/L			
MB-366 (08/07/16 08:05)	R	RunNo: 137356	PrepD	ate: 07/2	6/16 14:00	Bato	hID 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)	R	lunNo: 137356	PrepD	ate: 07/2	6/16 14:00	Bato	hID 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)	R	unNo: 137356	PrepD	ate: 07/2	6/16 14:00	Bato	hID 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)	R	unNo: 137356	PrepD	ate: 07/2	6/16 14:00	Bato	hID 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)	R	unNo: 137277	PrepDate: 07/20/16 0:00			Batc		
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)	Ri	unNo: 137277	PrepDa	ate: 07/2	0/16 0:00	Batc	hID 12116	
Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Quai
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)	R	unNo: 137277	PrepDa	ate: 07/2	0/16 0:00	Batc	hID 12116	
Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226		5.2	0.2	5.6	7.10	87.2	20	

Qualifiers:

- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- 0 Outside the Range of Dilutions
- Spike Recovery outside accepted recovery limits
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- Χ Matrix Effect



LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

Chain of Custody Record

Page	1	of	1	

	Phone: (701) 2	258-9720			1										
Toll Free: (8	Toll Free: (800) 279-6885 Fax: (701) 258-9724										1	201682-1933			
Company Nam	e and Address:			Account #	t:						Ph	one #:			
	ray.	VTL		0 - 1								701-258-9720			
		<u>vr⊏</u> 3roadway		Contact:	Class.	1 - 44					Fa				
		, ND 58501		Name of S	Claud	ette	<u> </u>				-				
Billing Address	s (indicate if different		*****	Ivallie of S	ampier.						Fax #: For faxed report check box E-mail: ccarroll@mvtl.com For e-mail report check box Date Submitted: 7/1/2016 Purchase Order #: BL5608				
			Quote Nu	mber						Da					
•		ox 249									Fax #: For faxed report check box E-mail: ccarroll@mvtl.com For e-mail report check box Date Submitted: 7/1/2016 Purchase Order #: BL5608 Analysis Analysis Required				
	<u>New Ulm.</u>		Project Na	me/Numbe	er:					Pu	rchase Order #:				
				***************************************							BL5608				
	T 7	Sample Information		<u> </u>	1		В	ottle	Ту	pe		Analysis			
516070	146														
							ml HNO3	pe,			6				
VIII W						Unfreated	Ξ	ials	Jar		ح ا				
IML Lab	EMN Property of Employment		Sample	Date	Time	trea	0 m	C V	Glass Jar	rer	, V				
Number	MVTL Lab Number	Client Sample ID	Туре	Sampled	Sampled	5	100	VOC Vials Umpreserved	ම්		 				
<u>~~1</u>	16-W2460	Dup2		6/30/2016						2	\$.8	Radium 228 & Radium 228 on all			
<u> </u>	16-W2461	Field Blank		6/30/2016							ĵ				
_ <i>0</i> 03	16-W2462	MW70		6/30/2016	747										
204	16-W2463	MW101		6/30/2016	1029										
D05	16-W2464	MW80R		6/30/2016	1416					٦.	V				
006	16-W2465	MW105		6/30/2016	1730					QL	0,				
007	16-W2466	MVV33		6/30/2016	1040						1				
_ දුරු	16-W2467	MW2-90		6/30/2016	1415										
009	16-W2468	MW3-90		6/30/2016	1235							V			
010	16-W2469	MW104		6/30/2016	1608					\					
Comments: All	results must be report	ed as a mumerical value								<u> </u>					

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



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

Chain of Custody Record

Projec	ct Name:			Name of Sampler(s):
MDU	Heskett	CCR Radiochem	June Event 2016	Parren Nieswaas
Report To: Attn: Address: Phone:	MDU Samantha Marshall 400 N. 4th St Bismarck, ND 58501 701-222-7829	Carbon Cop Attn: Address:	oy:	Work Order Number: 82-1933

	Samp		Bottle Type Field Parameters						Analysis			
Lab Number	Sample ID	D_{ate}	Тіте	Sample Type	Gradient	1000 ml HNO ₃			Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
w2460	Dup 2	30 Sunello	NA	w		4				NA	NA	7 tranyoro recquired
W2461	Field Blank (FB)	30 June 16		w		4				NA	NA NA	
w2462	MWZO	30 June 16	0747	GW		4			10.32			
W2463	nwlol	305mlb	1029	Gu		4			12066		6.70	
WZ464	MW 8BR	30 Tuell	1416	6W		4				6043	7./0	
w2465	MW 105	30 Twelk	1730	GW		4					6.72	MDU CCR Numerical
w2466	nw 33	30 Timelle	1040	ow		4			11.82	,	6,52	RadChem
W2467	nw2-90	30 Timell	1415	GW		4				2639	6,93	•
W2468	nv3-90	30 Tynelb				4						
w2469	MW 104	38 June 16	1608	Gn		4			1	14092		
Comments:												

Comments:

	. Transferred by:	Sample Condition	Date/Time	/ Received by:	Sample Condition	Date/Time	°C
1	Jane Nky	walkinz	30 Jull .	Tenoton		17735010	ROT 564
2		•					TM388
3							

MVTL Calibration Worksheet

Site: MDU Hes	skett					Technician:	Jeven	ry Maye		_	
Instrument (Circle One):	#1 6	50 MDS 08F10	00203	#2 65	50 MDS 04H14	1736		#3 556 MPS 12E102056			
Date: 30 Ju	110		Site Calibr	ation				Po	ost Site Chec	:k	
pH Buffer 7 Buffer 10	Temp °C 21.55 21.55	Pre Cal 7.05 10.0	Post Cal 7.00 10.00	Post Cal Range 6.95-7.05 9.95-10.05	mv ~19,2 ~194.8	mv Range +/- 50 0 +/- 50 -180 +/- 50		pH Buffer 7	Temp °C 21.67	Reading	
Conductivity	[8.21]					Check		Conductivity			
Buffer 10000	20.34	9972	10000	±10%	Buffer 5000	4980		Buffer 5000	21.43	4978	
ORP 231 mV @ 25C	5100	257,3	257.0	±10 mV							
DO				Barometr	ric Pressure (m						
Colodina de Personal de Calendario de Calend	16.16	101.3%	101.0%	mg/L	769,0	75					
Date:		Time:						Time:			
Нд	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50		рH	Temp °C	Reading	
Buffer 7				6.95-7.05		0 +/- 50	ANGELIN STREET,	Buffer 7			
Buffer 10				9.95-10.05		-180 +/- 50					
Conductivity	,				No. of Concession, Name of Street, Name of Str	Check		Conductivity			
Buffer 10000				±10%	Buffer 5000			Buffer 5000			
ORP		A CONTRACTOR OF THE PROPERTY O									
231 mV @ 25C-				±10 mV							
DO				Barometr	ric Pressure (m	nm Hg)					
				mg/L							

MVTL Calibration Worksheet

			INIAIĖ	Calibratio	n work	sneet	\triangle		160	
Site: MDU He	eskett					Technician: (Jar	Um,	Vies	waas
Instrument (Circle One):	#1 6	50 MDS 08F10	0203	#2 65	50 MDS 04H14	1736		#3.55	6 MPS 12E10	2056
Date: 29 J4	nell		Site Calibra	ation		mv Range +/-		Po Time: 197	ost Site Chec	:k
pH Buffer 7 Buffer 10	Temp °C 22.10 21.94	Pre Cal 7, 0 4 9, 98	Post Cal 7,00 10,00	Post Cal Range 6.95-7.05 9.95-10.05	mv -35.5 -210.5	50 0 +/- 50 -180 +/- 50		pH Buffer 7	Temp °C 23 /63	Reading 6-95
Conductivity Buffer 10000 よいみ ORP	22,23	10180	10006	±10%	Buffer 5000	Check 49 7 4		Buffer 5000	22.99	4956
231 mV @ 250	6.90	258,9	257.1	±10 mV						V
DO	21.80	9,38	8,30	Barometi mg/L	ric Pressure (m	nm Hg)				
Date: 30 丌	nelb_	Time: 060	90			mv Range +/-	ŀ	Time: 1859	1	
pH Buffer 7 Buffer 10	7 Temp °C 21,71 21,66	Pre Cal 6.95 10,07	Post Cal 7.00 10.06	Post Cal Range 6.95-7.05 9.95-10.05	mv -32,7 -211,4	50 0 +/- 50 -180 +/- 50		pH Buffer 7	Temp °C 2-3,3/	Reading 7,03
Conductivity Buffer 10000 多いか	22.18	9887	[000]	±10%	Buffer 5000	Check 50/4		Conductivity Buffer 5000	22,48	4982
231 mV @ 25C	25,39	251,4	257,7	±10 mV						
DO	21,25	7,02	8,39	Barometi mg/L	ric Pressure (m					



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MWTO.
Sampling Personal:	Da real Non

Phone: (701) 258-9	720		Λ				_			<i>y</i>			
Weather Conditions:		Temp:	61	°F	Wind:	1/5	-10		Precip:	Sunr	ny / Partly C	Cloudy//Clou	ıdy
	Well Info	rmation				,		Sa	mpling l	nformatio	on	, (
Well Locked?	No	No				Purgir	ng Method:	Blad	der		Co	ntrol Setting	5
Well Labeled?	(es	No				Samplin	ng Method:	Blad	der		Purge:	6	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Y es⊃	No		Recover:	59	sec.
Grout Seal Intact?	(ES	No	Not	Visible		Duplicate	Sample?:	Yes	, V (0)		PSI:		
Repairs Necessary:			-			Duplicate \$	Sample ID:		-		Pumping R	late: / 00	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	21	,25	ft		. P	urge Date:	30 Jan	e 16	Time Purg	ing Began:	19657	@Plpm
Total V	Vell Depth:	-		ft		Well P	urged Dry?	Yes	(Ng	Time F	urged Dry:	1	am/pm
We	ell Volume:	-	_	liters		Sa	mple Date:	300 me	U.	Time of	Sampling:	0767	€ pd/pm
Depth to Top	p of Pump:	32	-68.	ft					•				
Water Level After	er Sample:	22	.28	ft		Bottle	2 - 500 r	mL Nitric	2 - 1 Li	iter Raw	250 mL	. Sulfiric	
Measuremer	nt Method:	Electric V	Vater Lev	el Indicator		List:	2	- 500 mL N	itric (filtere	d)	4 - 1 Lit	er Nitric	

Field Measurements

· · · · · · · · · · · · · · · · · · ·	ecutive)	Temp (°C)	Spec. Cond.	pH ·	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
SEQ#	Time		±5%	±0.1 ′			11076			clear, siightiy turbid, turbid
1	0707	10,03	4517	6.96	2,40	195,8	25.3	22.11	1000	den
2	0717	10,00	4499	6,98	2,37	190,5	10,6	2215	1000	clear
3	0722	9,84	4484	6.98	2,37	18816	10,3	2215	500	der
4	0727	1,87	4441	6.98	26.13	187.6	5,24	22,15	500	den
5	0732	9.87	4352	\$7,00	7,54	186.2	4.61	22.15	500	· de
6	0737	9.82	4357	7,02	8,75	184,9	4.55	22,20	500	den
7	0742	10,36	4359	7,07	8.90	183,5		22,20	500	der
8	8747	10.32	4395	7,03	9.44	1821	4.80	22,20	500	Cler
9										
10							<u>L.</u>	<u> </u>		

Stabilized: Comments:

Total Volume Removed: 5000 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	MW 101
Sampling Porce	anal: Da ca

							<u>'</u>				vac-	
Phone: (701) 258-9	9720											
Weather Conditions:		Temp:	68°F	Wind:	N5-4	2		Precip	Sunr	Partly C	Cloudy / Clo	udy
Well Information							[°] Sa	Sampling Information				
Well Locked?	N ASS	(No)			Purgir	ng Method:	Blad	der		Co	ntrol Setting	s
Well Labeled?	¥e₃	<u></u>			Samplir	ng Method:	Blad	der		Purge:	6	sec.
Casing Straight?) es	No			Dedicate	ed Equip?:		No		Recover:	54	sec.
Grout Seal Intact?	Yes	No	Not Visible		Duplicate	Sample?:	Yes	1		PSI:		
Repairs Necessary:		-			Duplicate S	Sample ID:	_	_		Pumping R	ate: 100	mL/min
Casing	Diameter:		2"						•		t	
Water Level Bef	fore Purge:	3	7.12 ft		Р	urge Date:	30 The	16	Time Purg	ing Began:	0904	@i/pm
Total V	Vell Depth:	/	ft.		Well Pu	urged Dry?	Yes	NO)	Time P	urged Dry:	-	am/pm
We	eli Volume:		liters		Sai	mple Date:	3 & June	16	Time of	Sampling:	1029	@m/pm
Depth to To	p of Pump:	L	1.6085 ft								/t	
Water Level Aft	er Sample:	4	1,72 ft		Bottle	2 - 500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremer	nt Method:	Electric \	Water Level Indicator		List:	2	500 mL N	itric (filtere	d)	4 - 1 Lite	er Nitric	
												· · · · · · · · · · · · · · · · · · ·

Field Measurements

		ization secutive)	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
214		1999	11,05	5/04	6,71	10,25	019	34.0	38.96	1000	ا ئىد
0929	1 2 A	0914	۱ ۷				74/		//	1 à la	voclea-
		O TI	11.28	5096	6,71:	10,05	48,3	28.3	39,29	100013	00 clea
09	393 N	109/9	12,40	5084	6,71	9,17	32.9	14,1	39,31	1000	dea
	4	0949	12119	5086	6.71	9.32	31,5	11.6	39,40	1000	der
	5	0959	11.98	5100	6,71	9,48	3011	7,94	39.61	1000	da
	6	1004	11.79	5119	6,71	2.63	27,7	6,96	39,75	500	den
	7	1009	12,45	5105	6,70	9,34	25,2	6.08	39,81	500	clea
	8	1014	13,32	5111	6,71	8,47	22,5	5,30	3981	500.	den
	9	1019	17,14	5/26	6,71	8,63	19,0	4.38	39,85	500	Un
	10	1024	12,78	5132	6,70	8,89	17,0	4,78	39,95	500	de
	Stabilized: Yes No Total Volume Removed: mL										mL

Comments:

Sée next pro



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	mw107
Sampling Person	nal: Damen Wielvaus
Date: 2 34	The Ma

Phone: (701) 258-9720

Field Measurements

						3 di Cilicii	1	··········		
Stabili (3 cons	ization ecutíve)	Temp (°C)	Spec. Cond.	pН	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	1266	5130	6,70	8.97	16.0	4.71	40.00	500	Cler
12					,		,			
13										
14										
15										
⁻ 16										
17										
18										
19			.5							
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized:	
Comments:	

No

Total Volume Removed: 8500 mL



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	MW80R	
Sampling Per	sonal: Danen Vissaan	

Phone: (701) 258-9720

							-						·
Weather Conditions:		Temp:	77 °F		Wind:	NO			Precip:	Sur	py Î Partly C	Cloudy / Cl	oudy
Well Information								Sampling Information					
Well Locked?	Yes	(No)				Purgi	ng Method:	Blad	der		Co	ntrol Settir	gs
Well Labeled?	/Yes	No				Sampli	ng Method:	Blad	der		Purge:	83	sec. چر
Casing Straight?	Tes	No				Dedica	ted Equip?:	(Teg	No		Recover:	548	sec.
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate Sample?:		Yes	No		PSI:	_	
Repairs Necessary:						Duplicate	Sample ID:	pup-	マ		Pumping R	ate: [60	mL/min
Casing	Diameter:		2"					r 9	,				
Water Level Befo	ore Purge:		14,75	ft		Purge Date:		JOJUL	lb	Time Pur	ging Began:	1151	@m/pm
Total W	/ell Depth:			ft		Well F	urged Dry?	Yes	M62	Time	Purged Dry:	-	am/pm
We	ll Volume:			liters		Sa	ample Date:	30 Tine		Time o	of Sampling:	1416	am/pm
Depth to Top	of Pump:	l	9.30	ft									
Water Level After Sample:		Į.	4.98	ft		Bottle 🗸 🏖		mL Nitric	72-1 Li	ter Raw	₹ ~250 mL	Sulfiric	
Measurement Method:		Electric	Water Level In	dicator		List:	4 9	- 500 mL N	itric (filtere	d)	8 # - 1 Lit	er Nitric	
							*						

Field Measurements

	ization ecutive)	Temp (°C)	Spec. Cond.	рН	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	120 F	12,50	6027	7.08	9.06	39,9	32,7	14.98	1000	der
2	1211	12,33	6027	7,06	9,19	48.5	620	14.98	1000	de
3	1221	11,61	6012	7,07	9,73	55.)	66.0	14.98	1000	der
4	1231	12,03	6611	7.08	9,42	5911	\$48.1	14028	1,000	cler
5	1241	11,91	6003	7,08	9,45	61.7	37.9	14.98	1000	cla
6	1251	11.85	6003		9,60	64,6	36.5	14,98	1000	da
7	1301		6031	7009	10,17	20,2	23.7	14,98	1,000	cler
8	1311	12.46	6048	7.10	9,58	68.8	17.8	14,98	1000	ca
9	1321	12,12	6032	7,10	980	70,3	13.3	14,98	1,000	Olen
10	1331	12,05	6074	7,10	7.87	7613	9,99	14198	1000	lu
Stabilized:	Yes	No				To	otal Volume	Removed:	10 000	mL.

Comments:



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	mW80R	
Sampling Persor	nal: Darren Wilswary	
Date: 700	Since I la	

Field Measurements

					Telu Ivica					
ļ	ization	Temp (°C)	Spec. Cond.	Нq	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
(3 cons	ecutive)	()					`		Removed	
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	14,28	1000	cler
12	1346	12.08	6040	7.61	9084	74.1	7,16	14,98	500	der
13	1351	11,84	6044	7,11	10,03	74,2	6.14	1498	500	de
14	1356	11,56	6036	7,11	10,25	7511	5,04	14,98	500	ch
15	1401	11061	6024	7.10	10,14	7409	5143	14098	500	ch
16	1406	11,54	6039	7,10	10,18	75,7	4,83	1428	500	de
17	1411	11,94	60,40	911	709.96	75,6	4.70	1428	500	Cles
18	1416	11,54	6043	7,10	9,98	76.4	4,56	14.98	500	U2
19										
20										
21										
22										
23										
24										
25										
26	ı									
27										
28										
29										
30										

Stabilized:	
Comments:	

No

Total Volume Removed:

14,500 m



Groundwater Assessment

Company:	MDU Heskett	
Event:	June Event 2016	
Sample ID:	mvos	
Sampling Pers	sonal: Darnen Mestras	

Phone: (701) 258-9	720						_						
Weather Conditions:		Temp:	78	°F	Wind:	NS			Precip:	Śi	ınny) Partl	y Cloudy / Clo	udy
	Well Info	rmation				, ,		Sa	mpling l	nforma	tion		
Well Locked?	NETES	(N)				Purgir	ng Method:	Blad	der			Control Setting	s
Well Labeled?	Yes	No				Samplin	ng Method:	Blad	der		Purg	e: 4	sec.
Casing Straight?	Æes	No				Dedicat	ed Equip?:	(Yes)	No		Recove	er: 56	sec.
Grout Seal Intact?)(es	No	Not	Visible		Duplicate	Sample?:	Yes	MO		PS	31: 11	
Repairs Necessary:	-				Duplicate :	Sample ID:	ئىت			Pumping	Rate: / 0 O	mL/min	
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	1	3,55	ft		P	urge Date:	300m	16	Time Pı	urging Bega	n: 1640	am/prin
Total V	Vell Depth:	,		ft		Well P	urged Dry?	Yes	No		e Purged Di	<u> </u>	am/pm
We	ell Volume:		<u> </u>	liters		Sample Date:		30June	llo .	Time	of Samplin	g: 1730	am/om
Depth to To	p of Pump:	7	2115	ft					-				
Water Level Aft	er Sample:	13.	81	ft		Bottle 2 - 500		nL Nitric	2 - 1 Li	iter Raw 250 mL		nL Sulfiric	
Measurement Method: Electric Water Level Indicator			List: 2		- 500 mL Nitric (filtered)		d)(t	4-1	Liter Nitric				
				Field	Measura	ements							

Stabili:		Temp (°C)	Spec. Cond.	рН	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	1800	der
2	1655	11,89	6687	6,73	9.95	7905	7,44	13,81	500	elev
3 /	45/200	11.80	6939	6.72	10,03	83.5	7,00	13,81	500	cler
4	1705	11.70	7174	6,72	10,09	87,5	6,02	13,81	500	alex
5	1710	11,58	7268	6,71	10,19	89,5	6,91	13,81	500	de
6	1715	12.41	7375	6.72	9,46	921	6.41	13.81	500	ch
7	1720	12,73	7477	6,0	9.28	944	6,87	13,81	500	den
8	1725	12/16	7570	6.72	941	95.6	6067	63286	500	de
9	1730	1208	7618	6,72	9,78	98,6	6034	1381	500	dy
10	(Vos)	No		-	1		otal Volume	<u> </u>	5000	ml

Total Volume Removed: 5000 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	, Mw33
Sampling Personal:	Jerythy

Filone. (701) 230-8	720						-						
Weather Conditions:		Temp:	75 °F	-	Wind:	Nes) 95-10 Pre			ip: Sunny DPartly Cloudy / Cloudy			
	Well Info	rmation						Sa	mpling l	nformation	on		
Well Locked?	Yes	(No)				Purgir	ng Method:	ethod: Bladder			Cor	ntrol Setting	S
Well Labeled?	(ES)	No				Samplir	ng Method:	Blad	der		Purge:	4	sec.
Casing Straight?	(Pes	No				Dedicat	ed Equip?:	(TES)	No		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	Sample?:	Yes (No)]	PSI:	20	
Repairs Necessary:						Duplicate :	Sample ID:				Pumping Ra	ate: 100	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	4	11.98	ft		P	urge Date:	30 June 1		Time Purg	ing Began:	<u>0950</u>	am/pm
Total V	Vell Depth:	من ب منها د		ft		Well P	urged Dry?	Yes	Ø\$ô	Time F	urged Dry:		am/pm
We	ell Volume:	<u>.</u>		liters		Sa	mple Date:	30 Lu 1	ص	Time o	f Sampling:	1040	@m/pm
Depth to To	p of Pump:	47	2.10	ft									
Water Level After Sample: BTOP ft			Bottle	2 - 500	mL Nitric	2-1L	Liter Raw 250 mL		Sulfiric				
Measurement Method: Electric Water Level Indicator			List: 2 - 500 mL Nitric (filtered			d)	4 - 1 Lite	er Nitric					
				Ciold	Magazir	monto							

Field Measurements

	lization secutive)	Temp (°C)	Spec. Cond.	Нq	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	8TOP	5000	Clear
2	1000	11.53	5076	6.52	1.78	95,3	8.64	BTOP	Sa).©	Clear
3	1005	11.38	5116	6.52	1.86	82.7	6.33	BIDP	500,0	deer
4	1010	11.38	5139	6.52	1.77	72.8	5.04	Brop	500,0	Clear
5	1015	11.56	5145	6,52	1,73	65.6	3,49	BTOP	500,0	Cles
6	1020	11.69	5159	6,52	1.69	61,1	2.09	BTOP	500,O	Clear
7	1023	11.72	5167	6.52	1,71	56.7	1.64	BTOP	580,0	Clear
8	1630	11.62	5173	6,52	1.70	52.1	1,28	Brop	5 <i>0.0</i>	Clear
9	1035	1(, 78	5154	6,52	1,68	47.4	1,10	Brop	500,0	Clear
10	1040	11,82	5140	6.52	1,68	46.6	1,10	BTOP	500.0	Cler
Stabilized	: (Yes/	No				T	otal Volume	: Removed:	5000,0	_mL

Stabilized: Yes Comments:

Should lower pomp to record water bestles
Coold not record water levels for statilization due to pump tring in the way.
Coold not record water levels for statilization due to pump tring in the way.



Groundwater Assessment

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

Phone: (701) 258-9720

1 110110. (701) 200 0	7,20												
Weather Conditions:		Temp:	75 °F		Wind:	NOS-	10	Precip: Sunny / Partly Cloudy / Cloudy					ıdy
Well Information						Sampling Information							
Well Locked?	ed? Yes (No)			Purgin	g Method:	Blac	dder		Co	ontrol Setting	s		
Well Labeled?	XES)	No				Samplin	g Method:	Blac	dder		Purge:	4	sec.
Casing Straight?	6	No				Dedicate	d Equip?:	Ø€\$>	No		Recover:	56	sec.
Grout Seal Intact?	Yes	No	⊲vot Visi	ible		Duplicate Sample?:		Yes	(ND)		PSI:	50	
Repairs Necessary:						Duplicate S	Duplicate Sample ID:			<u> </u>	Pumping F	Rate: 100	mL/min
Casing	Diameter:		2"										
Water Level Bef	fore Purge:		21,58	ft		Pı	urge Date:	30 June	16	Time Purg	ing Began:	1345	am/pm
Total V	Vell Depth:	•		ft		Well Pu	rged Dry?	Yes	(Ño/	Time P	urged Dry:		am/pm
We	ell Volume:	<		liters		Sample Date:		30 Jun 1	6	Time of	Sampling:	1415	am/on
Depth to To	p of Pump:			ft									
Water Level Aft	er Sample:	2	22.05	ft		Bottle 2 - 500 r		0 mL Nitric 2 - 1 L		iter Raw	250 mL	. Sulfiric	
Measureme	nt Method:	Electric \	Water Level In	dicator		List: 2 -		2 - 500 mL Nitric (filtered)		d) 4 - 1 Liter Nitric		er Nitric	
•								•					

Field Measurements

	ization ecutive)	Temp (°C)	Spec. Cond.	рН	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	1053	3.04	25,03	500,0	Clea
2	1355	9.46	7853	6,94	4.44	114.7	1,61	22,05	5020	Clean .
3	1400	9.23	7865	693	4,24	117.3	1,25	22,04	5000	Cless
4	1405	9,50	7694	6.93	4.22	11814	0152	22,05	5020	Clear
5	1400	9.11	7707	6.93	4.25	118.5	0.43	22,04	5000	Clear
6	1415	9,14	7639	6.93	4,25	1179	0.41	22,05	500,0	clear
7										
8								,		
9										
10		<u> </u>					-1-1>/-1	<u> </u>		

Stabilized: (Yes) No
Comments:

Total Volume Removed: 3000 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	3790
Sampling Personal:	Derey Henry

Phone: (701) 258-9720

Fildile. (701) 256-8	720						_						
Weather Conditions:		Temp:	73	°F	Wind:	Nos	-10	Precip: Sunny Partly Cloudy / Cloudy					
	Well Info	rmation						Sa	mpling l	nformatio	n		
Well Locked?	Well Locked? Yes (No)			Purgir	Purging Method: Bladder				Co	ntrol Setting	js		
Well Labeled?	(ES)	No				Samplin	g Method:	Blad	der		Purge:	3	sec.
Casing Straight?	(E)	No				Dedicate	ed Equip?:	(es	No		Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate Sample?:		Yes	AD)		PSI:	ZO	
Repairs Necessary:						Duplicate Sample ID:					Pumping R	ate: 10€	> mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		19.22	ft		Р	urge Date:	30J:m	i6	Time Purg	ng Began:	1210	am/pm
Total V	Vell Depth:	_	<u> </u>	ft		Well Pu	urged Dry?	Yes	No	Time P	urged Dry:		am/pm
We	ell Volume:	-	ρ	liters		Sample Date:		30 June	(6	Time of	Sampling:	1235	am/nm
Depth to Top	p.jof Pump:		ر	ft									
Water Level After	fter Sample: 19.30 ft Bottle 2 - 9		2 - 500 r	2 - 500 mL Nitric 2 - 1 Lit		ter Raw	250 mL	Sulfiric					
Measuremer	nt Method:	Electric V	Nater Leve	el Indicator		List: 2 -		- 500 mL N	itric (filtere	d)	4 - 1 Liter Nitric		
					•								

Field Measurements

	lization secutive)	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	2142	-20.6	3,29	19,30	500,0	Clear
2	1220	10,04	4933	6.67	2,08	-50,4	1.33	19.32	500,0	Clear
3	1225	9.94	4915	6,87	7.07	-51.0	1.01	19,35	580.0	Clear
4	1230	9.60	4949	6.88	2,11	-45.0	1.04	19,36	580,0	Clea
5	1235	10,08	4924	6.87	2.10	-38,9	0.96	19,35	500,0	Clear
6										
7										
8										
9										
10							<u> </u>		0.5	

Stabilized: Yes No
Comments:

Total Volume Removed: 2500 mL



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104.
Sampling Personal:	Jerens oline

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9	720						_						
Weather Conditions:		Temp:	70)∘ _F	Wind:	N 65	-10		Precip:	Sunr	ழ் / Partly C	loudy / Clo	udy
	Well Info	rmation						S	ampling l	nformatio	n		
Well Locked?	Yes	(AQ)				Purgir	ng Method:	Bla	dder		Co	ntrol Setting	s
Well Labeled?	Xes	No				Samplir	ng Method:	Bla	dder		Purge:	4	sec.
Casing Straight?	Tes.	No				Dedicat	ed Equip?:	ALES.	No		Recover:	56	sec.
Grout Seal Intact?	(Jos	No	Not \	/isible		Duplicate	Sample?:	Yes	No		PSI:	20	
Repairs Necessary:				:		Duplicate \$	Sample ID:		•		Pumping R	ate: 100	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		4.53	ft		Р	urge Date:	30 Ju	16	Time Purg		1508	am/pm
Total V	Vell Depth:	-		ft		Well P	urged Dry?	Yes	(NG)	Time P	urged Dry:		am/pm
We	ell Volume:			liters		Sa	mple Date:	30 Jue	16 <u> </u>	Time of	Sampling:	1558	am/om
Depth to Tor	o of Pump:	<		ft									
Water Level After		1	4.85	ft		Bottle	2 - 500	mL Nitric	2 - 1 Li	ter Raw	250 mL	Sulfiric	
Measuremer				l Indicator		List:	2	- 500 mL l	Vitric (filtere	d)	4 - 1 Lit	er Nitric	
<u> </u>													

Field Measurements

					i l					
Stabili (3 cons	zation ecutive)	Temp (°C)	Spec. Cond.	рН	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	180	14.68	200,0	Clear
2	1518	12.33	14015	6.95	1.60	73.7	17.3	14,81	500,0	Clear
3	1523	11.66	14084	6,94	(,24	79,2	26.0	14.81	580.0	Uear
4	1528	11.74	14130	6,95	1.18	84.0	17.1	14.83	580,0	Clear
5	1533	11,99	14135	6,95	1,21	851B	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	Cla
8	1548	11.61	14127	6.92	1.13	925	4.60	14.83	580.0	Clin
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	200.0	Cless

Total Volume Removed: 500,0 mL

abilized: YES No mments:

Centrued on next Page



Groundwater Assessment

Company:	MDU Heskett
Event:	June Event 2016
Sample ID:	104 .
Sampling Personal:	Jeren flege
Date:	30 Jullo

Phone: (701) 258-9720

Field Measurements

				·	Telu Mea		,			
	ization ecutive)	Temp (°C)	Spec. Cond.	рН	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	SOD,O	Clear
12	1608	11.91	14092	6.92	1.19	95.7	2,76	14.85	500,0	Cler
13										
14										
15									1	
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										,
28										
29										
30										

Stabilized:

No

Total Volume Removed: 600,0 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

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: Undette

I middle anto

DATE:

16 Aug 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Page: 1 of 3

Quality Control Report
Lab IDs: 17-W3197 to 17-W3198

Project: MDII Heckett - CCP

Work Order 201792 2029

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 0.1000	102 96	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.001 < 0.001 < 0.001 < 0.001	0.4174 0.4096 0.4186 0.1002	104 102 105 100	75-125 75-125 75-125 75-125	0.4174 0.4096 0.4186 0.1002	0.4188 0.4170 0.4088 0.0975	105 104 102 97	0.3 1.8 2.4 2.7	20 20 20 20 20	-		< 0.001 < 0.001
Arsenic - Total mg/l	0.1000 0.1000	102 93	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.002 < 0.002 < 0.002 < 0.002	0.4222 0.4128 0.4186 0.1085	106 103 105 108	75-125 75-125 75-125 75-125	0.4222 0.4128 0.4186 0.1085	0.4226 0.4188 0.4244 0.1076	106 105 106 108	0.1 1.4 1.4 0.8	20 20 20 20 20	-		< 0.002 < 0.002
Barium - Total mg/l	0.1000 0.1000	93 90	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	0.0120 0.0272 0.0064 0.0067	0.4000 0.3982 0.3854 0.1009	97 93 95 94	75-125 75-125 75-125 75-125	0.4000 0.3982 0.3854 0.1009	0.4032 0.4108 0.3766 0.1010	98 96 93 94	0.8 3.1 2.3 0.1	20 20 20 20 20			< 0.002 < 0.002
Beryllium - Total mg/l	0.1000 0.1000	97 102	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.4186 0.4362	106 105 109 110	75-125 75-125 75-125 75-125	0.4224 0.4186 0.4362 0.1099	0.4268 0.4266 0.4294 0.1090	107 107 107 109	1.0 1.9 1.6 0.8	20 20 20 20	-		< 0.000: < 0.000:
Boron - Total mg/l	0.40	110	80-120	2.00 2.00 0.400	17-W3137 17-W3197 17-W3254	4.70 0.98 0.70	6.46 2.60 1.08	88 81 95	75-125 75-125 75-125	6.46 2.60 1.08	6.48 2.63 1.10	89 83 100	0.3 1.1 1.8	20 20 20			< 0.1 < 0.1
Cadmium - Total mg/l	0.1000 0.1000	106 98	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.3928 0.4004	104 98 100 95	75-125 75-125 75-125 75-125	0.4150 0.3928 0.4004 0.0948	0.4248 0.4130 0.4006 0.0930	106 103 100 93	2.3 5.0 0.0 1.9	20 20 20 20 20		1 1 1	< 0.000: < 0.000:
Calcium - Total mg/l	20.0 20.0	106 106	80-120 80-120	1000	17W3197q	428	1400	97	75-125	1400	1410	98	0.7	20		-	<1 <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 0.1000	98 92	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.002 < 0.002 < 0.002 < 0.002	0.3932 0.3716 0.3858 0.1022	98 93 96 102	75-125 75-125 75-125 75-125	0.3932 0.3716 0.3858 0.1022	0.3858 0.3870 0.3902 0.1004	96 97 98 100	1.9 4.1 1.1 1.8	20 20 20 20 20	-	- - - - -	< 0.002 < 0.002

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Page: 2 of 3

Quality Control Report
Lab IDs: 17-W3197 to 17-W3198

Project: MDII Heskett - CCP

Work Order: 201792 2029

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 0.1000	96 92	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.002 < 0.002 0.0022 0.0022	0.3954 0.3824 0.3996 0.1045	99 96 99 102	75-125 75-125 75-125 75-125	0.3954 0.3824 0.3996 0.1045	0.3924 0.3990 0.3972 0.1014	98 100 99 99	0.8 4.2 0.6 3.0	20 20 20 20 20	1 6 1 1	-	< 0.002 < 0.002
Fluoride mg/l	0.50	100	90-110	0.500 0.500 0.500	17-W3203 17-W3264 17-W3286	0.20 0.50 0.18	0.70 1.00 0.67	100 100 98	80-120 80-120 80-120	0.70 1.00 0.67	0.70 1.00 0.68	100 100 100	0.0 0.0 1.5	20 20 20		-	< 0.1 < 0.1
Lead - Total mg/l	0.1000 0.1000	101 96	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	0.0035 < 0.0005 < 0.0005 < 0.0005	0.3624	99 89 91 86	75-125 75-125 75-125 75-125	0.4014 0.3546 0.3624 0.0859	0.3992 0.3684 0.3554 0.0854	99 92 89 85	0.5 3.8 2.0 0.6	20 20 20 20 20	:: :-	-	< 0.0005 < 0.0005
Lithium - Total mg/l	0.40	105	80-120	2.00 2.00	17-W3137 17-W3197	0.60 2.20	2.83 4.26	112 103	75-125 75-125	2.83 4.26	2.82 4.20	111 100	0.4 1.4	20 20		-	< 0.1 < 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 0.1000	88 91	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.002 0.0025 < 0.002 < 0.002	0.3910 0.4156 0.4340 0.1160	98 103 108 116	75-125 75-125 75-125 75-125	0.3910 0.4156 0.4340 0.1160	0.3990 0.4214 0.4286 0.1156	100 105 107 116	2.0 1.4 1.3 0.3	20 20 20 20 20		* 1. 2	< 0.002 < 0.002
pH units	-	-	-		-	-	-	-	-	7.9 8.4	7.9 8.4	-	0.0	20 20	-	-	-
Selenium - Total mg/l	0.1000 0.1000	107 103	80-120 80-120	0.400 0.400 0.400 0.100	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.005 0.0155 0.1396 0.1496	0.4296 0.4530 0.5758 0.2990	107 109 109 149	75-125 75-125 75-125 75-125	0.4296 0.4530 0.5758 0.2990	0.4424 0.4642 0.6096 0.2958	111 112 118 146	2.9 2.4 5.7 1.1	20 20 20 20	-	-	< 0.002 < 0.002

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Page: 3 of 3

Quality Control Report
Lab IDs: 17-W3197 to 17-W3198

Project: MDII Hackett CCP

Work Order: 201792 2029

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 0.1000	101 96	80-120 80-120	15 P 15 (15 (15 (15 (15 (15 (15 (15 (15 (15	17W2959q 17W3137q 17W3197q 17W3197Dq	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.3604 0.3592	100 90 90 86	75-125 75-125 75-125 75-125	0.3992 0.3604 0.3592 0.0860	0.3924 0.3664 0.3550 0.0852	98 92 89 85	1.7 1.7 1.2 0.9	20 20 20 20 20		# # #	< 0.0005 < 0.0005
Total Dissolved Solids mg/l	-	-	-	(L) (L) (L)		-	-	-	-	4130	4190	5 = 0	1.4	20		-	< 10

Approved by: C. Gwell

16Agn



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: MDU Heskett Sample Description: MW104

Event and Year: July 2017

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

Temp at Receipt: 4.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Da i	te alyzed		Analyst
Metal Digestion				EPA 200.2	27	Jul 1	7	CS
pH - Field	6.91	units	NA	SM 4500 H+ B	27	Jul 1	7 10:57	DJN
рн	* 7.5	units	0.1	SM4500 H+ B	2	Aug 1	7 18:00	CS
Temperature - Field	11.9	Degrees C	NA	SM 2550B	27	Jul 1	7 10:57	DJN
Conductivity - Field	14256	umhos/cm	1	EPA 120.1	27	Jul 1	7 10:57	DJN
Fluoride	0.51	mg/l	0.10	SM4500-F-C	7	Aug 1	7 18:00	CS
Sulfate	10500	mg/l	5.00	ASTM D516-07	7	Aug 1	7 17:16	EMS
Chloride	97.2	mg/l	1.0	SM4500-C1-E	11	Aug 1	7 14:16	RAG
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1	Aug 1	7 11:38	EV
Total Dissolved Solids	16900	mg/l	10	I1750-85	28	Jul 1	7 14:15	SVS
Calcium - Total	428	mg/l	1.0	6010D	10	Aug 1	7 9:50	SZ
Lithium - Total	2.20	mg/l	0.10	6010D	4	Aug 1	7 9:22	SZ
Boron - Total	0.98	mg/l	0.10	6010D	4	Aug 1	7 13:12	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020B	3	Aug 1	7 11:34	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Barium - Total	0.0064	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020B	3	Aug 1	7 11:34	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020B	3	Aug 1	7 11:34	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Cobalt - Total	0.0022	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020B	3	Aug 1	7 11:34	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Selenium - Total	0.1396	mg/l	0.0020	6020B	3	Aug 1	7 11:34	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020B	3	Aug 1	7 11:34	CC

* Holding time exceeded

Approved by:

Clauditte K. Cantel

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 cor != Due to sample quantity += Due to int

CERTIFICATION: ND # ND-00016

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



1126 North Front St. ~ New Ulm, MN $56073 \sim 800-782-3557 \sim$ Fax 507-359-2890 2 North German St. ~ New Ulm, MN $56073 \sim 800-782-3557 \sim$ Fax 507-359-28902616 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



2 of 2 Page:

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

Temp at Receipt: 4.8C ROI

CERTIFICATE of ANALYSIS - CCR

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

Project Name: MDU Heskett Sample Description: MW70

Event and Year: July 2017

	As Receive Result	ed	Method RL	Method Reference	Da An	te alyze	ed		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
рн	* 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-C1-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/1	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:

Clauditte K. Canto

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



Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	1W104
Sampling Persor	nal: Darren Niesu

Phone:	(701)	258-972	0

Phone: (701) 258-97	20										1	$\overline{}$	
Weather Conditions:		Temp:	68	°F	Wind:	Light		Precip	: Suni	ny / Partly C	loudy//Clou	dy	
V	Well Info	rmation	00			. , ,	s	ampling l	nformatio	on		/	
Well Locked?	Yes	(No)				Purging Method	Bla	dder		Control Settings			
Well Labeled?	Yes	No				Sampling Method	Bla	dder		Purge:	5	sec.	
Casing Straight?	Yes	No	171 Section 1980			Dedicated Equip?	Yes	No		Recover:	35	sec.	
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate Sample?:	Yes	(NO)]	PSI:	10		
Repairs Necessary:						Duplicate Sample ID	_			Pumping Ra	ate: / 20	mL/min	
Casing Diameter:			2"								1		
Water Level Before Purge:		14.09 A			Purge Date	2771	217	Time Purg	ing Began:	1022	am/pm		
Total Well Depth:		_	•	ft		Well Purged Dry?	Yes *	410	Time P	urged Dry:		am/pm	
Well Volume:		_		liters		Sample Date	2771	V/7	Time of	Sampling:	1057	am/pm	
Depth to Top	of Pump:	7	_ ^	- ft			-		211				
Water Level After Sample:		- 1	4.48	ft		Bottle	1L Raw, 5	00mL Nitirc,	500mL Nitr	ric (filtered),	4-1L Nitric		
Measurement Method:		Electric Water Level Indicator				List:	List: 2			50 mL Sulfuric			
						A							

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pН	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	1027	11.87	14176	6,92	1.94	259.0	4.45	14.44	500	Ch
2	1032	11-61	14201	6.92	1,03	262.0	2,13	14,41	500	de
3	1037	11.65	14177	6,92	1,09	263,0	1,28	14,42	500	Ch
4	1042	11,47	14/96	6,91	0,74	264,2	1.11	14,41	500	Ol-
5	1047	12106	14233	6A1	0,63	265,2	0,88	14,42	500	Ch
6	1052	12,01	14251	6291	0,65	265,7	0,83	14,43	500	de
7	1057	11,92	14256	6.91	0-5	266.1	0,80	14,43	500	an
8					0.57				Sec. 14 Venum mila 24	
9										7.55 kessen 75 Om n. Sanstan Onterest
10	Nan) No					atal Valuma			ml

Comments: