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

CASE NARRATIVE

MVTL Lab Reference No/SDG: **201782-0401**
IML Lab Reference No/SDG: **S1702288**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR February 2017**
MVTL Laboratory Identifications: **17-W414** through **17-W418**
IML Laboratory Identifications: **S1702288-001** through **S1702288-005**

IV. ANALYSIS

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

V. REPORTING

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

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 21 Mar-17
Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 16 Mar 17
Lab Number: 17-W414
Work Order #:82-0401
Account #: 002800
Date Sampled: 21 Feb 17 9:22
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW13

Event and Year: Feb 2017

Temp at Receipt: 8.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.86	units	NA	SM 4500 H+ B	21 Feb 17 9:22	JSM
Temperature - Field	7.14	Degrees C	NA	SM 2550B	21 Feb 17 9:22	JSM
Conductivity - Field	10348	umhos/cm	1	EPA 120.1	21 Feb 17 9:22	JSM
Radium 226	See Attached Report				14 Mar 17	OL
Radium 228	See Attached Report				11 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 20 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 16 Mar 17
Lab Number: 17-W415
Work Order #:82-0401
Account #: 002800
Date Sampled: 21 Feb 17 11:33
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW44R

Event and Year: Feb 2017

Temp at Receipt: 8.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.57	units	NA	SM 4500 H+ B	21 Feb 17 9:22	JSM
Temperature - Field	8.14	Degrees C	NA	SM 2550B	21 Feb 17 9:22	JSM
Conductivity - Field	9110	umhos/cm	1	EPA 120.1	21 Feb 17 9:22	JSM
Radium 226	See Attached Report				14 Mar 17	OL
Radium 228	See Attached Report				11 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll cc 20Mar17

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 16 Mar 17
Lab Number: 17-W416
Work Order #:82-0401
Account #: 002800
Date Sampled: 21 Feb 17 13:16
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW103

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.74	units	NA	SM 4500 H+ B	21 Feb 17 13:16	JSM
Temperature - Field	8.11	Degrees C	NA	SM 2550B	21 Feb 17 13:16	JSM
Conductivity - Field	5067	umhos/cm	1	EPA 120.1	21 Feb 17 13:16	JSM
Radium 226	See Attached Report				14 Mar 17	OL
Radium 228	See Attached Report				11 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 20 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 16 Mar 17
Lab Number: 17-W417
Work Order #:82-0401
Account #: 002800
Date Sampled: 21 Feb 17 14:47
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW2-90

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.93	units	NA	SM 4500 H+ B	21 Feb 17 14:47	JSM
Temperature - Field	8.01	Degrees C	NA	SM 2550B	21 Feb 17 14:47	JSM
Conductivity - Field	7022	umhos/cm	1	EPA 120.1	21 Feb 17 14:47	JSM
Radium 226	See Attached Report				14 Mar 17	OL
Radium 228	See Attached Report				12 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 20 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 16 Mar 17
Lab Number: 17-W418
Work Order #:82-0401
Account #: 002800
Date Sampled: 21 Feb 17
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: FB1

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			14 Mar 17	OL
Radium 228	See Attached Report			12 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 30 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Your Environmental Monitoring Partner

Date: 3/16/2017

CLIENT: MVTL Laboratories, Inc.
Project: 201782-0405
Lab Order: S1702288

CASE NARRATIVE

Report ID: S1702288001

Samples 17-W414 MW13, 17-W415 MW44R, 17-W416 MW103, 17-W417 MW2-90, and 17-W418 FB1 were received on February 24, 2017.

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.

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

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

Date Reported 3/16/2017
Report ID S1702288001

ProjectName: 201782-0405
Lab ID: S1702288-001
ClientSample ID: 17-W414 MW13
COC: 201782-0401

WorkOrder: S1702288
CollectionDate: 2/21/2017 9:22:00 AM
DateReceived: 2/24/2017 11:12:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.2	pCi/L		0.2	SM 7500 Ra-B	03/14/2017 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/14/2017 1415	MB
Radium 228	0.0	pCi/L		1	Ga-Tech	03/11/2017 1252	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	03/11/2017 1252	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	3/16/2017
		Report ID	S1702288001
ProjectName:	201782-0405	**WorkOrder:**	S1702288
Lab ID:	S1702288-002	**CollectionDate:**	2/21/2017 11:33:00 AM
ClientSample ID:	17-W415 MW44R	**DateReceived:**	2/24/2017 11:12:00 AM
COC:	201782-0401	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	03/14/2017 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/14/2017 1415	MB
Radium 228	0.7	pCi/L		1	Ga-Tech	03/11/2017 1900	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/11/2017 1900	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	3/16/2017
		Report ID	S1702288001
ProjectName:	201782-0405	**WorkOrder:**	S1702288
Lab ID:	S1702288-003	**CollectionDate:**	2/21/2017 1:16:00 PM
ClientSample ID:	17-W416 MW103	**DateReceived:**	2/24/2017 11:12:00 AM
COC:	201782-0401	**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	03/14/2017 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/14/2017 1415	MB
Radium 228	-1.2	pCi/L		1	Ga-Tech	03/11/2017 2206	MB
Radium 228 Precision (±)	1.7	pCi/L			Ga-Tech	03/11/2017 2206	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

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

Date Reported 3/16/2017
Report ID S1702288001

ProjectName: 201782-0405
Lab ID: S1702288-004
ClientSample ID: 17-W417 MW2-90
COC: 201782-0401

WorkOrder: S1702288
CollectionDate: 2/21/2017 2:47:00 PM
DateReceived: 2/24/2017 11:12:00 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	03/14/2017 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/14/2017 1415	MB
Radium 228	-3.3	pCi/L		1	Ga-Tech	03/12/2017 312	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	03/12/2017 312	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	3/16/2017
		Report ID	S1702288001
ProjectName:	201782-0405	**WorkOrder:**	S1702288
Lab ID:	S1702288-005	**CollectionDate:**	2/21/2017
ClientSample ID:	17-W418 FB1	**DateReceived:**	2/24/2017 11:12:00 AM
COC:	201782-0401	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.19	pCi/L		0.2	SM 7500 Ra-B	03/14/2017 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/14/2017 1415	MB
Radium 228	0.5	pCi/L		1	Ga-Tech	03/12/2017 517	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/12/2017 517	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1702288
Project: 201782-0405

Date: 3/16/2017
Report ID: S1702288001

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

MB-421 (03/10/17 15:20)	RunNo: 143832	PrepDate: 03/06/17 10:00				BatchID 12925		
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-421 (03/10/17 18:24)	RunNo: 143832	PrepDate: 03/06/17 10:00				BatchID 12925		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits		Qual
Total Radium 228	41	1	40.1		103	65.9 - 132		

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

LCSD-421 (03/10/17 21:29)	RunNo: 143832	PrepDate: 03/06/17 10:00			BatchID 12925		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	43	1	41	2.96	106	20	

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

S1702301-003AMS (03/13/17 05:54)	RunNo: 143832	PrepDate: 03/06/17 10:00				BatchID 12925		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits		Qual
Total Radium 228	76	1	80.1	ND	95.1	50 - 139		

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

S1702301-003AMSD (03/13/17 08:59)	RunNo: 143832	PrepDate: 03/06/17 10:00			BatchID 12925		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	72	1	76	6.02	89.6	20	

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

MB-1725 (03/14/17 14:15)	RunNo: 143837	PrepDate: 03/08/17 0:00				BatchID 12923		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits		Qual
Radium 226	ND	0.2						

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

LCS-1725 (03/14/17 14:15)	RunNo: 143837	PrepDate: 03/08/17 0:00				BatchID 12923		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits		Qual
Radium 226	4.5	0.2	5.89		76.0	67.1 - 122		

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

S1702301-003AMS (03/14/17 16:20)	RunNo: 143837	PrepDate: 03/08/17 0:00				BatchID 12923		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits		Qual
Radium 226	11.6	0.2	11.8	ND	98.6	65 - 131		

Radium 226 in Water - Sample Type **MSD** Units: pCi/L

S1702301-003AMSD (03/14/17 16:20)	RunNo: 143837	PrepDate: 03/08/17 0:00			BatchID 12923		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	10.9	0.2	11.6	6.41	92.5	20	

Qualifiers:

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

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

Chain of Custody Record

201782-0401

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 22-Feb-17
	Project Name/Number:	Purchase Order #: BL5795

Sample Information						Bottle Type						Analysis
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W414	MW13	GW	21-Feb-17	922		4					Ra226 & Ra228
002	17-W415	MW44R	GW	21-Feb-17	1133		4					Ra226 & Ra228
003	17-W416	MW103	GW	21-Feb-17	1316		4					Ra226 & Ra228
004	17-W417	MW2-90	GW	21-Feb-17	1447		4					Ra226 & Ra228
005	17-W418	FB1	GW	21-Feb-17			4					Ra226 & Ra228

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

2 coolers

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	22-Feb-17	1700		Kathy Boyd	2.24.17	11:12	6.4
2.							6.7

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW13
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 35 °F Wind: S@5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	30.02 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	30.70 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	~~Yes~~	(No)	
Duplicate Sample ID:	~~Dup 1~~ - 21feb17		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	0857 ~~am~~/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	21 feb17	Time of Sampling:	0922 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0902	6.85	10322	6.85	4.19	257.9	3.19	30.45	500	Clear
2	0907	6.78	10350	6.85	3.57	254.8	1.56	30.40	500	Clear
3	0912	6.78	10352	6.86	3.60	252.8	0.98	30.48	500	Clear
4	0917	6.94	10357	6.86	3.66	251.1	0.80	30.51	500	Clear
5	0922	7.14	10348	6.86	3.81	251.2	0.71	30.48	500	Clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW44R
Sampling Personal:	Jeremy Mey

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	27.22 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	27.28 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

Control Settings		
Purge:	7	sec.
Recover:	53	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	1058 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	21 Feb 17	Time of Sampling:	1133 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1103	7.97	9144	6.58	5.15	237.3	23.2	27.27	500	Clear
2	1108	7.93	9119	6.57	4.57	239.5	33.8	27.27	500	Clear
3	1113	7.92	9119	6.57	4.65	239.4	18.6	27.27	500	Clear
4	1118	7.83	9113	6.56	4.44	239.8	12.1	27.27	500	Clear
5	1123	7.93	9116	6.56	4.52	239.3	11.4	27.28	500	Clear
6	1128	8.29	9112	6.57	4.60	238.2	12.3	27.28	500	Clear
7	1133	8.14	9110	6.57	4.53	238.3	11.9	27.28	500	Clear
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 3500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	103
Sampling Personal:	Jeremy Mayer

Weather Conditions: Temp: 30 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	32.75	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	36.63	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

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

Purge Date:	21 feb 17	Time Purging Began:	1231 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	21 feb 17	Time of Sampling:	1316 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH.	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1236	8.18	5049	6.74	5.44	259.4	0.77	33.05	500	Clear
2	1241	8.03	5060	6.75	5.71	243.3	0.31	33.30	500	Clear
3	1246	8.02	5064	6.74	5.70	245.5	0.23	33.67	500	Clear
4	1251	8.01	5059	6.74	5.66	246.9	0.27	34.00	500	Clear
5	1256	8.11	5067	6.75	5.95	247.2	0.51	34.30	500	Clear
6	1301	8.14	5066	6.75	5.77	235.4	0.64	34.52	500	clear
7	1306	8.13	5069	6.74	5.78	218.1	0.76	34.68	500	clear
8	1311	8.15	5066	6.75	5.69	203.7	0.80	34.70	500	clear
9	1316	8.11	5067	6.74	5.73	200.1	0.72	34.80	500	clear
10										

Stabilized: Yes No Total Volume Removed: 4500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	2-90
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 40 °F Wind: S 05-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	20.00	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	20.45	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

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

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	1427 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	21 Feb 17	Time of Sampling:	1447 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1432	8.16	7041	6.94	4.47	224.7	0.62	20.49	500	Clear
2	1437	7.97	7026	6.94	3.66	228.5	0.22	20.39	500	clear
3	1442	7.98	7019	6.94	3.54	230.2	0.27	20.39	500	Clear
4	1447	8.01	7022	6.93	3.53	231.4	0.31	20.45	500	Clear
5										
6										
7										
8										
9										
10										

Stabilized: Yes No Total Volume Removed: 2000 mL

Comments:

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

Field Datasheet

Water Level

Sampling Personnel: Jerry Myers

Company: **MDU Heskett**

2017

Well ID	Date	Time	Depth to Water	Comments
MW1-90	21 Feb 17	1536	10.91	

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

Chain of Custody Record

Project Name: MDU Heskett	Event: Feb 2017	Work Order Number: 82-0401
Report To: MDU Attn: Samantha Marshall Address: 400 N. 4th St Bismarck, ND 58501 phone: 701-222-7829 email:	Carbon Copy: Attn: Address:	Name of Sampler(s): Jeremy Meyer

Sample Information / **Bottle Type** / **Field Parameters** / **Analysis**

Lab Number	Sample ID	Date	Time	Sample Type		1 liter Nitric						Temp (°C)	Spec. Cond.	pH	Analysis Required
W414	MW13	21 feb 17	0922	GW		4						7.14	10348	6.86	
W415	MW44R	21 feb 17	1133	GW		4						8.14	~~9118~~ *	6.57	cond 940
W416	MW 103	21 feb 17	1316	GW		4						8.11	5067	6.74	
W417	MW 2-90	21 feb 17	1447	GW		4						8.01	7022	6.93	
W418	FB1	21 feb 17	—	W		4						—	—	—	Rad 226 & Rad 228

Comments: * cond — 17 Mar 17

Relinquished By: Name:	Date/Time	Sample Condition: Location:	Temp (°C)
1 Jeremy Meyer	21 feb 17 1617	~~Log In~~ Walk In #2	8.0 R01 TM562 / TM588
2			

Received by: Name:	Date/Time
C. Cantrell	21 feb 17 1621

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

CASE NARRATIVE – AMENDED 6 JUL 2017 (Work Order)

MVTL Lab Reference No/SDG: **201782-0402**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett**
Project Identification: **CCR February 2017**
MVTL Laboratory Identifications: **17-W419** through **17-W423**

MDU Sample Identification	MVTL Laboratory #
MW13	17-W419
MW44R	17-W420
MW103	17-W421
MW2-90	17-W422
FB1	17-W423

I. RECEIPT

- All samples were received at the laboratory on 21 Feb17 at 1621.
- 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 8.0°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.
  - For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
  - For some analytes, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CASE NARRATIVE – AMENDED 6 JUL 2017 (Work Order)

MVTL Lab Reference No/SDG: **201782-0402**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett**
Project Identification: **CCR February 2017**
MVTL Laboratory Identifications: **17-W419** through **17-W423**
Page 2 of 2

- Recovery for one boron total 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.

V. REPORTING

- Per email request by Terri Olson at Barr, the QC report was amended so that the matrix spike and matrix spike duplicate results line up visually on the report.
- Field conductivity for MW44R was incorrectly recorded on the COC document. The COC document has been corrected and an amended report for MW44R has been issued.
- Sample report for 17-W420 (MW44R) was amended 21 Mar 2017 to reflect correct sample identification.
- On 6 Jul 17, it was discovered that the template used to create the case narrative had an extra 7 in the work order (e.g. 2017782-0402). Case narrative has been corrected to reflect the correct work order.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 7JUL17
Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W419 to 17-W423 **Project:** MDU Heskett **Work Order:** 201782-0402

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	0.0160	99	80-120	0.100	17W422q	< 0.001	0.1160	116	75-125	0.1160	0.1148	115	1.0	20	-	-	< 0.001
Antimony - Total mg/l	0.1000	110	80-120	0.400	17W423q	< 0.001	0.4354	109	75-125	0.4354	0.4320	108	0.8	20	-	-	< 0.001
				0.400	17W424q	< 0.001	0.4196	105	75-125	0.4196	0.4298	107	2.4	20	-	-	
				0.400	17W430q	< 0.001	0.4558	114	75-125	0.4558	0.4486	112	1.6	20	-	-	
Arsenic - Dissolved mg/l	0.0160	97	80-120	0.100	17W422q	< 0.002	0.1178	118	75-125	0.1178	0.1148	115	2.6	20	-	-	< 0.002
Arsenic - Total mg/l	0.1000	110	80-120	0.400	17W423q	< 0.002	0.4392	110	75-125	0.4392	0.4344	109	1.1	20	-	-	< 0.002
				0.400	17W424q	0.0056	0.4292	106	75-125	0.4292	0.4456	110	3.7	20	-	-	
				0.400	17W430q	0.0032	0.4696	117	75-125	0.4696	0.4682	116	0.3	20	-	-	
Barium - Dissolved mg/l	0.0160	98	80-120	0.100	17W422q	0.0085	0.1210	112	75-125	0.1210	0.1172	109	3.2	20	-	-	< 0.002
Barium - Total mg/l	0.1000	99	80-120	0.400	17W423q	< 0.002	0.4198	105	75-125	0.4198	0.4294	107	2.3	20	-	-	< 0.002
				0.400	17W424q	0.1263	0.5472	105	75-125	0.5472	0.5602	108	2.3	20	-	-	
				0.400	17W430q	0.0597	0.4742	104	75-125	0.4742	0.4870	107	2.7	20	-	-	
Beryllium - Dissolved mg/l	0.0160	96	80-120	0.100	17W422q	< 0.0005	0.1164	116	75-125	0.1164	0.1142	114	1.9	20	-	-	< 0.0005
Beryllium - Total mg/l	0.1000	105	80-120	0.400	17W423q	< 0.0005	0.4658	116	75-125	0.4658	0.4490	112	3.7	20	-	-	< 0.0005
				0.400	17W424q	< 0.0005	0.4218	105	75-125	0.4218	0.4430	111	4.9	20	-	-	
				0.400	17W430q	< 0.0005	0.4826	121	75-125	0.4826	0.4732	118	2.0	20	-	-	
Boron - Dissolved mg/l	1.00	106	80-120	1.50	17-W419	0.49	2.01	101	75-125	2.01	2.02	102	0.5	20	-	-	< 0.1
Boron - Total mg/l	0.40	100	80-120	3.00	17-W395	18.3	22.0	123	75-125	22.0	22.3	133	1.4	20	-	-	< 0.1
				0.400	17-W423	< 0.1	0.39	98	75-125	0.39	0.40	100	2.5	20	-	-	< 0.1
Cadmium - Dissolved mg/l	0.0160	101	80-120	0.100	17W422q	< 0.0005	0.1065	106	75-125	0.1065	0.1071	107	0.6	20	-	-	< 0.0005
Cadmium - Total mg/l	0.1000	112	80-120	0.400	17W423q	< 0.0005	0.4470	112	75-125	0.4470	0.4470	112	0.0	20	-	-	< 0.0005
				0.400	17W424q	< 0.0005	0.4304	108	75-125	0.4304	0.4326	108	0.5	20	-	-	
				0.400	17W430q	< 0.0005	0.4612	115	75-125	0.4612	0.4518	113	2.1	20	-	-	
Calcium - Dissolved mg/l	20.0	102	80-120	500	17-W487	344	865	104	75-125	865	840	99	2.9	20	-	-	< 1
															-	-	< 1

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W419 to 17-W423 **Project:** MDU Heskett **Work Order:** 201782-0402

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
Calcium - Total mg/l	20.0 20.0 20.0	101 101 106	80-120 80-120 80-120	500 100 500 500 100	17-M312 17-M315 17-W420 17W424q 17-W429	136 25.5 428 144 78.0	645 127 930 625 172	102 102 100 96 94	75-125 75-125 75-125 75-125 75-125	930 625 172	945 640 172	103 99 94	1.6 2.4 0.0	20 20 20	- - - - -	- - - - -	< 1 < 1 < 1
Chloride mg/l	30.0 30.0	88 94	80-120 80-120	30.0	17-W386	3.9	29.4	85	80-120	29.4	29.4	85	0.0	20	- -	- -	< 1 < 1
Chromium - Dissolved mg/l	0.0160	97	80-120	0.100	17W422q	< 0.002	0.1062	106	75-125	0.1062	0.1040	104	2.1	20	-	-	< 0.002
Chromium - Total mg/l	0.1000	101	80-120	0.400 0.400 0.400	17W423q 17W424q 17W430q	< 0.002 0.0088 < 0.002	0.3948 0.3818 0.4158	99 93 104	75-125 75-125 75-125	0.3948 0.3818 0.4158	0.3848 0.3944 0.3998	96 96 100	2.6 3.2 3.9	20 20 20	- - -	- - -	< 0.002
Cobalt - Dissolved mg/l	0.0160	96	80-120	0.100	17W422q	< 0.002	0.1039	104	75-125	0.1039	0.1030	103	0.9	20	-	-	< 0.002
Cobalt - Total mg/l	0.1000	100	80-120	0.400 0.400 0.400	17W423q 17W424q 17W430q	< 0.002 0.0061 < 0.002	0.4052 0.3762 0.4164	101 93 104	75-125 75-125 75-125	0.4052 0.3762 0.4164	0.3888 0.3924 0.4042	97 97 101	4.1 4.2 3.0	20 20 20	- - -	- - -	< 0.002
Fluoride mg/l	0.50	102	90-110	0.500 0.500	17-W422 17-W429	1.00 0.12	1.43 0.63	86 102	80-120 80-120	1.43 0.63	1.44 0.64	88 104	0.7 1.6	20 20	- -	- -	< 0.1 < 0.1
Lead - Dissolved mg/l	0.0160	99	80-120	0.100	17W422q	< 0.0005	0.1002	100	75-125	0.1002	0.0998	100	0.4	20	-	-	< 0.0005
Lead - Total mg/l	0.1000	103	80-120	0.400 0.400 0.400	17W423q 17W424q 17W430q	< 0.002 0.0183 < 0.002	0.4156 0.3938 0.3990	104 94 100	75-125 75-125 75-125	0.4156 0.3938 0.3990	0.4138 0.4062 0.4146	103 97 104	0.4 3.1 3.8	20 20 20	- - -	- - -	< 0.0005
Lithium - Dissolved mg/l	0.40	105	80-120	1.00	17-W419	0.68	1.80	112	75-125	1.80	1.85	117	2.7	20	- - -	- - -	< 0.1 < 0.1 < 0.1
Lithium - Total mg/l	0.40	105	80-120	0.400	17-W423	< 0.1	0.46	115	75-125	0.46	0.46	115	0.0	20	- - -	- - -	< 0.1 < 0.1 < 0.1

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W419 to 17-W423 **Project:** MDU Heskett **Work Order:** 201782-0402

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
Magnesium - Dissolved mg/l	20.0	103	80-120	500	17-W487	269	800	106	75-125	800	775	101	3.2	20	-	-	< 1
															-	-	< 1
Magnesium - Total mg/l	20.0	104	80-120	500	17-M312	< 5	520	104	75-125	1520	1540	108	1.3	20	-	-	< 1
	20.0	103	80-120	100	17-M315	1.0	106	105	75-125	555	570	103	2.7	20	-	-	< 1
	20.0	108	80-120	500	17-W420	1000	1520	104	75-125	128	128	100	0.0	20	-	-	< 1
				500	17W424q	56.0	555	100	75-125						-	-	
				100	17-W429	27.7	128	100	75-125						-	-	
Mercury - Dissolved mg/l	0.0020	110	85-115	0.002	17-W491	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	17-W496	< 0.0002	0.0021	105	70-130	0.0021	0.0021	105	0.0	20	-	-	
Mercury - Total mg/l	0.0020	105	85-115	0.002	17-W435	< 0.0002	0.0020	100	70-130	0.0020	0.0021	105	4.9	20	-	-	< 0.0002
				0.002	17-W447	< 0.0002	0.0019	95	70-130	0.0019	0.0020	100	5.1	20	-	-	
Molybdenum - Dissolved mg/l	0.0160	101	80-120	0.100	H26_500Q	< 0.002	0.1096	110	75-125	0.1096	0.1089	109	0.6	20	-	-	< 0.002
Molybdenum - Total mg/l	0.1000	94	80-120	0.400	17W423q	< 0.002	0.4468	112	75-125	0.4468	0.4414	110	1.2	20	-	-	< 0.002
				0.400	17W424q	0.2988	0.7380	110	75-125	0.7380	0.7566	114	2.5	20	-	-	
				0.400	17W430q	0.0042	0.4650	115	75-125	0.4650	0.4636	115	0.3	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	7.1	7.2	-	1.4	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.2	7.1	-	1.4	20	-	-	-
Potassium - Dissolved mg/l	10.0	92	80-120	100	17-W487	19.8	124	104	75-125	124	120	100	3.3	20	-	-	< 1
															-	-	< 1
Potassium - Total mg/l	10.0	93	80-120	100	17-M312	14.8	116	101	75-125	140	144	109	2.8	20	-	-	< 1
	10.0	95	80-120	20.0	17-M315	9.3	29.8	102	75-125	108	111	101	2.7	20	-	-	< 1
	10.0	97	80-120	100	17-W420	34.6	140	105	75-125	23.0	23.0	98	0.0	20	-	-	< 1
				100	17W424q	10.1	108	98	75-125						-	-	
				20.0	17-W429	3.4	23.0	98	75-125						-	-	
Selenium - Dissolved mg/l	0.0160	97	80-120	0.100	H26_500Q	0.0029	0.1188	116	75-125	0.1188	0.1248	122	4.9	20	-	-	< 0.002
Selenium - Total mg/l	0.1000	113	80-120	0.400	17W423q	< 0.002	0.4742	119	75-125	0.4742	0.4908	123	3.4	20	-	-	< 0.002
				0.400	17W424q	< 0.002	0.4396	110	75-125	0.4396	0.4872	122	10.3	20	-	-	
				0.400	17W430q	0.0082	0.5084	125	75-125	0.5084	0.5034	124	1.0	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W419 to 17-W423 **Project:** MDU Heskett **Work Order:** 201782-0402

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 - Dissolved mg/l	20.0	100	80-120	500	17-W487	575	1100	105	75-125	1100	1060	97	3.7	20	- -	- -	< 1 < 1
Sodium - Total mg/l	20.0 20.0 20.0	99 102 105	80-120 80-120 80-120	500 100 500 500 100	17-M312 17-M315 17-W420 17W424q 17-W429	402 222 1030 950 7.7	925 309 1520 1360 111	105 87 98 82 103	75-125 75-125 75-125 75-125 75-125	1520 1360 111	1560 1400 109	106 90 101	2.6 2.9 1.8	20 20 20	- - - - -	- - - - -	< 1 < 1 < 1
Sulfate mg/l	100	90	80-120	100	17-W423	< 5	82.4	82	80-120	82.4	84.2	84	2.2	20	-	-	< 5
Thallium - Dissolved mg/l	0.0160	99	80-120	0.100	17W422q	< 0.0005	0.1013	101	75-125	0.1013	0.1012	101	0.1	20	-	-	< 0.0005
Thallium - Total mg/l	0.1000	103	80-120	0.400 0.400 0.400	17W423q 17W424q 17W430q	< 0.0005 < 0.0005 < 0.0005	0.4152 0.3662 0.4036	104 92 101	75-125 75-125 75-125	0.4152 0.3662 0.4036	0.4136 0.3810 0.4148	103 95 104	0.4 4.0 2.7	20 20 20	- - -	- - -	< 0.0005
Total Alkalinity mg/l CaCO3	410	92	90-110	410 410	17-W420 17-W423	440 < 20	803 379	89 92	80-120 80-120	803 379	810 375	90 91	0.9 1.1	20 20	91	80-120	< 20 < 20
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	2680	2740	-	2.2	20	-	-	< 10
Total Suspended Solids mg/l	-	-	-	-	-	-	-	-	-	18	21	-	15.4	20	-	-	< 2

Approved by: C. Gantt
8 Mar 17

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

Report Date: 7 Mar 17
Lab Number: 17-W419
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 9:22
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW13

Event and Year: Feb 2017

Temp at Receipt: 8.0C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Feb 17	SVS
pH	* 7.1	units	N/A	SM4500 H+ B	22 Feb 17 17:00	SVS
Total Suspended Solids	11	mg/l	2	I3765-85	21 Feb 17 17:12	SVS
pH - Field	6.86	units	NA	SM 4500 H+ B	21 Feb 17 9:22	JSM
Temperature - Field	7.14	Degrees C	NA	SM 2550B	21 Feb 17 9:22	JSM
Total Alkalinity	492	mg/l CaCO3	20	SM2320-B	22 Feb 17 17:00	SVS
Conductivity - Field	10348	umhos/cm	1	EPA 120.1	21 Feb 17 9:22	JSM
Fluoride	0.83	mg/l	0.10	SM4500-F-C	22 Feb 17 17:00	SVS
Sulfate	5700	mg/l	5.00	ASTM D516-07	24 Feb 17 16:16	EMS
Chloride	82.2	mg/l	1.0	SM4500-Cl-E	24 Feb 17 10:46	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 12:00	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	9630	mg/l	10	I1750-85	22 Feb 17 14:39	SVS
Calcium - Total	402	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Magnesium - Total	615	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Sodium - Total	1810	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Potassium - Total	26.1	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Lithium - Total	0.70	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Total	0.68	mg/l	0.10	6010	22 Feb 17 17:00	KMD
Calcium - Dissolved	377	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	575	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	1740	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	24.0	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	0.68	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	22 Feb 17 12:28	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	28 Feb 17 9:50	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Barium - Total	0.0087	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Lead - Total	< 0.002 ^	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Selenium - Total	0.0453	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 10:10	KMD

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 7 Mar 17
Lab Number: 17-W419
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 9:22
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW13

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Barium - Dissolved	0.0059	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Selenium - Dissolved	0.0509	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll CC 7 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 21Mar17-Sample Description

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

Report Date: 7 Mar 17
Lab Number: 17-W420
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 11:33
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW44R

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Feb 17	SVS
pH	* 6.9	units	N/A	SM4500 H+ B	22 Feb 17 17:00	SVS
Total Suspended Solids	36	mg/l	2	I3765-85	21 Feb 17 17:12	SVS
pH - Field	6.57	units	NA	SM 4500 H+ B	21 Feb 17 11:33	JSM
Temperature - Field	8.14	Degrees C	NA	SM 2550B	21 Feb 17 11:33	JSM
Total Alkalinity	440	mg/l CaCO3	20	SM2320-B	22 Feb 17 17:00	SVS
Conductivity - Field	9110	umhos/cm	1	EPA 120.1	21 Feb 17 11:33	JSM
Fluoride	0.68	mg/l	0.10	SM4500-F-C	22 Feb 17 17:00	SVS
Sulfate	5280	mg/l	5.00	ASTM D516-07	24 Feb 17 16:16	EMS
Chloride	241	mg/l	1.0	SM4500-Cl-E	24 Feb 17 10:46	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 12:00	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	9240	mg/l	10	I1750-85	22 Feb 17 14:39	SVS
Calcium - Total	428	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Magnesium - Total	1000	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Sodium - Total	1030	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Potassium - Total	34.6	mg/l	1.0	6010	2 Mar 17 17:14	KMD
Lithium - Total	1.53	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Total	0.42	mg/l	0.10	6010	22 Feb 17 17:00	KMD
Calcium - Dissolved	414	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	960	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	990	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	32.9	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	1.49	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Dissolved	0.39	mg/l	0.10	6010	22 Feb 17 12:28	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	28 Feb 17 9:50	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Barium - Total	0.0230	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Lead - Total	< 0.002 ^	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Selenium - Total	0.0860	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 21Mar17-Sample Description

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

Report Date: 7 Mar 17
Lab Number: 17-W420
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 11:33
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW44R

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 10:10	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Barium - Dissolved	0.0089	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Selenium - Dissolved	0.0982	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

* Holding time exceeded

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

cc

Approved by: Claudette K. Carroll 21Mar17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 7 Mar 17
Lab Number: 17-W421
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 13:16
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW103

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Feb 17	SVS
pH	* 7.0	units	N/A	SM4500 H+ B	22 Feb 17 17:00	SVS
Total Suspended Solids	3	mg/l	2	I3765-85	21 Feb 17 17:12	SVS
pH - Field	6.74	units	NA	SM 4500 H+ B	21 Feb 17 13:16	JSM
Temperature - Field	8.11	Degrees C	NA	SM 2550B	21 Feb 17 13:16	JSM
Total Alkalinity	435	mg/l CaCO3	20	SM2320-B	22 Feb 17 17:00	SVS
Conductivity - Field	5067	umhos/cm	1	EPA 120.1	21 Feb 17 13:16	JSM
Fluoride	0.14	mg/l	0.10	SM4500-F-C	22 Feb 17 17:00	SVS
Sulfate	2340	mg/l	5.00	ASTM D516-07	24 Feb 17 16:16	EMS
Chloride	153	mg/l	1.0	SM4500-Cl-E	24 Feb 17 10:46	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 12:00	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	4890	mg/l	10	I1750-85	22 Feb 17 14:39	SVS
Calcium - Total	535	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Magnesium - Total	455	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Sodium - Total	278	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Potassium - Total	20.9	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Lithium - Total	0.68	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Total	< 0.2 @	mg/l	0.10	6010	22 Feb 17 17:00	KMD
Calcium - Dissolved	540	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	461	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	279	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	20.9	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	0.63	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Dissolved	< 0.2 @	mg/l	0.10	6010	22 Feb 17 12:28	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	28 Feb 17 9:50	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Barium - Total	0.0076	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Lead - Total	< 0.002 ^	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Selenium - Total	0.2532	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 10:10	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 7 Mar 17
Lab Number: 17-W421
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 13:16
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW103

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Barium - Dissolved	0.0064	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Selenium - Dissolved	0.2336	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 8 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 7 Mar 17
Lab Number: 17-W422
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 14:47
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW2-90

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Feb 17	SVS
pH	* 7.2	units	N/A	SM4500 H+ B	22 Feb 17 17:00	SVS
Total Suspended Solids	9	mg/l	2	I3765-85	21 Feb 17 17:12	SVS
pH - Field	6.93	units	NA	SM 4500 H+ B	21 Feb 17 14:47	JSM
Temperature - Field	8.01	Degrees C	NA	SM 2550B	21 Feb 17 14:47	JSM
Total Alkalinity	476	mg/l CaCO3	20	SM2320-B	22 Feb 17 17:00	SVS
Conductivity - Field	7022	umhos/cm	1	EPA 120.1	21 Feb 17 14:47	JSM
Fluoride	1.00	mg/l	0.10	SM4500-F-C	22 Feb 17 17:00	SVS
Sulfate	3940	mg/l	5.00	ASTM D516-07	24 Feb 17 16:16	EMS
Chloride	81.2	mg/l	1.0	SM4500-Cl-E	24 Feb 17 10:46	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 12:00	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	6800	mg/l	10	I1750-85	22 Feb 17 14:39	SVS
Calcium - Total	456	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Magnesium - Total	660	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Sodium - Total	730	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Potassium - Total	25.1	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Lithium - Total	1.23	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Total	0.36	mg/l	0.10	6010	22 Feb 17 17:00	KMD
Calcium - Dissolved	444	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	635	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	705	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	24.0	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	1.04	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Dissolved	0.32	mg/l	0.10	6010	22 Feb 17 12:28	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	28 Feb 17 9:50	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Barium - Total	0.0096	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Lead - Total	< 0.002 ^	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Selenium - Total	0.1285	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 10:10	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 7 Mar 17
Lab Number: 17-W422
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17 14:47
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW2-90

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Barium - Dissolved	0.0085	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Molybdenum - Dissolved	< 0.004 @	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Selenium - Dissolved	0.1300	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 8 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 7 Mar 17
Lab Number: 17-W423
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: FB1

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Feb 17	SVS
pH	* 5.8	units	N/A	SM4500 H+ B	22 Feb 17 17:00	SVS
Total Suspended Solids	< 2	mg/l	2	I3765-85	21 Feb 17 17:12	SVS
Total Alkalinity	< 20	mg/l CaCO3	20	SM2320-B	22 Feb 17 17:00	SVS
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	22 Feb 17 17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	24 Feb 17 16:16	EMS
Chloride	< 1	mg/l	1.0	SM4500-Cl-E	24 Feb 17 10:46	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 12:00	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	< 10	mg/l	10	I1750-85	22 Feb 17 14:39	SVS
Calcium - Total	< 1	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Magnesium - Total	< 1	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Sodium - Total	< 1	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Potassium - Total	< 1	mg/l	1.0	6010	2 Mar 17 18:14	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	22 Feb 17 17:00	KMD
Calcium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	< 0.1	mg/l	0.10	6010	22 Feb 17 13:12	KMD
Boron - Dissolved	< 0.1	mg/l	0.10	6010	22 Feb 17 12:28	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	28 Feb 17 9:50	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Barium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Lead - Total	< 0.002 ^	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	28 Feb 17 9:50	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	28 Feb 17 9:50	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 10:10	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Barium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 7 Mar 17
Lab Number: 17-W423
Work Order #:82-0402
Account #: 002800
Date Sampled: 21 Feb 17
Date Received: 21 Feb 17 16:21
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: FB1

Temp at Receipt: 8.0C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Selenium - Dissolved	< 0.005 ^	mg/l	0.0020	6020	6 Mar 17 10:10	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 10:10	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll CC 8 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW13
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 35 °F Wind: S@5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	30.02 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	30.70 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	(Yes)	No	
Duplicate Sample?:	~~(Yes)~~	(No)	
Duplicate Sample ID:	~~Dup 1 21 Feb 17~~		

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	0857 ~~am~~/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	21 Feb 17	Time of Sampling:	0922 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	0902	6.85	10322	6.85	4.19	257.9	3.19	30.45	500	Clear
2	0907	6.78	10350	6.85	3.57	254.8	1.56	30.40	500	Clear
3	0912	6.78	10352	6.86	3.60	252.8	0.98	30.48	500	Clear
4	0917	6.94	10357	6.86	3.66	251.1	0.80	30.51	500	Clear
5	0922	7.14	10348	6.86	3.81	251.2	0.71	30.48	500	Clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW44R
Sampling Personal:	Jeremy Mey

Weather Conditions: Temp: 40 °F Wind: S 0 5-10 Precip: Sunny / (Partly Cloudy) / Cloudy

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	27.22 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	27.28 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

Control Settings		
Purge:	7	sec.
Recover:	53	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	1058 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	21 Feb 17	Time of Sampling:	1133 (am)/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1103	7.97	9144	6.58	5.15	237.3	23.2	27.27	500	Clear
2	1108	7.93	9119	6.57	4.57	239.5	33.8	27.27	500	Clear
3	1113	7.92	9119	6.57	4.65	239.4	18.6	27.27	500	Clear
4	1118	7.83	9113	6.56	4.44	239.8	12.1	27.27	500	Clear
5	1123	7.93	9116	6.56	4.52	239.3	11.4	27.28	500	Clear
6	1128	8.29	9112	6.57	4.60	238.2	12.3	27.28	500	Clear
7	1133	8.14	9110	6.57	4.53	238.3	11.9	27.28	500	Clear
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 3500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	103
Sampling Personal:	Jeremy Mayer

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	32.75 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	36.63 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

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

Purge Date:	21 feb 17	Time Purging Began:	1231 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	21 feb 17	Time of Sampling:	1316 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH.	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1236	8.18	5049	6.74	5.44	259.4	0.77	33.05	500	Clear
2	1241	8.03	5060	6.75	5.71	243.3	0.31	33.30	500	Clear
3	1246	8.02	5064	6.74	5.70	245.5	0.23	33.67	500	Clear
4	1251	8.01	5059	6.74	5.66	246.9	0.27	34.00	500	Clear
5	1256	8.11	5067	6.75	5.95	247.2	0.51	34.30	500	Clear
6	1301	8.14	5066	6.75	5.77	235.4	0.64	34.52	500	clear
7	1306	8.13	5069	6.74	5.78	218.1	0.76	34.68	500	clear
8	1311	8.15	5066	6.75	5.69	203.7	0.80	34.70	500	Clear
9	1316	8.11	5067	6.74	5.73	200.1	0.72	34.80	500	Clear
10	—									

Stabilized: (Yes) No Total Volume Removed: 4500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	2-90
Sampling Personal:	Jerry Meyer

Weather Conditions: Temp: 40 °F Wind: S 05-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	20.00 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	20.45 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	21 Feb 17	Time Purging Began:	1427 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	21 Feb 17	Time of Sampling:	1447 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1432	8.16	7041	6.94	4.47	224.7	0.62	20.49	500	Clear
2	1437	7.97	7026	6.94	3.66	228.5	0.22	20.39	500	clear
3	1442	7.98	7019	6.94	3.54	230.2	0.27	20.39	500	Clear
4	1447	8.01	7022	6.93	3.53	231.4	0.31	20.45	500	Clear
5										
6										
7										
8										
9										
10										

Stabilized: Yes No Total Volume Removed: 2000 mL

Comments:

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

Field Datasheet

Water Level

Sampling Personnel: Jerry Myers

Company: **MDU Heskett**

2017

Well ID	Date	Time	Depth to Water	Comments
MW1-90	21 Feb 17	1536	10.91	

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
MDU Heskett	Feb 2017	82-0402

Report To:	MDU	Carbon Copy:	Name of Sampler(s):
Attn:	Samantha Marshall	Attn:	Jeremy Thyne
Address:	400 N. 4th St Bismarck, ND 58501	Address:	
phone:	701-222-7829		
email:			

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type		1 liter	500mL Nitric	500mL Nitric (filtered)					Temp (°C)	Spec. Cond.	pH	Analysis Required
W419	MW13	21 feb 17	0922	GW		X	X	X					7.14	1634B	6.86	MDU CCR List with TSS and Dissolved CCR Metals.
W420 ~~W420 21FEB17 1130~~	MW44R	21 feb17	1133	GW		X	X	X					8.14	9118	6.57	
W421	MW103	21 feb17	1316	GW		X	X	X					8.11	5067	6.74	
W422	MW2-90	21 feb17	1447	GW		X	X	X					8.01	7022	6.93	
W423	FB1	21 feb17	—	W		X	X	X					—	—	—	

Comments:

Relinquished By:		Sample Condition:	
Name	Date/Time	Location:	Temp (°C)
1 Jeremy Thyne	21 feb17 1617	~~Log In~~ Walk In #2	8.0 R01 TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	21FEB17 1631

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

CASE NARRATIVE – AMENDED 6 JUL 17 (Work Order)

MVTL Lab Reference No/SDG: **201782-0447**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett**
Project Identification: **CCR February 2017**
MVTL Laboratory Identifications: **17-W487** through **17-W496**
Page 1 of 2

MDU Sample Identification	MVTL Laboratory #
MW101	17-W487
MW102	17-W488
MW105	17-W489
MW70	17-W490
MW80R	17-W491
MW3-90	17-W492
MW33	17-W493
Dup1	17-W494
Dup2	17-W495
FB2	17-W496
MW104	Not sampled – under snow cover

I. RECEIPT

- All samples were received at the laboratory on 24 Feb17 at 1050.
- 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 2.4°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

II. HOLDING TIMES

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

III. METHODS

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CASE NARRATIVE – AMENDED 6 JUL 17 (Work Order)

MVTL Lab Reference No/SDG: **201782-0447**
Client: **Montana Dakota Utilities**
Location: **MDU Heskett**
Project Identification: **CCR February 2017**
MVTL Laboratory Identifications: **17-W487** through **17-W496**
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 here and/or flagged on the individual analytical laboratory report.
    - For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
    - Recovery for one selenium total 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.
    - Recovery for one lithium dissolved 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.

V. REPORTING

- 3 Apr 2017 - Per email from Terri Olson at Barr, the case narrative and QC report were both amended. The case narrative was amended to include a qualifier for the out of range dissolved lithium matrix spike duplicate recovery. The QC report was amended to include the source identification for one beryllium dissolved matrix spike/matrix spike duplicate. In addition, a qualifier was added for one TSS duplicate where the absolute difference between the two duplicates was ± 3 mg/l.
- 24 Apr 2017 – Per email from Terri Olson at Barr, sample 17-W493 was amended to change the sample date to 24 Feb 2017.
- 4 May 2017 – Per email from Terri Olson at Barr, the case narrative and QC report were both amended. The QC report was amended to include the source identification for one beryllium dissolved matrix spike/matrix spike duplicate.
- On 6 Jul 17, it was discovered that the template used to create the case narrative had an extra 7 in the work order (e.g. 2017782-0447). Case narrative has been corrected to reflect the correct work order.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 7 JUL 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Claudette Carroll

From: Terri A. Olson <TOlson@barr.com>
Sent: Thursday, March 23, 2017 9:47 AM
To: Claudette Carroll
Subject: RE: Emailing - 201782-0447 MDU HESK CCR FEB 17.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Claudette,

Reviewed this report and had the following items for your review:

1. Beryllium dissolved has 1 MS and 2 MSD results. The other ICPMS dissolved metals have at least 2 MS. It looks like it could be missing 17-W496 (FB2).
2. Lithium dissolved had an MSD % recovery at 130% but there wasn't a narrative included.
3. TSS RPD for the 2nd lab duplicate was above RPD limit but there wasn't a narrative included. Source IDs aren't listed in the QC data but based on an original result of 15 mg/L, it could be MW105. Please let us know the source. There was still holding time left so also wondering why it wasn't reanalyzed.

Thank-you,

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

This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Tuesday, March 21, 2017 4:19 PM
To: Barr Data Management <BarrDM@barr.com>; Jesse Hedlund <jhedlund@mvtl.com>; Marshall, Samantha <Samantha.Marshall@mdu.com>; Mary Hames <mhames@mvtl.com>; Steve Bowen <sbowen@mvtl.com>; Terri A. Olson <TOlson@barr.com>; Tonia D. O'Brien <tobrien@barr.com>; Julie Crispin <jcrispin@mvtl.com>
Subject: Emailing - 201782-0447 MDU HESK CCR FEB 17.pdf

Hello again,

Attached is a data package for the CCR sampling done at MDU Heskett in Feb 2017. Hard copies to follow to Sam and EDDs will follow from our IT department.

Claudette

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report – Amended 7 Jul 17

Lab IDs: 17-W487 to 17-W496 **Project:** MDU Heskett CCR **Work Order:** 201782-0447

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	17W496q	< 0.001	0.1146	115	75-125	0.1146	0.1121	112	2.2	20	-	-	< 0.001
				0.100	17W554q	< 0.001	0.0978	98	75-125	0.0978	0.1093	109	11.1	20	-	-	
Antimony - Total mg/l	0.1000	106	80-120	0.400	17W490q	< 0.001	0.4380	110	75-125	0.4380	0.4502	113	2.7	20	-	-	< 0.001
	0.1000	105	80-120	0.400	17W554q	< 0.001	0.4142	104	75-125	0.4142	0.4166	104	0.6	20	-	-	< 0.001
				0.400	17W573q	< 0.001	0.4210	105	75-125	0.4210	0.4290	107	1.9	20	-	-	
Arsenic - Dissolved mg/l	0.1000	104	80-120	0.100	17W496q	< 0.002	0.1092	109	75-125	0.1092	0.1086	109	0.6	20	-	-	< 0.002
				0.100	17W554q	< 0.002	0.0977	98	75-125	0.0977	0.1076	108	9.6	20	-	-	
Arsenic - Total mg/l	0.1000	107	80-120	0.400	17W490q	< 0.002	0.4472	112	75-125	0.4472	0.4684	117	4.6	20	-	-	< 0.002
	0.1000	99	80-120	0.400	17W554q	< 0.002	0.4162	104	75-125	0.4162	0.4238	106	1.8	20	-	-	< 0.002
				0.400	17W573q	< 0.002	0.4246	106	75-125	0.4246	0.4416	110	3.9	20	-	-	
Barium - Dissolved mg/l	0.1000	104	80-120	0.100	17W496q	< 0.002	0.1099	110	75-125	0.1099	0.1106	111	0.6	20	-	-	< 0.002
	0.1000	98	80-120	0.100	17W554q	0.0309	0.1243	93	75-125	0.1243	0.1290	98	3.7	20	-	-	< 0.002
Barium - Total mg/l	0.1000	100	80-120	0.400	17W490q	0.0098	0.4254	104	75-125	0.4254	0.4402	108	3.4	20	-	-	< 0.002
	0.1000	97	80-120	0.400	17W554q	0.0395	0.4274	97	75-125	0.4274	0.4360	99	2.0	20	-	-	< 0.002
	0.1000	98	80-120	0.400	17W573q	0.0289	0.4376	102	75-125	0.4376	0.4456	104	1.8	20	-	-	< 0.002
Beryllium - Dissolved mg/l	0.1000	114	80-120	0.100	17W496q	< 0.0005	0.1182	118	75-125	0.1182	0.1179	118	0.3	20	-	-	< 0.0005
				0.100	17W554q	<0.0005	0.0938	94	75-125	0.0938	0.1020	102	8.4	20	-	-	
Beryllium - Total mg/l	0.1000	100	80-120	0.400	17W490q	< 0.0005	0.4344	109	75-125	0.4344	0.4588	115	5.5	20	-	-	< 0.0005
	0.1000	96	80-120	0.400	17W554q	< 0.0005	0.4158	104	75-125	0.4158	0.4096	102	1.5	20	-	-	< 0.0005
				0.400	17W573q	< 0.0005	0.4184	105	75-125	0.4184	0.4346	109	3.8	20	-	-	
Boron - Dissolved mg/l	0.40	102	80-120	0.400	17-W496	< 0.1	0.40	100	75-125	0.40	0.41	102	2.5	20	-	-	< 0.1
	0.40	105	80-120												-	-	
	0.40	108	80-120												-	-	
Boron - Total mg/l	0.40	110	80-120	0.400	17-W464	0.71	1.09	95	75-125	1.09	1.13	105	3.6	20	-	-	< 0.1
				0.400	17-W490	0.40	0.77	92	75-125	0.77	0.80	100	3.8	20	-	-	< 0.1
				0.400	17-W496	< 0.1	0.39	98	75-125	0.39	0.40	100	2.5	20	-	-	< 0.1
Cadmium - Dissolved mg/l	0.1000	109	80-120	0.100	17W496q	< 0.0005	0.1149	115	75-125	0.1149	0.1126	113	2.0	20	-	-	< 0.0005
				0.100	17W554q	< 0.0005	0.0920	92	75-125	0.0920	0.1038	104	12.1	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W487 to 17-W496 **Project:** MDU Heskett CCR **Work Order:** 201782-0447

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 - Total mg/l	0.1000	106	80-120	0.400	17W490q	< 0.0005	0.4350	109	75-125	0.4350	0.4464	112	2.6	20	-	-	< 0.0005
	0.1000	108	80-120	0.400	17W554q	< 0.0005	0.4218	105	75-125	0.4218	0.4126	103	2.2	20	-	-	< 0.0005
				0.400	17W573q	0.0006	0.4182	104	75-125	0.4182	0.4386	110	4.8	20	-	-	
Calcium - Dissolved mg/l	20.0	102	80-120	500	17-W487	344	865	104	75-125	865	840	99	2.9	20	-	-	< 1
	20.0	105	80-120	500	17-W491	273	755	96	75-125	755	675	80	11.2	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Calcium - Total mg/l	20.0	104	80-120	500	17-W487	358	870	102	75-125	870	870	102	0.0	20	-	-	< 1
	20.0	107	80-120	100	17-W554	156	253	97	75-125	253	254	98	0.4	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Chloride mg/l	30.0	89	80-120	30.0	17-W554	7.0	33.8	89	80-120	33.8	32.4	85	4.2	20	-	-	< 1
	30.0	89	80-120												-	-	< 1
Chromium - Dissolved mg/l	0.1000	97	80-120	0.100	17W496q	< 0.002	0.1020	102	75-125	0.1020	0.1000	100	2.0	20	-	-	< 0.002
				0.100	17W554q	< 0.002	0.0865	86	75-125	0.0865	0.0932	93	7.5	20	-	-	
Chromium - Total mg/l	0.1000	98	80-120	0.400	17W490q	< 0.002	0.3888	97	75-125	0.3888	0.4060	102	4.3	20	-	-	< 0.002
	0.1000	93	80-120	0.400	17W554q	< 0.002	0.3700	92	75-125	0.3700	0.3760	94	1.6	20	-	-	< 0.002
				0.400	17W573q	0.0041	0.3876	96	75-125	0.3876	0.3934	97	1.5	20	-	-	
Cobalt - Dissolved mg/l	0.1000	98	80-120	0.100	17W496q	< 0.002	0.1026	103	75-125	0.1026	0.1009	101	1.7	20	-	-	< 0.002
				0.100	17W554q	< 0.002	0.0854	85	75-125	0.0854	0.0917	92	7.1	20	-	-	
Cobalt - Total mg/l	0.1000	99	80-120	0.400	17W490q	< 0.002	0.3926	98	75-125	0.3926	0.4086	102	4.0	20	-	-	< 0.002
	0.1000	93	80-120	0.400	17W554q	< 0.002	0.3748	94	75-125	0.3748	0.3786	95	1.0	20	-	-	< 0.002
				0.400	17W573q	0.0055	0.3894	96	75-125	0.3894	0.3976	98	2.1	20	-	-	
Fluoride mg/l	0.50	104	90-110	0.500	17-W491	0.32	0.79	94	80-120	0.79	0.79	94	0.0	20	-	-	< 0.1
				0.500	17-W492	0.14	0.66	104	80-120	0.66	0.64	100	3.1	20	-	-	< 0.1
Lead - Dissolved mg/l	0.1000	104	80-120	0.100	17W496q	< 0.0005	0.1128	113	75-125	0.1128	0.1125	112	0.3	20	-	-	< 0.0005
				0.100	17W554q	< 0.0005	0.0845	84	75-125	0.0845	0.0938	94	10.4	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W487 to 17-W496 **Project:** MDU Heskett CCR **Work Order:** 201782-0447

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 - Total mg/l	0.1000	102	80-120	0.400	17W490q	< 0.0005	0.3904	98	75-125	0.3904	0.4018	100	2.9	20	-	-	< 0.0005
	0.1000	97	80-120	0.400	17W554q	< 0.0005	0.3660	92	75-125	0.3660	0.3626	91	0.9	20	-	-	< 0.0005
				0.400	17W573q	0.0011	0.3640	91	75-125	0.3640	0.3734	93	2.5	20	-	-	
Lithium - Dissolved mg/l	0.40	102	80-120	0.200	17-W487	0.62	0.85	115	75-125	0.85	0.88	130	3.5	20	-	-	< 0.1
															-	-	< 0.1
Lithium - Total mg/l	0.40	108	80-120	0.400	17-W464	0.03	0.50	118	75-125	0.50	0.50	118	0.0	20	-	-	< 0.1
	0.40	105	80-120	0.400	17-W490	0.31	0.78	118	75-125	0.78	0.78	118	0.0	20	-	-	< 0.1
															-	-	< 0.1
															-	-	< 0.1
Magnesium - Dissolved mg/l	20.0	103	80-120	500	17-W487	269	800	106	75-125	800	775	101	3.2	20	-	-	< 1
	20.0	107	80-120	500	17-W491	535	1020	97	75-125	1020	920	77	10.3	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Magnesium - Total mg/l	20.0	106	80-120	500	17-W487	278	800	104	75-125	800	795	103	0.6	20	-	-	< 1
	20.0	108	80-120	100	17-W554	93.1	196	103	75-125	196	198	105	1.0	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Mercury - Dissolved mg/l	0.0020	110	85-115	0.002	17-W491	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	17-W496	< 0.0002	0.0021	105	70-130	0.0021	0.0021	105	0.0	20	-	-	
Mercury - Total mg/l	0.0020	110	85-115	0.002	17-W489	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
	0.0020	105	85-115	0.002	17-W554	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	17-W558	< 0.0002	0.0018	90	70-130	0.0018	0.0019	95	5.4	20	-	-	
Molybdenum - Dissolved mg/l	0.1000	109	80-120	0.200	17-W422Q	< 0.004	0.2051	103	75-125	0.2051	0.2118	106	3.2	20	-	-	< 0.002
	0.1000	95	80-120	0.100	17W496q	< 0.002	0.1158	116	75-125	0.1158	0.1134	113	2.1	20	-	-	< 0.002
				0.100	17W554q	< 0.002	0.0936	94	75-125	0.0936	0.1054	105	11.9	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W487 to 17-W496 **Project:** MDU Heskett CCR **Work Order:** 201782-0447

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	87	80-120	0.400	17W554q	< 0.002	0.4142	104	75-125	0.4142	0.4228	106	2.1	20	-	-	< 0.002
	0.1000	92	80-120	0.400	17W573q	0.0034	0.4362	108	75-125	0.4362	0.4504	112	3.2	20	-	-	< 0.002
	0.1000	95	80-120	0.400	17-W490	0.0025	0.3818	95	75-125	0.3818	0.3892	97	1.9	20	-	-	
				0.400	17-W573	0.0030	0.3966	98	75-125	0.3966	0.4024	100	1.5	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	6.9	7.0	-	1.4	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.2	7.2	-	0.0	20	-	-	-
Potassium - Dissolved mg/l	10.0	92	80-120	100	17-W487	19.8	124	104	75-125	124	120	100	3.3	20	-	-	< 1
	10.0	98	80-120	100	17-W491	< 5	103	103	75-125	103	92.0	92	11.3	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Potassium - Total mg/l	10.0	96	80-120	100	17-W487	20.0	124	104	75-125	124	124	104	0.0	20	-	-	< 1
	10.0	98	80-120	20.0	17-W554	11.0	32.8	109	75-125	32.8	33.3	112	1.5	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Selenium - Dissolved mg/l	0.1000	118	80-120	0.200	17-W422Q	0.1300	0.3706	120	75-125	0.3706	0.3659	118	1.3	20	-	-	< 0.002
	0.1000	108	80-120	0.100	17W496q	< 0.005	0.1239	124	75-125	0.1239	0.1170	117	5.7	20	-	-	< 0.002
				0.100	17W554q	< 0	0.1090	109	75-125	0.1090	0.1173	117	7.3	20	-	-	
Selenium - Total mg/l	0.1000	115	80-120	0.400	17W490q	0.0061	0.4606	114	75-125	0.4606	0.4784	118	3.8	20	-	-	< 0.002
	0.1000	105	80-120	0.400	17W554q	< 0.002	0.4600	115	75-125	0.4600	0.4536	113	1.4	20	-	-	< 0.002
	0.1000	108	80-120	0.400	17W573q	0.0641	0.5422	120	75-125	0.5422	0.5662	126	4.3	20	-	-	< 0.002
Sodium - Dissolved mg/l	20.0	100	80-120	500	17-W487	575	1100	105	75-125	1100	1060	97	3.7	20	-	-	< 1
	20.0	104	80-120	500	17-W491	575	1060	97	75-125	1060	955	76	10.4	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Sodium - Total mg/l	20.0	103	80-120	500	17-W487	610	1110	100	75-125	1110	1110	100	0.0	20	-	-	< 1
	20.0	105	80-120	100	17-W554	393	470	77	75-125	470	474	81	0.8	20	-	-	< 1
															-	-	< 1
															-	-	< 1

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 17-W487 to 17-W496 **Project:** MDU Heskett CCR **Work Order:** 201782-0447

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	100 100 100 100	92 91 105 99	80-120 80-120 80-120 80-120	100 100 1000	17-W449 17-W496 17-D736	< 5 < 5 984	81.4 92.4 1880	81 92 90	80-120 80-120 80-120	81.4 92.4 1880	83.9 104 1890	84 104 91	3.0 11.8 0.5	20 20 20	- - - - -	- - - - -	< 5 < 5 < 5 < 5 < 5
Thallium - Dissolved mg/l	0.1000	105	80-120	0.100 0.100	17W496q 17W554q	< 0.0005 < 0.0005	0.1132 0.0856	113 86	75-125 75-125	0.1132 0.0856	0.1117 0.0940	112 94	1.3 9.4	20 20	- -	- -	< 0.0005
Thallium - Total mg/l	0.1000 0.1000	102 97	80-120 80-120	0.400 0.400 0.400	17W490q 17W554q 17W573q	< 0.0005 < 0.0005 < 0.0005	0.3950 0.3750 0.3708	99 94 93	75-125 75-125 75-125	0.3950 0.3750 0.3708	0.4108 0.3752 0.3808	103 94 95	3.9 0.1 2.7	20 20 20	- - -	- - -	< 0.0005 < 0.0005
Total Alkalinity mg/l CaCO3	410	91	90-110	410 410	17-W490 17-W493	391 460	752 819	88 88	80-120 80-120	752 819	753 814	88 86	0.1 0.6	20 20	92	80-120	< 20 < 20
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	5090	5330	-	4.6	20	-	-	< 10
Total Suspended Solids mg/l	- -	- -	- -	- -	- -	- -	- -	- -	- -	130 15	109 12	- -	17.6 22.2	20 20	- -	- -	< 2

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

Approved by: C. Carroll
7JUL17

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

Report Date: 17 Mar 17
Lab Number: 17-W487
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 13:11
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW101

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 6.9	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	4	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.70	units	NA	SM 4500 H+ B	23 Feb 17 13:11	JSM
Temperature - Field	6.00	Degrees C	NA	SM 2550B	23 Feb 17 13:11	JSM
Total Alkalinity	461	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	4772	umhos/cm	1	EPA 120.1	23 Feb 17 13:11	JSM
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	2640	mg/l	5.00	ASTM D516-07	3 Mar 17 11:46	EMS
Chloride	14.9	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:01	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	4180	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	358	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Magnesium - Total	278	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Sodium - Total	610	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Potassium - Total	20.0	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Lithium - Total	0.69	mg/l	0.10	6010	1 Mar 17 13:47	KMD
Boron - Total	1.41	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	344	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	269	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	575	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	19.8	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	0.62	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	1.30	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Mar 17 16:35	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Barium - Total	0.0145	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W487
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 13:11
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW101

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0153	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll CC 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W488
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 9:36
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW102

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.1	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	20	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.86	units	NA	SM 4500 H+ B	23 Feb 17 9:36	JSM
Temperature - Field	6.35	Degrees C	NA	SM 2550B	23 Feb 17 9:36	JSM
Total Alkalinity	544	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	9857	umhos/cm	1	EPA 120.1	23 Feb 17 9:36	JSM
Fluoride	0.14	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	5470	mg/l	5.00	ASTM D516-07	3 Mar 17 11:46	EMS
Chloride	8.6	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:01	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	9020	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	418	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Magnesium - Total	399	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Sodium - Total	1760	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Potassium - Total	21.9	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Lithium - Total	1.12	mg/l	0.10	6010	1 Mar 17 13:47	KMD
Boron - Total	1.72	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	416	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Magnesium - Dissolved	393	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Sodium - Dissolved	1680	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Potassium - Dissolved	21.4	mg/l	1.0	6010	2 Mar 17 14:14	KMD
Lithium - Dissolved	1.04	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	1.66	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Mar 17 16:35	KMD
Arsenic - Total	0.0031	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Barium - Total	0.0176	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Cobalt - Total	0.0032	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W488
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 9:36
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW102

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	0.0028	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0182	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	0.0033	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W489
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 16:38
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW105

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 6.9	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	15	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.73	units	NA	SM 4500 H+ B	23 Feb 17 16:38	JSM
Temperature - Field	6.68	Degrees C	NA	SM 2550B	23 Feb 17 16:38	JSM
Total Alkalinity	440	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	8258	umhos/cm	1	EPA 120.1	23 Feb 17 16:38	JSM
Fluoride	0.29	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	3900	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	409	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:01	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	7970	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	434	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Magnesium - Total	855	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Sodium - Total	845	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Potassium - Total	22.2	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Lithium - Total	1.34	mg/l	0.10	6010	1 Mar 17 13:47	KMD
Boron - Total	0.62	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	414	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	830	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	810	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	22.3	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	1.30	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	0.56	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Mar 17 16:35	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Barium - Total	0.0221	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W489
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 16:38
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW105

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0133	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W490
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 11:22
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW70

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.3	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	3	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.98	units	NA	SM 4500 H+ B	23 Feb 17 11:22	JSM
Temperature - Field	7.80	Degrees C	NA	SM 2550B	23 Feb 17 11:22	JSM
Total Alkalinity	391	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	3515	umhos/cm	1	EPA 120.1	23 Feb 17 11:22	JSM
Fluoride	0.36	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	1590	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	47.1	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	3160	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	316	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Magnesium - Total	125	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Sodium - Total	426	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Potassium - Total	11.5	mg/l	1.0	6010	7 Mar 17 13:26	KMD
Lithium - Total	0.31	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.40	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	312	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	125	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	425	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	11.5	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.30	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	0.39	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	7 Mar 17 16:35	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Barium - Total	0.0098	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Molybdenum - Total	0.0025	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Mar 17 16:35	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	7 Mar 17 16:35	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W490
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 11:22
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW70

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0091	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	0.0029	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

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

Report Date: 17 Mar 17
Lab Number: 17-W491
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 13:32
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR
Sample Description: MW80R

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.4	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	9	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	7.12	units	NA	SM 4500 H+ B	23 Feb 17 13:32	JSM
Temperature - Field	5.68	Degrees C	NA	SM 2550B	23 Feb 17 13:32	JSM
Total Alkalinity	527	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	5852	umhos/cm	1	EPA 120.1	23 Feb 17 13:32	JSM
Fluoride	0.32	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	2730	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	161	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	5180	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	275	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	535	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	565	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	< 5 @	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	0.78	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.59	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	273	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	535	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	575	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	< 5 @	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.82	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	0.53	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0105	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0035	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Selenium - Total	0.0590	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W491
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 13:32
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW80R

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0101	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	0.0038	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	0.0604	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 8 Mar 17
Lab Number: 17-W492
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 15:28
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW3-90

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.2	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	4	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.86	units	NA	SM 4500 H+ B	23 Feb 17 15:28	JSM
Temperature - Field	5.71	Degrees C	NA	SM 2550B	23 Feb 17 15:28	JSM
Total Alkalinity	539	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	4850	umhos/cm	1	EPA 120.1	23 Feb 17 15:28	JSM
Fluoride	0.14	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	2550	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	29.7	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	4320	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	496	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	228	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	565	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	12.2	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	0.24	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.16	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	474	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	221	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	545	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	12.6	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.23	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	0.15	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0104	mg/l	0.0020	6020	16 Mar 17 1:51	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0034	mg/l	0.0020	6020	16 Mar 17 16:51	KMD
Selenium - Total	0.0714	mg/l	0.0020	6020	16 Mar 17 16:51	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 8 Mar 17
Lab Number: 17-W492
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17 15:28
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: MW3-90

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0102	mg/l	0.0020	6020	16 Mar 17 16:51	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	0.0030	mg/l	0.0020	6020	16 Mar 17 16:51	KMD
Selenium - Dissolved	0.0684	mg/l	0.0020	6020	16 Mar 17 16:51	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Amended 18 Apr 17 (Sample Date)

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

Report Date: 17 Mar 17
Lab Number: 17-W493
Work Order #:82-0447
Account #: 002800
Date Sampled: 24 Feb 17 9:27
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR
Sample Description: MW33

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 6.8	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	5	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
pH - Field	6.53	units	NA	SM 4500 H+ B	23 Feb 17 9:27	JSM
Temperature - Field	7.88	Degrees C	NA	SM 2550B	23 Feb 17 9:27	JSM
Total Alkalinity	460	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Conductivity - Field	5234	umhos/cm	1	EPA 120.1	23 Feb 17 9:27	JSM
Fluoride	0.25	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	3770	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	10.9	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	4970	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	460	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	432	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	418	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	20.8	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	0.72	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.52	mg/l	0.10	6010	28 Feb 17 14:12	SZ
Calcium - Dissolved	455	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	430	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	418	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	21.6	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.70	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0114	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 18 Apr 17 (Sample Date)

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

Report Date: 17 Mar 17
Lab Number: 17-W493
Work Order #:82-0447
Account #: 002800
Date Sampled: 24 Feb 17 9:27
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett CCR
Sample Description: MW33

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0132	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll IC 24 Apr 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 17 Mar 17
Lab Number: 17-W494
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: DUP 1

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.2	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	< 2	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
Total Alkalinity	540	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Fluoride	0.14	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	2580	mg/l	5.00	ASTM D516-07	17 Mar 17 8:46	EMS
Chloride	29.6	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	4430	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	500	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	230	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	560	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	12.0	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	0.23	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.15	mg/l	0.10	6010	28 Feb 17 15:12	SZ
Calcium - Dissolved	466	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	216	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	535	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	12.4	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.22	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	0.14	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0117	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0038	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Selenium - Total	0.0662	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0117	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W494
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: DUP 1

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	0.0039	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	0.0798	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W495
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: DUP 2

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 7.5	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	4	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
Total Alkalinity	526	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Fluoride	0.34	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	3000	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	159	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	5090	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	279	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	535	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	570	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	< 5 @	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	0.82	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	0.50	mg/l	0.10	6010	28 Feb 17 15:12	SZ
Calcium - Dissolved	264	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	515	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	545	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	< 5 @	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	0.81	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	< 0.5 @	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0110	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0036	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Selenium - Total	0.0561	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	0.0097	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W495
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: DUP 2

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	0.0038	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	0.0661	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W496
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: FB2

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	24 Feb 17	KMD
pH	* 6.0	units	N/A	SM4500 H+ B	24 Feb 17 17:00	SVS
Total Suspended Solids	< 2	mg/l	2	I3765-85	24 Feb 17 15:53	SVS
Total Alkalinity	< 20	mg/l CaCO3	20	SM2320-B	24 Feb 17 17:00	SVS
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	24 Feb 17 17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	3 Mar 17 13:26	EMS
Chloride	< 1	mg/l	1.0	SM4500-Cl-E	2 Mar 17 9:28	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Mar 17 12:09	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	28 Feb 17 13:32	EV
Total Dissolved Solids	< 10	mg/l	10	I1750-85	24 Feb 17 14:41	SVS
Calcium - Total	< 1	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Magnesium - Total	< 1	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Sodium - Total	< 1	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Potassium - Total	< 1	mg/l	1.0	6010	7 Mar 17 14:26	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	1 Mar 17 14:00	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	28 Feb 17 15:12	SZ
Calcium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Magnesium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Sodium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Potassium - Dissolved	< 1	mg/l	1.0	6010	2 Mar 17 15:14	KMD
Lithium - Dissolved	< 0.1	mg/l	0.10	6010	1 Mar 17 11:47	KMD
Boron - Dissolved	< 0.1	mg/l	0.10	6010	28 Feb 17 15:24	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.001 ^	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	6 Mar 17 11:00	KMD
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Barium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 17 Mar 17
Lab Number: 17-W496
Work Order #:82-0447
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett CCR
Sample Description: FB2

Temp at Receipt: 2.4C ROI

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD
Molybdenum - Dissolved	< 0.002	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Selenium - Dissolved	< 0.02 ^	mg/l	0.0020	6020	6 Mar 17 11:00	KMD
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020	6 Mar 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K. Carroll 21 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

March 23, 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:

From February 21-23, 2017, MVTL Laboratories' Field Services division collected groundwater samples at the MDU Heskett site near Mandan, ND for the Heskett Coal Combustion Rule and the NDDH analytical list.

All wells were located and were found to be in generally good condition. Access to wells was hindered by the amount of snow fall the area had received. Well 104 was not sampled during this event due to a snow drift that covered the well and hillside where the well was located. The wells for CCR were purged and sampled using a dedicated bladder pump and BARR's SOP for low flow purging and sampling. 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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

MVTL Laboratories Inc.
FIELD DATA REPORT

WO#	CCR	RadChem
	82-0401	82-0402
	82-0448	82-0447

MDU Heskett
GROUNDWATER SAMPLING
Attn: Samantha Marshall
400 N. 4th St
Bismarck, ND 58501
701-222-7829

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WELL CASING ELEVATION	STATIC WATER LEVEL (ft)	WATER LEVEL START	WATER LEVEL END	VOLUME REMOVED (mL	SAMPLE METHOD	TEMP (°C)	EC	pH	Turbidity NTU	SAMPLE APPEARANCE OR COMMENT
2-90	21-Feb-17	14:27	21-Feb-17	14:47	1686.60	1666.60	20.00	21.69	2000.0	Bladder	8.01	7022	6.93	0.31	clear
3-90	23-Feb-17	15:03	23-Feb-17	15:28	1686.01	1669.96	16.05	16.20	2500.0	Bladder	5.71	4850	6.86	0.79	clear
13	21-Feb-17	8:57	21-Feb-17	9:22	1724.98	1694.96	30.02	30.70	2500.0	Bladder	7.14	10348	6.86	0.71	clear
33	23-Feb-17	8:32	23-Feb-17	9:27	1717.91	1676.65	41.26	44.50	5500.0	Bladder	7.88	5234	6.53	2.03	clear
70	23-Feb-17	10:47	23-Feb-17	11:22	1706.36	1687.02	19.34	22.80	3500.0	Bladder	7.80	3515	6.98	0.41	clear
80R	23-Feb-17	13:07	23-Feb-17	13:32	NA	NA	14.27	14.54	2500.0	Bladder	5.68	5852	7.12	3.12	clear
44R	21-Feb-17	10:58	21-Feb-17	11:33	NA	NA	27.22	27.28	3500.0	Bladder	8.14	9110	6.57	11.90	clear
101	23-Feb-17	12:16	23-Feb-17	13:11	NA	NA	36.90	40.55	5500.0	Bladder	6.00	4772	6.70	7.33	clear
102	23-Feb-17	9:01	23-Feb-17	9:36	NA	NA	16.64	19.08	3500.0	Bladder	6.35	9857	6.86	7.75	clear
103	21-Feb-17	12:31	21-Feb-17	13:16	NA	NA	32.75	36.63	4500.0	Bladder	8.11	5067	6.74	0.72	clear
104	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	see below*
105	23-Feb-17	15:28	23-Feb-17	16:38	NA	NA	12.21	12.51	7000.0	Bladder	6.68	8258	6.73	9.45	clear
1-90	NA	NA	21-Feb-17	15:36	1675.86	1664.95	10.91	NA	NA	NA	NA	NA	NA	NA	water level only

* could not locate Well 104 due to snow drift that covered the hillside where the well was located.

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: Darren Niesway

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

Pre Site Calibration

Date: 23Feb17 **Time:** 1210

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	19.61	7.03	7.00	6.95-7.05	-10.3	0 +/- 50
Buffer 10	19.53	10.03	10.00	9.95-10.05	-181.9	-180 +/- 50
Conductivity						Check
Buffer 10000	19.15	10254	10003	±10%	Buffer 5000	4990
ORP						
231 mV @ 25C	7.72	237.9	231.3	±10 mV		
DO					Barometric Pressure (mm Hg)	
	16.83	10.08	9.05	mg/L	716.7	

Post Site Check

Time: 1752

	Temp °C	Reading
pH		
Buffer 7	18.21	7.01
Conductivity		
Buffer 5000	15.19	4918

Date: 24Feb17 **Time:** 0729

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	18.52	7.03	7.00	6.95-7.05	-12.2	0 +/- 50
Buffer 10	18.48	10.01	10.00	9.95-10.05	-184.0	-180 +/- 50
Conductivity						Check
Buffer 10000	18.05	9854	10006	±10%	Buffer 5000	5001
ORP						
231 mV @ 25C	7.82	229.4	231.5	±10 mV		
DO	16.76 ~~16.83~~	8.30 ~~10.08~~	9.19 ~~9.05~~		Barometric Pressure (mm Hg)	
				mg/L	719.5	

Post Site Check

Time: 1049

	Temp °C	Reading
pH		
Buffer 7	17.33	6.99
Conductivity		
Buffer 5000	17.87	5028

MVTL Calibration Worksheet

Site: MDU Heskett

Technician: [signature]

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

Pre Site Calibration

Date: 21 feb17 Time: 0730

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	20.59	7.03	7.00	6.95-7.05	-20.3	0 +/- 50
Buffer 10	20.52	10.03	10.00	9.95-10.05	-193.7	-180 +/- 50
Conductivity						Check
Buffer 10000	20.59	10117	10000	±10%	Buffer 5000	4996
ORP						
231 mV @ 25C	8.13	254.4	250.5	±10 mV		
DO				Barometric Pressure (mm Hg)		
	16.15	97.3%	93.0%	mg/L	757.80	

Post Site Check

Time: 1630

	Temp °C	Reading
pH		
Buffer 7	~~6.97~~ 20.13	6.97
Conductivity		
Buffer 5000	20.26	4990

Pre Site Calibration

Date: 23 feb17 Time: 0735

	Temp °C	Pre Cal	Post Cal	Post Cal Range	mv	mv Range +/- 50
pH						
Buffer 7	19.24	6.95	7.00	6.95-7.05	-17.2	0 +/- 50
Buffer 10	19.24	10.00	10.00	9.95-10.05	-190.2	-180 +/- 50
Conductivity						Check
Buffer 10000	19.30	9950	10000	±10%	Buffer 5000	4987
ORP						
231 mV @ 25C	7.55	252.6	250.5	±10 mV		
DO	Changed DO Membrane			Barometric Pressure (mm Hg)		
	15.59	63.0%	100.0%	mg/L	759.82	

Post Site Check

Time: 1735

	Temp °C	Reading
pH		
Buffer 7	18.66	6.97
Conductivity		
Buffer 5000	18.72	4965

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW108
Sampling Personal:	Jeremy Hays

Weather Conditions: Temp: 35 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	36.90 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	40.55 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

Control Settings		
Purge:	9	sec.
Recover:	51	sec.
PSI:	40	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	1216 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1311 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1221	6.60	4820	6.81	3.09	59.2	99.6	37.92	500	Clear
2	1226	6.70	4800	6.77	2.07	41.1	59.9	38.29	500	Clear
3	1231	6.21	4826	6.77	1.84	35.0	41.9	38.52	500	Clear
4	1236	6.80	4816	6.75	1.62	31.1	30.2	38.80	500	Clear
5	1246	6.30	4799	6.73	1.66	31.3	~~31.5~~ 16.3	39.20	1000	Clear
6	1251	6.31	4772	6.73	1.46	32.5	14.9	39.30	500	Clear
7	1256	6.83	4767	6.74	1.50	32.6	10.6	39.41	500	Clear
8	1301	6.23	4784	6.76	1.54	33.9	8.23	39.45	500	Clear
9	1306	6.03	4804	6.~~80~~	1.72	37.0	7.22	39.46	500	Clear
10	1311	6.00	4772	6.70	1.79	39.4	7.33	39.48	500	Clear

Stabilized: (Yes) No

Total Volume Removed: 5500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW 102
Sampling Personal:	Jerry Hey

Weather Conditions: Temp: 35 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	16.64	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.08	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	0901 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	0936 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0906	6.07	9685	6.84	2.88	1.8	40.1	17.30	500	Clear
2	0911	6.20	9898	6.88	1.98	-23.3	35.1	17.48	500	Clear
3	0916	6.35	9910	6.86	1.78	-29.1	13.2	17.77	500	Clear
4	0921	6.47	9842	6.85	1.75	-29.9	9.69	17.91	500	Clear
5	0926	6.13	9948	6.90	1.85	-32.5	7.99	17.92	500	Clear
6	0931	6.43	9900	6.91	1.80	-35.3	7.80	18.06	500	Clear
7	0936	6.35	9857	6.86	1.86	-32.8	7.75	18.11	500	Clear
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 3500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	mw 105
Sampling Personal:	Darren Nissen

Weather Conditions: Temp: 30 °F Wind: NE 10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	12.21 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	21.24 ft
Water Level After Sample:	12.51 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

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

Purge Date:	23Feb17	Time Purging Began:	1528 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23Feb17	Time of Sampling:	1638 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1533	6.33	7766	6.76	1.85	229.6	12.3	12.56	500	clear
2	1538	6.80	7845	6.74	1.45	221.5	9.60	12.45	500	clear
3	1548	6.85	8008	6.74	1.22	213.3	12.1	12.47	1000	clear
4	1608	6.69	8188	6.73	1.17	209.9	10.7	12.45	2000	clear
5	1628	6.71	8253	6.73	1.15	201.3	9.32	12.45	2000	clear
6	1633	6.74	8257	6.73	1.13	199.8	9.42	12.45	500	clear
7	1638	6.68	8258	6.73	1.16	198.5	9.45	12.45	500	clear
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 7000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW70
Sampling Personal:	Jeremy Mayer

Weather Conditions: Temp: 35 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	19.34	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.80	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	1047 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1122 (am)/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1052	7.33	3941	6.99	1.41	133.1	0.87	21.08	500	Clear
2	1057	7.25	3906	6.95	1.19	131.1	0.35	21.39	500	Clear
3	1102	7.10	3887	6.96	1.24	124.9	0.30	21.55	500	Clear
4	1107	7.56	3828	6.97	1.02	121.7	0.40	21.80	500	Clear
5	1112	7.59	3717	6.98	0.99	117.1	0.32	22.00	500	Clear
6	1117	7.54	3653	6.98	0.98	114.5	0.27	22.16	500	Clear
7	1122	7.80	3515	6.98	0.97	113.0	0.41	22.24	500	clear
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: 2017

Sample ID: MW 80R

Sampling Personal: Darren Wiesmann

Weather Conditions: Temp: 32 °F Wind: NE 10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	14.27	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	19.30	ft
Water Level After Sample:	14.54	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

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

Purge Date:	23Feb17	Time Purging Began:	1307 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	23Feb17	Time of Sampling:	1332 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1312	6.89	5837	7.08	2.07	236.1	4.37	14.48	500	Clear
2	1317	5.82	5849	7.10	1.25	232.2	4.48	14.50	500	Clear
3	1322	5.63	5841	7.11	1.03	230.6	3.04	14.50	500	Clear
4	1327	5.59	5854	7.12	1.01	229.1	2.98	14.50	500	Clear
5	1332	5.68	5852	7.12	0.99	228.0	3.12	14.50	500	Clear
6										
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 2500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	3-90
Sampling Personal:	Jerry Thys

Weather Conditions: Temp: 30 °F Wind: N@5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	16.05	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	16.20	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

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

Purge Date:	23 Feb 17	Time Purging Began:	1503 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1528 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1508	5.74	4888	6.81	2.02	-114.2	1.73	16.20	500	Clear
2	1513	5.68	4844	6.82	1.66	-122.0	1.45	16.18	500	clear
3	1518	5.67	4856	6.84	1.64	-129.7	1.08	16.15	500	clear
4	1523	5.69	4850	6.85	1.62	-132.9	0.84	16.14	500	clear
5	1528	5.71	4850	6.86	1.62	-132.0	0.79	16.13	500	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW33
Sampling Personal:	Darren Tescher

Weather Conditions: Temp: 20 °F Wind: Light Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	41.26	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	44.50	ft	
Water Level After Sample:	41.70	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

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

Control Settings		
Purge:	42	sec.
Recover:	45	sec.
PSI:	45	
Pumping Rate:	100	mL/min

Purge Date:	24Feb17	Time Purging Began:	0832 am/pm
Well Purged Dry?	Yes	No	Time Purged Dry: — am/pm
Sample Date:	24Feb17	Time of Sampling:	0927 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0837	6.49	5652	6.67	3.25	-13.6	48.1	41.49	500	Slightly Turbid
2	0842	7.29	5496	6.58	1.52	-19.6	97.1	41.59	500	ST
3	0847	7.64	5290	6.54	1.73	*2.3	15.1	41.58	2000	Clear
4	0912	7.85	5248	6.53	1.69	2.6	4.25	41.63	1 OOL	cl
5	0917	7.61	5243	6.53	1.65	2.9	2.22	41.59	500	cl
6	0922	8.02	5229	6.53	1.69	1.2	2.18	41.67	500	cl
7	0927	7.88	5234	6.53	1.65	5.9	2.03	41.63	500	cl
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 5500 mL

Comments:

* AW 24 Feb 17

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
MDU Heskett	Feb 2017	82-0447

Report To:	MDU	Carbon Copy:	Name of Sampler(s):
Attn:	Samantha Marshall	Attn:	Jeremy Meyer
Address:	400 N. 4th St Bismarck, ND 58501	Address:	Darren Niegwazs
phone:	701-222-7829		
email:			

Sample Information					Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	1 liter	500mL Nitric	500mL Nitric (filtered)					Temp (°C)	Spec. Cond.	pH	Analysis Required
W487	MW101	23feb17	1311	GW	X	X	X					6.00	4772	6.70	MDU CCR List with TSS and Dissolved CCR Metals.
W488	MW102	23feb17	0936	GW	X	X	X					6.35	9857	6.86	
W489	MW105	23feb17	1638	GW	X	X	X					6.68	8258	6.73	
W490	MW70	23feb17	1122	GW	X	X	X					7.80	3515	6.98	
W491	MW80R	23feb17	1332	GW	X	X	X					5.68	5852	7.12	
W492	MW 3-90	23feb17	1528	GW	X	X	X					5.71	4850	6.86	
W493	MW 33	24feb17	0927	GW	X	X	X					7.88	5234	6.53	
W494	Dup1	23feb17	—	GW	X	X	X					—	—	—	
W495	Dup2	23feb17	—	GW	X	X	X					—	—	—	
W496	FB2	23feb17	—	W	X	X	X					—	—	—	

Comments: well 104 was not sampled during this event because it is still under snow cover.

Relinquished By:			Sample Condition:	
	Name:	Date/Time	Location:	Temp (°C)
1		24feb17 1050	(Log In) Walk In #2	2.4 R01 (TM562) / TM588
2				

Received by:	
Name:	Date/Time
Angel Simmons	24FEB17 ~~1134~~ 1050 24FEB17

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

CASE NARRATIVE – AMENDED 8 JUN 2017 (Radiochem Reports RL change)

MVTL Lab Reference No/SDG: 201782-0448
IML Lab Reference No/SDG: S1702326
Client: Montana Dakota Utilities
Location: MDU Heskett Ash Site
Project Identification: CCR February 2017
MVTL Laboratory Identifications: 17-W497 through 17-W506
IML Laboratory Identifications: S1702326-001 through S1702326-010

MDU Sample Identification	MVTL Laboratory #	IML Laboratory #
MW101	17-W497	S1702326-001
MW102	17-W498	S1702326-002
MW105	17-W499	S1702326-003
MW70	17-W500	S1702326-004
MW80R	17-W501	S1702326-005
MW3-90	17-W502	S1702326-006
MW33	17-W503	S1702326-007
Dup1	17-W504	S1702326-008
Dup2	17-W505	S1702326-009
FB	17-W506	S1702326-010

I. RECEIPT

- All samples were received at the laboratory on 24 Feb 2017 at 1050.
- 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 10.4°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 28 Feb 2017.
  - 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.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CASE NARRATIVE – AMENDED 8 JUN 2017 (Radiochem Reports RL change)

MVTL Lab Reference No/SDG: 201782-0448
IML Lab Reference No/SDG: S1702326
Client: Montana Dakota Utilities
Location: MDU Heskett Ash Site
Project Identification: CCR February 2017
MVTL Laboratory Identifications: 17-W497 through 17-W506
IML Laboratory Identifications: S1702326-001 through S1702326-010

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.

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.
- 24 Apr 2017 – Per email from Terri Olson at Barr, sample 17-W503 was amended to change the sample date to 24 Feb 2017.
- 19 May 2017 – Per email from Terri Olson at Barr, samples MW3-90 and Dup1 were reanalyzed for radiochemistry. This resulted in a higher reporting limit for the analyses.
- 26 May 2017 – Per email from Terri Olson at Barr, the radiochemistry reports were modified to include actual results on the rechecked samples versus ND. In addition, a QC was included in the data package.
- 8 Jun 2017 – IML Laboratory was able to review their data results and lower the RL on their reports.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 8 Jun 17
Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Claudette Carroll

From: Wade Nieuwsma [mailto:waden@imlinc.com]
Sent: Wednesday, June 07, 2017 4:57 PM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Claudette

Attached is the correct data package.

We had enough sample to meet the 0.2 pCi/L RL

On 5/19 it was stated there may be an elevated RL depending on sample volume

Wade

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Wednesday, June 07, 2017 3:27 PM
To: Wade Nieuwsma
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Help me please. For data package S1702326, which is the correct data package with the correct RLs? Thank you. ☺

Claudette

MVTL

From: Terri A. Olson [mailto:TOlson@barr.com]
Sent: Wednesday, June 07, 2017 4:19 PM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Can you please confirm that they were able to reanalyze using enough sample volume to achieve the 0.2 pCi/L RL – since this was brought up previous to sending in the samples, it seems odd that it wasn't elevated. If this is the case, we should have it listed in the narrative since the 05/19 states there will be higher RLs.

Thank-you,

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

resourceful. naturally. BARR
This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering

Claudette Carroll

From: Terri A. Olson <TOlson@barr.com>
Sent: Thursday, June 01, 2017 3:54 PM
To: Claudette Carroll
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf
Attachments: 201782-0448 Amended MDU HESK CCR FEB 17.pdf; MVTLS1702326-F-4.xls

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Claudette,

Could you check the attached PDF – it looks like there are duplicates for some of the reports.

Thank-you,

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

This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Friday, May 26, 2017 9:36 AM
To: Marshall, Samantha <Samantha.Marshall@mdu.com>
Cc: Tonia D. O'Brien <tobrien@barr.com>; Barr Data Management <BarrDM@barr.com>; Terri A. Olson <TOlson@barr.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Happy Friday everyone,

Attached is the amended data package from IML. Hard copies to follow to Sam.

Have a great weekend!

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

Claudette Carroll

From: Terri A. Olson <TOlson@barr.com>
Sent: Wednesday, May 24, 2017 7:41 AM
To: Claudette Carroll
Cc: Tonia D. O'Brien; Barr Data Management; Marshall, Samantha
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

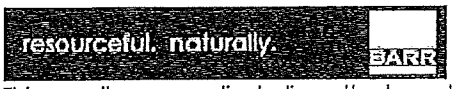
Hi Claudette,

Couple of items regarding this revised Rad Chem report.

- The results were reported with ND and NA instead of actual numbers as we have had done previously for this project.
- The reanalyzed results for Rad 226 have the RL at 1 instead of 0.2. Assumed that it was due to less volume used for the analysis but I don't remember that being an issue when we discussed reanalysis.
- Didn't see a QC sheet associated with the reanalyzed data.

Thank-you,

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



This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Monday, May 22, 2017 8:35 AM
To: Terri A. Olson <TOlson@barr.com>; Tonia D. O'Brien <tobrien@barr.com>; Barr Data Management <BarrDM@barr.com>; Marshall, Samantha <Samantha.Marshall@mdu.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Good morning,

Attached are the recheck/reanalysis results for the Radiochem samples from MDU Heskett. Hard copies to follow to Sam.

Have a great week!

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: Tuesday, May 02, 2017 4:16 PM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Please have the lab reanalyze. Hopefully it will indicate which previous result was correct.

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

resourceful, naturally. BARR
This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Friday, April 28, 2017 1:12 PM
To: Terri A. Olson <TOlson@barr.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Terri,

IML said that they could reanalysis without any additional charge however the RL may be affected due to volume of remaining sample. How would you like to proceed?

Happy Friday!

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

From: Claudette Carroll
Sent: Thursday, April 27, 2017 8:07 AM

To: 'Terri A. Olson' <TOlson@barr.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hello Terri,

I would have to check with IML. I would guess since they recounted them and the results did not change, that they would most likely charge for a reanalysis. Let me check with them and once I know, I will follow up with 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, April 27, 2017 7:35 AM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Claudette,

Would there be an additional charge for reanalysis?

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

resourceful. naturally. BARR
This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Monday, April 24, 2017 8:27 AM
To: Terri A. Olson <TOlson@barr.com>
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Terri,

The response from IML regarding the duplicate sample is below. Would you like to have the samples re-analyzed?

CLAUDETTE CARROLL

Minnesota Valley Testing Laboratories, Inc.
2616 E. Broadway Ave.
Bismarck, ND 58501
701-258-9720

From: Wade Nieuwsma [mailto:waden@imlinc.com]
Sent: Tuesday, April 18, 2017 5:25 PM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Claudette

We recounted the samples in question with no change.

Do you need them reanalyzed?

Wade

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Tuesday, April 18, 2017 10:54 AM
To: Wade Nieuwsma
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Wade,

Could you amend report S1702326-007 to change the sample date from 2/23/17 to 2/24/17, please? Also, the consultant for this site also wanted to have you check on the results for S1702326-006. It is the duplicate of sample S1702326-008 and she believes that the values were significantly different.

Let me know what you find out.

Thanks!

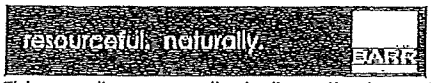
CLAUDETTE CARROLL
Minnesota Valley Testing Laboratories, Inc.
2616 E. Broadway Ave.
Bismarck, ND 58501
701-258-9720

Claudette Carroll

From: Terri A. Olson <TOlson@barr.com>
Sent: Tuesday, May 02, 2017 4:16 PM
To: Claudette Carroll
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Please have the lab reanalyze. Hopefully it will indicate which previous result was correct.

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



This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Friday, April 28, 2017 1:12 PM
To: Terri A. Olson <TOlson@barr.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Terri,

IML said that they could reanalysis without any additional charge however the RL may be affected due to volume of remaining sample. How would you like to proceed?

Happy Friday!

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

From: Claudette Carroll
Sent: Thursday, April 27, 2017 8:07 AM
To: 'Terri A. Olson' <TOlson@barr.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hello Terri,

I would have to check with IML. I would guess since they recounted them and the results did not change, that they would most likely charge for a reanalysis. Let me check with them and once I know, I will follow up with 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, April 27, 2017 7:35 AM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Claudette,

Would there be an additional charge for reanalysis?

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

resourceful. naturally. BARR
This e-mail message (including attachments, forwards, and replies) is correspondence transmitted between Barr Engineering Co. and its clients and related parties in the course of business, and is intended solely for use by the addressees. This transmission contains information which may be confidential and proprietary. If you are not the addressee, note that any disclosure, copying, distribution, or use of the contents of this message (or any attachments, replies, or forwards) is prohibited. If you have received this transmission in error, please destroy it and notify us at 952-832-2600.

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Monday, April 24, 2017 8:27 AM
To: Terri A. Olson <TOlson@barr.com>
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Terri,

The response from IML regarding the duplicate sample is below. Would you like to have the samples re-analyzed?

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

From: Wade Nieuwsma [mailto:waden@imlinc.com]
Sent: Tuesday, April 18, 2017 5:25 PM
To: Claudette Carroll <ccarroll@mvtl.com>
Subject: RE: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Claudette

We recounted the samples in question with no change.

Do you need them reanalyzed?

Wade

From: Claudette Carroll [mailto:ccarroll@mvtl.com]
Sent: Tuesday, April 18, 2017 10:54 AM
To: Wade Nieuwsma
Subject: FW: Emailing - MDU HESKETT FIELD LETTER FEB 17.pdf

Hi Wade,

Could you amend report S1702326-007 to change the sample date from 2/23/17 to 2/24/17, please? Also, the consultant for this site also wanted to have you check on the results for S1702326-006. It is the duplicate of sample S1702326-008 and she believes that the values were significantly different.

Let me know what you find out.

Thanks!

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

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

Report Date: 22 Mar 17
Lab Number: 17-W497
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 13:11
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW101

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.70	units	NA	SM 4500 H+ B	23 Feb 17 13:11	JSM
Temperature - Field	6.00	Degrees C	NA	SM 2550B	23 Feb 17 13:11	JSM
Conductivity - Field	4772	umhos/cm	1	EPA 120.1	23 Feb 17 13:11	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll cc 27 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 22 Mar 17
Lab Number: 17-W498
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 9:36
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW102

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.86	units	NA	SM 4500 H+ B	23 Feb 17 9:36	JSM
Temperature - Field	6.35	Degrees C	NA	SM 2550B	23 Feb 17 9:36	JSM
Conductivity - Field	9857	umhos/cm	1	EPA 120.1	23 Feb 17 9:36	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 27 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 22 Mar 17
Lab Number: 17-W499
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 16:38
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW105

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.73	units	NA	SM 4500 H+ B	23 Feb 17 16:38	JSM
Temperature - Field	6.68	Degrees C	NA	SM 2550B	23 Feb 17 16:38	JSM
Conductivity - Field	8258	umhos/cm	1	EPA 120.1	23 Feb 17 16:38	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 27 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 22 Mar 17
Lab Number: 17-W500
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 11:22
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW70

Event and Year: Feb 2017

Temp at Receipt: 10.4C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.98	units	NA	SM 4500 H+ B	23 Feb 17 11:22	JSM
Temperature - Field	7.80	Degrees C	NA	SM 2550B	23 Feb 17 11:22	JSM
Conductivity - Field	3515	umhos/cm	1	EPA 120.1	23 Feb 17 11:22	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 27 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 22 Mar 17
Lab Number: 17-W501
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 13:32
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: MW80R

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	7.12	units	NA	SM 4500 H+ B	23 Feb 17 13:32	JSM
Temperature - Field	5.68	Degrees C	NA	SM 2550B	23 Feb 17 13:32	JSM
Conductivity - Field	5852	umhos/cm	1	EPA 120.1	23 Feb 17 13:32	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 22 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 19 May 17 (Radiochem)

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

Report Date: 22 Mar 17
Lab Number: 17-W502
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17 15:28
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW3-90

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.86	units	NA	SM 4500 H+ B	23 Feb 17 15:28	JSM
Temperature - Field	5.71	Degrees C	NA	SM 2550B	23 Feb 17 15:28	JSM
Conductivity - Field	4850	umhos/cm	1	EPA 120.1	23 Feb 17 15:28	JSM
Radium 226	See Attached Report				9 May 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll 19 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 18 Apr 17 (Sample Date)

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

Report Date: 22 Mar 17
Lab Number: 17-W503
Work Order #:82-0448
Account #: 002800
Date Sampled: 24 Feb 17 9:27
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: MW33

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH - Field	6.53	units	NA	SM 4500 H+ B	23 Feb 17 9:27	JSM
Temperature - Field	7.88	Degrees C	NA	SM 2550B	23 Feb 17 9:27	JSM
Conductivity - Field	5234	umhos/cm	1	EPA 120.1	23 Feb 17 9:27	JSM
Radium 226	See Attached Report				20 Mar 17	OL
Radium 228	See Attached Report				16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 24 Apr 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Amended 19 May 17 (Radiochem)

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

Report Date: 22 Mar 17
Lab Number: 17-W504
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

Project Name: MDU Heskett
Sample Description: DUP 1

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			9 May 17	OL
Radium 228	See Attached Report			16 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll cc 19 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

MEMBER ACIL

Report Date: 22 Mar 17
Lab Number: 17-W505
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: DUP 2

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			20 Mar 17	OL
Radium 228	See Attached Report			17 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 1c 27 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Report Date: 22 Mar 17
Lab Number: 17-W506
Work Order #:82-0448
Account #: 002800
Date Sampled: 23 Feb 17
Date Received: 24 Feb 17 10:50
Sampled By: MVTL Field Services

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

Project Name: MDU Heskett
Sample Description: FB 2

Temp at Receipt: 10.4C

Event and Year: Feb 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			20 Mar 17	OL
Radium 228	See Attached Report			17 Mar 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 27MAR17

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

Your Environmental Monitoring Partner

Date: 5/25/2017

CLIENT: MVTL Laboratories, Inc.
Project: 201782-0448
Lab Order: S1702326

CASE NARRATIVE

Report ID: S1702326004
(Replaces S1702326003)

Samples 17-W497 MW101, 17-W498 MW102, 17-W499 MW105, 17-W500 MW70, 17-W501 MW80R, 17-W502 MW3-90, 17-W503 MW33, 17-W504 DUP1, 17-W505 DUP2, and 17-W506 FB2 were received on February 28, 2017.

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 S1702326002 replaces report S1702326001. The report limit was lowered for radium 226.

Report S1702326003 replaces report S1702326002. Samples S1702326-006 and S1702326-008 were reanalyzed.

Report S1702326004 replaces report S1702326003. There was a clerical error on the report format

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

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

ProjectName: 201782-0448
Lab ID: S1702326-001
ClientSample ID: 17-W497 MW101
COC: 201782-0448

Date Reported 5/25/2017
Report ID S1702326004
(Replaces S1702326003)

WorkOrder: S1702326
CollectionDate: 2/23/2017 1:11:00 PM
DateReceived: 2/28/2017 12:27:00 PM
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	03/20/2017 919	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/20/2017 919	MB
Radium 228	-1.2	pCi/L		1	Ga-Tech	03/16/2017 152	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	03/16/2017 152	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	5/25/2017
		Report ID	S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-002	**CollectionDate:**	2/23/2017 9:36:00 AM
ClientSample ID:	17-W498 MW102	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.16	pCi/L		0.2	SM 7500 Ra-B	03/20/2017 919	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/20/2017 919	MB
Radium 228	1.4	pCi/L		1	Ga-Tech	03/16/2017 458	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	03/16/2017 458	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/25/2017 S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-003	**CollectionDate:**	2/23/2017 4:38:00 PM
ClientSample ID:	17-W499 MW105	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**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	03/20/2017 919	MB
Radium 226 Precision (±)	0.05	pCi/L			SM 7500 Ra-B	03/20/2017 919	MB
Radium 228	-1.9	pCi/L		1	Ga-Tech	03/16/2017 803	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	03/16/2017 803	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	5/25/2017
		Report ID	S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-004	**CollectionDate:**	2/23/2017 11:22:00 AM
ClientSample ID:	17-W500 MW70	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**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	03/20/2017 919	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/20/2017 919	MB
Radium 228	6.0	pCi/L		1	Ga-Tech	03/16/2017 1107	MB
Radium 228 Precision (±)	1.2	pCi/L			Ga-Tech	03/16/2017 1107	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

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

ProjectName: 201782-0448
Lab ID: S1702326-005
ClientSample ID: 17-W501 MW80R
COC: 201782-0448

Date Reported 5/25/2017
Report ID S1702326004
(Replaces S1702326003)

WorkOrder: S1702326
CollectionDate: 2/23/2017 1:32:00 PM
DateReceived: 2/28/2017 12:27:00 PM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.02	pCi/L		0.2	SM 7500 Ra-B	03/20/2017 1131	MB
Radium 226 Precision (±)	0.03	pCi/L			SM 7500 Ra-B	03/20/2017 1131	MB
Radium 228	0.9	pCi/L		1	Ga-Tech	03/16/2017 1411	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/16/2017 1411	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/25/2017 S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-006	**CollectionDate:**	2/23/2017 3:28:00 PM
ClientSample ID:	17-W502 MW3-90	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**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	05/09/2017 1452	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	05/09/2017 1452	MB
Radium 228	-1.4	pCi/L		1	Ga-Tech	03/16/2017 1715	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/16/2017 1715	MB

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

Qualifiers:

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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/25/2017 S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-007	**CollectionDate:**	2/24/2017 9:27:00 AM
ClientSample ID:	17-W503 MW33	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.15	pCi/L		0.2	SM 7500 Ra-B	03/20/2017 1131	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/20/2017 1131	MB
Radium 228	0.3	pCi/L		1	Ga-Tech	03/16/2017 2020	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/16/2017 2020	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/25/2017 S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-008	**CollectionDate:**	2/23/2017
ClientSample ID:	17-W504 DUP1	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.01	pCi/L		0.2	SM 7500 Ra-B	05/09/2017 1452	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	05/09/2017 1452	MB
Radium 228	-1.5	pCi/L		1	Ga-Tech	03/16/2017 2325	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/16/2017 2325	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

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

ProjectName: 201782-0448
Lab ID: S1702326-009
ClientSample ID: 17-W505 DUP2
COC: 201782-0448

Date Reported 5/25/2017
Report ID S1702326004
(Replaces S1702326003)

WorkOrder: S1702326
CollectionDate: 2/23/2017
DateReceived: 2/28/2017 12:27:00 PM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.8	pCi/L		0.2	SM 7500 Ra-B	03/20/2017 1131	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/20/2017 1131	MB
Radium 228	1.8	pCi/L		1	Ga-Tech	03/17/2017 230	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	03/17/2017 230	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- 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
- C Calculated Value
- G Analyzed at IML Gillette laboratory
- 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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/25/2017 S1702326004 (Replaces S1702326003)
ProjectName:	201782-0448	**WorkOrder:**	S1702326
Lab ID:	S1702326-010	**CollectionDate:**	2/23/2017
ClientSample ID:	17-W506 FB2	**DateReceived:**	2/28/2017 12:27:00 PM
COC:	201782-0448	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	-0.01	pCi/L		0.2	SM 7500 Ra-B	03/20/2017 1131	MB
Radium 226 Precision (±)	0.03	pCi/L			SM 7500 Ra-B	03/20/2017 1131	MB
Radium 228	-1.7	pCi/L		1	Ga-Tech	03/17/2017 535	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	03/17/2017 535	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
G	Analyzed at IML Gillette laboratory
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1702326
Project: 201782-0448

Date: 5/25/2017
Report ID: S1702326004
(Replaces S1702326003)

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

MB-422 (03/14/17 16:01) RunNo: 143940 PrepDate: 03/08/17 12:00 BatchID 12935

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-422 (03/14/17 19:05) RunNo: 143940 PrepDate: 03/08/17 12:00 BatchID 12935

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	36	1	40.1		89.7	65.9 - 132	

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

MS-422 (03/15/17 01:15) RunNo: 143940 PrepDate: 03/08/17 12:00 BatchID 12935

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	37	1	40.1	ND	93.0	65.9 - 132	

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

MSD-422 (03/15/17 04:20) RunNo: 143940 PrepDate: 03/08/17 12:00 BatchID 12935

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	43	1	37	13.5	106	20	

Qualifiers:

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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1702326
Project: 201782-0448

Date: 5/25/2017
Report ID: S1702326004
(Replaces S1702326003)

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

MB-1726 (03/20/17 09:18)	RunNo: 143948	PrepDate: 03/13/17 0:00			BatchID 12943		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

MB-1747 (05/09/17 14:52)	RunNo: 145696	PrepDate: 05/03/17 0:00			BatchID 13144		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

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

LCS-1726 (03/20/17 09:18)	RunNo: 143948	PrepDate: 03/13/17 0:00			BatchID 12943		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	5.7	0.2	5.89		96.2	67.1 - 122	

LCS-1747 (05/09/17 14:52)	RunNo: 145696	PrepDate: 05/03/17 0:00			BatchID 13144		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	5.9	0.2	6.41		91.2	67.1 - 122	

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

LCSD-1726 (03/20/17 09:18)	RunNo: 143948	PrepDate: 03/13/17 0:00			BatchID 12943		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.4	0.2	5.7	12.3	109	20	

LCSD-1747 (05/09/17 14:52)	RunNo: 145696	PrepDate: 05/03/17 0:00			BatchID 13144		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.0	0.2	5.9	1.78	92.9	20	

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

S1702301-006AMS (03/20/17 09:19)	RunNo: 143948	PrepDate: 03/13/17 0:00			BatchID 12943		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	11.8	0.2	11.8	0.5	95.9	65 - 131	

S1704322-006AMS (05/09/17 14:52)	RunNo: 145696	PrepDate: 05/03/17 0:00			BatchID 13144		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	6.2	0.2	6.41	ND	96.8	65 - 131	

Qualifiers:

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

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

Chain of Custody Record

201782-0448

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 24-Feb-17
	Project Name/Number:	Purchase Order #: BL5802

Sample Information						Bottle Type						Analysis
S1702326 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W497	MW101	GW	23-Feb-17	1311		4					Ra226 & Ra228
002	17-W498	MW102	GW	23-Feb-17	936		4					Ra226 & Ra228
003	17-W499	MW105	GW	23-Feb-17	1638		4					Ra226 & Ra228
004	17-W500	MW70	GW	23-Feb-17	1122		4					Ra226 & Ra228
005	17-W501	MW80R	GW	23-Feb-17	1332		4					Ra226 & Ra228
006	17-W502	MW3-90	GW	23-Feb-17	1528		4					Ra226 & Ra228
007	17-W503	MW33	GW	24-Feb-17	927		4					Ra226 & Ra228
008	17-W504	DUP1	GW	23-Feb-17			4					Ra226 & Ra228
009	17-W505	DUP2	GW	23-Feb-17			4					Ra226 & Ra228
010	17-W506	FB2	GW	23-Feb-17			4					Ra226 & Ra228

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

3 coolers

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
A. Simonson	24-Feb-17	1700		Kathy Boyd	2.28.17	12:27	1.3
2.							2.3
							1.1

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW108
Sampling Personal:	Jeremy Mayo

Weather Conditions: Temp: 35 °F Wind: N @ 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	36.90	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	40.55	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	9	sec.
Recover:	51	sec.
PSI:	40	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	1216 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1311 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1221	6.60	4820	6.81	3.09	59.2	99.6	37.92	500	Clear
2	1226	6.70	4800	6.77	2.07	41.1	59.9	38.29	500	Clear
3	1231	6.21	4826	6.77	1.84	35.0	41.9	38.52	500	Clear
4	1236	6.80	4816	6.75	1.62	31.1	30.2	38.80	500	Clear
5	1241	6.30	4799	6.73	1.66	31.3	31.3	39.20	1000	Clear
6	1251	6.31	4772	6.73	1.46	32.5	14.9	39.30	500	Clear
7	1256	6.83	4767	6.74	1.50	32.6	10.6	39.41	500	Clear
8	1301	6.23	4784	6.76	1.54	33.9	8.23	39.45	500	Clear
9	1306	6.03	4804	6.80	1.72	37.0	7.22	39.46	500	Clear
10	1311	6.00	4772	6.70	1.79	39.4	7.33	39.48	500	Clear

Stabilized: (Yes) No

Total Volume Removed: 5500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW 102
Sampling Personal:	Jerry Flynn

Weather Conditions: Temp: 35 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	10.64	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	19.08	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	0901 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	0936 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	0906	6.07	9685	6.84	2.88	1.8	40.1	17.30	500	Clear
2	0911	6.20	9898	6.88	1.98	-23.3	35.1	17.48	500	Clear
3	0916	6.35	9910	6.86	1.78	-29.1	13.2	17.77	500	Clear
4	0921	6.47	9842	6.85	1.75	-29.9	9.69	17.91	500	Clear
5	0926	6.13	9948	6.90	1.85	-32.5	7.99	17.92	500	Clear
6	0931	6.43	9900	6.91	1.80	-35.3	7.80	18.06	500	Clear
7	0936	6.35	9857	6.86	1.86	-32.8	7.75	18.11	500	Clear
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 3500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: MDU Heskett

Event: 2017

Sample ID: mw 105

Sampling Personal: Darren Niesen

Weather Conditions: Temp: 30 °F Wind: N 10 Precip: Sunny / Partly Cloudy / **Cloudy** (circled)

Well Information

Well Locked?	Yes	No (circled)	
Well Labeled?	Yes (circled)	No	
Casing Straight?	Yes (circled)	No	
Grout Seal Intact?	Yes (circled)	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	12.21	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	21.24	ft	
Water Level After Sample:	12.51	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

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

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

Purge Date:	23Feb17	Time Purging Began:	1528 am/pm
Well Purged Dry?	Yes / No (circled)	Time Purged Dry:	— am/pm
Sample Date:	23Feb17	Time of Sampling:	1638 am/pm (pm circled)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	1533	6.33	7766	6.76	1.85	229.6	12.3	12.56	500	clear
2	1538	6.80	7845	6.74	1.45	221.5	9.60	12.45	500	clear
3	1548	6.85	8008	6.74	1.22	213.3	12.1	12.47	1000	clear
4	1608	6.69	8188	6.73	1.17	204.9	10.7	12.45	2000	clear
5	1628	6.71	8253	6.73	1.15	201.3	9.32	12.45	[illegible]	clear
6	1633	6.74	8257	6.73	1.13	199.8	9.42	12.45	500	clear
7	1638	6.68	8258	6.73	1.16	198.5	9.45	12.45	500	clear
8										
9										
10										

Stabilized: Yes (circled) No

Total Volume Removed: 7000 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW70
Sampling Personal:	Jerry Meyer

Weather Conditions: Temp: 35 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	19.34	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	22.80	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	6	sec.
Recover:	54	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	23 Feb 17	Time Purging Began:	1047 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1122 (am)/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1052	7.33	3941	6.99	1.41	133.1	0.67	21.08	500	Clear
2	1057	7.25	3906	6.95	1.19	131.1	0.35	21.39	500	Clear
3	1102	7.10	3887	6.96	1.24	124.9	0.30	21.55	500	Clear
4	1107	7.56	3828	6.97	1.02	121.7	0.40	21.80	500	Clear
5	1112	7.59	3717	6.98	0.99	117.1	0.32	22.00	500	Clear
6	1117	7.54	3653	6.98	0.98	114.5	0.27	22.16	500	Clear
7	1122	7.80	3515	6.98	0.97	113.0	0.41	22.24	500	Clear
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: MDU Heskett
Event: 2017
Sample ID: MW 80R
Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 32 °F Wind: NE 10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	14.27	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	19.30	ft
Water Level After Sample:	14.54	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

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

Purge Date:	23Feb17	Time Purging Began:	1307 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	23Feb17	Time of Sampling:	1332 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1312	6.89	5837	7.08	2.07	236.1	4.37	14.48	500	clear
2	1317	5.82	5849	7.10	1.25	232.2	4.48	14.50	500	clear
3	1322	5.63	5841	7.11	1.03	230.6	3.04	14.50	500	clear
4	1327	5.59	5854	7.12	1.01	229.1	2.98	14.50	500	clear
5	1332	5.68	5852	7.12	0.99	228.0	3.12	14.50	500	clear
6										
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	3-90
Sampling Personal:	Jerry Thayer

Weather Conditions: Temp: 30 °F Wind: N@5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

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

Casing Diameter:	2"
Water Level Before Purge:	16.05 ft
Total Well Depth:	ft
Well Volume:	liters
Depth to Top of Pump:	ft
Water Level After Sample:	16.20 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

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

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

Purge Date:	23 Feb 17	Time Purging Began:	1503 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	23 Feb 17	Time of Sampling:	1528 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ #	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, slightly turbid, turbid
1	1508	5.74	4888	6.81	2.02	-114.2	1.73	16.20	500	clear
2	1513	5.68	4844	6.82	1.66	-122.0	1.45	16.18	500	clear
3	1518	5.67	4856	6.84	1.64	-129.7	1.08	16.15	500	clear
4	1523	5.69	4850	6.85	1.62	-132.9	0.84	16.14	500	clear
5	1528	5.71	4850	6.86	1.62	-132.0	0.79	16.13	500	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	MDU Heskett
Event:	2017
Sample ID:	MW33
Sampling Personal:	Dayton Nissen

Weather Conditions: Temp: 20 °F Wind: Light Precip: Sunny / Partly Cloudy / Cloudy

Well Information

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

Casing Diameter:	2"	
Water Level Before Purge:	41.26	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	44.50	ft
Water Level After Sample:	44.70	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

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

Control Settings		
Purge:	12	sec.
Recover:	45	sec.
PSI:	4.2	
Pumping Rate:	100	mL/min

Purge Date:	24 Feb 17	Time Purging Began:	0832 am/pm
Well Purged Dry?	Yes	~~No~~	Time Purged Dry: — am/pm
Sample Date:	24 Feb 17	Time of Sampling:	0927 ~~am~~/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
1	0837	6.49	5452	6.67	3.05	-13.6	48.1	41.48	500	Slightly Turbid
2	0842	7.29	5496	6.58	1.52	-19.6	97.1	41.58	500	ST
3	0847	7.64	5290	6.54	1.73	-22.3	15.1	41.58	2000	Clear
4	0912	7.88	5248	6.53	1.69	2.6	4.25	41.63	100	cl
5	0917	7.61	5243	6.53	1.65	2.9	2.22	41.59	500	cl
6	0922	8.02	5229	6.53	1.69	1.2	2.18	41.67	500	cl
7	0927	7.88	5234	6.53	1.65	5.9	2.03	41.63	500	cl
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 5500 mL

Comments:

* SW 24 Feb 17

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

Chain of Custody Record

Project Name: MDU Heskett	Event: Feb 2017	Work Order Number: ~~82-0048~~ 24FEB17 82-0448
Report To: MDU Attn: Samantha Marshall Address: 400 N. 4th St, Bismarck, ND 58501 phone: 701-222-7829 email:	Carbon Copy: Attn: Address:	Name of Sampler(s): Jeremy Meyer Darren Nieswaag

Lab Number	Sample ID	Date	Time	Sample Type		1 liter Nitric						Temp (°C)	Spec. Cond.	pH	Analysis Required
W497	MW 101	23feb17	1311	GW		4						6.00	4772	6.70	Rad 226 & Rad 228
W498	MW 102	23feb17	0936	GW		4						6.35	9857	6.86	
W499	MW 105	23feb17	1638	GW		4						6.68	8258	6.73	
~~W500~~ W500 (24FEB17)	MW 70	23feb17	1122	GW		4						7.80	3515	6.98	
W501	MW 80R	23feb17	1332	GW		4						5.68	5852	7.12	
W502	MW 3-90	23feb17	1528	GW		4						5.71	4850	6.86	
W503	MW 33	24feb17	0927	GW		4						7.88	5234	6.53	
W504	Dup 1	23feb17	—	GW		4						—	—	—	
W505	Dup 2	23feb17	—	GW		4						—	—	—	
W506	FB 2	23feb17	—	W		4						—	—	—	

Comments:

Relinquished By: Name	Date/Time	Sample Condition: Location	Temp (°C)
1 [signature]	24 Feb17 1050	Log In / Walk In #2	10.4 Ambient; TM562 / TM588
2			

Received by: Name	Date/Time
Angel Simonson [signature]	24FEB17 1050

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

CASE NARRATIVE – AMENDED 26 MAY 2016
(Dissolved selenium qualifier narration removed, dissolved selenium msd spike recovery narrated)

MVTL Lab Reference No/SDG: **201682-0831**

Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR 2nd Quarter 2016 Groundwater**

MVTL Laboratory Identifications: **16-W648** through **16-W652**
Page 1 of 2

MDU Sample Identification	MVTL Laboratory #
Dup1	16-W648
Field Blank (FB)	16-W649
MW13	16-W650
MW103	16-W651
MW44R	16-W652

I. RECEIPT

- All samples were received at the laboratory on 7 April 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 6.4°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

II. HOLDING TIMES

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

III. METHODS

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

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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

CASE NARRATIVE – AMENDED 26 MAY 2016
(Dissolved selenium qualifier narration removed, dissolved selenium msd spike recovery narrated)

MVTL Lab Reference No/SDG: **201682-0831**

Client: **Montana Dakota Utilities**
Location: **MDU Heskett Ash Site**
Project Identification: **CCR 2nd Quarter 2016 Groundwater**

MVTL Laboratory Identifications: **16-W648** through **16-W652**
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 here and/or flagged on the individual analytical laboratory report.
    - For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
    - One dissolved selenium matrix spike duplicate recovery was outside the acceptable limits. The matrix spike recovery was within limits and the RPD for the matrix spike and matrix spike duplicate samples was also within limits. No further action was taken.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 26 May 16
Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 16-W648 to 16-W652 **Project:** CCR Groundwater/2nd Qtr 2016 **Work Order:** 201682-0831

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	105	80-120	0.100	16-W599QC	0.0043	0.1054	101	75-125	0.1054	0.1104	106	4.6	20	-	-	< 0.001
				0.100	16-W702QC	< 0.001	0.1043	104	75-125	0.1043	0.1096	110	5.0	20	-	-	
Antimony - Total mg/l	0.1000	108	80-120	0.400	16-W634QC	< 0.001	0.4002	100	75-125	0.4002	0.4102	103	2.5	20	-	-	< 0.001
				0.400	16-W648QC	< 0.001	0.4194	105	75-125	0.4194	0.4202	105	0.2	20	-	-	
				0.100	16-W659QC	< 0.001	0.1066	107	75-125	0.1066	0.1066	107	0.0	20	-	-	
Arsenic - Dissolved mg/l	0.1000	107	80-120	0.100	16-W599QC	0.0040	0.1087	105	75-125	0.1087	0.1108	107	1.9	20	-	-	< 0.002
				0.100	16-W702QC	< 0.002	0.1138	114	75-125	0.1138	0.1114	111	2.1	20	-	-	
Arsenic - Total mg/l	0.1000	109	80-120	0.400	16-W634QC	< 0.002	0.4506	113	75-125	0.4506	0.4266	107	5.5	20	-	-	< 0.002
				0.400	16-W648QC	< 0.002	0.4412	110	75-125	0.4412	0.4262	107	3.5	20	-	-	
				0.100	16-W659QC	< 0.002	0.1088	109	75-125	0.1088	0.1079	108	0.8	20	-	-	
Barium - Dissolved mg/l	0.1000	110	80-120	0.100	16-W599QC	0.0220	0.1270	105	75-125	0.1270	0.1325	110	4.2	20	-	-	< 0.002
				0.100	16-W702QC	0.0315	0.1322	101	75-125	0.1322	0.1338	102	1.2	20	-	-	
Barium - Total mg/l	0.1000	107	80-120	0.400	16-W634QC	< 0.002	0.4194	105	75-125	0.4194	0.3958	99	5.8	20	-	-	< 0.002
				0.400	16-W648QC	0.0084	0.4506	111	75-125	0.4506	0.4534	111	0.6	20	-	-	
				0.100	16-W659QC	0.0896	0.1922	103	75-125	0.1922	0.1938	104	0.8	20	-	-	
Beryllium - Dissolved mg/l	0.1000	112	80-120	0.100	16-W599	< 0.001	0.1041	104	75-125	0.1041	0.1084	108	4.0	20	-	-	< 0.0005
				0.100	16-W702QC	< 0.001	0.1064	106	75-125	0.1064	0.1062	106	0.2	20	-	-	
Beryllium - Total mg/l	0.1000	103	80-120	0.400	16-W639	< 0.001	0.4100	102	75-125	0.4100	0.3964	99	3.4	20	-	-	< 0.0005
				0.400	16-W648	< 0.001	0.4228	106	75-125	0.4228	0.4230	106	0.0	20	-	-	
Boron - Dissolved mg/l	0.40	100	85-115	0.300	16-W639	1.76	1.99	77	75-125	1.99	2.00	80	0.5	20	-	-	< 0.1
															-	-	< 0.1
Boron - Total mg/l	0.40	100	80-120	0.400	16-W592	0.18	0.58	100	75-125	0.58	0.58	100	0.0	20	-	-	< 0.1
	0.40	100	80-120	0.400	16-W639	1.76	2.19	108	75-125	2.19	2.14	95	2.3	20	-	-	< 0.1
				0.600	16-W648	0.44	1.03	98	75-125	1.03	1.02	97	1.0	20	-	-	< 0.1
				0.600	16-W680	0.39	0.96	95	75-125	0.96	0.97	97	1.0	20	-	-	< 0.1
Cadmium - Dissolved mg/l	0.1000	108	80-120	0.100	16-W599QC	< 0.0005	0.1036	104	75-125	0.1036	0.1099	110	5.9	20	-	-	< 0.0005
				0.100	16-W702QC	< 0.0005	0.1070	107	75-125	0.1070	0.1112	111	3.8	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 16-W648 to 16-W652 **Project:** CCR Groundwater/2nd Qtr 2016 **Work Order:** 201682-0831

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 - Total mg/l	0.1000	110	80-120	0.400	16-W634QC	< 0.0005	0.4022	101	75-125	0.4022	0.4244	106	5.4	20	-	-	< 0.0005
				0.400	16-W648QC	< 0.0005	0.4218	105	75-125	0.4218	0.4298	107	1.9	20	-	-	
				0.100	16-W659QC	0.0010	0.1092	108	75-125	0.1092	0.1106	110	1.3	20	-	-	
Calcium - Dissolved mg/l	20.0	93	85-115	500	16-W651	479	895	83	75-125	895	900	84	0.6	20	-	-	< 1
															-	-	< 1
Calcium - Total mg/l	20.0	94	80-120	2000	16-M828	1730	3580	92	75-125	955	950	94	0.5	20	-	-	< 1
				500	16-W651	482	955	95	75-125						-	-	< 1
Chloride mg/l	30.0	98	80-120	30.0	16-W649	< 1	28.5	95	80-120	28.5	27.7	92	2.8	20	-	-	< 1
	30.0	98	80-120	30.0	16-W621	6.3	34.7	95	80-120	34.7	35.2	96	1.4	20	-	-	< 1
															-	-	< 1
Chromium - Dissolved mg/l	0.1000	102	80-120	0.100	16-W599QC	< 0.002	0.1008	101	75-125	0.1008	0.1042	104	3.3	20	-	-	< 0.002
	0.1000	102	80-120	0.100	16-W702QC	0.0087	0.1117	103	75-125	0.1117	0.1086	100	2.8	20	-	-	< 0.002
				0.100	16-W694QC	0.0025	0.1072	105	75-125	0.1072	0.1098	107	2.4	20	-	-	
				0.100	16-W695QC	0.0053	0.1080	103	75-125	0.1080	0.1095	104	1.4	20	-	-	
Chromium - Total mg/l	0.1000	104	80-120	0.400	16-W634QC	< 0.002	0.4120	103	75-125	0.4120	0.3970	99	3.7	20	-	-	< 0.002
				0.400	16-W648QC	0.0024	0.4160	103	75-125	0.4160	0.4092	102	1.6	20	-	-	
				0.100	16-W659QC	0.0037	0.1010	97	75-125	0.1010	0.1054	102	4.3	20	-	-	
Cobalt - Dissolved mg/l	0.1000	101	80-120	0.100	16-W599QC	< 0.002	0.0988	99	75-125	0.0988	0.1023	102	3.5	20	-	-	< 0.002
				0.100	16-W702QC	< 0.002	0.1030	103	75-125	0.1030	0.1023	102	0.7	20	-	-	
Cobalt - Total mg/l	0.1000	108	80-120	0.400	16-W634QC	< 0.002	0.4192	105	75-125	0.4192	0.4062	102	3.1	20	-	-	< 0.002
				0.400	16-W648QC	< 0.002	0.4010	100	75-125	0.4010	0.4032	101	0.5	20	-	-	
				0.100	16-W659QC	< 0.002	0.1006	101	75-125	0.1006	0.1021	102	1.5	20	-	-	
Fluoride mg/l	0.50	104	90-110	0.500	16-W681	0.30	0.77	94	80-120	0.77	0.79	98	2.6	20	-	-	< 0.1
	0.50	104	90-110	0.500	16-W692	0.12	0.62	100	80-120	0.62	0.62	100	0.0	20	-	-	< 0.1
															-	-	< 0.1
Lead - Dissolved mg/l	0.1000	103	80-120	0.100	16-W599QC	< 0.0005	0.0968	97	75-125	0.0968	0.0966	97	0.2	20	-	-	< 0.0005
				0.100	16-W702QC	0.0006	0.0934	93	75-125	0.0934	0.0936	93	0.2	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 16-W648 to 16-W652 **Project:** CCR Groundwater/2nd Qtr 2016 **Work Order:** 201682-0831

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 - Total mg/l	0.1000	101	80-120	0.400	16-W634QC	< 0.0005	0.4100	102	75-125	0.4100	0.3938	98	4.0	20	-	-	< 0.0005
				0.400	16-W648QC	< 0.0005	0.3990	100	75-125	0.3990	0.4000	100	0.3	20	-	-	
				0.100	16-W659QC	0.0023	0.0984	96	75-125	0.0984	0.0999	98	1.5	20	-	-	
Lithium - Dissolved mg/l	0.40	110	85-115	0.400	16-W639	0.10	0.57	118	75-125	0.57	0.57	118	0.0	20	-	-	< 0.1
	0.40	110	85-115	0.400	16-W683	0.33	0.77	110	75-125	0.77	0.77	110	0.0	20	-	-	< 0.1
															-	-	< 0.1
Lithium - Total mg/l	0.40	115	85-115	0.400	16-W639	0.10	0.56	115	75-125	0.56	0.54	110	3.6	20	-	-	< 0.1
				2.00	16-W648	1.44	3.58	107	75-125	3.58	3.56	106	0.6	20	-	-	< 0.1
				2.00	16-W680	1.02	3.34	116	75-125	3.34	3.25	112	2.7	20	-	-	
Magnesium - Dissolved mg/l	20.0	102	80-120	500	16-W651	435	880	89	75-125	880	885	90	0.6	20	-	-	< 1
															-	-	< 1
Magnesium - Total mg/l	20.0	104	80-120	2000	16-M828	< 20	2040	102	75-125	935	930	98	0.5	20	-	-	< 1
				500	16-W651	438	935	99	75-125						-	-	< 1
Mercury - Dissolved mg/l	0.0020	90	85-115	0.002	16-W683	< 0.0002	0.0018	90	70-130	0.0018	0.0018	90	0.0	20	-	-	< 0.0002
Mercury - Total mg/l	0.0020	95	85-115	0.002	16-W621	< 0.0002	0.0019	95	70-130	0.0019	0.0018	90	5.4	20	-	-	< 0.0002
	0.0020	95	85-115	0.002	16-D1386	< 0.0002	0.0017	85	70-130	0.0017	0.0017	85	0.0	20	-	-	< 0.0002
				0.002	16-W649	< 0.0002	0.0018	90	70-130	0.0018	0.0018	90	0.0	20	-	-	
				0.002	16-W690	< 0.0002	0.0018	90	70-130	0.0018	0.0017	85	5.7	20	-	-	
Molybdenum - Dissolved mg/l	0.1000	89	80-120	0.100	16-W599QC	0.0187	0.1062	88	75-125	0.1062	0.1157	97	8.6	20	-	-	< 0.002
	0.1000	89	80-120	0.100	16-W702QC	0.0036	0.0922	89	75-125	0.0922	0.1003	97	8.4	20	-	-	< 0.002
				0.100	16-W694QC	< 0.002	0.0948	95	75-125	0.0948	0.1016	102	6.9	20	-	-	
				0.100	16-W695QC	< 0.002	0.0942	94	75-125	0.0942	0.0996	100	5.6	20	-	-	
Molybdenum - Total mg/l	0.1000	90	80-120	0.400	16-W634QC	0.0035	0.3076	76	75-125	0.3076	0.3280	81	6.4	20	-	-	< 0.002
				0.400	16-W648QC	< 0.002	0.3324	83	75-125	0.3324	0.3560	89	6.9	20	-	-	
				0.100	16-W659QC	0.0025	0.0950	92	75-125	0.0950	0.1012	99	6.3	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	8.2	7.9	-	3.7	20	-	-	-
Potassium - Dissolved mg/l	10.0	89	85-115	100	16-W651	18.8	113	94	75-125	113	114	95	0.9	20	-	-	< 1
															-	-	< 1

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab IDs: 16-W648 to 16-W652 **Project:** CCR Groundwater/2nd Qtr 2016 **Work Order:** 201682-0831

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
Potassium - Total mg/l	10.0	92	80-120	400 100	16-M828 16-W651	456 18.4	880 118	106 100	75-125 75-125	118	118	100	0.0	20	- -	- -	< 1 < 1
Selenium - Dissolved mg/l	0.1000 0.1000	113 106	80-120 80-120	0.100 0.100 0.400	16-W599 16-W702 16-W799QC	0.0717 < 0.002 < 0.002	0.1950 0.1186 0.4370	123 119 109	75-125 75-125 75-125	0.1950 0.1186 0.4370	0.2006 0.1204 0.4094	129 120 102	2.8 1.5 6.5	20 20 20	- - -	- - -	< 0.002 < 0.002
Selenium - Total mg/l	0.1000 0.1000	114 119	80-120 80-120	0.400 0.400 0.100 0.400 0.400 0.100	16-W639 16-W648 16-W659 16-W680 16-W692 16-W704	0.0976 0.0802 < 0.002 0.0066 0.1326 < 0.002	0.5830 0.5804 0.1144 0.4782 0.6122 0.1198	121 125 114 118 120 120	75-125 75-125 75-125 75-125 75-125 75-125	0.5830 0.5804 0.1144 0.4782 0.6122 0.1198	0.5424 0.5738 0.1172 0.4790 0.6064 0.1186	111 123 117 118 118 119	7.2 1.1 2.4 0.2 1.0 1.0	20 20 20 20 20 20	- - - - - -	- - - - - -	< 0.002 < 0.002
Sodium - Dissolved mg/l	20.0	106	85-115	500	16-W651	258	705	89	75-125	705	705	89	0.0	20	- -	- -	< 1 < 1
Sodium - Total mg/l	20.0	102	80-120	2000 500	16-M828 16-W651	5380 232	7220 715	92 97	75-125 75-125	715	720	98	0.7	20	- -	- -	< 1 < 1
Sulfate mg/l	100	103	90-110	100	16-W649	< 5	100	100	80-120	100	99.9	100	0.1	20	-	-	< 5
Thallium - Dissolved mg/l	0.1000	101	80-120	0.100 0.100	16-W599QC 16-W702QC	< 0.0005 < 0.0005	0.0986 0.0962	99 96	75-125 75-125	0.0986 0.0962	0.1000 0.0969	100 97	1.4 0.7	20 20	- -	- -	< 0.0005
Thallium - Total mg/l	0.1000	101	80-120	0.400 0.400 0.100	16-W634QC 16-W648QC 16-W659QC	0.0010 < 0.0005 < 0.0005	0.3772 0.3686 0.1012	94 92 101	75-125 75-125 75-125	0.3772 0.3686 0.1012	0.3740 0.3732 0.1006	93 93 101	0.9 1.2 0.6	20 20 20	- - -	- - -	< 0.0005
Total Alkalinity mg/l CaCO3	410 410	94 92	90-110 90-110	410	16-W648	413	783	90	80-120	783	779	89	0.5	20	100	80-120	< 20 < 20
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	7750	7640	-	1.4	20	-	-	< 5
Total Suspended Solids mg/l	-	-	-	-	-	-	-	-	-	18	19	-	5.4	20	-	-	< 1

Approved by: CamPO
2 May 16

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

Report Date: 2 May 16
Lab Number: 16-W648
Work Order #:82-0831
Account #: 002800
Date Sampled: 6 Apr 16
Date Received: 7 Apr 16 8:00
Sampled By: MVTL Field Services

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

Project Name: CCR Groundwater/2nd Qtr 2016

PO #: 160249 OP

Sample Description: Dup 1
Sample Site: MDU Heskett

Temp at Receipt: 6.4C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 Apr 16	KMD
pH	* 7.0	units	N/A	SM4500 H+ B	7 Apr 16 17:00	CC
Total Suspended Solids	19	mg/l	1	I3765-85	7 Apr 16 15:24	MF
Total Alkalinity	413	mg/l CaCO3	20	SM2320-B	7 Apr 16 17:00	CC
Fluoride	0.68	mg/l	0.10	SM4500-F-C	10 Apr 16 9:30	CC
Sulfate	5770	mg/l	5.00	ASTM D516-07	14 Apr 16 9:51	EMS
Chloride	238	mg/l	1.0	SM4500-Cl-E	7 Apr 16 11:08	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	12 Apr 16 11:28	EV
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	12 Apr 16 13:10	EV
Total Dissolved Solids	8050	mg/l	5	I1750-85	12 Apr 16 11:10	ML
Calcium - Total	376	mg/l	1.0	6010	8 Apr 16 14:05	KMD
Magnesium - Total	960	mg/l	1.0	6010	8 Apr 16 14:05	KMD
Sodium - Total	990	mg/l	1.0	6010	8 Apr 16 14:05	KMD
Potassium - Total	32.6	mg/l	1.0	6010	8 Apr 16 14:05	KMD
Lithium - Total	1.44	mg/l	0.10	6010	15 Apr 16 10:00	KMD
Boron - Total	0.44	mg/l	0.10	6010	12 Apr 16 13:04	KMD
Calcium - Dissolved	377	mg/l	1.0	6010	8 Apr 16 15:05	KMD
Magnesium - Dissolved	905	mg/l	1.0	6010	8 Apr 16 15:05	KMD
Sodium - Dissolved	925	mg/l	1.0	6010	8 Apr 16 15:05	KMD
Potassium - Dissolved	30.1	mg/l	1.0	6010	8 Apr 16 15:05	KMD
Lithium - Dissolved	1.42	mg/l	0.10	6010	15 Apr 16 11:00	KMD
Boron - Dissolved	0.41	mg/l	0.10	6010	12 Apr 16 16:04	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	9 Apr 16 11:15	KMD
Arsenic - Total	< 0.005 ^	mg/l	0.0020	6020	9 Apr 16 11:15	KMD
Barium - Total	0.0084	mg/l	0.0020	6020	9 Apr 16 11:15	KMD
Beryllium - Total	< 0.001 ^	mg/l	0.0005	6020	10 Apr 16 9:10	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	9 Apr 16 11:15	KMD
Chromium - Total	< 0.005 ^	mg/l	0.0020	6020	9 Apr 16 11:15	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	9 Apr 16 11:15	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	9 Apr 16 11:15	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	9 Apr 16 11:15	KMD
Selenium - Total	0.0802	mg/l	0.0020	6020	9 Apr 16 20:30	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	9 Apr 16 11:15	KMD
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020	9 Apr 16 13:00	KMD
Arsenic - Dissolved	< 0.005 ^	mg/l	0.0020	6020	9 Apr 16 13:00	KMD
Barium - Dissolved	0.0065	mg/l	0.0020	6020	9 Apr 16 13:00	KMD
Beryllium - Dissolved	< 0.001 ^	mg/l	0.0005	6020	10 Apr 16 10:22	CC

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless 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 publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.