

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 58501 ~ 800-279-6885 ~ Fax 701-258-9724

51 W. Lincoln Way ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885

MEMBER
ACIL

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AN EQUAL OPPORTUNITY EMPLOYER

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Amended 23Jun21 (Dis Phosphorus)

Barry Botnen
UND-Energy & Environmental
15 N. 23rd St.
Grand Forks ND 58201

Report Date: 21 Jun 21
Lab Number: 21-W1550
Work Order #: 82-1301
Account #: 007033
Date Sampled: 3 Jun 21 12:35
Date Received: 3 Jun 21 13:54
Sampled By: MVTL Field Services

Project Name: Center USGS Well

PO #: B. Botnen

Sample Description: USGS Well

Temp at Receipt: 14.5C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	3 Jun 21	RAA
pH - Field	8.44	units	NA	SM 4500 H+ B	3 Jun 21 12:35	JSM
Temperature - Field	15.0	Degrees C	NA	SM 2550B	3 Jun 21 12:35	JSM
Total Alkalinity	969	mg/l CaCO3	20	SM2320B-11	3 Jun 21 18:00	RAA
Phenolphthalein Alk	32	mg/l CaCO3	20	SM2320B-11	3 Jun 21 18:00	RAA
Bicarbonate	905	mg/l CaCO3	20	SM2320B-11	3 Jun 21 18:00	RAA
Carbonate	64	mg/l CaCO3	20	SM2320B-11	3 Jun 21 18:00	RAA
Hydroxide	< 20	mg/l CaCO3	20	SM2320B-11	3 Jun 21 18:00	RAA
Conductivity - Field	2639	umhos/cm	1	EPA 120.1	3 Jun 21 12:35	JSM
Tot Dis Solids(Summation)	1590	mg/l	12.5	SM1030-F	10 Jun 21 14:29	Calculated
Cation Summation	26.6	meq/L	NA	SM1030-F	8 Jun 21 11:41	Calculated
Anion Summation	29.0	meq/L	NA	SM1030-F	10 Jun 21 14:29	Calculated
Percent Error	-4.43	%	NA	SM1030-F	10 Jun 21 14:29	Calculated
Bromide	2.71	mg/l	0.100	EPA 300.0	9 Jun 21 18:32	RMV
Total Organic Carbon	1.2	mg/l	0.5	SM5310C-11	4 Jun 21 23:58	NAS
Dissolved Organic Carbon	1.2	mg/l	0.5	SM5310C-96	4 Jun 21 23:58	NAS
Fluoride	3.69	mg/l	0.10	SM4500-F-C	3 Jun 21 18:00	RAA
Sulfate	< 5	mg/l	5.00	ASTM D516-11	7 Jun 21 11:16	SD
Chloride	342	mg/l	2.0	SM4500-Cl-E-11	7 Jun 21 14:59	SD
Nitrate-Nitrite as N	< 0.2	mg/l	0.20	EPA 353.2	10 Jun 21 14:29	SD
Nitrite as N	< 0.2	mg/l	0.20	EPA 353.2	4 Jun 21 12:20	EV
Phosphorus as P - Total	< 0.2	mg/l	0.20	EPA 365.1	11 Jun 21 9:10	SD
Phosphorus as P-Dissolved	< 0.2	mg/l	0.20	EPA 365.1	25 Jun 21 8:49	SD

RL = Method Reporting Limit

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

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

CERTIFICATION: ND # ND-00016

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PO #: B. Botnen

Sample Description: USGS Well

Temp at Receipt: 14.5C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	11 Jun 21 13:02	MDE
Mercury - Dissolved	< 0.0002	mg/l	0.0002	EPA 245.1	11 Jun 21 13:02	MDE
Total Dissolved Solids	1660	mg/l	10	USGS I1750-85	4 Jun 21 8:50	RAA
Calcium - Total	3.6	mg/l	1.0	6010D	8 Jun 21 11:41	MDE
Magnesium - Total	< 1	mg/l	1.0	6010D	8 Jun 21 11:41	MDE
Sodium - Total	660	mg/l	1.0	6010D	8 Jun 21 11:41	MDE
Potassium - Total	2.7	mg/l	1.0	6010D	8 Jun 21 11:41	MDE
Lithium - Total	0.100	mg/l	0.020	6010D	14 Jun 21 10:31	MDE
Aluminum - Total	< 0.1	mg/l	0.10	6010D	11 Jun 21 10:06	SZ
Iron - Total	0.34	mg/l	0.10	6010D	7 Jun 21 15:02	MDE
Silicon - Total	5.00	mg/l	0.10	6010D	8 Jun 21 8:50	SZ
Strontium - Total	0.14	mg/l	0.10	6010D	7 Jun 21 15:02	MDE
Zinc - Total	< 0.05	mg/l	0.05	6010D	7 Jun 21 15:02	MDE
Boron - Total	2.83	mg/l	0.10	6010D	8 Jun 21 14:13	MDE
Calcium - Dissolved	3.4	mg/l	1.0	6010D	4 Jun 21 16:32	SZ
Magnesium - Dissolved	< 1	mg/l	1.0	6010D	4 Jun 21 16:32	SZ
Sodium - Dissolved	605	mg/l	1.0	6010D	4 Jun 21 16:32	SZ
Potassium - Dissolved	2.9	mg/l	1.0	6010D	4 Jun 21 16:32	SZ
Lithium - Dissolved	0.101	mg/l	0.020	6010D	14 Jun 21 10:31	MDE
Aluminum - Dissolved	< 0.1	mg/l	0.10	6010D	4 Jun 21 13:57	MDE
Iron - Dissolved	0.17	mg/l	0.10	6010D	4 Jun 21 13:57	MDE
Silicon - Dissolved	4.79	mg/l	0.10	6010D	8 Jun 21 8:50	SZ
Strontium - Dissolved	0.15	mg/l	0.10	6010D	4 Jun 21 13:57	MDE

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PO #: B. Botnen

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Temp at Receipt: 14.5C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Zinc - Dissolved	< 0.05	mg/l	0.05	6010D	4 Jun 21 13:57	MDE
Boron - Dissolved	3.10	mg/l	0.10	6010D	8 Jun 21 14:13	MDE
Antimony - Total	< 0.001	mg/l	0.0010	6020B	8 Jun 21 12:11	MDE
Arsenic - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Barium - Total	0.0926	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Beryllium - Total	< 0.0005	mg/l	0.0005	6020B	8 Jun 21 12:11	MDE
Cadmium - Total	< 0.0005	mg/l	0.0005	6020B	8 Jun 21 12:11	MDE
Chromium - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Cobalt - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Copper - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Lead - Total	0.0009	mg/l	0.0005	6020B	8 Jun 21 12:11	MDE
Manganese - Total	0.0066	mg/l	0.0020	6020B	17 Jun 21 14:51	MDE
Molybdenum - Total	0.0050	mg/l	0.0020	6020B	17 Jun 21 14:51	MDE
Nickel - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Selenium - Total	< 0.005	mg/l	0.0050	6020B	8 Jun 21 12:11	MDE
Silver - Total	< 0.0005	mg/l	0.0005	6020B	8 Jun 21 12:11	MDE
Thallium - Total	< 0.0005	mg/l	0.0005	6020B	8 Jun 21 12:11	MDE
Vanadium - Total	< 0.002	mg/l	0.0020	6020B	8 Jun 21 12:11	MDE
Antimony - Dissolved	< 0.001	mg/l	0.0010	6020B	4 Jun 21 18:26	MDE
Arsenic - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Barium - Dissolved	0.0863	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Beryllium - Dissolved	< 0.0005	mg/l	0.0005	6020B	4 Jun 21 18:26	MDE
Cadmium - Dissolved	< 0.0005	mg/l	0.0005	6020B	4 Jun 21 18:26	MDE

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PO #: B. Botnen

Sample Description: USGS Well

Temp at Receipt: 14.5C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Chromium - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Cobalt - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Copper - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Lead - Dissolved	< 0.0005	mg/l	0.0005	6020B	4 Jun 21 18:26	MDE
Manganese - Dissolved	0.0044	mg/l	0.0020	6020B	17 Jun 21 15:48	MDE
Molybdenum - Dissolved	0.0048	mg/l	0.0020	6020B	17 Jun 21 15:48	MDE
Nickel - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE
Selenium - Dissolved	< 0.005	mg/l	0.0050	6020B	4 Jun 21 18:26	MDE
Silver - Dissolved	< 0.002 ^	mg/l	0.0005	6020B	4 Jun 21 18:26	MDE
Thallium - Dissolved	< 0.0005	mg/l	0.0005	6020B	4 Jun 21 18:26	MDE
Vanadium - Dissolved	< 0.002	mg/l	0.0020	6020B	4 Jun 21 18:26	MDE

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

Approved by:

Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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