



Midwest Laboratories
13611 B Street
Omaha, NE 68144
P 402-334-7770
F 402-334-9121
www.midwestlabs.com

17 March 2022

Work Order: 1581038

DAVID SCHILLINGER
CITY OF LARAMIE WWTP - 34024
PO BOX C
LARAMIE, WY 82073
RE: 503 Regs for Biosolids

Enclosed are the results of analyses for samples received by the laboratory on 2022-03-01 11:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerri Stanek". The signature is written in a cursive, flowing style.

Kerri Stanek
Project Manager
kstanek@midwestlabs.com



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
01	1581038-01	Solid	2022-02-28 14:00	2022-03-01 11:41
02	1581038-02	Solid	2022-02-28 14:00	2022-03-01 11:41
03	1581038-03	Solid	2022-02-28 14:00	2022-03-01 11:41
04	1581038-04	Solid	2022-02-28 14:00	2022-03-01 11:41

Containers used for the following analyses:

- 1581038-01 A: PAI-DK 01, SM 4500-NH3 C-1997
- 1581038-01 B: EPA 9045, SM 2540 G
- 1581038-01 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1581038-01 D: EPA 353.2
- 1581038-02 A: PAI-DK 01, SM 4500-NH3 C-1997
- 1581038-02 B: EPA 9045, SM 2540 G
- 1581038-02 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1581038-02 D: EPA 353.2
- 1581038-03 A: PAI-DK 01, SM 4500-NH3 C-1997
- 1581038-03 B: EPA 9045, SM 2540 G
- 1581038-03 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1581038-03 D: EPA 353.2
- 1581038-04 A: PAI-DK 01, SM 4500-NH3 C-1997
- 1581038-04 B: EPA 9045, SM 2540 G
- 1581038-04 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1581038-04 D: EPA 353.2



Midwest Laboratories
13611 B Street
Omaha, NE 68144
P 402-334-7770
F 402-334-9121
www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
PO BOX C
LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
2022-03-17 08:46

Analysis Results Reviewed by:

Total Metals per EPA 6010B reviewed by kkh9.

Total Metals per EPA 6020 reviewed by kkh9.

Total Metals per EPA 7471 reviewed by kkh9.

EPA 353.2 reviewed by mgn8.

EPA 9045 reviewed by mgn8.

PAI-DK 01 reviewed by mgn8.

SM 2540 G reviewed by mgn8.

SM 4500-NH3 C-1997 reviewed by mgn8.



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Sample ID: 01
 Laboratory ID: 1581038-01
 Sampled Date/Time: 2022-02-28 14:00

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
Total Metals									
Arsenic	4.4	0.002	mg/kg dry	3.5 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Barium	142.7	0.1	mg/kg dry	112.2 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Cadmium	1.1	0.2	mg/kg dry	0.9 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Calcium	34430	12.3	mg/kg dry	27070 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Chromium	11.4	0.7	mg/kg dry	9.0 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Copper	123.0	0.4	mg/kg dry	96.7 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Iron	8810	3.1	mg/kg dry	6927 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Lead	12.8	1.6	mg/kg dry	10.1 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Magnesium	6230	3.0	mg/kg dry	4899 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Manganese	219.3	0.2	mg/kg dry	172.4 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Mercury	0.17	0.0007	mg/kg dry	0.13 mg/kg	EPA 7471	2022-03-03	2022-03-04	mrs3	(C)
Molybdenum	1.9	0.3	mg/kg dry	1.5 mg/kg	EPA 6010B	2022-03-10	2022-03-10	ery3	(C)
Nickel	11.4	0.4	mg/kg dry	9.0 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Phosphate (P2O5)	9471	28.2	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Phosphorus	4136	1.7	mg/kg dry	3252 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Potash (K2O)	6739	14.8	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Potassium	5616	4.6	mg/kg dry	4416 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Selenium	3.1	0.01	mg/kg dry	2.5 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Silver	0.6	0.3	mg/kg dry	0.5 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)/ J
Sodium	465.1	2.1	mg/kg dry	365.7 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Sulfur	3396	2.1	mg/kg dry	2670 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Zinc	156.2	2.5	mg/kg dry	122.8 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Environmental Chemistry									
Ammonia as N	1400	63.6	mg/kg dry	1100 mg/kg	SM 4500-NH3 C-1997	2022-03-02	2022-03-02	cay6	(A)
Total Kjeldahl Nitrogen	11600	636	mg/kg dry	9150 mg/kg	PAI-DK 01	2022-03-03	2022-03-03	krq0	(A)
Nitrate/Nitrite Nitrogen	109	2.0	mg/kg dry	85.5 mg/kg	EPA 353.2	2022-03-02	2022-03-02	akn1	(D)
Organic Nitrogen	10200	636	mg/kg dry	mg/kg	Calculation	2022-03-03	2022-03-03	krq0	
pH @ 22.9°C			S.U.	8.00 S.U.	EPA 9045	2022-03-02	2022-03-02	drp0	(B)
Percent Solids		0.01	%	78.63 %	SM 2540 G	2022-03-01	2022-03-02	mmg9	(B)



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Sample ID: 02
 Laboratory ID: 1581038-02
 Sampled Date/Time: 2022-02-28 14:00

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
Total Metals									
Arsenic	3.7	0.002	mg/kg dry	3.1 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Barium	135.4	0.1	mg/kg dry	111.1 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Cadmium	1.0	0.2	mg/kg dry	0.8 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Calcium	30520	12.0	mg/kg dry	25040 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Chromium	11.2	0.7	mg/kg dry	9.2 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Copper	115.9	0.4	mg/kg dry	95.1 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Iron	8283	3.0	mg/kg dry	6796 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Lead	85.2	1.6	mg/kg dry	69.9 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Magnesium	6335	2.9	mg/kg dry	5198 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Manganese	204.3	0.2	mg/kg dry	167.6 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Mercury	0.11	0.001	mg/kg dry	0.09 mg/kg	EPA 7471	2022-03-03	2022-03-04	mrs3	(C)
Molybdenum	1.9	0.3	mg/kg dry	1.6 mg/kg	EPA 6010B	2022-03-10	2022-03-10	ery3	(C)
Nickel	11.5	0.4	mg/kg dry	9.5 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Phosphate (P2O5)	8194	27.6	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Phosphorus	3578	1.6	mg/kg dry	2936 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Potash (K2O)	6393	14.5	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Potassium	5327	4.5	mg/kg dry	4371 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Selenium	2.6	0.01	mg/kg dry	2.2 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Silver	0.5	0.3	mg/kg dry	0.4 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)/ J
Sodium	423.4	2.0	mg/kg dry	347.4 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Sulfur	3113	2.0	mg/kg dry	2554 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Zinc	157.1	2.4	mg/kg dry	128.9 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Environmental Chemistry									
Ammonia as N	1420	60.9	mg/kg dry	1160 mg/kg	SM 4500-NH3 C-1997	2022-03-02	2022-03-02	cay6	(A)
Total Kjeldahl Nitrogen	12500	609	mg/kg dry	10200 mg/kg	PAI-DK 01	2022-03-03	2022-03-03	krq0	(A)
Nitrate/Nitrite Nitrogen	106	2.0	mg/kg dry	87.1 mg/kg	EPA 353.2	2022-03-02	2022-03-02	akn1	(D)
Organic Nitrogen	11100	609	mg/kg dry	mg/kg	Calculation	2022-03-03	2022-03-03	krq0	
pH @ 22.8°C			S.U.	8.00 S.U.	EPA 9045	2022-03-02	2022-03-02	drp0	(B)
Percent Solids		0.01	%	82.05 %	SM 2540 G	2022-03-01	2022-03-02	mng9	(B)



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Sample ID: 03
Laboratory ID: 1581038-03
Sampled Date/Time: 2022-02-28 14:00

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
Total Metals									
Arsenic	3.6	0.002	mg/kg dry	3.0 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Barium	125.0	0.1	mg/kg dry	104.4 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Cadmium	1.0	0.2	mg/kg dry	0.9 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Calcium	27080	11.6	mg/kg dry	22620 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Chromium	10.9	0.7	mg/kg dry	9.1 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Copper	100.2	0.3	mg/kg dry	83.7 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Iron	8251	2.9	mg/kg dry	6892 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Lead	12.1	1.5	mg/kg dry	10.1 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Magnesium	6528	2.8	mg/kg dry	5453 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Manganese	201.8	0.2	mg/kg dry	168.6 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Mercury	0.09	0.0005	mg/kg dry	0.08 mg/kg	EPA 7471	2022-03-03	2022-03-04	mrs3	(C)
Molybdenum	2.0	0.3	mg/kg dry	1.7 mg/kg	EPA 6010B	2022-03-10	2022-03-10	ery3	(C)
Nickel	10.6	0.4	mg/kg dry	8.9 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Phosphate (P2O5)	7342	26.5	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Phosphorus	3206	1.6	mg/kg dry	2678 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Potash (K2O)	6221	13.9	mg/kg dry	mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Potassium	5184	4.4	mg/kg dry	4330 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Selenium	2.8	0.009	mg/kg dry	2.3 mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Silver	0.5	0.3	mg/kg dry	0.4 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)/ J
Sodium	406.4	1.9	mg/kg dry	339.5 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Sulfur	2906	2.0	mg/kg dry	2427 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Zinc	134.1	2.3	mg/kg dry	112.0 mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Environmental Chemistry									
Ammonia as N	1300	59.9	mg/kg dry	1090 mg/kg	SM 4500-NH3 C-1997	2022-03-02	2022-03-02	cay6	(A)
Total Kjeldahl Nitrogen	11500	599	mg/kg dry	9620 mg/kg	PAI-DK 01	2022-03-03	2022-03-03	krq0	(A)
Nitrate/Nitrite Nitrogen	106	2.0	mg/kg dry	88.8 mg/kg	EPA 353.2	2022-03-02	2022-03-02	akn1	(D)
Organic Nitrogen	10200	599	mg/kg dry	mg/kg	Calculation	2022-03-03	2022-03-03	krq0	
pH @ 22.9°C			S.U.	7.96 S.U.	EPA 9045	2022-03-02	2022-03-02	drp0	(B)
Percent Solids		0.01	%	83.53 %	SM 2540 G	2022-03-01	2022-03-02	mng9	(B)



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Sample ID: 04
 Laboratory ID: 1581038-04
 Sampled Date/Time: 2022-02-28 14:00

Analyte	Dry Weight		Reporting		As Received		Prepared	Analyzed	Analyst	(Container) / Notes
	Result	Limit	Units	Result	Method	Result				
Total Metals										
Arsenic	4.2	0.002	mg/kg dry	3.4	mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Barium	128.1	0.1	mg/kg dry	103.8	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Cadmium	1.0	0.2	mg/kg dry	0.8	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Calcium	34590	12.4	mg/kg dry	28020	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Chromium	11.3	0.7	mg/kg dry	9.1	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Copper	102.9	0.4	mg/kg dry	83.3	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Iron	7995	3.1	mg/kg dry	6476	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Lead	9.2	1.6	mg/kg dry	7.5	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Magnesium	6141	3.0	mg/kg dry	4974	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Manganese	199.3	0.2	mg/kg dry	161.4	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Mercury	0.13	0.0005	mg/kg dry	0.10	mg/kg	EPA 7471	2022-03-03	2022-03-04	mrs3	(C)
Molybdenum	1.7	0.3	mg/kg dry	1.4	mg/kg	EPA 6010B	2022-03-10	2022-03-10	ery3	(C)
Nickel	10.4	0.4	mg/kg dry	8.4	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Phosphate (P2O5)	7500	28.5	mg/kg dry		mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Phosphorus	3275	1.7	mg/kg dry	2653	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Potash (K2O)	6262	14.9	mg/kg dry		mg/kg	Calculation	2022-03-02	2022-03-02	ery3	
Potassium	5219	4.7	mg/kg dry	4227	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Selenium	2.8	0.01	mg/kg dry	2.3	mg/kg	EPA 6020	2022-03-02	2022-03-07	ras7	(C)
Silver	0.5	0.3	mg/kg dry	0.4	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)/ J
Sodium	436.8	2.1	mg/kg dry	353.8	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Sulfur	3088	2.1	mg/kg dry	2501	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Zinc	133.0	2.5	mg/kg dry	107.7	mg/kg	EPA 6010B	2022-03-02	2022-03-02	ery3	(C)
Environmental Chemistry										
Ammonia as N	1530	61.7	mg/kg dry	1240	mg/kg	SM 4500-NH3 C-1997	2022-03-02	2022-03-02	cay6	(A)
Total Kjeldahl Nitrogen	12700	617	mg/kg dry	10300	mg/kg	PAI-DK 01	2022-03-03	2022-03-03	krq0	(A)
Nitrate/Nitrite Nitrogen	109	2.0	mg/kg dry	88.2	mg/kg	EPA 353.2	2022-03-02	2022-03-02	akn1	(D)
Organic Nitrogen	11200	617	mg/kg dry		mg/kg	Calculation	2022-03-03	2022-03-03	krq0	
pH @ 22.8°C			S.U.	7.99	S.U.	EPA 9045	2022-03-02	2022-03-02	drp0	(B)
Percent Solids		0.01	%	81.00	%	SM 2540 G	2022-03-01	2022-03-02	mng9	(B)



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B918948

Blank (B918948-BLK1)

Prepared & Analyzed: 2022-03-02

Barium	<	0.002	mg/kg wet							U
Cadmium	<	0.004	mg/kg wet							U
Calcium	<	0.2	mg/kg wet							U
Chromium	<	0.01	mg/kg wet							U
Copper	<	0.006	mg/kg wet							U
Iron	<	0.05	mg/kg wet							U
Lead	<	0.03	mg/kg wet							U
Magnesium	<	0.05	mg/kg wet							U
Manganese	<	0.004	mg/kg wet							U
Nickel	<	0.007	mg/kg wet							U
Phosphorus	0.08	0.03	mg/kg wet							J
Potassium	0.14	0.08	mg/kg wet							J
Silver	<	0.004	mg/kg wet							U
Sodium	0.05	0.03	mg/kg wet							J
Sulfur	0.13	0.03	mg/kg wet							J
Zinc	<	0.04	mg/kg wet							

LCS (B918948-BS1)

Prepared & Analyzed: 2022-03-02

Barium	0.96	0.002	mg/kg wet	1.00		95.6	80-120			
Cadmium	0.93	0.004	mg/kg wet	1.00		92.8	80-120			
Calcium	47.41	0.2	mg/kg wet	51.0		93.0	80-120			
Chromium	0.93	0.01	mg/kg wet	1.00		93.4	80-120			
Copper	1.88	0.006	mg/kg wet	2.00		93.9	80-120			
Iron	1.91	0.05	mg/kg wet	2.00		95.4	80-120			
Lead	0.95	0.03	mg/kg wet	1.00		95.0	80-120			
Magnesium	20.06	0.05	mg/kg wet	21.0		95.5	80-120			
Manganese	1.89	0.004	mg/kg wet	2.00		94.3	80-120			
Nickel	0.95	0.007	mg/kg wet	1.00		95.1	80-120			
Phosphorus	19.41	0.03	mg/kg wet	20.0		97.0	80-120			
Potassium	27.87	0.08	mg/kg wet	30.0		92.9	80-120			
Silver	0.91	0.004	mg/kg wet	1.00		91.2	80-120			
Sodium	6.00	0.03	mg/kg wet	6.00		100	80-120			
Sulfur	4.95	0.03	mg/kg wet	5.00		99.1	80-120			
Zinc	1.90	0.04	mg/kg wet	2.00		95.0	80-120			



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B918948

Matrix Spike (B918948-MS1)

Source: 1579632-01

Prepared & Analyzed: 2022-03-02

Barium	842.0	0.6	mg/kg dry	335	526.4	94.1	75-125			
Cadmium	310.0	1.3	mg/kg dry	335	2.18	91.8	75-125			
Chromium	327.8	4.0	mg/kg dry	335	21.69	91.3	75-125			
Copper	909.2	2.0	mg/kg dry	670	278.8	94.0	75-125			
Iron	9300	16.8	mg/kg dry	670	8592	106	75-125			
Lead	336.3	8.9	mg/kg dry	335	25.70	92.7	75-125			
Manganese	1099	1.3	mg/kg dry	670	383.8	107	75-125			
Nickel	337.0	2.2	mg/kg dry	335	21.86	94.0	75-125			
Silver	306.4	1.5	mg/kg dry	335	2.30	90.7	75-125			
Zinc	2216	13.4	mg/kg dry	670	908.4	195	75-125			MI

Matrix Spike Dup (B918948-MSD1)

Source: 1579632-01

Prepared & Analyzed: 2022-03-02

Barium	802.0	0.6	mg/kg dry	333	526.4	82.8	75-125	4.87	20	
Cadmium	294.4	1.2	mg/kg dry	333	2.18	87.8	75-125	5.16	20	
Chromium	314.2	4.0	mg/kg dry	333	21.69	87.9	75-125	4.21	20	
Copper	860.4	2.0	mg/kg dry	665	278.8	87.4	75-125	5.52	20	
Iron	8892	16.6	mg/kg dry	665	8592	NR	75-125	4.49	20	SPK
Lead	320.8	8.8	mg/kg dry	333	25.70	88.7	75-125	4.71	20	
Manganese	963.6	1.3	mg/kg dry	665	383.8	87.1	75-125	13.1	20	
Nickel	322.4	2.2	mg/kg dry	333	21.86	90.4	75-125	4.43	20	
Silver	293.0	1.5	mg/kg dry	333	2.30	87.4	75-125	4.47	20	
Zinc	1472	13.3	mg/kg dry	665	908.4	84.7	75-125	40.3	20	MI

Batch B918950

Blank (B918950-BLK1)

Prepared: 2022-03-02 Analyzed: 2022-03-07

Arsenic	0.00002	0.00002	mg/kg wet							J
Selenium	<	0.00008	mg/kg wet							U



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B918950										
LCS (B918950-BS1)										
					Prepared: 2022-03-02 Analyzed: 2022-03-07					
Arsenic	0.21	0.00002	mg/kg wet	0.200		106	80-120			
Selenium	0.22	0.00008	mg/kg wet	0.200		111	80-120			
Matrix Spike (B918950-MS1)										
			Source: 1579632-01		Prepared: 2022-03-02 Analyzed: 2022-03-07					
Arsenic	72.31	0.06	mg/kg dry	66.7	4.40	102	75-125			
Selenium	76.09	0.3	mg/kg dry	66.7	8.56	101	75-125			
Matrix Spike Dup (B918950-MSD1)										
			Source: 1579632-01		Prepared: 2022-03-02 Analyzed: 2022-03-07					
Arsenic	74.46	0.06	mg/kg dry	66.8	4.40	105	75-125	2.93	20	
Selenium	79.47	0.3	mg/kg dry	66.8	8.56	106	75-125	4.35	20	
Batch B918979										
Blank (B918979-BLK1)										
					Prepared: 2022-03-03 Analyzed: 2022-03-04					
Mercury	<	0.000004	mg/kg wet							U
LCS (B918979-BS1)										
					Prepared: 2022-03-03 Analyzed: 2022-03-04					
Mercury	0.001	0.000004	mg/kg wet	0.00100		97.6	80-120			
Matrix Spike (B918979-MS1)										
			Source: 1579632-01		Prepared: 2022-03-03 Analyzed: 2022-03-04					
Mercury	3.4	0.01	mg/kg dry	3.28	0.55	87.8	80-120			
Matrix Spike Dup (B918979-MSD1)										
			Source: 1579632-01		Prepared: 2022-03-03 Analyzed: 2022-03-04					
Mercury	3.8	0.01	mg/kg dry	3.22	0.55	102	80-120	11.1	20	
Batch B919171										
Blank (B919171-BLK1)										
					Prepared & Analyzed: 2022-03-10					
Molybdenum	<	0.005	mg/kg wet							U



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024 PO BOX C LARAMIE, WY 82073	Project: 503 Regs for Biosolids Project Manager: DAVID SCHILLINGER	Reported: 2022-03-17 08:46
---	---	--------------------------------------

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B919171										
LCS (B919171-BS1)					Prepared & Analyzed: 2022-03-10					
Molybdenum	1.89	0.005	mg/kg wet	2.00		94.4	80-120			
Matrix Spike (B919171-MS1)					Source: 1580535-01 Prepared & Analyzed: 2022-03-10					
Molybdenum	812.9	2.2	mg/kg dry	873	9.67	92.0	75-125			
Matrix Spike Dup (B919171-MSD1)					Source: 1580535-01 Prepared & Analyzed: 2022-03-10					
Molybdenum	815.5	2.2	mg/kg dry	861	9.67	93.6	75-125	0.317	20	



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Environmental Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B918923

Blank (B918923-BLK1) Prepared: 2022-03-01 Analyzed: 2022-03-02

Percent Solids	99.98	0.01	%							
----------------	-------	------	---	--	--	--	--	--	--	--

LCS (B918923-BS1) Prepared: 2022-03-01 Analyzed: 2022-03-02

Percent Solids	97.97	0.01	%	97.8		100	80-120			
----------------	-------	------	---	------	--	-----	--------	--	--	--

Duplicate (B918923-DUP1) Source: 1581038-01 Prepared: 2022-03-01 Analyzed: 2022-03-02

Percent Solids	80.21	0.01	%		78.63			1.99	20	
----------------	-------	------	---	--	-------	--	--	------	----	--

Batch B918945

Blank (B918945-BLK1) Prepared & Analyzed: 2022-03-02

Nitrate/Nitrite Nitrogen	<	0.2	mg/kg wet							
--------------------------	---	-----	-----------	--	--	--	--	--	--	--

LCS (B918945-BS1) Prepared & Analyzed: 2022-03-02

Nitrate/Nitrite Nitrogen	20.25	1.0	mg/kg wet	20.0		101	85-115			
--------------------------	-------	-----	-----------	------	--	-----	--------	--	--	--

Matrix Spike (B918945-MS1) Source: 1579632-01 Prepared & Analyzed: 2022-03-02

Nitrate/Nitrite Nitrogen	187.5	8.0	mg/kg dry	160	18.80	105	80-120			
--------------------------	-------	-----	-----------	-----	-------	-----	--------	--	--	--

Matrix Spike Dup (B918945-MSD1) Source: 1579632-01 Prepared & Analyzed: 2022-03-02

Nitrate/Nitrite Nitrogen	186.6	8.0	mg/kg dry	160	18.80	105	80-120	0.492	20	
--------------------------	-------	-----	-----------	-----	-------	-----	--------	-------	----	--

Batch B918954

Duplicate (B918954-DUP1) Source: 1579632-01 Prepared & Analyzed: 2022-03-02

pH @ 23.5°C	6.38		S.U.		6.42			0.625	20	
-------------	------	--	------	--	------	--	--	-------	----	--



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Environmental Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B918954										
Duplicate (B918954-DUP2)		Source: 1581038-01			Prepared & Analyzed: 2022-03-02					
pH @ 23.2°C	7.99		S.U.		8.00			0.125	20	
Reference (B918954-SRM1)		Source: 1581038-01			Prepared & Analyzed: 2022-03-02					
pH @ 23.3°C	6.71		S.U.	6.79		98.8	6.93-103.0			
Batch B918963										
Blank (B918963-BLK1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-02					
Ammonia as N	<	10.0	mg/kg wet							
LCS (B918963-BS1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-02					
Ammonia as N	3797	125	mg/kg wet	4150		91.5	85-115			
Matrix Spike (B918963-MS1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-02					
Ammonia as N	12770	340	mg/kg dry	6800	6426	93.3	80-120			
Matrix Spike Dup (B918963-MSD1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-02					
Ammonia as N	12620	340	mg/kg dry	6810	6426	90.9	80-120	1.18	20	
Batch B918999										
Blank (B918999-BLK1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-03					
Total Kjeldahl Nitrogen	<	100	mg/kg wet							
LCS (B918999-BS1)		Source: 1580438-01			Prepared & Analyzed: 2022-03-03					
Total Kjeldahl Nitrogen	5291	250	mg/kg wet	5740		92.2	85-115			



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024 PO BOX C LARAMIE, WY 82073	Project: 503 Regs for Biosolids Project Manager: DAVID SCHILLINGER	Reported: 2022-03-17 08:46
---	---	--------------------------------------

Environmental Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B918999										
Matrix Spike (B918999-MS1) Source: 1581051-01 Prepared & Analyzed: 2022-03-03										
Total Kjeldahl Nitrogen	71120	2480	mg/kg dry	24300	49310	89.8	80-120			
Matrix Spike Dup (B918999-MSD1) Source: 1581051-01 Prepared & Analyzed: 2022-03-03										
Total Kjeldahl Nitrogen	73550	2480	mg/kg dry	24700	49310	98.0	80-120	3.36	20	



Midwest Laboratories
 13611 B Street
 Omaha, NE 68144
 P 402-334-7770
 F 402-334-9121
 www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
 PO BOX C
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
 2022-03-17 08:46

Certified Analyses included in this Report

Method	Analyte	Certifications
<i>EPA 353.2 in Solid</i>	Nitrate/Nitrite Nitrogen	IA,FL,KS
<i>EPA 6010B in Solid</i>	Barium	TX,KS,FL,UT,OK,IA,WA
	Cadmium	TX,KS,FL,UT,OK,IA,WA
	Calcium	TX,KS,IA,FL
	Chromium	TX,KS,FL,UT,OK,IA,WA
	Copper	TX,KS,FL,UT,OK,IA,WA
	Iron	FL,KS,TX,UT,OK,IA,WA
	Lead	FL,KS,TX,UT,OK,IA,WA
	Magnesium	FL,TX,KS,UT,OK,IA,WA
	Manganese	FL,KS,TX,UT,OK,IA,WA
	Molybdenum	TX,KS,FL,UT,IA,OK,WA
	Nickel	FL,KS,TX,UT,OK,IA,WA
	Phosphorus	FL,KS,TX,UT,OK,IA,WA
	Potassium	FL,KS,TX,UT,OK,IA,WA
	Silver	FL,KS,TX,UT,OK,IA,WA
	Sodium	FL,KS,TX,UT,OK,IA,WA
	Zinc	FL,KS,TX,UT,IA,WA
<i>EPA 6020 in Solid</i>	Arsenic	IA,KS,FL,TX
	Selenium	KS,IA,FL,TX
<i>EPA 7471 in Solid</i>	Mercury	TX,KS,FL,UT,OK,IA,WA
<i>EPA 9045 in Solid</i>	pH	FL,OK,KS,WA
<i>PAI-DK 01 in Solid</i>	Total Kjeldahl Nitrogen	IA,FL,KS
<i>SM 2540 G in Solid</i>	Percent Solids	FL,IA,WA,UT,TX
<i>SM 4500-NH3 C-1997 in Solid</i>	Ammonia as N	FL,KS

Non-Certified Analyses included in this Report

Method	Analyte
<i>EPA 6010B in Solid</i>	Sulfur

Code	Description	Number	Expires
FL	Florida Department of Health	E87918	06/30/2022
IA	Iowa Department of Natural Resources	064	05/01/2023
KS	Kansas Department of Health and Environment	E-10402	04/30/2022
NE	State of Nebraska Dept of Health & Human Services	NE-04-05	06/30/2022
OK	Oklahoma Department of Environmental Quality	2021-011	08/31/2022
TX	Texas Commission on Environmental Quality	T104704416-21-15	07/31/2022
UT	State of Utah Department of Health	NE000012020-10	07/31/2022
WA	State of Washington Department of Ecology	C912	06/07/2022



Midwest Laboratories
13611 B Street
Omaha, NE 68144
P 402-334-7770
F 402-334-9121
www.midwestlabs.com

CITY OF LARAMIE WWTP - 34024
PO BOX C
LARAMIE, WY 82073

Project: 503 Regs for Biosolids

Project Manager: DAVID SCHILLINGER

Reported:
2022-03-17 08:46

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SPK Spike recovery calculation is not required when sample level is greater than three times the spiking level.
- MI Matrix interference suspected in matrix spiked sample.
- J Estimated value
- < Less than reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

EPA 524.2, EPA 624, EPA 8260, OA-1, TCLP VOC, GRO, and all microbiological analyses are conducted in the facility located at 13606 B Street, Omaha, NE 68144. All other analyses are conducted in the main facility located at 13611 B Street, Omaha, NE 68144.

SUBFORM NUMBER:

1009388



13611 B Street, Omaha, NE 68144 | midwestlabs.com | (402) 334-7770

ORDER NUMBER:

194395

PAGE:

1

ACCOUNT NO: 34024
CITY OF LARAMIE WWTP
DAVID SCHILLINGER
PO BOX C
LARAMIE, WY 82073

SAMPLE DESCRIPTION

Compost Pkg



COPY TO:

70076138-141
Samples: 4 Page: 1/3
Ashley Valeika
2022 03 01 11:35

PO NUMBER:

Automatic Order Submittal Form

PLACED BY: Robert A Ferris

SAMPLE ID	DATE/TIME SAMPLED	MATRIX	TESTS REQUESTED	CONTAINER COUNT	COMMENTS
1009388-1	2/28/2022 1:00 PM	SH	Compost Pkg + 503 Regulations	1	70076138
1009388-2		SH	Compost Pkg	1	70076139
1009388-3		SH	Compost Pkg	1	70076140
1009388-4		SH	Compost Pkg	1	70076141
			 WORKORDER: 1581038 COC Sticker #: 1 		
Sampled by (signature) <i>David Schillinger</i>	Temp on Arrival 7.4°C	Cooler arrived intact? ✓	Relinquished by (signature)	Date/Time	Received by (signature)
Relinquished by (signature) <i>David Schillinger</i>	Date/Time 2/28/22 2PM	Received by (signature) <i>Liz Wold</i>	Relinquished by (signature)	Date/Time 3.1.22	Received in Lab (signature) 1055

This report shall not be reproduced, except in its entirety, without the written approval of Midwest Laboratories. The results on this report reflect only the analysis of the sample submitted.

Regulatory



This sheet **MUST** be filled out before samples can be processed. To ensure that holding times are met, it is your responsibility that a completed form comes attached to the Chain of Custody. Samples must be received on ice.

Is this sample for regulatory/permit reporting?

Yes No

70076 138-141
Samples: 4 Page: 2/3
Ashley Valotka
2022 03 01 11:35

What city/state was your sample collected in?

Laramie, WY



NO. CODE: 1581038
COC
Sticker #: 2



What agency/state are you reporting?

EPA

What type of sample? (Circle One)

Drinking Water
For human consumption,
30 hr hold time

Ground Water

Wastewater

Solid Waste

Hazardous Waste

UST

Storm Water

Process Water

Livestock

SEE REVERSE SIDE FOR SAMPLING INSTRUCTIONS

RC FORM 14-4 Effective 9.13.19

Our reports and letters are for the exclusive and confidential use of our clients and may not be reproduced in whole or in part, nor may any reference be made to the work, the results, or the company in any advertising, news release, or other public announcements without obtaining our prior written authorization.



Lab Number: 70076138-141
 Samples: 4 Page: 3/3
 Astley, Vaalke
 2022 US DT 11:35

Thermometer Used: Therm Fisher IR 94

Sample Temperature (°C): 74

Cooler Intact: Yes No
 Received on Ice: Yes No
 Hand Delivered: Yes No

Date & Initials of person accepting samples: 3-1-22 EM

Chain of Custody present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Sample ID(s):	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Sample Location(s):	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Client contact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Analysis Requested:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Date & Time of collection:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Sampler name on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Chain of custody relinquished with signature?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Chain of custody complete?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Sample labels match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Written in indelible ink?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Labels indicate proper preservation?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Samples arrived within hold time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Samples arrived within correct temperature?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Sufficient volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Appropriate containers used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	
Headspace in VOA vials?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	
Trip Blank present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	

Client Notification/Resolution: _____ Date/Time Contacted: _____

Person Contacted: _____ Contacted By: _____

Comments/Resolution: _____

