



Midwest Laboratories  
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02 March 2021

Work Order: 1567585

KARLA ADAMI  
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 2021-02-23 08:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Ferris", with a long, sweeping horizontal stroke extending to the right.

Robert Ferris  
Project Manager  
raf4@midwestlabs.com



Midwest Laboratories  
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 www.midwestlabs.com

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

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
01	1567585-01	Solid	2021-02-22 13:00	2021-02-23 08:45
02	1567585-02	Solid	2021-02-22 13:00	2021-02-23 08:45
03	1567585-03	Solid	2021-02-22 13:00	2021-02-23 08:45
04	1567585-04	Solid	2021-02-22 13:00	2021-02-23 08:45

**Containers used for the following analyses:**

- 1567585-01 A: EPA 9045, PAI-DK 01, SM 2540 G, SM 4500-NH3 C-1997
- 1567585-01 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1567585-01 D: EPA 353.2
- 1567585-02 A: EPA 9045, PAI-DK 01, SM 2540 G, SM 4500-NH3 C-1997
- 1567585-02 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1567585-02 D: EPA 353.2
- 1567585-03 A: EPA 9045, PAI-DK 01, SM 2540 G, SM 4500-NH3 C-1997
- 1567585-03 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1567585-03 D: EPA 353.2
- 1567585-04 A: EPA 9045, PAI-DK 01, SM 2540 G, SM 4500-NH3 C-1997
- 1567585-04 C: Total Metals per EPA 6010B, Total Metals per EPA 6020, Total Metals per EPA 7471
- 1567585-04 D: EPA 353.2

**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 jdb5.
- EPA 9045 reviewed by jdb5.
- PAI-DK 01 reviewed by jdb5.
- SM 2540 G reviewed by jdb5.
- SM 4500-NH3 C-1997 reviewed by jdb5.



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Sample ID: 01**  
**Laboratory ID: 1567585-01**  
**Sampled Date/Time: 2021-02-22 13:00**

Analyte	Dry Weight Result	Reporting Limit	Units	As Received		Method	Prepared	Analyzed	Analyst	(Container) /
				Result	Method					Notes
<b>Total Metals</b>										
Arsenic	3.9	0.002	mg/kg dry	3.1	mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Barium	144.4	0.06	mg/kg dry	116.8	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Cadmium	0.4	0.1	mg/kg dry	0.3	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Calcium	28050	6.3	mg/kg dry	22690	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Chromium	11.7	0.4	mg/kg dry	9.4	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Copper	109.4	0.2	mg/kg dry	88.5	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Iron	9150	1.6	mg/kg dry	7402	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Lead	15.3	0.8	mg/kg dry	12.4	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Magnesium	6743	1.5	mg/kg dry	5455	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Manganese	248.0	0.1	mg/kg dry	200.6	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Mercury	0.13	0.001	mg/kg dry	0.11	mg/kg	EPA 7471	2021-02-24	2021-02-25	pjd8	(C)
Molybdenum	1.9	0.2	mg/kg dry	1.6	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Nickel	9.2	0.2	mg/kg dry	7.4	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Phosphate (P2O5)	8945	14.5	mg/kg dry		mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Phosphorus	3906	0.9	mg/kg dry	3160	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Potash (K2O)	8759	7.6	mg/kg dry		mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Potassium	7299	2.4	mg/kg dry	5905	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Selenium	2.8	0.01	mg/kg dry	2.3	mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Silver	0.7	0.1	mg/kg dry	0.6	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sodium	554.5	1.1	mg/kg dry	448.6	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sulfur	3044	1.1	mg/kg dry	2463	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Zinc	142.4	1.3	mg/kg dry	115.2	mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
<b>Environmental Chemistry</b>										
Ammonia as N	892	30.9	mg/kg dry	722	mg/kg	SM 4500-NH3 C-1997	2021-02-25	2021-02-25	krq0	(A)
Total Kjeldahl Nitrogen	14500	247	mg/kg dry	11700	mg/kg	PAI-DK 01	2021-02-24	2021-02-24	krq0	(A)
Nitrate/Nitrite Nitrogen	271	4.9	mg/kg dry	220	mg/kg	EPA 353.2	2021-03-02	2021-03-02	JAJ4	(D)
Organic Nitrogen	13600	247	mg/kg dry		mg/kg	Calculation	2021-02-25	2021-02-25	krq0	
pH			S.U.	7.39	S.U.	EPA 9045	2021-02-25	2021-02-25	wib1	(A)
Percent Solids		0.01	%	80.90	%	SM 2540 G	2021-02-23	2021-02-25	akn1	(A)



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Sample ID: 02**  
**Laboratory ID: 1567585-02**  
**Sampled Date/Time: 2021-02-22 13:00**

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
<b>Total Metals</b>									
Arsenic	4.0	0.002	mg/kg dry	3.2 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Barium	162.3	0.06	mg/kg dry	129.2 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Cadmium	0.4	0.1	mg/kg dry	0.3 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Calcium	41440	6.3	mg/kg dry	32990 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Chromium	14.3	0.4	mg/kg dry	11.4 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Copper	127.1	0.2	mg/kg dry	101.2 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Iron	10900	1.6	mg/kg dry	8680 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Lead	14.1	0.8	mg/kg dry	11.2 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Magnesium	7772	1.5	mg/kg dry	6187 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Manganese	264.7	0.1	mg/kg dry	210.7 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Mercury	0.15	0.001	mg/kg dry	0.12 mg/kg	EPA 7471	2021-02-24	2021-02-25	pjd8	(C)
Molybdenum	2.3	0.2	mg/kg dry	1.8 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Nickel	11.3	0.2	mg/kg dry	9.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Phosphate (P2O5)	9815	14.5	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Phosphorus	4286	0.9	mg/kg dry	3412 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Potash (K2O)	7214	7.6	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Potassium	6012	2.4	mg/kg dry	4786 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Selenium	2.6	0.01	mg/kg dry	2.1 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Silver	0.8	0.1	mg/kg dry	0.6 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sodium	513.3	1.1	mg/kg dry	408.6 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sulfur	3876	1.1	mg/kg dry	3086 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Zinc	154.3	1.3	mg/kg dry	122.8 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
<b>Environmental Chemistry</b>									
Ammonia as N	1590	62.8	mg/kg dry	1260 mg/kg	SM 4500-NH3 C-1997	2021-02-25	2021-02-25	krq0	(A)
Total Kjeldahl Nitrogen	14000	251	mg/kg dry	11200 mg/kg	PAI-DK 01	2021-02-24	2021-02-24	krq0	(A)
Nitrate/Nitrite Nitrogen	66.5	1.0	mg/kg dry	52.9 mg/kg	EPA 353.2	2021-03-02	2021-03-02	JAJ4	(D)
Organic Nitrogen	12400	251	mg/kg dry	mg/kg	Calculation	2021-02-25	2021-02-25	krq0	
pH			S.U.	7.47 S.U.	EPA 9045	2021-02-25	2021-02-25	wib1	(A)
Percent Solids		0.01	%	79.61 %	SM 2540 G	2021-02-23	2021-02-25	akn1	(A)



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Sample ID: 03**  
**Laboratory ID: 1567585-03**  
**Sampled Date/Time: 2021-02-22 13:00**

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
<b>Total Metals</b>									
Arsenic	3.4	0.002	mg/kg dry	3.0 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Barium	241.5	0.05	mg/kg dry	210.5 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Cadmium	0.4	0.1	mg/kg dry	0.3 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Calcium	32300	5.7	mg/kg dry	28160 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Chromium	12.5	0.3	mg/kg dry	10.9 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Copper	122.7	0.2	mg/kg dry	107.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Iron	8945	1.4	mg/kg dry	7797 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Lead	14.9	0.8	mg/kg dry	13.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Magnesium	7077	1.4	mg/kg dry	6169 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Manganese	247.3	0.1	mg/kg dry	215.6 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Mercury	0.14	0.0009	mg/kg dry	0.12 mg/kg	EPA 7471	2021-02-24	2021-02-25	pjd8	(C)
Molybdenum	2.5	0.1	mg/kg dry	2.1 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Nickel	10.3	0.2	mg/kg dry	9.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Phosphate (P2O5)	10410	13.0	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Phosphorus	4544	0.8	mg/kg dry	3961 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Potash (K2O)	8669	6.8	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Potassium	7224	2.1	mg/kg dry	6297 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Selenium	2.1	0.009	mg/kg dry	1.9 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Silver	0.5	0.1	mg/kg dry	0.5 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)/ J
Sodium	587.4	1.0	mg/kg dry	512.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sulfur	3601	1.0	mg/kg dry	3139 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Zinc	155.2	1.1	mg/kg dry	135.3 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
<b>Environmental Chemistry</b>									
Ammonia as N	1270	115	mg/kg dry	1110 mg/kg	SM 4500-NH3 C-1997	2021-02-25	2021-02-25	krq0	(A)
Total Kjeldahl Nitrogen	11100	229	mg/kg dry	9640 mg/kg	PAI-DK 01	2021-02-24	2021-02-24	krq0	(A)
Nitrate/Nitrite Nitrogen	156	2.0	mg/kg dry	136 mg/kg	EPA 353.2	2021-03-02	2021-03-02	JAJ4	(D)
Organic Nitrogen	9790	229	mg/kg dry	mg/kg	Calculation	2021-02-25	2021-02-25	krq0	
pH			S.U.	7.63 S.U.	EPA 9045	2021-02-25	2021-02-25	wib1	(A)
Percent Solids		0.01	%	87.17 %	SM 2540 G	2021-02-23	2021-02-25	akn1	(A)



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Sample ID: 04**  
**Laboratory ID: 1567585-04**  
**Sampled Date/Time: 2021-02-22 13:00**

Analyte	Dry Weight	Reporting	Units	As Received	Method	Prepared	Analyzed	Analyst	(Container) /
	Result	Limit		Result					Notes
<b>Total Metals</b>									
Arsenic	4.2	0.002	mg/kg dry	3.4 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Barium	158.9	0.06	mg/kg dry	129.6 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Cadmium	0.4	0.1	mg/kg dry	0.3 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Calcium	33940	6.2	mg/kg dry	27680 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Chromium	14.3	0.4	mg/kg dry	11.7 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Copper	139.8	0.2	mg/kg dry	114.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Iron	10460	1.6	mg/kg dry	8530 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Lead	15.8	0.8	mg/kg dry	12.9 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Magnesium	7820	1.5	mg/kg dry	6377 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Manganese	260.9	0.1	mg/kg dry	212.8 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Mercury	0.23	0.001	mg/kg dry	0.19 mg/kg	EPA 7471	2021-02-24	2021-02-25	pjd8	(C)
Molybdenum	2.4	0.2	mg/kg dry	2.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Nickel	11.1	0.2	mg/kg dry	9.0 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Phosphate (P2O5)	9943	14.2	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Phosphorus	4342	0.8	mg/kg dry	3541 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Potash (K2O)	7992	7.5	mg/kg dry	mg/kg	Calculation	2021-02-24	2021-02-24	ery3	
Potassium	6660	2.3	mg/kg dry	5431 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Selenium	2.7	0.01	mg/kg dry	2.2 mg/kg	EPA 6020	2021-02-24	2021-02-26	ras7	(C)
Silver	0.7	0.1	mg/kg dry	0.6 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sodium	559.5	1.0	mg/kg dry	456.3 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Sulfur	3886	1.1	mg/kg dry	3169 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
Zinc	161.5	1.2	mg/kg dry	131.7 mg/kg	EPA 6010B	2021-02-24	2021-02-24	ery3	(C)
<b>Environmental Chemistry</b>									
Ammonia as N	1200	123	mg/kg dry	977 mg/kg	SM 4500-NH3 C-1997	2021-02-25	2021-02-25	krq0	(A)
Total Kjeldahl Nitrogen	13000	245	mg/kg dry	10600 mg/kg	PAI-DK 01	2021-02-24	2021-02-24	krq0	(A)
Nitrate/Nitrite Nitrogen	94.6	1.0	mg/kg dry	77.2 mg/kg	EPA 353.2	2021-03-02	2021-03-02	JAJ4	(D)
Organic Nitrogen	11800	245	mg/kg dry	mg/kg	Calculation	2021-02-25	2021-02-25	krq0	
pH			S.U.	7.70 S.U.	EPA 9045	2021-02-25	2021-02-25	wib1	(A)
Percent Solids		0.01	%	81.55 %	SM 2540 G	2021-02-23	2021-02-25	akn1	(A)



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Total Metals - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B909812**

<b>Blank (B909812-BLK1)</b>				Prepared: 2021-02-24 Analyzed: 2021-02-25						
Mercury	<	0.000004	mg/kg wet							U

<b>LCS (B909812-BS1)</b>				Prepared: 2021-02-24 Analyzed: 2021-02-25						
Mercury	0.001	0.000004	mg/kg wet	0.00100		111	80-120			

<b>Matrix Spike (B909812-MS1)</b>				Source: 1567585-01		Prepared: 2021-02-24 Analyzed: 2021-02-25				
Mercury	0.42	0.001	mg/kg dry	0.217	0.13	133	80-120			MI

<b>Matrix Spike Dup (B909812-MSD1)</b>				Source: 1567585-01		Prepared: 2021-02-24 Analyzed: 2021-02-25				
Mercury	0.42	0.001	mg/kg dry	0.214	0.13	134	80-120	0.590	20	MI

**Batch B909837**

<b>Blank (B909837-BLK1)</b>				Prepared: 2021-02-24 Analyzed: 2021-02-26						
Arsenic	<	0.00002	mg/kg wet							U
Selenium	<	0.00008	mg/kg wet							U

<b>LCS (B909837-BS1)</b>				Prepared: 2021-02-24 Analyzed: 2021-02-26						
Arsenic	0.20	0.00002	mg/kg wet	0.200		99.6	80-120			
Selenium	0.21	0.00008	mg/kg wet	0.200		104	80-120			

<b>Matrix Spike (B909837-MS1)</b>				Source: 1567585-01		Prepared: 2021-02-24 Analyzed: 2021-02-26				
Arsenic	14.53	0.002	mg/kg dry	11.9	3.87	89.4	75-125			
Selenium	13.53	0.01	mg/kg dry	11.9	2.82	89.8	75-125			

<b>Matrix Spike Dup (B909837-MSD1)</b>				Source: 1567585-01		Prepared: 2021-02-24 Analyzed: 2021-02-26				
Arsenic	15.08	0.002	mg/kg dry	12.8	3.87	87.9	75-125	3.70	20	
Selenium	14.70	0.01	mg/kg dry	12.8	2.82	93.1	75-125	8.29	20	



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

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Total Metals - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B909873**

**Blank (B909873-BLK1)**

Prepared & Analyzed: 2021-02-24

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	0.04	0.006	mg/kg wet							
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
Molybdenum	<	0.005	mg/kg wet							U
Nickel	<	0.007	mg/kg wet							U
Phosphorus	0.03	0.03	mg/kg wet							J
Potassium	<	0.08	mg/kg wet							U
Silver	<	0.004	mg/kg wet							U
Sodium	0.23	0.03	mg/kg wet							
Sulfur	0.09	0.03	mg/kg wet							J
Zinc	<	0.04	mg/kg wet							

**LCS (B909873-BS1)**

Prepared & Analyzed: 2021-02-24

Barium	1.00	0.002	mg/kg wet	1.00		99.7	80-120
Cadmium	0.94	0.004	mg/kg wet	1.00		94.5	80-120
Calcium	49.81	0.2	mg/kg wet	51.0		97.7	80-120
Chromium	0.96	0.01	mg/kg wet	1.00		95.6	80-120
Copper	1.99	0.006	mg/kg wet	2.00		99.4	80-120
Iron	1.96	0.05	mg/kg wet	2.00		98.2	80-120
Lead	0.94	0.03	mg/kg wet	1.00		93.8	80-120
Magnesium	20.39	0.05	mg/kg wet	21.0		97.1	80-120
Manganese	1.95	0.004	mg/kg wet	2.00		97.4	80-120
Molybdenum	1.94	0.005	mg/kg wet	2.00		96.8	80-120
Nickel	0.94	0.007	mg/kg wet	1.00		93.9	80-120
Phosphorus	19.92	0.03	mg/kg wet	20.0		99.6	80-120
Potassium	29.24	0.08	mg/kg wet	30.0		97.5	80-120
Silver	0.94	0.004	mg/kg wet	1.00		94.4	80-120
Sodium	5.86	0.03	mg/kg wet	6.00		97.7	80-120
Sulfur	4.91	0.03	mg/kg wet	5.00		98.2	80-120
Zinc	1.90	0.04	mg/kg wet	2.00		95.0	80-120





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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Total Metals - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B909873**

<b>Matrix Spike (B909873-MS1)</b>	<b>Source: 1567585-01</b>			<b>Prepared &amp; Analyzed: 2021-02-24</b>						
Barium	188.3	0.06	mg/kg dry	32.4	144.4	NR	75-125			SPK
Cadmium	28.92	0.1	mg/kg dry	32.4	0.35	88.2	75-125			
Chromium	41.84	0.4	mg/kg dry	32.4	11.65	93.1	75-125			
Copper	161.8	0.2	mg/kg dry	64.8	109.4	80.9	75-125			
Iron	10100	1.6	mg/kg dry	64.8	9150	NR	75-125			SPK
Lead	43.76	0.9	mg/kg dry	32.4	15.29	87.8	75-125			
Manganese	293.8	0.1	mg/kg dry	64.8	248.0	NR	75-125			SPK
Molybdenum	61.73	0.2	mg/kg dry	64.8	1.94	92.2	75-125			
Nickel	37.29	0.2	mg/kg dry	32.4	9.19	86.7	75-125			
Silver	30.31	0.1	mg/kg dry	32.4	0.68	91.4	75-125			
Zinc	191.1	1.3	mg/kg dry	64.8	142.4	75.1	75-125			

<b>Matrix Spike Dup (B909873-MSD1)</b>	<b>Source: 1567585-01</b>			<b>Prepared &amp; Analyzed: 2021-02-24</b>						
Barium	161.3	0.06	mg/kg dry	31.1	144.4	NR	75-125	15.4	20	SPK
Cadmium	27.21	0.1	mg/kg dry	31.1	0.35	86.5	75-125	6.12	20	
Chromium	39.91	0.4	mg/kg dry	31.1	11.65	91.0	75-125	4.72	20	
Copper	154.8	0.2	mg/kg dry	62.1	109.4	73.1	75-125	4.45	20	MI
Iron	8655	1.6	mg/kg dry	62.1	9150	NR	75-125	15.4	20	SPK
Lead	40.48	0.8	mg/kg dry	31.1	15.29	81.1	75-125	7.78	20	
Manganese	286.9	0.1	mg/kg dry	62.1	248.0	NR	75-125	2.38	20	SPK
Molybdenum	58.17	0.2	mg/kg dry	62.1	1.94	90.5	75-125	5.94	20	
Nickel	35.56	0.2	mg/kg dry	31.1	9.19	84.9	75-125	4.75	20	
Silver	28.81	0.1	mg/kg dry	31.1	0.68	90.6	75-125	5.06	20	
Zinc	182.7	1.2	mg/kg dry	62.1	142.4	64.9	75-125	4.50	20	MI



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 PO BOX C  
 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Environmental Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B909771**

<b>Blank (B909771-BLK1)</b>				Prepared: 2021-02-23 Analyzed: 2021-02-25						
Percent Solids	99.98	0.01	%							
<b>LCS (B909771-BS1)</b>				Prepared: 2021-02-23 Analyzed: 2021-02-25						
Percent Solids	96.79	0.01	%	96.6		100	80-120			
<b>Duplicate (B909771-DUP1)</b>				Source: 1567585-01		Prepared: 2021-02-23 Analyzed: 2021-02-25				
Percent Solids	79.48	0.01	%		80.90			1.77	20	

**Batch B909788**

<b>Blank (B909788-BLK1)</b>				Prepared & Analyzed: 2021-02-24						
Total Kjeldahl Nitrogen	<	100	mg/kg wet							
<b>LCS (B909788-BS1)</b>				Prepared & Analyzed: 2021-02-24						
Total Kjeldahl Nitrogen	5654	250	mg/kg wet	5720		98.8	85-115			
<b>Matrix Spike (B909788-MS1)</b>				Source: 1568085-01		Prepared & Analyzed: 2021-02-24				
Total Kjeldahl Nitrogen	76030	1320	mg/kg dry	13600	61560	106	80-120			
<b>Matrix Spike Dup (B909788-MSD1)</b>				Source: 1568085-01		Prepared & Analyzed: 2021-02-24				
Total Kjeldahl Nitrogen	76280	1320	mg/kg dry	13700	61560	108	80-120	0.333	20	

**Batch B909815**

<b>Blank (B909815-BLK1)</b>				Prepared & Analyzed: 2021-02-25						
Ammonia as N	<	10.0	mg/kg wet							



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 LARAMIE, WY 82073

Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Environmental Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B909815**

<b>LCS (B909815-BS1)</b>				Prepared & Analyzed: 2021-02-25						
Ammonia as N	4185	125	mg/kg wet	4040		104	85-115			

<b>Matrix Spike (B909815-MS1)</b>				Source: 1568403-01 Prepared & Analyzed: 2021-02-25						
Ammonia as N	16490	528	mg/kg dry	10500	6630	93.9	80-120			

<b>Matrix Spike Dup (B909815-MSD1)</b>				Source: 1568403-01 Prepared & Analyzed: 2021-02-25						
Ammonia as N	16740	528	mg/kg dry	10600	6630	95.2	80-120	1.49	20	

**Batch B909817**

<b>LCS (B909817-BS1)</b>				Prepared & Analyzed: 2021-02-25						
pH	7.00		S.U.	7.00		100	85-115			

<b>Duplicate (B909817-DUP1)</b>				Source: 1567585-01 Prepared & Analyzed: 2021-02-25						
pH	7.36		S.U.		7.39			0.407	20	

**Batch B909901**

<b>Blank (B909901-BLK1)</b>				Prepared & Analyzed: 2021-03-02						
Nitrate/Nitrite Nitrogen	<	0.2	mg/kg wet							

<b>LCS (B909901-BS1)</b>				Prepared & Analyzed: 2021-03-02						
Nitrate/Nitrite Nitrogen	19.52	1.0	mg/kg wet	20.0		97.6	85-115			

<b>Matrix Spike (B909901-MS1)</b>				Source: 1568403-01 Prepared & Analyzed: 2021-03-02						
Nitrate/Nitrite Nitrogen	41.00	1.0	mg/kg dry	20.1	20.69	101	80-120			



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Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Environmental Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B909901</b>										
<b>Matrix Spike (B909901-MS2)</b>		<b>Source: 1568425-01</b>		<b>Prepared &amp; Analyzed: 2021-03-02</b>						
Nitrate/Nitrite Nitrogen	29.62	1.0	mg/kg dry	20.0	11.63	90.0	80-120			
<b>Matrix Spike Dup (B909901-MSD1)</b>		<b>Source: 1568403-01</b>		<b>Prepared &amp; Analyzed: 2021-03-02</b>						
Nitrate/Nitrite Nitrogen	39.91	1.0	mg/kg dry	20.1	20.69	95.8	80-120	2.70	20	
<b>Matrix Spike Dup (B909901-MSD2)</b>		<b>Source: 1568425-01</b>		<b>Prepared &amp; Analyzed: 2021-03-02</b>						
Nitrate/Nitrite Nitrogen	29.00	1.0	mg/kg dry	20.0	11.63	86.9	80-120	2.14	20	



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Project: 503 Regs for Biosolids  
 Project Number: compost  
 Project Manager: KARLA ADAMI

**Reported:**  
 2021-03-02 16:32

**Certified Analyses included in this Report**

Method	Analyte	Certifications
<i>EPA 353.2 in Solid</i>	Nitrate/Nitrite Nitrogen	IA,FL
<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
	Selenium	KS,IA,FL
<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
<i>SM 2540 G in Solid</i>	Percent Solids	FL,IA,WA
<i>SM 4500-NH3 C-1997 in Solid</i>	Ammonia as N	FL

**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	06/30/2021
IA	Iowa Department of Natural Resources	064	05/01/2021
KS	Kansas Department of Health and Environment	E-10402	04/30/2021
NE	State of Nebraska Dept of Health & Human Services	NE-04-05	06/30/2021
OK	Oklahoma Department of Environmental Quality	2019-094	08/31/2021
TX	Texas Commission on Environmental Quality	T104704416-20-14	07/31/2021
UT	State of Utah Department of Health	NE000012020-10	07/31/2021
WA	State of Washington Department of Ecology	C912	06/07/2020



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**Reported:**  
2021-03-02 16:32

### 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.




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# CHAIN OF CUSTODY


Lab Work Order Number: 1567585  
 Date Generated: 01/18/2021

Client Name CITY OF LARAMIE WWTP - 34024	Project Name 503 Regs for Biosolids	Requested Analytes (Test Names)						Copy to:
Client Contact KARLA ADAMI	Project Description <i>Compost</i>	503 Regulations						
Address PO BOX C	Purchase Order Number							
City LARAMIE	Midwest Labs Contact Robert Ferris							
State/Zip WY, 82073	Regulatory (Circle One) <input checked="" type="radio"/> Yes <input type="radio"/> No							
Phone 3077215204	Regulatory Agency EPA							
Fax 0	Sample Type (Circle One - See Below) D G W <input checked="" type="radio"/> S/H U P							
Sampler Name (printed) KARLA ADAMI								

Lab ID	Sample Name or ID	Sample Date	Sample Time	Sample Code	Matrix Code	Container Code	Preservation Code	Retention Code	Sample Comments
01	01	2-22-21	1 pm	S/H	S	2	11		
02	02	↓	↓	↓	S	2	2		
03	03	↓	↓	↓	S	2	2		
04	04	↓	↓	↓	S	2	2		



WORKORDER: **1567585**  
**COC**  
 Sticker #: 1



Relinquished By <i>Karla Adami</i>	Date/Time 2-22-21 2 pm	Received By <i>DVK</i>	Date/Time 02/22/2021 0845	Temperature Upon Receipt: <u>90</u>
Relinquished By	Date/Time	Received By	Date/Time	Cooler Numbers:
Comments:				Notes:

Matrix Codes: S=Solid  
 Preservation Codes: 1=Cool 6°C, 11=[Group Analysis], 2=None  
 Sample Type Codes: D=Drinking Water (Safe Drinking Water Act), G=Groundwater, W=Wastewater (Clean Water Act), S/H=Solid/Hazardous Waste (RCRA), U=Underground Storage Tank (UST), P=Process Water

Chain of Custody will have a signature upon receipt but no subsequent signatures.



# 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

What city/state was your sample collected in? Laramie, Wyoming

LABORATORY  
**1567585**  
**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

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Lab Number:

Thermometer Used:  Therm Fisher IR 2

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

Sample Temperature (°C): 9.0

Date & Initials of person accepting samples: 04/23/2021 DM

Comments

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: \_\_\_\_\_

