



July 12, 2021

Ms. Heather Hoggard
 Pretreatment Inspector
 Springfield Clean Water Services
 755 N. Franklin Avenue
 Springfield, MO 65802

**Re: Semi-Annual Leachate Report
 First Half 2021
 NABORS Landfill
 Mountain Home, Arkansas
 Wastewater Contribution Permit No. 593**

Dear Ms. Hoggard:

On behalf of the Arkansas Department of Energy and Environmental Division of Environmental Quality (DEQ), please find attached the results of leachate analysis for the First Half 2021 reporting period for the referenced facility. A total of 264,000 gallons of leachate was generated during the reporting period.

The leachate generated at the NABORS Landfill is transported to the City of Springfield, MO wastewater collection system under Wastewater Contribution Permit #593. A sample of the leachate plus a duplicate sample was collected and submitted for laboratory analysis. Table 1 below summarizes the analytical methods and results of the analyses.

Table 1 – Summary of Leachate Analytical Results – April 2021

Parameter	Analytical Method	Units	Permit Requirement	Leachate	Leachate Duplicate
Ammonia as N	SM 4500-NH3 B,D,C-2011	mg/L	Monitoring Requirement Only	6.41	< 0.500
Cyanide (total)	SM 4500-CN B,E-2011	mg/L	0.33	<0.010	<0.010
Flashpoint	SW 1010A, Rev 1, 2004	°C	<140°F	Did Not Flash	Did Not Flash
Oil and Grease	EPA 1664 Mod, Rev. B 2010	mg/L	100	< 4.76	< 4.72
pH	EPA 150.2 (1982)	S.U.	5.0 (minimum) 12.5 (maximum)	7.36	—
Arsenic	EPA 200.8 Rev 5.4 (1994)	µg/L	0.51	1.12	1.13
Cadmium	EPA 200.8 Rev 5.4 (1994)	µg/L	0.13	<0.260	<0.260
Chromium	EPA 200.8 Rev 5.4 (1994)	µg/L	2.91	0.695	0.719
Copper	EPA 200.8 Rev 5.4 (1994)	µg/L	2.44	70.5	72.7



8100 National Dr. - Little Rock, AR 72209
501-455-3233 Fax 501-455-6118

20 April 2021

Tom Huetter
Harbor Environmental & Safety
5800 Evergreen Dr.
Little Rock, AR 72205

Project: NABORS Landfill Leachate Sample(s)
Project Number: April 2021
SDG Number: 2104126

Enclosed are the results of analyses for samples received by the laboratory on 08-Apr-21 08:03. If you have any questions concerning this report, please feel free to contact me.

Sample Receipt Information:

Custody Seals	✓
Containers Correct	✓
COC/Labels Agree	✓
Received On Ice	✓
Temperature on Receipt	4.0°C

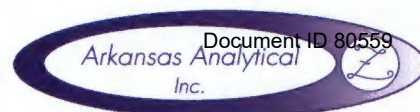
Sincerely,

A handwritten signature in purple ink that reads "Norma James".

Norma James
Technical Director

20 April 2021

Tom Huetter
 Harbor Environmental & Safety
 5800 Evergreen Dr.
 Little Rock, AR 72205
 Project: NABORS Landfill Leachate Sample(s)
 Project Number: April 2021
 Date Received: 08-Apr-21 08:03

**ANALYTICAL RESULTS**

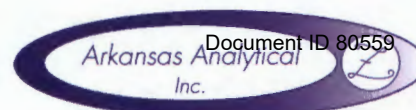
Lab Number: 2104126-01
 Sample Name: Leachate
 Date/Time Collected: 4/6/21 7:53
 Sample Matrix: Leachate

Anions	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
Chloride	mg/L	57.0		4/12/21 9:36	B104200	EPA 300.0, 2.1-1993
Sulfate as SO4	mg/L	2.90		4/13/21 8:31	B104200	EPA 300.0, 2.1-1993

Total Metals	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
Antimony	ug/L	< 2.08		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Arsenic	ug/L	1.12		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Barium	ug/L	176		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Beryllium	ug/L	< 0.260		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Cadmium	ug/L	< 0.260		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Chromium	ug/L	0.695		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Cobalt	ug/L	4.03		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Copper	ug/L	70.5		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Iron	ug/L	2870		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Lead	ug/L	2.68		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Manganese	ug/L	319		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Mercury	ug/L	< 0.200		4/14/21 10:55	B104236	SW7470A/EPA245.1,3.0- 1994
Nickel	ug/L	7.86		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Phosphorus	mg/L	0.035		4/14/21 12:46	B104218	EPA 200.7, Rev. 4.4 (1994)
Selenium	ug/L	< 5.20		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Silver	ug/L	< 0.312		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Thallium	ug/L	< 0.260		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Tin	ug/L	< 20.8		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Vanadium	ug/L	0.389		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)
Zinc	ug/L	94.6		4/12/21 12:43	B104139	EPA 200.8, Rev. 5.4(1994)

Volatiles	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
1,1-Dichloroethane	ug/L	0.554	J	4/9/21 13:35	B104113	EPA 624.1-2016
1,1-Dichloroethene	ug/L	< 2.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,1,1-Trichloroethane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,1,2-Trichloroethane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,1,2,2-Tetrachloroethane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,2-Dichlorobenzene	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,2-Dichloropropane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,2-Dichloroethane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,3-Dichlorobenzene	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
1,4-Dichlorobenzene	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
2-Chloroethyl Vinyl Ether	ug/L	< 2.00		4/9/21 13:35	B104113	EPA 624.1-2016
Acrylonitrile	ug/L	< 2.00		4/9/21 13:35	B104113	EPA 624.1-2016
Benzene	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
Bromodichloromethane	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
Bromoform	ug/L	< 1.00		4/9/21 13:35	B104113	EPA 624.1-2016
Acrolein	ug/L	< 4.00		4/9/21 13:35	B104113	EPA 624.1-2016

20 April 2021



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 5800 Evergreen Dr.
 Little Rock, AR 72205
 Project: NABORS Landfill Leachate Sample(s)
 Project Number: April 2021
 Date Received: 08-Apr-21 08:03

ANALYTICAL RESULTS

Lab Number: 2104126-02
 Sample Name: Leachate Duplicate
 Date/Time Collected: 4/6/21 7:53
 Sample Matrix: Leachate

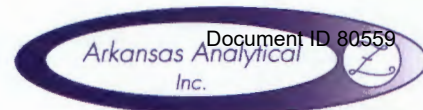
Anions	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
Chloride	mg/L	56.0		4/12/21 9:57	B104200	EPA 300.0, 2.1-1993
Sulfate as SO4	mg/L	2.91		4/13/21 8:52	B104200	EPA 300.0, 2.1-1993
Total Metals	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
Antimony	ug/L	< 2.08		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Arsenic	ug/L	1.13		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Barium	ug/L	173		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Beryllium	ug/L	< 0.260		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Cadmium	ug/L	< 0.260		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Chromium	ug/L	0.719		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Cobalt	ug/L	4.07		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Copper	ug/L	72.7		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Iron	ug/L	2110		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Lead	ug/L	2.71		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Manganese	ug/L	328		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Mercury	ug/L	< 0.200		4/14/21 10:55	B104236	SW7470A/EPA245.1,3.0- 1994
Nickel	ug/L	7.93		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Phosphorus	mg/L	< 0.035		4/14/21 12:47	B104218	EPA 200.7, Rev. 4.4 (1994)
Selenium	ug/L	< 5.20		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Silver	ug/L	< 0.312		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Thallium	ug/L	< 0.260		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Tin	ug/L	< 20.8		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Vanadium	ug/L	0.374		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Zinc	ug/L	102		4/12/21 13:35	B104139	EPA 200.8, Rev. 5.4(1994)
Volatiles	Units	Result	Qualifier(s)	Date/Time Analyzed	Batch	Method
1,1-Dichloroethane	ug/L	0.538	J	4/9/21 14:00	B104113	EPA 624.1-2016
1,1-Dichloroethene	ug/L	< 2.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,1,1-Trichloroethane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,1,2-Trichloroethane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,1,2,2-Tetrachloroethane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,2-Dichlorobenzene	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,2-Dichloropropane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,2-Dichloroethane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,3-Dichlorobenzene	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
1,4-Dichlorobenzene	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
2-Chloroethyl Vinyl Ether	ug/L	< 2.00		4/9/21 14:00	B104113	EPA 624.1-2016
Acrylonitrile	ug/L	< 2.00		4/9/21 14:00	B104113	EPA 624.1-2016
Benzene	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
Bromodichloromethane	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
Bromoform	ug/L	< 1.00		4/9/21 14:00	B104113	EPA 624.1-2016
Acrolein	ug/L	< 4.00		4/9/21 14:00	B104113	EPA 624.1-2016

20 April 2021

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 5800 Evergreen Dr.
 Little Rock, AR 72205
 Project: NABORS Landfill Leachate Sample(s)

Project Number: April 2021

Date Received: 08-Apr-21 08:03

**QUALITY CONTROL RESULTS****Volatiles -- Batch: B104113 (Water)**

Prepared: 08-Apr-21 09:45 By: CT -- Analyzed: 08-Apr-21 14:44 By: ct

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
1,1,1-Trichloroethane	<0.319 ug/L	83.7% / NA	95.5% / 91.6%		4.15%	
1,1,2,2-Tetrachloroethane	<0.290 ug/L	95.6% / NA	101% / 98.8%		1.84%	
1,1,2-Trichloroethane	<0.238 ug/L	88.4% / NA	104% / 99.9%		3.85%	
1,1-Dichloroethane	<0.200 ug/L	87.7% / NA	92.9% / 90.4%		2.73%	
1,1-Dichloroethene	<0.355 ug/L	79.1% / NA	90.6% / 89.8%		0.900%	
1,2-Dichlorobenzene	<0.206 ug/L	88.3% / NA	89.0% / 91.9%		3.25%	
1,2-Dichloroethane	<0.248 ug/L	85.7% / NA	94.2% / 87.3%		7.61%	
1,2-Dichloropropane	<0.220 ug/L	83.3% / NA	94.5% / 88.0%		7.13%	
1,3-Dichlorobenzene	<0.249 ug/L	84.7% / NA	90.3% / 89.0%		1.40%	
1,4-Dichlorobenzene	<0.187 ug/L	84.0% / NA	90.4% / 89.2%		1.32%	
2-Chloroethyl Vinyl Ether	<0.328 ug/L	85.4% / NA	MBI / MBI		NA	MBI
Acrolein	<1.10 ug/L	97.0% / NA	75.6% / 66.8%		12.3%	
Acrylonitrile	<0.539 ug/L	111% / NA	112% / 109%		2.35%	
Benzene	<0.174 ug/L	85.8% / NA	91.4% / 89.9%		1.65%	
Bromodichloromethane	<0.278 ug/L	86.7% / NA	92.2% / 86.5%		6.10%	
Bromoform	<0.160 ug/L	90.1% / NA	98.5% / 94.1%		4.53%	
Bromomethane	<0.579 ug/L	77.0% / NA	58.3% / 56.8%		2.59%	
Carbon tetrachloride	<0.170 ug/L	82.7% / NA	92.9% / 89.7%		3.53%	
Chlorobenzene	<0.100 ug/L	80.5% / NA	91.3% / 88.9%		2.61%	
Chloroethane	<0.993 ug/L	79.9% / NA	86.9% / 102%		16.0%	
Chloroform	<0.591 ug/L	88.5% / NA	91.9% / 89.1%		2.90%	
Chloromethane	<0.660 ug/L	90.4% / NA	98.2% / 89.5%		9.30%	
cis-1,2-Dichloroethene	<0.258 ug/L	87.3% / NA	97.0% / 96.5%		0.495%	
cis-1,3-Dichloropropene	<0.258 ug/L	85.2% / NA	89.6% / 84.1%		6.30%	
Dibromochloromethane	<0.130 ug/L	82.1% / NA	92.1% / 88.4%		4.04%	
Ethylbenzene	<0.216 ug/L	79.3% / NA	91.7% / 88.4%		3.68%	
Methylene chloride	<0.751 ug/L	92.3% / NA	98.3% / 95.6%		2.74%	
Tetrachloroethene	<0.280 ug/L	75.8% / NA	92.5% / 88.8%		4.11%	
Toluene	<0.245 ug/L	77.7% / NA	90.9% / 88.1%		3.06%	
trans-1,2-Dichloroethene	<0.258 ug/L	79.7% / NA	93.8% / 91.0%		2.98%	
trans-1,3-Dichloropropene	<0.287 ug/L	91.4% / NA	94.4% / 91.3%		3.39%	
Trichloroethene	<0.280 ug/L	76.0% / NA	87.9% / 84.6%		3.74%	
Trichlorofluoromethane	<0.465 ug/L	82.1% / NA	93.5% / 91.7%		1.93%	
Vinyl chloride	<0.373 ug/L	87.2% / NA	80.3% / 76.0%		5.48%	
1,2-Dichloroethane-d4 [surr]	103 %	105% / NA	99.3% / 99.4%		NA	
4-Bromofluorobenzene [surr]	101 %	99.9% / NA	97.8% / 99.1%		NA	
Toluene-d8 [surr]	95.5 %	96.8% / NA	99.8% / 97.6%		NA	

Wet Chemistry -- Batch: B104128 (Water)

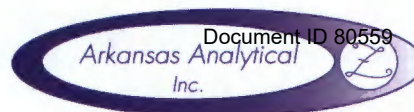
Prepared: 08-Apr-21 12:30 By: JH -- Analyzed: 08-Apr-21 12:30 By: JH

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Sulfide	<0.150 mg/L	96.5% / NA	88.5% / 90.0%		1.41%	

20 April 2021

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Project: NABORS Landfill Leachate Sample(s)

Project Number: April 2021
Date Received: 08-Apr-21 08:03



QUALITY CONTROL RESULTS

Total Metals -- Batch: B104218 (Water)

Prepared: 13-Apr-21 14:27 By: SPS -- Analyzed: 14-Apr-21 12:44 By: SPS

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Phosphorus	<0.035 mg/L	97.0% / NA	103% / 102%		0.581%	

Wet Chemistry -- Batch: B104223 (Water)

Prepared: 14-Apr-21 08:13 By: SP -- Analyzed: 14-Apr-21 08:13 By: SP

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Oil and Grease	<5.00 mg/L	81.8% / 86.8%	80.8% / NA		5.93%	

Wet Chemistry -- Batch: B104225 (Water)

Prepared: 14-Apr-21 08:18 By: CNW -- Analyzed: 14-Apr-21 10:46 By: CNW

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Flashpoint	NA	115% / 115%	NA / NA		0.00%	Pass1

Total Metals -- Batch: B104236 (Water)

Prepared: 14-Apr-21 10:55 By: EN -- Analyzed: 14-Apr-21 10:55 By: EN

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Mercury	<0.200 ug/L	99.9% / NA	101% / 101%		0.142%	

Wet Chemistry -- Batch: B104287 (Water)

Prepared: 15-Apr-21 14:55 By: JH -- Analyzed: 15-Apr-21 14:55 By: JH

Analyte	BLK	LCS / LCSD	MS / MSD	Dup	RPD	Qualifiers
Cyanide (total)	<0.010 mg/L	107% / NA	101% / 104%		2.93%	

QUALIFIER(S)

- *%D1: Matrix Spike and/or Matrix Spike Duplicate Percent Recovery Does Not Meet Laboratory Acceptance Criteria
- *D: RPD Value Does Not Meet Laboratory Acceptance Criteria
- *DNF*: Did not flash at or below method required temperature of 100 degrees C or 212 degrees F.
- *J: Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
- *MBI: Masked By Interference
- *Pass1: Quality Control Meets Lab Acceptability Requirements

All Analysis performed according to EPA approved methodology when available:
SW 846, Revised December, 1996; EPA 600/4-79-020, Revised March, 1983; Standard Methods.
Instrument calibration and quality control samples performed at or above frequency specified in analytical method.

Reviewed by:

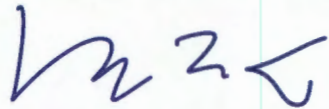
Norma James
Norma James
Technical Director

Discharge Monitoring Report Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

All samples and measurements taken are to the best of my knowledge representative of the permitted wastewater discharge.

All sampling, measurements, and analyses were conducted in accordance with guidelines prescribed in 40 CFR 136 and the Wastewater Contribution Permit obtained from the City of Springfield, Missouri.



Signature (Legible)

ASSOCIATE DIRECTOR

Title

NABORS Landfill

Name of Facility

7/28/2021

Date